IMPLEMENTATION OF SOFTWARE PROJECTS - PROBLEMS IN THE
CONTEXT OF BANGLADESH & SOLUTIONS FOR REQUIREMENT
COLLECTION

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IMPLEMENTATION OF SOFTWARE PROJECTS - PROBLEMS IN THE CONTEXT OF BANGLADESH & SOLUTIONS FOR REQUIREMENT COLLECTION

An Internship Report

Submitted to the Department of Computer Science and Engineering of

BRAC University by

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In Partial Fulfillment of the Requirements for the Degree of

Bachelor of Science in Computer Science

February 2005
DECLARATION

I hereby declare that this thesis is based on the results found by myself. Materials of work found by other researcher are mentioned by reference. This thesis, neither in whole nor in part, has been previously submitted for any degree.

Signature of
Supervisor

Signature of
Author
ACKNOWLEDGEMENT

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ABSTRACT

Business organizations are now-a-days eager to automate their systems so that they can do their tasks quickly and easily. The demand for software has increased compared to the past years. To meet this demand and to support the business organizations software development firms have grown up. But both the users and developers of software face problems during the software development process. These problems are responsible for software failure and if not failure it causes big problems when the users start using the system and the developers face intensive maintenance work. This scenario is no different in Bangladesh.

This research includes a study of the reasons why software projects may fail and the problems in the context of Bangladesh, how the latest techniques such as Joint Application Design and Prototyping can be used to reduce the problems of requirement collection. This paper also includes a description of a software project developed using these methodologies.
PREFACE

This paper consists of a study of the reasons due to which software projects fail in Bangladesh and the latest techniques that can be used to reduce failure by overcoming the problems involved in the requirement collection. These techniques cover the concept of prototyping methodology and JAD sessions. It also contains the system documentation and user manual of the project that was developed using the techniques that were proposed and were found feasible to use. The target audiences of this paper are people who have in-depth knowledge of System Analysis and Design techniques.
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CHAPTER I
INTRODUCTION TO THE PROBLEM

Development of computer-based information systems began in the 1950s. Since then, development environment and process has radically changed, mainly because of changing organizational needs and technological development. In the 1950s, focus of development was on the process the software performed and the goal was to increase efficiency of processing. Since processing power of computer was a critical resource, emphasis was given on the automation of the existing process. But now the scenario has changed. The concepts of business process improvement and reengineering have come into being with increase in processing power and other technological improvements. Organizations are now changing their business processes to avail and use better technology to derive higher efficiency.

Business organizations are now keen to automate their systems so that they can do their tasks quickly and easily. But even after such radical changes in business processes, needs, technological development and aggressiveness of the business environment, lots of information system projects fail or are in a dilemma. From a study it was found that the rate of software project failure is between 50% to 80%. This rate includes both small and large software projects. In a review of 13,522 projects done by the Standish Group in the year 2003, it was found that about

1. 66% of all software projects fail
2. 82% of the projects experience time overruns and
3. 48% of the projects do not have the required features on product release [10]
CHAPTER II
LITERATURE STUDY

Information System development is a complex, challenging and time-consuming process and thus requires a planned and structured development procedure. But in the early days of computing, the need for formal and well-planned life cycle for Information System Development was not well understood. Programmers used to move directly into the construction of the implementation phase after a very simple planning phase. It was found that the approach worked well for some small programs that require only one programmer, but if the requirements were complex and unclear the programmers missed important features. As a result the programmers had to start the project all over again or threw away parts of the program or refined it. This approach also made teamwork difficult because the team members had little idea about what to produce and how it was to be integrated to get the final product. So need for a structured procedure evolved in their minds and thus many new methodologies were developed over time. Now there are different system development methodologies, and each one is unique based on the order and focus placed on each phase of System Development Life Cycle (SDLC).

System Development Life Cycle (SDLC) is the process of understanding how an information system can support business needs, designing the system, building it and delivering it to the user [1]. System Development Life Cycle (SDLC) has a set of 5 core phases (the break down of the phases may differ according to different methodologies):
2.1 Brief description of SDLC

SDLC

Planning        Analysis        Design        Implementation       Maintenance

Project Identification & Selection

Project Initiation and Planning

Logical

Physical

Requirement Gathering

Requirement Structuring

Construction

Testing

Conversion

Training

Figure 2.1: SDLC Hierarchy

2.1.1 Planning

This is the fundamental process of understanding why an information system should be built and determining how the project team will go about building it. The two sub-phases of the planning phase are: [1, 2]

2.1.1.1 Project identification and selection

In this phase the organization’s total information system needs are identified, analyzed, prioritized and arranged [2].

2.1.1.2 Project initiation and planning

This is the second sub-phase of planning phase and the potential information system is explained in front of the approval committee along with arguments for continuing or not continuing with the project, this also involves technical, economic and organizational feasibility study for the system development. The cost of developing the project is also decided at this stage. If the committee approves the project a work plan is created and staff are assigned with different tasks that they need to accomplish [2].
2.1.2 Analysis

In this phase, the project team studies who will use the system, what the system will do and when and where the system will be used. The sub-phases of this phase are: [1]

2.1.2.1 Requirement gathering

During this sub-phase, the project team studies the current system(s), identifies improvement opportunities and develops concept for the new system [2].

2.1.2.2 Requirement structuring

All the analysis, system concept and models are structured using Data Flow Diagrams, Context Diagrams or Use-Case Modeling, Structural Modeling, Behavioral Modeling [2].

2.1.3 Design

In the design phase the Analyst decides how the system will operate, in terms of hardware, software and network infrastructure. The user interface, forms, reports, databases and the specific programs required are determined in this phase [2].

2.1.3.1 Logical design

In this phase all the functional features (forms, reports, database etc) are described independently of any computer platform [1].

2.1.3.2 Physical design

In this phase the logical specifications of the system are transformed into technology-specific details from which all programming and system construction can be accomplished [1].
2.1.4 Implementation

This is the phase when the system is actually built. The sub-phases of this phase are:

2.1.4.1 Construction

It is the phase when all the parts of the system are developed. Programming or coding is often seen as the focal point in this phase [2].

2.1.4.2 Testing

Testing is basically done along with the coding and the codes are edited as the programs are written and tested. Tests are done in different stages such as unit testing is done when each module is completed and they are tested independent of each other. When it succeeds unit testing the modules are integrated and an integration test is done to examine if the modules as a whole works fine. After successful integration testing system test is carried out to examine whether the system (the hardware, the software and the network infrastructure) as a whole performs well [1].

2.1.4.3 Conversion

This is the conversion process by which the new system replaces the old. There are different types of conversion methodologies e.g. direct conversion (the new system immediately replaces the old system), parallel conversion (both the old and new systems are operated for a month or two until it is clear that there are no bugs in the system), phased conversion (the system or a part of the system is installed in one part of the organization as an initial trial and then gradually installed in others) etc [2].

2.1.4.4 Training

Since the old system is replaced or radically changed by the new system the users need to be trained. In this phase the development team along with the committee decides whom to train, what to train and how to train
and train the users so that they can perform their tasks efficiently using the system [1].

2.1.5 Maintenance

This is the final phase of SDLC in which an information system is systematically repaired and upgraded according to user’s need [1].

2.2 Software Failure: Definition and Reasons For Failure

2.2.1 Definition

In a report on ASC Professional Development it was stated that Mangione (2003) defined a software to be failure on non-completion of the project. The author of the report described software project failure as “if the main sponsor is dissatisfied leading to a loss of future projects with that sponsor then the software project can be said to be a failure [4].

According to different writers of the Internet, a project has failed if it never gained any benefit to any users or a useable version of the project has never been released.

2.2.2 Reasons for software failure

2.2.2.1 Poor cost and unrealistic schedules

It is unfair to call a project failure if it fails to meet budget and schedule goals that were inherently unattainable because the schedule and cost are determined based on hypothesis at the preliminary stage. But some business people consider it as failure. Like all engineering endeavors, every software project has a minimum achievable schedule and cost but it is very difficult to determine how much time and money is required to complete a software
project, therefore, an approximate time and money is allotted for every project.

Sometimes the allotted time is too short and the schedules are so tight that the schedules seem to be an unrealistic one in the middle of the project and the result is time over run. Project schedules prepared by the team leader or time allowed by the business people are sometimes made compact intentionally to keep project team under pressure. It is true that pressure can increase the quantity of results one receives, but, beyond a certain limit, dramatically reduces the quality of those results. In fact, pressure sometimes produces the opposite of intended effects.

Cost is another important factor, which may cause a software project failure in the middle of its development stage. It is very difficult to determine the cost of developing a software project at the beginning when a project is proposed because the project team comes to know only about the overall system that is to be automated. Unless the project is approved by the committee the project team cannot go for detail study or analysis of the project but that is the time when the project team comes to know the actual volume of work, but the cost is already decided at initiation so it is obvious that some project may fail at a stage if it is not funded well, leaving the software undone.

2.2.2.2 Inappropriate staffing

All kinds of projects require adequate number of people to complete the project effectively. When managers fail to provide adequate and properly trained resources, it is more likely that the project will not be delivered on time and the project will fail. Again, from the other side, additional manpower is not always effective. The law of diminishing returns goes for extra manpower too so too many people working on the same project may lead to the failure of the project. Even if efficient and experienced workforce is added to the project in the middle, it slows down the project since people involved from the beginning
of the project need to demonstrate, guide and help the new people to make them understand and contribute in the project.

2.2.2.3 Preparing documentation

Some programmers think that writing specifications (written before the coding starts) are just a waste of time. In reality documenting a project makes the ideas of the current system and to-be system more vivid and provides structured and defined ideas for both analyst and the other members of the team. If proper documentation is not prepared lots of features and ideas may be missing in the system.

2.2.2.4 Inadequate testing

Traditional development methods save testing to the final phase of a project. This is very problematic because issues with core architecture may not be exposed until a project is almost complete. At that time, correcting fundamental problems can be very costly or may even require an almost total revamping of the code base.

Another factor that adds to traditional method of testing is:- testing is often constrained by time. By the end of the project there is usually tremendous time pressure to deliver the system, so the first rollout of the new software is often buggy.

2.2.2.5 Integration

Large projects using traditional development methodologies often fall apart during the integration process. It is often the case that different teams of programmers, remain geographically dispersed or work in relative isolation on individual parts of the project for long stretches of time. As they finish their work, they typically turn over the code to the project manager who then
assigns it to a new team who attempts to integrate the disperse components and make them all work together. Since there has been no consistent communication between the teams during the development process, there are often significant problems at this stage as different interpretations of the requirements become apparent.

2.2.2.6 Failure to meet user requirements

An important reason for software project failure is because of providing inadequate and/or redundant features in the system and providing the user, a system that is far different from what s/he actually wanted. This dilemma often occurs due to unclear, inadequate or inconsistent communication between stakeholders, development team or the software clients. The reasons for unclear, inadequate and inconsistent communication are described below:

1. Poor communication

   Most of the time designers and developers of the system receive most or all of their requirements from higher-level supervisors who are not directly involved or are not regularly using the existing system and the result is lack of essential features (features that are required to support the actual process of work) and user dissatisfaction.

2. Requirement capturing

   Business people know their work well because they have worked with their systems for years but most of the time they do not understand what is actually required to transform their business ideas into logic. Even if the analyst has an idea of the standard procedure of the work s/he may not understand the way the client follows clearly. In reality all business people customize the standard procedure of their work according to their viability and flexibility. To satisfy a user, it is very important to understand his/her
requirements very clearly but understanding the process and client’s requirements are not as simple as asking the client to describe his needs and then labor on developing the necessary features because most of the time, the users are not very clear about or unable to express or visualize what is required to transform their business ideas into reality or logic. Moreover, if the Analyst designs the software according to the standard procedure then the system may have scope for problems or the software may not be used if it is far different from the actual user requirements. However, Case tools and paper-based diagrams help the analyst and programmers to document and develop a system but do not help the user visualize software system requirements. The diagram below shows an example of this situation [3].

![Fig. 2.1 Example of a real life situation](image-url)
3. Changing requirements during development

To start designing and building products, engineers must know what product to build. Unfortunately, management, marketing and even customers often don’t know what they want. The situation is worse when they think they know and then change their minds partway through the job when they are physically able to view or use parts of the software. If the requirements change in the early phases of the analysis or design it can be handled but major changes such as adding new items or features after or in the coding phase wastes time, money, effort and disrupt the work. This expensive rework may force abandoning the entire project.

Sometimes system development process takes so long that the requirement of the users change drastically with changes in business policies. As a result, requirement collected and organized become redundant and back dated. Thus the system developed becomes useless to the user or requires a lot of study, changes, work and time to get the system updated.

Some of the other reasons to why software projects fail are:

- Same people design and code
- Same people code and test
- Poor team management
- Lack of a test plan
- Coding too quickly

A report by the Standish Group shows the following statistics representing the factors, which contribute to the success of software projects [10].
<table>
<thead>
<tr>
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<th>Project Success Factors</th>
<th>% of Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>User Involvement</td>
<td>15.9%</td>
</tr>
<tr>
<td>2.</td>
<td>Executive Management Support</td>
<td>13.9%</td>
</tr>
<tr>
<td>3.</td>
<td>Clear Statement of Requirements</td>
<td>13.0%</td>
</tr>
<tr>
<td>4.</td>
<td>Proper Planning</td>
<td>9.6%</td>
</tr>
<tr>
<td>5.</td>
<td>Realistic Expectations</td>
<td>8.2%</td>
</tr>
<tr>
<td>6.</td>
<td>Smaller Project Milestones</td>
<td>0 - 7.7%</td>
</tr>
<tr>
<td>7.</td>
<td>Competent Staff</td>
<td>7.2%</td>
</tr>
<tr>
<td>8.</td>
<td>Ownership</td>
<td>5.3%</td>
</tr>
<tr>
<td>9.</td>
<td>Clear Vision &amp; Objectives</td>
<td>2.9%</td>
</tr>
<tr>
<td>10.</td>
<td>Hardworking, Focused Staff</td>
<td>2.4%</td>
</tr>
<tr>
<td>11.</td>
<td>Other</td>
<td>13.9%</td>
</tr>
</tbody>
</table>
CHAPTER III
PROJECT PLAN

At the preliminary stage it was decided to study software projects in Bangladesh to find out the reasons for software project failure. For this purpose a company that does software project work was selected. The main ideas were to identify whether the software developed by the company has succeeded or failed, to determine the reasons for their success and failure and to propose some modern techniques that can help the company (in this case ConnectBd Ltd) reduce the problems they face in implementing a successful software project.

From the above study and after reviewing the software it was found that user involvement, executive management support and clear statement of requirements are the major factors that lead to success and failure of software projects. So the scope of this project has been revised to:

- Study various software projects of ConnectBD Ltd
- Determine if the software project has succeeded or failed
- Determine the reasons for success and failure
- Suggest how failure of software can be overcome using “live” prototyping and Joint Application Design (JAD) using a participatory approach.
- Choosing of a new project
- Help and direct the software development team in requirement collection using prototyping and Joint Application Design (JAD) session.
- Comment on success achieved.
CHAPTER IV
SOFTWARE PROJECT OVERVIEW

4.1 List of Software Projects Developed By ConnectBD Ltd

Software developed by ConnectBD Ltd are:

1. Accounts Management System
2. Inventory Management System
3. LC Management System
4. Production Management System
5. Payroll and Human Resource Management System
6. VOIP Billing
7. ISP Billing
8. Prepaid Card Management System
9. ISP Dialer
<table>
<thead>
<tr>
<th>Name of the Software</th>
<th>No. of Clients</th>
<th>No. of current users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounts Management System</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Inventory Management System</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>LC Management System</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Production Management System</td>
<td>Not implemented</td>
<td>None</td>
</tr>
<tr>
<td>Payroll &amp; HR Management System</td>
<td>Not implemented</td>
<td>None</td>
</tr>
<tr>
<td>VOIP Billing</td>
<td>Not implemented</td>
<td>None</td>
</tr>
<tr>
<td>ISP Billing</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Prepaid Card Management System</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>ISP Dialer</td>
<td>Not implemented</td>
<td>None</td>
</tr>
</tbody>
</table>

- ConnectBD Ltd primarily developed VOIP Billing, ISP Dialer, ISP Billing and Prepaid Card Management System for managing its own ISP and Prepaid cards respectively with a further view to sell the software in the market if any other company had a demand. ISP Billing and Prepaid Card Management System are currently being used by ConnectBD Ltd itself and the other two software were not implemented due to technical reasons.

- Accounts, Inventory, LC, Production and Payroll and HR Management were developed since these are very commonly used and necessary
modules for used by almost all the companies. All these modules can be integrated or used separately by customizing them according to the user’s needs. Accounts, Inventory and LC Management are the most popular products of ConnectBd Ltd but Production, Payroll and HR Management were not implemented in any company.

So total of 44.4% i.e.4 of the software project developed were never implemented due to technical reasons and due to lack of proper market surveys or promotion of the software. For rest of the five software, ConnectBd Ltd itself uses Prepaid Card Management System and ISP Billing. For the rest of three software- Accounts Management System was purchased by 4 companies, Inventory Management System by two companies and LC Management System by one company out of which Accounts Management is currently used in two companies, Inventory Management by two companies and LC by one company.

Among these three software Accounts Management System and Inventory Management System have the highest number of users. So the study was carried out on these two software. Both these software provide almost all the features required to manage accounts and inventory of any organization but they are customized according to the user’s requirements before they are installed at the user’s end.

4.2 Features Provided By Accounts And Inventory Management System

4.2.1 Features provided by Inventory Management System are:

Inventory Management System provides the following features:

**Entry Forms:**
- Initial Information Tracking

These are the general information tracking forms such as:
- Department or Section Information- stores information of the departments or sections of the organization who are using the software.

- Related Employee Information stores employee information such as their name, address, phone etc. This information also helps to support user log in.

- Vendor & Client Information- tracks information of the vendors of the organization such as name, address, phone number etc

- Country Information

- Item Information entry

  This form is used to store item information such as item code, units of measure and item rate collection. The item code will have a special code format consisting of three meaningful parts:

  - group identity
  - subgroup identity and
  - Item's identity.

- Store Requisition

- Store Purchase Requisitions.

- Raw materials availability checking

The other features provides by the system are

- Reminder for crisis items

- Approval analyzing on standard rate collected from different supplier

- Purchase Issue Order
Information on Stock In or Out such as:

- Materials received
- Materials Consumption
- Wastage materials analysis.
- Costing Mode (FIFO, LIFO, W/A).
- Costing in several steps of Work-in-Progress

- Finished goods valuation
- Sales Order
- Multi-stock management

Reports Generated by Inventory Management System

- Daily transaction report
- Periodic transaction statement
- Current stock status
- Incoming transaction
- Outgoing transaction
- List of items out of stock
- Raw materials requisition
- Issue slip print
- Invoice print
- Purchase report
- Wastage product report
- WIP report in every step of production
- Vendor wise billing report
- Customer wise sales report
4.2.2 Features Provided by Accounts Management System are:

**Entry forms:**
- Transactions are posted using different screens: Journal voucher, Credit voucher, Cash Receipt Voucher, Bank Receipt Voucher, Cash Payment, Bank Payment and Debit voucher screen etc
- Bank Interest Forecasting
- Income & Expense graphical comparison
- Net income graphical comparisons
- Control head or Sub-ledger grouping or group report
- Multi-Company Integrated Database
- Consulted statement for all company
- Management report in one page (BS/IS/CF/RA)
- Transactions with cheque are held in a temporary holding area until they can be recognized
- Pre-defined initial data such as Balance sheet or income statement account group or subgroup
- Account code will have special code format consisting of four parts:
  1. Accounting grand group
  2. Subgroup
3. Control head and
4. Sub-ledger identity.
- Chart of accounts entry and update
- Accounts receivable and payable
- Party information (Customer and Vendors) with a specific head of accounts entry and update
- Expense alert according to predefined budget
- Bank account corresponding with a specific ledger account entry and update screen
- Showing accounts balance details when its transaction is being progressed.
- Budgeting facility for every head of accounts. Budget for every individual month for a specific project.
- Ease of entry using different tree structure.
- Different User has different access/priority.
- Various API programming facility included.
- Automatic fixed asset scheduling.
- Project wise accounting statement.

**Reports of Accounting System**

The software generates the following reports:
- Chart of accounts with summary name
- Category wise chart of accounts
- Fixed Asset Scheduling
- Budget report
- Income statement with percentage (P/L)
- Individual vouchers: Journal, Credit and Debit voucher, separately
- List of all vouchers or specific category
- Bank book report
- Individual bank book report
- Cash book
- Cash receipt & payment
- Bank receipt & payment
- Individual client information
- Accounts payable for the total business
- Accounts payable for the individual vendor
- Accounts receivable for the individual customer
- Customer classification by accounts receivable
- Found requisition statement
- Fixed asset scheduling statement
- Journal ledger
- Head wise journal ledger
- Comparative income statement
- Trial balance
- Ratio analysis
- Cash flow
- Balance sheet
- Notes (break down) of balance sheet
- Comparative balance sheet
- User Log report
Both the software provide the following security and user friendly interfaces:

a. **Data Security**: Data security is a very important issue because the databases contain critical data of accounts and inventory. Databases are designed in SQL Server to support issues related to security.

b. **Graphical User Interface**: Both the software are Windows based so they provide interactive and user-friendly interfaces. They also support user-friendly techniques like popup menu on right click of mouse, drag & drop etc. Animations are also used wherever attention of the user is needed.

c. **User Access Levels**: Both the software provide the privilege to define multiple users each having different access level to screens and reports as assigned by the supervisor. The levels are:
   - **Admin** is the Top-level user. This user can perform any kind of activities and can create new user and invoke every corners of the software.
   - **Supervisor** is the Medium-level user. This user can perform any kinds of activities. But cannot create new user or delete an existing user.
   - **Entry** is the Lowest-level user. This user can search, add or modify records but does not have the right to delete records.

d. **Data Entry Using Calendar Control**: A special feature of the system is the Calendar control. On entering date in any column the user can click on the Calendar Control and can navigate through and select a date. The date is automatically placed into the column.

e. **Interactive Reporting**: The system provides a very easy to use and robust report generator. The user can preview all the reports i.e.
see the report on the screen, zoom the preview, navigate through the pages, print etc.

4.2.3 Overview of the software study

In the survey five (Accounts Management-3 and Inventory Management-2) out of six of the business people (users) who purchased and used Accounts and Inventory Management System were interviewed. 50% of the users of Accounts and Inventory Management System are currently using the software. The survey included both those who are currently using the software and those who are not. All the users except two said that the software worked pretty well but the software had some extra features which created problems for them and some of the important features were missing which caused them troubles in supporting the related tasks so they could not totally depend on the system at first. Lots of changes were made as they continued using the software and it took a lot of time to get the complete system according to their needs. One of the users among those who were not satisfied with the software said that there were lots of bugs in the software and the reports provided did not fulfill their requirements. The other user was totally disappointed with the system since the system did not serve their purpose and the users were not trained properly and no user manual was provided. Since no system documentation was provided he could not ask any other developer to modify the system so that they can use the system. A summary of the problems users faced is given in the next page:
## Table 4.2

Name of the Project: Accounts Management System

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Name of the company (pseudonym)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ABC Ltd.</td>
</tr>
<tr>
<td>Why the software was built/ customized for the</td>
<td>1. The company was always eager to use modern technology.</td>
</tr>
<tr>
<td>Company</td>
<td>2. To reduce the time required to managing accounting information and prepare Accounting ledgers.</td>
</tr>
<tr>
<td></td>
<td>1. To reduce the time required to managing accounting information and prepare accounting ledgers.</td>
</tr>
<tr>
<td></td>
<td>2. Quick &amp; error free reporting</td>
</tr>
<tr>
<td></td>
<td>1. To get reports whenever required.</td>
</tr>
<tr>
<td></td>
<td>2. To prevent data loss and to keep data together.</td>
</tr>
<tr>
<td></td>
<td>3. To get summary information</td>
</tr>
<tr>
<td>Does the customer depend on the system?</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>No (They are currently using TALLY, a well known off-shelf accounting software)</td>
</tr>
<tr>
<td></td>
<td>Partially dependent</td>
</tr>
<tr>
<td>Usefulness</td>
<td>1. It provides Balance Sheet, Income Statement, Asset Schedule, Cash flow statement and all other</td>
</tr>
<tr>
<td></td>
<td>ledgers required to maintain accounting information/system.</td>
</tr>
<tr>
<td></td>
<td>2. Decision making and understanding the financial status of the company</td>
</tr>
<tr>
<td></td>
<td>3. Requires less employee</td>
</tr>
<tr>
<td></td>
<td>1. Provided periodic Trial Balance, Income Statement, B/S and all other ledgers required.</td>
</tr>
<tr>
<td></td>
<td>2. Helped in decision-making, understanding company profitability and financial position.</td>
</tr>
<tr>
<td></td>
<td>Provides all the financial statements required.</td>
</tr>
<tr>
<td>Project failed/ succeeded</td>
<td>Succeeded</td>
</tr>
<tr>
<td></td>
<td>Failed because management did not offer ConnectBd Ltd to develop the new system</td>
</tr>
<tr>
<td></td>
<td>Not fully Successful (Require intensive maintenance)</td>
</tr>
<tr>
<td>Reason for success/failure</td>
<td>1. It has satisfied the reasons for the development of the software i.e. less time is required to do the tasks.</td>
</tr>
<tr>
<td></td>
<td>2. It provides almost all the features.</td>
</tr>
<tr>
<td></td>
<td>1. Reduced time and error</td>
</tr>
<tr>
<td></td>
<td>2. Met user requirements.</td>
</tr>
<tr>
<td>Problems with the software (if any)</td>
<td>1. Some features were missing and there are some extra features that are not required. So it sometimes becomes very difficult to manage the tasks.</td>
</tr>
<tr>
<td></td>
<td>2. Week security system</td>
</tr>
<tr>
<td></td>
<td>3. System crash</td>
</tr>
<tr>
<td></td>
<td>4. Sensitive to error</td>
</tr>
<tr>
<td></td>
<td>1. The software cannot be used in all the branches.</td>
</tr>
<tr>
<td></td>
<td>2. Security system was not strong enough.</td>
</tr>
<tr>
<td></td>
<td>1. Reports provided are not according to the user requirements.</td>
</tr>
<tr>
<td></td>
<td>2. Previous Data were not input by the software company before conversion</td>
</tr>
<tr>
<td></td>
<td>3. Training not provided</td>
</tr>
<tr>
<td></td>
<td>4. No system documentation &amp; Reports provided. User manual has been provided.</td>
</tr>
</tbody>
</table>
## Table 4.3
Name of the Project: Inventory Management System

<table>
<thead>
<tr>
<th>Particulars</th>
<th>UVW Ltd.</th>
<th>XYZ Ltd.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Why the software was built/customized for the Company</td>
<td>1. The company was always eager to use modern technology.</td>
<td>1. To reduce the time required managing inventory.</td>
</tr>
<tr>
<td></td>
<td>2. To reduce the time, error and manpower required</td>
<td>2. Quick &amp; error free reporting</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. To build a system which would provide information on reorder level, current stock position etc.</td>
</tr>
<tr>
<td>Does the customer depend on the system?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Usefulness</td>
<td>1. It stores and provides information on monthly consumptions and issues.</td>
<td>No use</td>
</tr>
<tr>
<td></td>
<td>2. Reports on stock position, reorder level etc.</td>
<td></td>
</tr>
<tr>
<td>Project failed/ succeeded</td>
<td>Succeeded</td>
<td>Failed</td>
</tr>
<tr>
<td>Reason for success/failure</td>
<td>1. It has satisfied the reasons for the development of the software i.e. less time and manpower is required to do carry out the operation.</td>
<td>The system does not reflect what the company required.</td>
</tr>
<tr>
<td></td>
<td>2. It provides almost all the features.</td>
<td></td>
</tr>
<tr>
<td>Problems with the software (if any)</td>
<td>1. There are problems in the printed reports.</td>
<td>1. The person who was trained left and no user manual was provided for new users.</td>
</tr>
<tr>
<td></td>
<td>2. Require some changes.</td>
<td>2. Previous data were not input during conversion</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Problems/errors to input data.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Since there were problems in data entry the users do not know whether the system has met all the requirements.</td>
</tr>
</tbody>
</table>
The main problems, that can be sorted out from the above table are:

- Missing features due to
  - a. Lack of user involvement during the SDLC
  - b. Lack of Management interest to involve actual users
  - c. Software clients hiding information
  - d. Analyst’s unable to understand the actual requirement

- Weak security systems
- System Crash
- Inadequate training
- Poor conversion Method
- Data migration
- Lack of proper planning and study before deciding to get an IT solution

The chart below reflects percentage of the users facing problems the above stated problems.

Figure: 4.1 Overview of the lacking of the software projects reviewed
CHAPTER V
SOFTWARE FAILURE IN THE CONTEXT OF BANGLADESH

5.1 How the Actual Users and System Developers Described and Visualized IT Project Failure

5.1.1 Users

Before moving on to the reasons why software fails let us first determine how the software developers and users described and visualized software failure. Users were asked, “In your opinion, what is a successful IT project?” the most popular answer was requirement fulfillment. All the users said, whatever features developers provide the project will not be successful if the users cannot depend on the system for the purpose it is built for. They also stated that the system should provide accurate results, should be user friendly and complete. According to the users all software require changes and maintenance after installation because that is the time when they come to know what they require and what has been developed but the changes should not be so major that it effects the user’s normal flow of work or the users cannot use the software due to missing of some important features. Few users said that the system should be delivered on time and software developed should be technically feasible.

5.1.2 Developers

According to the Software Developers a software project is successful when it fulfils user requirements which is possible through user involvement and cooperation through out the project. They also stated that user’s interest to use new technology, learn new things and user training is also very important in this regard. This is because there were situations when the development team or the business company could not even understand
whether the software fulfils the organization or user’s requirement because the software was never used due to lack of organizational involvement and/or training.

5.2 Problems in the Context of Bangladesh

Bangladesh is said to be a prospective country in the field of Information Technology. Wide range of software development companies have grown up to support businesses, entertainment and media sector using computerized systems. Although few, but software are sometimes exported to foreign countries too. To promote Bangladesh in the world market and to survive in competition Bangladesh needs to ensure quality of software. But Bangladeshi IT sector still lacks some of the important factors required to produce quality software. Although, there is no statistical data showing the rate of success of software projects but the above study already shows that the IT people have a long way to go to provide successful software projects and to satisfy users even in the home market.

In the study it was found that Bangladeshi software development teams and software users face a lot of problems during development, which cause software failure. Even if the software does not fail due to these factors but these factors are barriers to user satisfaction. The problems include both the problems described in the Literature Review in section 2.2 and the problems described by the developers and users as given below.

5.2.1 Lack of data migration facility

An important factor that is mostly overlooked in Bangladesh is data migration. For a working system all data has to be migrated to the new system before the user can start working with the system. But in Bangladesh software is developed and installed at the user end leaving data migration as a part of the user’s responsibility. As a result users cannot start using the system instantly from the time when the system is installed. The users need to enter
previous data first and then use the system. So the user’s task is doubled since s/he has to do the same tasks twice and has to input previous data in parallel to his present tasks. Thus it puts extra pressure on the user and they lose their interest to use the system.

5.2.2 Lack of Feasibility Study

When a software project is initiated no technical, economic or organizational feasibility study is carried out. So after the development of the software it is often found that the software is not used because of lack of technical support or the organization cannot afford the cost of running the software or the users feel reluctant to use the software. Sometimes all these three reasons combined, decide the failure of the project.

5.2.3 Inadequate training, poor conversion method and lack of support

Even a well-written, well-documented and carefully designed system may fail due to inadequate training of users, poor conversion method from old to new system and lack of user support.

Problem arises when the actual users who were trained after installation of the software leave the job and someone new is appointed. The new user is not trained and the situation is worse when there is nobody else in the organization who can train the newly appointed executive. Since the users are new to the system they require intensive training for smooth operation of the software.

The training session is normally carried out by showing the user how to use the system. Although user manual is provided most of the users feel comfortable to use the system when s/he is trained by someone who knows operating the system better rather then learning using the user manual and the manuals often do not relate to the business model. As a result, the system remains unused and the benefit that was supposed to be derived from it is lost.
In Bangladesh, the software is installed directly into users computer when writing and testing of the software is complete rather then having any conversion plan.

Another major problem is providing instant support. Since there is no other department or people to provide support after installation of the software, someone from the development team has to take the responsibility and s/he cannot provide instant support to the users since they are always burdened with other software development work.

5.2.4 Missing Feature

The most important reason stated by the software users and the software development team of ConnectBD Ltd, to make a software project successful is fulfillment of user requirements. Both satisfied and unsatisfied users said that the software they used or using had some features missing and also has some extra features which created problems in their natural flow of work. The reasons identified behind these missing features and/or not fulfilling user requirements are:

- The first time the development team involves software users is during planning and requirement collection. The second time they involve clients is at the end of the project, when the system is delivered to the customer. This is the time the team gets real client feedback, but it's too late - the time and money for the project are all used up and changing the software based on user feedback also becomes very difficult.

- Since the top management do not like to involve the actual users (employees who will use the system) and the future users of the system also do not understand what is going on and what will be the effect of using new technology in the organization, they think that they will loose their job and so they create barriers in the process of requirement collection and implementation of the system.
The top management of the company think that they know everything about the work process and don’t like to involve the actual users (employees who will actually work with the system) and the result is a system with important features missing in it and ultimately huge changes are required to run the system costing huge amount of money which may be almost the cost of developing the software again.

Software clients sometimes tend to hide information knowingly or unknowingly. Even though they require a complete solution they only develop a part of it and think that the rest can be developed and integrated later. They do not understand that the analysis should be done together because the tasks are interrelated. As a result, it becomes difficult to develop another system and integrate it with the other, since lots of database interdependencies, and changes in designs are required.

One of the members of the development team of ConnectBD Ltd stated that the major reason for missing feature or not meeting user requirement is that- the developers or the development team is specialized in technology and the business people are specialized in their own field, it is not possible for an IT specialist to become expert in all fields. Even if the IT specialist or team gain(s) knowledge on the subject matter on which the software will be developed but the business people or the people who will use the software may have their own procedure of doing the job rather then following the standard procedure so it is not possible for the developers or the team to understand the requirements as good that they can provide a complete software (that fulfils user requirement completely and does not have any missing features.

One major problem faced by the development team after installation or when the users first get to see the actual software is constant changes in the design of the forms and reports of the software. These changes not only occur because the users do not like the design or color of the
forms and reports but also because the concept of user friendliness depends on the user’s understanding and ease of use of the system.

5.2.5 Lack of proper planning and study before deciding to get an IT solution

When the management takes decision of adopting an IT solution, they do not have concrete ideas on the IT solutions available in the market or how customized software can help them to overcome their problems. The IT Company they get involved with for the IT solution also do not provide much information in this regard and as a result it is sometimes found that a customized software is built and after using the system the users tend to have ideas on what they want and what similar off-shelf software or vice-versa are available in the market which will be more efficient for them to use. As a result, a software is developed spending huge amount of money, time and other resources and then the management decides to get an off-shelf software if they find an off-shelf software can serve their purpose better or they decide to get a customized software if they have been using off-shelf software and find a customized software can serve their purpose better.

5.2.6 Some of the Other Problems

- **Workload**: When a project is scheduled and the work is in progress a new project is assigned to the development team, so the previous project has to be rescheduled or one or both the projects are delayed.

- **Delayed appointment**: Most of the time the users cannot maintain the scheduled appointment with the software development team and the schedule has to be changed and thus not only the delivery of the project is delayed but the other projects the team is working on has to be rescheduled or is delayed.

- **Lack of IT knowledge**: Most of the Corporate people in Bangladesh do not have much knowledge on IT and most of organization do not have
their own IT department so they do not understand the development process of software projects, information they need to provide and how to change over to the new system. These factors not only cause problems to the developers but also create a resistance among the employees to use new technology.

- **Poor teamwork**: Most of the time the concept of division of labor or teamwork is missing. It was found from observation that for most of the system development project there is no team work and the same person does the analysis, design, coding, testing, provide training and support. This factor not only lacks the advantages that can be derived from teamwork but also lacks the advantage of division of labor.
CHAPTER VI
METHODS OF REQUIREMENT COLLECTION

6.1 Traditional Methods Of Requirement Collection

Analysis is the first SDLC phase where the Analyst begins to understand the needs of the system in details. System analysis involves a substantial amount of effort and cost and is therefore undertaken only after management has decided that the software project under consideration has merit and should be pursued through this phase. Most observers would agree that most of the errors in developed software are directly involved with system requirement collection and inadequate efforts in analyzing and designing them. However, for many reasons, it is always difficult to obtain a correct and complete set of requirements.

Requirements determination is the beginning of the analysis phase and also plays a vital role in developing a strong foundation for the system. There are some traditional methods to help collect system requirements, such as interviewing, carrying out surveys, directly observing users, etc.

6.1.1 Interview

This is one of the primary ways to gather information about an information system. In general, interviews are conducted one-on-one (one interviewer and one interviewee) basis, but sometimes owing to time constraints several people are interviewed at the same time. There are five basic steps to the interview process: selecting interviewees, designing interview questions, preparing for the interview, conducting interview and follow-up [2].
A good system analyst must be good at interviewing and no project can be conducted without interviews. There are many ways to arrange an effective interview and none of the ways is superior to the others. However, experienced analysts commonly accept some of the following best practices for an effective interview:

- Prepare the interview carefully, including appointment, priming questions, preparing checklist, agenda, and questions
- Listen carefully and take notes during the interview (tape record if possible)
- Review notes within 48 hours after interview
- Be neutral
- Seek diverse views
- Separate facts from opinion

6.1.1.1 Selecting interviewees

The first step in interviewing is to create an interview schedule that lists all the people who will be interviewed, when, and for what purpose [2].

6.1.1.2 Designing questions

There are three types of interview questions: closed-ended questions, open-ended questions, and probes [2].

- Closed-ended questions are those that require a specific answer. Closed-ended questions are used when the analyst is looking for specific, precise information [2].

- Open-ended questions are those that leave room for elaboration on the part of the interviewee. They are similar in many ways to essay questions. Open-ended questions are designed to gather rich information and give the interviewee more control over the information that is revealed during the interview. Sometimes the information that
the interviewee chooses to discuss uncovers information that is just as important as the answer [2].

- The third type of question is the probing question. Probing questions follow up on what just been discussed in order to learn more, and they are often used when the interviewer is unclear about the interviewee’s answer. They encouraged the interviewee to expand on or to confirm information from the previous response, and they are a signal that the interviewer is listening and interested in the topic under discussion. Many beginning analysts are reluctant to use probing questions because they are afraid that the interviewee might be offended at being challenged or because they believe it shows that they do not understand what the interviewee has said. When asked politely, probing questions can be a powerful tool in information gathering [2].

None of these types of questions is any better than another, and usually a combination of questions is used during an interview [2].

6.1.1.3 Preparing for the interview

It is important to take a prior preparation for the interview session. An interviewer should have a general interview plan. The plan includes the questions that will be asked, the order of the questions, how the follow up will be and how the topics will be related to each other [2].

The interviewer should confirm the areas in which the interviewee has knowledge so that the interviewer does not ask questions that s/he cannot answer [2].

The interviewer should review the topic areas, the questions, and the interview plan, and clearly decide which has the greatest priority in case the interviewer runs out of time [2].
6.1.1.4 Conducting the interview

When the interviewer starts the interview, the first goal is to build rapport with the interviewee so that s/he trusts the interviewer and is willing to tell the whole truth, not just give the answers that s/he thinks has been asked. The appearance of an interviewer should be professional and unbiased, independent seeker of information. The interview should start with an explanation of why an interview with that person is going to be held and after satisfied responses, the interviewer can move to the planned questions [2].

6.1.1.5 Follow up

After the interview is over, the interviewer needs to prepare an interview report that describes the information from the interview. The report contains interview notes, information that was collected over the course of the interview and is summarized in a useful format [2].

The interview report is sent to the interviewee with a request to read it and inform the analyst of any clarifications or updates needed. The interviewee needs to be convinced that the corrections to the report are genuinely required. Usually there are few changes, but the need for any significant changes suggests that a second interview will be required [2].

6.1.1.6 Potential interviewing problems:

- Interviews may create bad feelings between people
- Taking interviews of a number of people separately takes up a lot of time
- The interviewees may think that their jobs are at risk
- The interviewees may not like someone to change their traditional way of work
- They may think that the interviewee is wasting their time.
- Same question to different people may provide contradictory answers
- The interviewer may become biased

6.1.2 Questionnaires

It overcomes some of the problems of interviewing by gathering information from many people in a relatively short time and of being less biased in the interpretation of their results. It also reduces the problem of creating bad feelings among people since no body knows who has written what. Choosing right questionnaires respondents and designing effective questionnaires are the critical issues in this information collection method [2].

People usually use only a part of the functions of a system, so they are always just familiar with a part of the system functions or processes. So in most situations, one copy of the questionnaire obviously cannot fit to all the users. To conduct an effective survey, the analyst should group the users properly and design different questionnaires for different groups. When designing questionnaires, the analyst should concentrate on the following issues:

- The questions are not ambiguous
- The questions are set in such a way that the answers are consistent chronological
- The kind of question to be applied-open-ended or close-ended
- The proper length of the questionnaires

The major problem of requirement collection through questionnaire is lack of discussion, which helps to decide on contradictory points, bring out related problems and agreed solutions to the problems and bringing out new ideas.
6.1.3 Directly observing the users

People are not always very reliable informants, even when they try to be reliable and tell what they think is the truth. People often do not have a completely accurate appreciation of what they do or how they do it. Since people can not always be trusted to reliably interpret and report their own actions, analyst can supplement and corroborate what people say by watching what they do or by obtaining relatively objective measures of how people behave in work situation [2].

However, the problem of observation is that it can cause people to change their normal operational behavior. This makes gathered information biased [2].

6.1.4 Analyzing procedures and document study

By examining existing system and organizational documentation, Analyst can find out details about the current system. In documents, analysts can find information such as problem with the existing system, opportunities to meet new needs, the actual flow and process of work, and the reasons why current systems are designed as they are, etc.

However, when analyzing the official documentation, analysts should pay attention to the difference between the systems described on the official documentation and the practical systems in real world because the difference between formal and informal system of work, inadequacies of formal procedures, individual work habits and preferences, and other factors that universally exist.
CHAPTER VII

LATEST TECHNIQUES THAT CAN BE USED TO OVERCOME
THE PROBLEMS

7.1 Modern Techniques

Some modern techniques have been developed to overcome the
problems of requirement collection described in the previous section. These
methods do not only overcome the problems of the methods of requirement
collection but also overcome the reasons stated in section 5.2-d. The modern
techniques are:

- Joint Application Design (JAD)

&

- Prototyping

7.1.1 JAD Session

JAD is a structured process in which at least 10 to 20 users meet
together under the direction of a facilitator skilled in JAD techniques [2].
Reality says:

- people who actually do a job have the best understanding of that job
- People who are trained in IT have the best understanding of the possibilities of that technology
- Information systems and business processes cannot exist in isolation

So the philosophy of a JAD session is to design the best information system by bringing people from business and IT in one place and creating a common language. The JAD group meets for several hours, days or weeks
until all the issues have been discussed and the needed information are collected.

To have a successful JAD session the following factors should be considered:

- Make sure the decision makers are all present
- The number of participants is not too many or not too few (less than 8)
- The facilitator keeps the group focused on the goals
- Differing views are handled immediately
- Issues are resolved quickly
- Assumptions are documented and understood

*The JAD session takes place in a location away from the workplace so that there is no interruptions [2].*

### 7.1.1.1 History of JAD

JAD was first introduced by Chuck Morris of IBM, in 1977, as a technique for gathering requirements for geographically distributed systems. In 1980, IBM Canada adopted and refined the approach. In 1984, IBM formalized JAD by publishing the JAD Overview pamphlet. By the late 1980s, many companies were implementing facilitated JAD workshops for analysis and design. JAD represents Joint Application Design since it joins together people from different areas to work together.

### 7.1.1.2 Basic components of a JAD session

JAD session is normally carried out in a meeting/conference room arranged in U-shape so that all the participants can see each other. At the front of the room there is a white board, flip chart and an overhead projector for use by the facilitator or other participants. The participants of JAD session are:
**Executive sponsor** is the person from the customer's organization who has the ultimate authority to make decisions about the project. The sponsor may be the customer's project leader, the CIO, or, in some cases, the CEO. The facilitator works with the sponsor to get the project started; it is essential, however, that the sponsor makes key decisions, not the facilitator.

The executive sponsor has the following responsibilities:

- Accept ultimate authority and responsibility for the functional areas to be addressed by the system.
- Resolve business policy conflicts by being the ultimate decision maker.
- Set the vision for the project.
- Ensure the project team has access to and commitment from the right business user experts.

**Facilitator/session leader** is the person who is an expert in JAD techniques. The success or failure of the JAD process is closely tied to how well the facilitator handles the session. S/he is responsible for identifying those issues that can be solved as part of the meeting and those which need to be assigned at the end of the meeting for follow-up investigation and resolution. The facilitator serves the participants and does not contribute information to the meeting. The facilitator must also be able to communicate effectively with different personality types present on a JAD session.

The responsibilities of JAD facilitators include the following:

- Organize and schedule JAD activities
- Guide the JAD sessions
- Mediate dispute
- Encourage participation
- Maintain focus
- Enable the decision making process by summarizing the discussions

It is important that the facilitator be impartial and has no vested interest in the outcome of the session.

There is a thought that trained facilitators can successfully facilitate meetings regardless of the subject matter or their familiarity with it. This does not apply, however, to facilitating meetings to build information systems. A successful Information System facilitator needs to know how and when to ask the right questions, and be able to identify when something does not sound right.

**Participants/Users**: They are the source of input of the session. This is the group of people in the business area directly or indirectly affected by the project and is experts in their field.

Users have the following responsibilities in the JAD process:

- Serve as the main focus of JAD (users make up 65 percent to 75 percent of the total group)
- Provide business expertise
- Represent the strategic, tactical, or operational direction of the business
- Represent all major user groups or fractions affected by the project
- Represent multiple levels of the organization

**IT representatives** lend technical advice when it is required, help develop logical models and specifications, and build the prototype. To perform these tasks, they must be knowledgeable about the JAD process and the tools and methods being used. IT representatives are typically some of the key developers of the system. They use the JAD opportunity to become experts in
the customer's business functions. Whatever their level of expertise, however, they must not try to force the decision making process, but rather assist in developing the user's view of the solution.

IT representatives have the following responsibilities in the JAD process:

- Help customer turn ideas into models of business requirements
- Ensure all technological constraints are represented
- Develop an understanding of user business goals, priorities, and strategies
- Represent job functions such as data administration, business analysis, programming, prototyping, and production/operations management.
- Ensure a solution that is realistic for the budget, can be delivered when needed, and takes advantage of available technology most effectively

**Scribe/Modeler/Recorder/Documentation Expert** records and publishes the proceedings of the meeting and does not contribute information to the meeting.

**Observers** are generally members of the application development team assigned to the project. They sit behind the participants and silently observe the proceedings.

### 7.1.1.3 Project Characteristics

All the projects, however, are not good candidates for JAD sessions. An appropriate project for JAD session should exhibit at least some of the following characteristics:
- Involves many groups of users whose responsibilities cross traditional department or division boundaries
- Is considered critical to the future success of the organization
- Involves willing users
- Is a first-time project for the organization
- Has a troubled project history or relationship between the systems and user organizations

Although the characteristics above describe a good JAD candidate project, all the characteristics do not need to be present in the project. But the project must have a good number of users i.e. at least 8.

7.1.1.4 Advantages Provided by JAD

Furthermore, according to website articles, one by Alan Cline and one by Bill Jennerich several articles and case studies have concluded that the JAD process can yield tremendous benefits. Below is a list that combines the highlights of the findings:

- **Reduced system development time** - in JAD, information can be obtained and validated in a shorter time frame by involving all participants (or at least a representative set of participants) who have a stake in the outcome of the session. JAD eliminates process delays and has been shown to reduce application development time between 20% to 50%.

- **Improved system quality and productivity** - much of the system’s quality depends on the requirements gathered. JAD involves users in the development life cycle, lets users define their requirements, and thus ensures that the system developed satisfies the actual activities of
the business. JAD is quoted the best method for collecting requirements from the users, clients, or customer advocates.

- **Reduced system cost** - Reduced development time, reduces the labor cost for developers, as well as users. Important process like requirement gathering requires involvement and commitment of business area experts. The cost of taking them away from their daily operation is very high. JAD can reduce the involvement time of these business experts and hence reduce the cost further. Cost is also reduced by catching errors, misunderstandings and mistakes early in the development phrase. Studies have found that a majority of system errors result from early analysis errors, and the earlier these errors are corrected, the much less they will cost. The JAD sessions let designers and users work together in the very early stage of the development cycle, defining scope, requirements of projects and resolving conflicts among different user groups. It puts much effort early in the life cycle in order to improve the quality and increase productivity and to reduce cost.

- **Enhanced communication and relationship between business end-users and IT personnel.**

- **Cultivate ownership, easier acceptance (buy-in) and stronger commitment by users** - the involvement of business end-users is no longer on advisory or consultation spectrum. It is the participation and contribution in the project development life-cycle. The more users contribute to the system, the easier for them to accept it and commit to it.

- **Reduce function creep** - It is one of the best ways to reduce function creep, most of which results from poor initial requirements.

- **Enhanced education for participants and observers** - By participating in JAD and being the medium between other users and IT, the business end-users will be kept fully informed about the progress of the system development.
7.1.1.5 Problems with JAD

Like all other methods of requirement gathering JAD also has some problems. The problems of JAD are:

1. There are some people who often dominate the discussion while others remain silent.
2. The normal JAD sessions include mid-level and senior level managers. So subordinates may not want to speak out their problems in front of their seniors. The information gathered from the discussion may be biased and incorrect.
3. In a group of 15 people, if everyone participates equally for only 4 minutes then each person will have to listen for 54 minutes. This will make the session boring and the participants may lose their interest to participate in the session.

7.1.1.6 JAD session using QBPRG method

QBPRG-Question Based Participation for Requirement Gathering is a technique adapted by Dr. Yousuf M. Islam, of BRAC University, from a technique used by Bangladesh Rural Advancement Committee (BRAC) for the purpose of information collection. This technique can be used in the JAD session to overcome the problems of JAD. This technique uses cards to gather information. A question is hung on a clipboard and read out and each participant is provided with a number of cards (usually 3) and asked to write one opinion/answer per card in response to the question. If someone has more opinions then s/he can ask for extra card(s). The cards are then collected from the participants and clipped under the question. They are then sorted or clustered under common headings with user participation and if any of the answers require discussion, the participants discuss about it and the facilitator maintains the time and discussion.
QBPRG method helps to overcome the problems of JAD by the following ways:

- Since all the participants have to write on the card so everybody has to brainstorm and participate.
- Since all the participants write the answers on the cards and the cards does not contain the writer’s name there is no way to determine who is writing what and thus the subordinates can overcome their fear and provide correct and unbiased information.
- Since all participants write the answers when a question is hung and read out, the communication process allows several participants to contribute information simultaneously. Thus all the participants contribute throughout the session rather than sitting idle and listening.
- Each idea is given equal importance by posting on the board – the participants therefore feel important as their idea are represented. Such participation promotes ownership.

This method also helps to keep documents since the cards are sorted and bundled with the question for further study.

7.1.2 Prototyping

Prototype is a quick-and-dirty program that provides minimal amount of features. It provides the user a system very quickly so that they can interact with the system and thus understand whether the analyst understood what they want and also helps the analyst to refine real requirements quickly. This process continues throughout the life cycle. The project team performs analysis, design, and update of the prototype concurrently until the analysts, users and the project team agree that the system provides all the functionalities and according to user’s requirements.
There are two types of prototyping methodologies. The methodologies are:

### 7.1.2.1 Prototyping-based methodology

Under this methodology the prototype is re-analyzed, redesigned and re-implemented until and unless the users are satisfied. Each prototype after reengineering provides few more facilities than the previous one. The process continues and when it supports enough functionality it is called the actual system and is installed at the user end.

The advantage of this methodology is that it provides a system for the user to interact with although it is not ready for widespread organizational use.

### 7.1.2.2 Throw-Away Prototyping

Throw-away prototyping methodology has a relatively thorough analysis phase that is used to gather information and to develop ideas for the new system concept. Throw-away prototypes are built for the concepts that are not well understood. Each of the issues that are not well understood is examined by analyzing, designing and building a prototype. The prototype may not be a complete working system rather it is a part of the system and requires further refinement. When the prototype is approved by the user, the actual system is built and the prototype has no further use.

The main advantage of this process is that it helps the users understand how the actual system will look like. Since the prototype is interactive rather than paper based, the users can use the system and can come up with better ideas and improvements.

Both these methods have a disadvantage that, it may take longer time to deliver the final system.
7.1.2.3 Proposed method of prototyping- “Live” prototyping

To overcome the problem of taking longer time to deliver the final software developed using prototypes, a new prototyping methodology was proposed. The new method is similar to throw-away prototyping but reduces the problem of taking longer time. This method of prototyping can be called ‘live’ prototyping.

Live prototyping involves designing a Spreadsheet similar to the ledgers/registers in which users keep their records. The user will input information into the Spreadsheet and the developer will follow how the user input information. The developer will make changes to the sheets as and when the user is facing problem while entering information into the Spreadsheets. Since Spreadsheets are very easy to use and designed as information are kept in a register the user can easily understand what fields to add and which ones to remove. The user can also understand the changes that need to be made. Once the Spread Sheets are ready and approved by the user, forms are designed. Designing and connecting forms and reports in Spreadsheet is very easy and less time consuming because it supports Macros. Macros are coded in Visual Basic and allow required reports to be generated. The user easily understands what is going on and is able to give appropriate feedback. The process of changing requirements continues until the user is fully satisfied and implementation of the actual system starts once the user approves it.

This system of prototyping was used to finalize the requirements for a new project the description of which is given in Appendix-A and the Spreadsheets and forms designed in Excel to gather user requirements are given in Appendix-B.)

The advantages that were found by using this prototype are:

- the prototype provides actual data to the developer
- the user can clearly understand how the actual system will look like
the prototype represents the finalized design of the system that includes the user interface, buttons, forms, reports and of course the business logic that is used to create the macros before it is too late for making changes.

7.2 Expected Outcomes From The Proposed Methodologies

7.2.1 Advantages of proposed techniques over traditional requirement collection methods
   JAD technique helps to overcome some of the problems of traditional methods of requirement collection as described below:
   • Since JAD session involves the actual user the actual users overcome the fear of loosing their job.
   • The problem of creating bad feelings between people may be overcome by using QBPRG method since no body can understand who has written what and the risk of creating bad feelings is reduced.
   • Since all the people join together it reduces the time and hassle of taking interviews separately.
   • As all the information is collected through discussion, the possibility of biased information is abandoned.

7.2.2 How JAD session and prototyping can overcome the problems prevailing in Bangladesh
   As discussed earlier that the problems of requirement collection are:
   • Communication gap between the users, management and the software development team
   • Lack of user involvement in the development process
   • Lack of user’s knowledge in IT and developer’s idea of how the users carry out the task
- User’s uncertainty of the information s/he should provide, top management’s reluctance to involve actual users etc
- The time gap of involving the user with the development process

As JAD session involves users from different departments and levels, user involvement is ensured. So the first two problems can be solved using JAD session. The management, users and software development team can get together and reduce the communication gap and confusion through discussion. It also encourages user participation since the users feel that their decision or participation is appreciated. Since the decision making authority is also present in the discussion prompt decisions can also be taken.

The second two problems can be overcome by using prototypes which will help the developers understand the process of work and the flow of data more clearly. The users can also work with the system and get a clear idea of how the system will work, what new information needs to be added and what information should be discarded for efficient processing of data; this reduces scope creep and major changes users ask for after installation.

Since users are involved in both JAD session and using prototypes, the users are always connected to the software development work and can also ensure changes at the primary stage of the development.

7.4 Overview Of the techniques of requirement collection

The following table shows a comparison of the different techniques of Requirements Collection
Table 7.1

Techniques of requirement collection

Although all these methods of requirement collection have some disadvantages and each of the methods overcome some of the problems of

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Interview-s</th>
<th>Questionnaires</th>
<th>Observation</th>
<th>Document analysis</th>
<th>JAD</th>
<th>Prototyping</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information Richness</td>
<td>High</td>
<td>Medium to low</td>
<td>High</td>
<td>Low (passive and old)</td>
<td>High</td>
<td>Medium to High</td>
</tr>
<tr>
<td>Time Required</td>
<td>Can be extensive</td>
<td>Low to moderate</td>
<td>Can be extensive</td>
<td>Low to moderate</td>
<td>Dedicated period of time of all kinds of involved people</td>
<td>Moderate and can be extensive</td>
</tr>
<tr>
<td>Expense</td>
<td>Can be high</td>
<td>Moderate</td>
<td>Can be high</td>
<td>Low to moderate</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Chance for Follow-up and probing</td>
<td>Good</td>
<td>Limited</td>
<td>Good</td>
<td>Limited</td>
<td>Good</td>
<td>Good</td>
</tr>
<tr>
<td>Confidentiality</td>
<td>Interviewee is known to interviewer</td>
<td>Respondent can be unknown</td>
<td>Person observed is known to interviewer</td>
<td>Depends on nature of document</td>
<td>All the people know each other</td>
<td>Usually know each other</td>
</tr>
<tr>
<td>Involvement of Subject</td>
<td>Interviewee is involved and committed</td>
<td>Respondent is passive, no clear commitment</td>
<td>Interviewee may or may not be involved and committed depending on whether they know if they are being observed</td>
<td>None, no clear commitment</td>
<td>All kinds of people are involved and committed</td>
<td>Users are involved and committed</td>
</tr>
<tr>
<td>Potential Audience</td>
<td>Limited numbers, but complete responses from those interviewees</td>
<td>Can be quite large, but lack of response from some can bias results</td>
<td>Limited numbers and limited time of each</td>
<td>Potentially biased by which documents were kept or because document not created for this purpose</td>
<td>Potentially biased by the subordinator intentionally don’t want to directly point out his superior’s errors.</td>
<td>Limited numbers; it is difficult to diffuse or adapt to other potential users</td>
</tr>
</tbody>
</table>

disadvantages and each of the methods overcome some of the problems of
the other but they are all important in requirement gathering. In practice, information gathering and information analysis are done iteratively and combine a series of different techniques. Information gathering may start with interviews followed by document study and/or observation followed by JAD session, some information gathering may involve questionnaires followed by further interviews, JAD session and document study.

7.5 Actual Outcomes from the Proposed Methodologies

From the research it was found that requirement collection is a major problem in satisfying users, so latest techniques have been proposed which can help to overcome the problems of requirement collection. Both the proposed techniques were supposed to be implemented in the development of the Software Patron Management Software for Foundation of NGOs in Bangladesh but only prototyping methodology was used.

The prototype was built after some interviews and document study to get a more vivid view of the system to make the user understand what information is required and to approve the design. The prototype using Spreadsheets was very effective because:

The prototype helped the development team to understand the user’s process clearly and to reduce scope creep.

It helped the users understand how the actual system would look like and what information should be included and what information should be discarded from the software.

(User feedback on the prototyping methodology used for the software developed for Foundation of NGOs in Bangladesh is given in Appendix-C.3.)
The system has been installed at the user end and is currently in use by Foundation of NGOs in Bangladesh. From observation, interviews and experience it was found that the number and types of changes asked by the users of Foundation of NGOs is comparatively less than the changes asked by the users of other software developed by ConnectBd Ltd. The changes asked by Foundation of NGOs in Bangladesh were-

- Some formats in the numeric fields such as Total Number of Districts, Unions, Employees and Partners should automatically turn into 123,456,789 formats rather than 123456789.
- The expenditure field should automatically change to 123,456.00 formats if the input given is 123456.
- Expenditure and Working Hours required a bigger field size.

Where as the changes in some other software were as critical as adding new fields in the database, adding new features in the forms, removal of some extra features since these features caused problems in working with other features.

JAD session is also a very effective methodology in gathering requirements from the users. But this methodology was not used since the project characteristics did not reflect the characteristics required to implement JAD session. Although the users were very enthusiastic and always preferred their involvement but the project size was not big enough since the number of users of the software is only three and the features were not very critical. Prototype was enough to understand their requirement and for design approval.

But a Joint Application Design (JAD) session can be made very effective by showing the prototype to the users and allowing the users to use it. This will help the users understand the system well and they will be able to participate in the discussion and can ask for changes instantly since they will be able to visualize the system and will have the opportunity to discuss about it.
CHAPTER VIII
LIMITATIONS OF THE PROPOSED METHODOLOGIES

The advantages and success criteria have been discussed earlier but none of the methods are perfect. Both prototyping and JAD session has some limitations and disadvantages. The limitations of using JAD have been already discussed and QBPRG method has been suggested as a solution to the limitations of JAD session. But there are some other limitations of using this method. The limitations are:

- Successful requirement collection through JAD session may require few days or weeks and the session needs to be held in a place distant from the work place. The business people may not agree to stop their work for so long and burden themselves with work after they finish the session and come back to the work place.

- Holding JAD sessions require expenses- the expenses involves availing facilitator, a suitable place for JAD session and the equipments required.

The limitations of using prototypes are:

- The software has to be developed twice- the prototype and the actual system, thus it increases the cost and time required to deliver the system. However, a lot of time is saved in finalizing or freezing requirements since the user can start using the prototype very quickly and can give feedback on what is required and what is not. Thus it saves time in collecting requirements. Time can also be saved by designing the prototype using macros in Excel.

- It has been found that some users are always changing their requirements and design. So updating the prototype never seems to end, as a result it becomes very difficult to keep someone
involved in updating the prototype rather than involving him/her with other projects. And the development of the actual system is delayed. But in practice it was found that the users go for changes when the actual system is developed if the actual system does not satisfy all his/her requirements and it becomes difficult to make changes at that stage. Since Sp read sheets are very easy to connect and program using macros so the time and cost involved in making huge changes in a later stage is reduced by making changes in an earlier stage.
CHAPTER IX

CONCLUSION AND FUTURE RESEARCH WORK

Requirement collection is a major problem and an important issue for the development of successful software projects. Partial and imperfect requirement leads to user dissatisfaction and involves huge cost and trouble at a later stage of the SDLC. To satisfy users and to reduce cost (money spent in making changes after installation of the project) it is very important to gather complete and perfect information.

Prototyping and JAD are the most recent techniques of freezing user requirements. Use of live prototyping in developing Patron Management System for Foundation of NGOs in Bangladesh provided a clear idea of the actual system to the user and helped the developers to get a clear view of the system to be developed. Although JAD was not used since the project size was small and the number of future users of the software is very small but JAD session can be a very effective methodology if the project possesses the characteristics required to carry out a successful JAD session.

This research work can be used by ConnectBd Ltd to reduce the problems faced by the developers during requirement collection and to satisfy software users by providing software, which fulfills their requirements better. This will provide ConnectBd Ltd software clients higher satisfaction rate, reduce maintenance cost, time and work and will also increase the rate of success of software projects.

This research has been carried out based on only one company so a wider research can be carried out involving all or the major software developing companies to get a wider view of the current status of software development, problems faced by both users and developers and to determine the future scope of software development in Bangladesh.
LIST OF REFERENCES
List of References

Books:


Website Links:

APPENDIX-A
1.0 INTRODUCTION

Foundation of NGOs in Bangladesh (FNB) is a non-government organization registered with the Registrar of Joint Stock Companies under the Societies Registration Act of 1860. The NGOs working for the development of Bangladesh register their name with FNB to strengthen themselves and to avail the facilities provided by FNB. FNB was set up with the mission to carry out the following duties:

- To take steps for resolving various problems of the NGOs through contacts and consultations with the Government;
- To mobilize resources for solving the financial crisis of local and small NGOs, for building their capacities and also for strengthening mutual cooperation and coordination;
- To strengthen NGO and NGO cooperation.

The NGOs get their names registered with FNB by paying a registration fee every year and they also donate funds to this organization so that it can run its operation smoothly, serve the purpose for which it was set up and can also help the small and/or new NGOs during their financial crisis.
2.0 SCOPE OF THE TOTAL SYSTEM

The scope of this project is to develop a web site which will have information about Foundation of NGOs (FNB), its history, bulletins, photo gallery, annual reports, membership information etc. All the information is static except for the membership information. Membership information will contain information about the NGOs which are working for the development of Bangladesh. The web page will have a search page which will help the users to view any information regarding the NGOs using some search criteria. A software is required to track member/nonmember NGO information to support this search.

This part of the thesis contains the specifications of the software which was built for Foundation of NGOs to track member/non-member NGO and their membership information using a prototyping methodology. The software is named as Patron Management Software for Foundation of NGOs and this is the first version of the software.
3.0 SCOPE OF THE SOFTWARE

This software is a part of the system described in “Scope of the Total System” which will help FNB to track member/non-member information. This software will run in a standalone computer or computers in a Local Area Network. All member and non-member information will be input and the database will be periodically transferred to the web server using any File Transfer Protocol software. Any Internet browser can browse NGO information along with information about FNB, its history, bulletins, photo gallery, annual reports, membership information etc. Note that information about FNB, its history etc are all static information on the web and only NGO information will be displayed according to some search criteria from the database transferred to the web server.

The benefit of this system is the coordinator (person at FNB involved with patron management) can add, delete and update information whenever there is new information or there is any change in the information.

The goal of this system is to provide the most updated information to its browsers and to promote NGOs working in Bangladesh in front of the government, business organizations, public and world.
4.0 DESCRIPTION OF THE AS-IS-SYSTEM

1. NGOs collect registration forms from the Coordinator at FNB.

2. NGOs fill-up all the required information and submit it to the Coordinator and pay the registration fee to the Accounts department.

3. The Accountant provides a receipt and records the financial information in a register book.

4. The NGOs also donate funds to FNB and a record is maintained in the accounts ledger.

5. The NGOs pay a membership renewal fee every year to renew their membership and the ledger is updated.

6. The forms filled-up by the NGOs are filed and put into a cabinet.

The Data Flow Diagram of the As-Is-System is given in the next page.

Paper Based Input Forms Used by Foundation of NGOs that were collected for study are given in Appendix-C.1.
Figure-4.1 Data Flow Diagram of the As-Is-System
5.0 DESCRIPTION OF THE TO-BE-SYSTEM

1. The NGOs enter into the web site and download forms from the web.

2. The NGOs fill up the form and submit it to the coordinator and pay the registration fee in the Accounts department.

3. The Coordinator inputs NGO and membership information in the database and transfers it to the web server.

4. The NGOs or any web browser can enter into the web site and can search and print information of all/any NGO information.

5. When any NGO donates fund to FNB the accounts information is updated.

6. The NGOs renew their membership every year by paying renewal fee and also provide information if there is any change in the NGO information.

7. All the new NGO information or updated information and the member information are input into the software and the database is transferred to the web server.

Data Flow Diagram of the To-Be-System is given in the next page.

Description of the sheets and forms designed in Microsoft Excel (prototype) are given in Appendix-B
Figure 5.1: Data Flow Diagram of the to-be-system
6.0 ENTITY RELATIONSHIP DIAGRAM

Figure: 6.1 Entity Relationship Diagram
7.0 MODULES

7.1 Forms

NGO Information- This form tracks NGO’s general, contact legal, program, network supported by the NGO, expenses and directory information. If the NGO is a member of Foundation of NGOs in Bangladesh (FNB) then all these information should be input (recommended but not required). If the NGO is not a member of FNB then only NGO/Contact and NGO Directory information needs to be input.

Figure-7.1-a NGO/Contact Information Page
Figure-7.1-b Legal/Program Information Sheet
Figure-7.1-c Network Supported/Expenses Page
Figure-7.1-d NGO Directory Page
Membership Renewal Information- This form is used to store information of the member NGOs for a particular year.

Figure-7.2 Membership Renewal Information
**Program Information**- This form is used to input program information.

![Program Information Form](image)

Figure-7.3 Program Information Form
7.2 Tables and Their Relationships

These tables are the actual outputs of the software, which will be transferred to the web server to support searching in the web.

Figure-7.4 Tables and Their Relationship
7.3 Supporting Tables and Forms

The following tables and forms are used to support the security system of the software.

![Supporting Tables](image)

**Sign-in Form** - is used to secure the software from unauthorized user access. The user needs a valid user name and password to enter and work with the software.

![Sign-in Form](image)

**Change Password Form** - If the user wants to change his/her password s/he can enter into this form and confirm his/her new password.
Create/Delete User - This form is used to create a new user and/or to delete an existing user.
**Connect Database** - This form is used to locate server and to connect the database with the server when the software is first installed.

![Connect Database Form](image)

Figure-7.9 Connect Database Form
**Company Information** - This is a supporting form used to enter information of the company who is using the software.

![Company Information Form](image)

Figure-7.10 Company Information Form

### 7.4 Reports

A copy of the reports are given in Appendix C.2
# 8.0 TESTING

Table 8.1:

Tabular format of test result

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Test Description</th>
<th>Result</th>
<th>Fig.</th>
<th>Fields</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Is Organization ID unique for all NGOs?</td>
<td>Organization ID is unique and is generated by the system. Nobody can change the ID.</td>
<td>8.1</td>
<td>Organization ID</td>
</tr>
<tr>
<td>2</td>
<td>Do the text fields take all types of character?</td>
<td>Yes, they take alphabets, numbers and other characters</td>
<td>8.1</td>
<td>Organization name, contact address, head office address, phone, fax, web, email</td>
</tr>
<tr>
<td>3</td>
<td>Do the numeric fields take numbers?</td>
<td>Yes, they take numbers</td>
<td>8.2</td>
<td>Districts, Upazilas, Unions</td>
</tr>
<tr>
<td>4</td>
<td>Do the numeric fields take alphabets and other special characters?</td>
<td>No, the numeric fields do not take any alphabet or special character.</td>
<td>8.3</td>
<td>Total Number of Staffs, Total Number of Beneficiaries</td>
</tr>
<tr>
<td>5</td>
<td>Do the numeric fields change to the required format?</td>
<td>Yes, the numeric fields change into the required format.</td>
<td>8.2, 8.3</td>
<td>Districts, Upazilas, Unions, Expenditure</td>
</tr>
<tr>
<td>6</td>
<td>Does Contact Information, Registration Information, Branch Information, Expenditure Information take multiple information?</td>
<td>Yes, they take multiple information.</td>
<td>8.1, 8.2</td>
<td>Contact Information, Registration Information, Branch Information, Expenditure Information</td>
</tr>
<tr>
<td>7</td>
<td>Can the user select Program Information when the organization is a Sector Network and input Network Supported when the organization is an Implementing Agency?</td>
<td>Yes</td>
<td>8.3</td>
<td>Enter the Coalition/Network/Sector Network Supported, Select Program Supported</td>
</tr>
<tr>
<td>8</td>
<td>Does the system save Null values?</td>
<td>Yes</td>
<td>8.1</td>
<td>Introduction</td>
</tr>
<tr>
<td>9</td>
<td>Does the system check user name and password correctly during user log in?</td>
<td>Yes</td>
<td>8.5</td>
<td>Log in form</td>
</tr>
<tr>
<td>10</td>
<td>Can the user type in new name in the Membership Information</td>
<td>No, the user can only select from the existing organization names.</td>
<td>8.6</td>
<td>Membership Information Form</td>
</tr>
<tr>
<td>11</td>
<td>Does the Date Time Picker take the correct Date?</td>
<td>Yes</td>
<td>8.2</td>
<td>Registration &amp; Renewal Date</td>
</tr>
</tbody>
</table>
Figure-8.1 Test Data
Figure-8.2 Test Data
Figure-8.3 Test Data
Figure-8.4 Test Data

Figure-8.5 Test Data
Figure-8.6 Test Data
9.0 STRENGTHS AND WEAKNESSES OF THE SYSTEM

The strength of the system is that the forms have been designed such that the user can input information in the sequence given in the manual form.

The weakness of the system is, the security system is not that strong and the access control of the user levels (Admin, Supervisor and Entry) shown in figure: 7.11 have not been assigned. Another weakness of the system is that the serial number in Branch Information has to be input manually and if the user input an existing number then the existing number will be over written by the new information with the same serial number. This problem also exists in Program Information Form. In Program Information while adding a new program a new ID is generated but if a batch of program is added the first ID is assigned by the system when Add is clicked but the ID of the next programs has to be assigned by the user and if the user inputs an existing ID the existing information will be over written by the new information.

10.0 EXTENSION OF THE SYSTEM

Patron Management System for Foundation of NGOs in Bangladesh has been developed to support search member information in the web. But after using the system they have decided to extend the software for their official use too. Foundation of NGOs is now willing to add a searching mechanism which will help them to search any NGO Information using any search criteria.
11.0 HARDWARE AND SOFTWARE REQUIREMENTS

- Pentium II or higher or any other equivalent processor with a minimum of 64 MB (megabytes) of RAM.

- Minimum 2 GB free space in Hard Disk is recommended.

- CD-ROM drive

- VGA monitor, SVGA monitor or better. Monitor display of 1024 x 768 is recommended.

- Either Windows 98 or higher or Windows NT 8.0 or higher with service pack 3 or higher.

- Printer supported by your operating system, if you plan to print reports.

- Foundation of NGOs may use any of the File Transfer Protocol software such as WS FTP Pro.

- Norton Anti-virus or any other anti-virus to keep the system and the machine safe from virus attack. (This is important since the database will be frequently transferred and downloaded to and from the web.)
12.0 NETWORK REQUIREMENTS

To use Patron Management System in LAN environment the following network configuration is required for both sharing a database file and/or printing to a network printer:

♦ Network using either Windows 95 or higher or Windows NT 8.0 or higher with Service Pack 3.

![Figure-12.0 Network Diagram]
13.0 DESIGN AND IMPLEMENTATION CONSTRAINTS

The design constraint of Patron Management System for Foundation of NGOs is that, all the information related to an NGO needs to be fitted into one form. All the fields have been managed into one form using Microsoft Tabbed Control 6.0 but the general information are scattered so that the user can follow the same sequence of the paper-based form.

14.0 USER DOCUMENTATION

A user manual is provided with the system to guide users during installation and to help them learn the system him/herself.

User Manual is given in Appendix-D
1.0 Sample Excel Sheet

The following Excel sheets were designed after some interviews and document study. The users were given these sheets to input information and changes were made when they faced problem to enter information. They used the sheets and gave their feedback on what new information to add and which information should be discarded.

![Figure B-1 Organization Information](image1)

![Figure B-2 Contact Information](image2)
<table>
<thead>
<tr>
<th>Figure B-3 Registration Information</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Legal Status</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Organization ID</strong></td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>6</td>
</tr>
<tr>
<td>7</td>
</tr>
<tr>
<td>8</td>
</tr>
<tr>
<td>9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Figure B-4 Fund Information</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fund information</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>organization id</strong></td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>6</td>
</tr>
<tr>
<td>7</td>
</tr>
<tr>
<td>8</td>
</tr>
<tr>
<td>9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Figure B-5 Expenditure Information</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Expenditure Information</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>organization id</strong></td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>6</td>
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<tr>
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<tr>
<td>8</td>
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<tr>
<td>9</td>
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<tr>
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<tr>
<td>15</td>
</tr>
<tr>
<td>16</td>
</tr>
<tr>
<td>17</td>
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</tbody>
</table>
### Figure B-6 Branch Information

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>1</td>
<td>Kheledighi</td>
<td>Lakhnunhat</td>
<td>Lakhnunhat</td>
<td>Not available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>Minerbari</td>
<td>Minerbari</td>
<td>Minerbari</td>
<td>Lakhnunhat</td>
<td>Not available</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>3</td>
<td>Paishhat</td>
<td>Paishhat</td>
<td>Paishhat</td>
<td>Lakhnunhat</td>
<td>Not available</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>4</td>
<td>Nurgor</td>
<td>Nurgor</td>
<td>Nurgor</td>
<td>Lakhnunhat</td>
<td>Not available</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>5</td>
<td>Celehawa</td>
<td>Haibandhe</td>
<td>Haibandhe</td>
<td>Lakhnunhat</td>
<td>Not available</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>6</td>
<td>Keh Thanh</td>
<td>Keh Thanh</td>
<td>Keh Thanh</td>
<td>Lakhnunhat</td>
<td>Not available</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>7</td>
<td>Kolkonda (Beside Tista River)</td>
<td>Kolkonda</td>
<td>Kolkonda</td>
<td>Lakhnunhat</td>
<td>Not available</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>8</td>
<td>Ganaagram (Beside Ganaagram Primary School)</td>
<td>Ganaagram</td>
<td>Ganaagram</td>
<td>Lakhnunhat</td>
<td>Not available</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>9</td>
<td>Udinsrad, Bogra Road</td>
<td>Udinsrad</td>
<td>Udinsrad</td>
<td>Lakhnunhat</td>
<td>Not available</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>10</td>
<td>Deha Sadar</td>
<td>Deha Sadar</td>
<td>Deha Sadar</td>
<td>Lakhnunhat</td>
<td>Not available</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>11</td>
<td>Arghoria</td>
<td>Arghoria</td>
<td>Arghoria</td>
<td>Lakhnunhat</td>
<td>Not available</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>12</td>
<td>Chadnohar</td>
<td>Chadnohar</td>
<td>Chadnohar</td>
<td>Lakhnunhat</td>
<td>Not available</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>13</td>
<td>Dagoary</td>
<td>Dagoary</td>
<td>Dagoary</td>
<td>Lakhnunhat</td>
<td>Not available</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>14</td>
<td>Sarangpur</td>
<td>Sarangpur</td>
<td>Sarangpur</td>
<td>Lakhnunhat</td>
<td>Not available</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>15</td>
<td>Sebapour</td>
<td>Sebapour</td>
<td>Sebapour</td>
<td>Lakhnunhat</td>
<td>Not available</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>16</td>
<td>Nazirpur</td>
<td>Nazirpur</td>
<td>Nazirpur</td>
<td>Lakhnunhat</td>
<td>Not available</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>17</td>
<td>Tebando</td>
<td>Tebando</td>
<td>Tebando</td>
<td>Lakhnunhat</td>
<td>Not available</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>18</td>
<td>Tantibando</td>
<td>Tantibando</td>
<td>Tantibando</td>
<td>Lakhnunhat</td>
<td>Not available</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>19</td>
<td>Supnaag Sadar</td>
<td>Supnaag Sadar</td>
<td>Supnaag Sadar</td>
<td>Lakhnunhat</td>
<td>Not available</td>
<td></td>
</tr>
</tbody>
</table>

### Figure B-7 Programs Available

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Programme ID</td>
<td>Programme Name</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>Advancement/Minority</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>Agriculture</td>
</tr>
<tr>
<td>5</td>
<td>3</td>
<td>Adolescent Children</td>
</tr>
<tr>
<td>6</td>
<td>4</td>
<td>Adult Education/Mass Lit.</td>
</tr>
<tr>
<td>7</td>
<td>5</td>
<td>Advocacy &amp; Lobbying</td>
</tr>
<tr>
<td>8</td>
<td>6</td>
<td>Alternative Tech., Dev. &amp; Trg.</td>
</tr>
<tr>
<td>9</td>
<td>7</td>
<td>Arson</td>
</tr>
<tr>
<td>10</td>
<td>8</td>
<td>Child Education</td>
</tr>
<tr>
<td>11</td>
<td>9</td>
<td>Child Survival</td>
</tr>
<tr>
<td>12</td>
<td>10</td>
<td>Coordination</td>
</tr>
<tr>
<td>13</td>
<td>11</td>
<td>Credit</td>
</tr>
<tr>
<td>14</td>
<td>12</td>
<td>Capacity Building</td>
</tr>
<tr>
<td>15</td>
<td>13</td>
<td>Day Care Centre</td>
</tr>
<tr>
<td>16</td>
<td>14</td>
<td>Dev. Com. &amp; Pub.</td>
</tr>
<tr>
<td>17</td>
<td>15</td>
<td>Democracy</td>
</tr>
<tr>
<td>18</td>
<td>16</td>
<td>Disabled</td>
</tr>
<tr>
<td>19</td>
<td>17</td>
<td>Disaster Risk Management</td>
</tr>
<tr>
<td>20</td>
<td>18</td>
<td>Election Monitoring</td>
</tr>
<tr>
<td>21</td>
<td>19</td>
<td>Entrepreneurship Development</td>
</tr>
<tr>
<td>22</td>
<td>20</td>
<td>Inv. &amp; Social Forestry</td>
</tr>
</tbody>
</table>
## Figure B-8 Programs Supported by the NGO

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Programme Supported</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td><strong>Organization ID</strong></td>
<td><strong>Programme ID</strong></td>
<td><strong>Name of the District where the program is covered</strong></td>
<td><strong>Name of the Upazila</strong></td>
<td><strong>Area</strong></td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>4</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
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<td></td>
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<tr>
<td>6</td>
<td></td>
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<tr>
<td>7</td>
<td></td>
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<td></td>
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<tr>
<td>8</td>
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<tr>
<td>9</td>
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<tr>
<td>10</td>
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<td>12</td>
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<td>17</td>
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</tbody>
</table>

## Figure B-9 Implementing Agency

<table>
<thead>
<tr>
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<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Implementing Agency</td>
</tr>
<tr>
<td>2</td>
<td><strong>Organization ID</strong></td>
</tr>
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<td>1</td>
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<tr>
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<td>9</td>
<td></td>
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<tr>
<td>10</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td></td>
</tr>
<tr>
<td>Sector Network</td>
<td>Programs Supported by the Organization</td>
</tr>
<tr>
<td>---------------</td>
<td>--------------------------------------</td>
</tr>
<tr>
<td>Organization ID</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
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<td>5</td>
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</table>

Figure B-10 Sector Network

<table>
<thead>
<tr>
<th>Membership Information</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>A</strong></td>
<td><strong>B</strong></td>
</tr>
<tr>
<td>1</td>
<td>Membership Information</td>
</tr>
<tr>
<td>2</td>
<td>Year</td>
</tr>
<tr>
<td>3</td>
<td>2001</td>
</tr>
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<td>2001</td>
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<td>10</td>
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<tr>
<td>11</td>
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</tr>
</tbody>
</table>

Figure B-11 Membership Information
2.0 Updates

Major updates were made in the “Program Supported” sheet because the organizations who obtained FNB’s membership did not reflect which programs are being carried out in which districts/area and the status of the programs explicitly. The information NGOs provided were the programs they support, districts and areas where they are currently working. So the sheet was broken down into two sheets as follows:

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
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<td><strong>Programme Supported</strong></td>
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</tr>
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<td></td>
<td><strong>Organization ID</strong></td>
<td><strong>Programme ID</strong></td>
</tr>
<tr>
<td>2</td>
<td>3</td>
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</tr>
<tr>
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<td>7</td>
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<td>5</td>
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<tr>
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<td></td>
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</table>

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>Coverage Area of the NGOs</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Organization ID</strong></td>
<td><strong>Name of the District where the program is covered</strong></td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>Dhaka</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>Sylhet</td>
</tr>
<tr>
<td>5</td>
<td>2</td>
<td>Dhaka</td>
</tr>
<tr>
<td>6</td>
<td>3</td>
<td>Sylhet</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>Chittagong</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure B-13 Programs Supported

Figure B-12 Programs Supported
3.0 Sample Form Designed in Excel

The forms were designed in Excel and given to the users to use and determine the changes required. The designs were updated according to the user’s requirement and the final design was implemented in Visual Basic 6.0 when the users finally approved it.
C.1 PAPER BASED INPUT FORM
THE FEDERATION OF NGOs IN BANGLADESH (FNB)

APPLICATION FORM FOR FNB (REGULAR/ASSOCIATE) MEMBERSHIP

Which type of membership the organization applying for (Please tick ✓)

- [ ] Regular Member
- [ ] Associate Member

21.  Organization (Organization):

22.  Name (Name):

23.  Address:

24.  Postal Address (If applicable):

25.  Telephone (T & T with local code): (Mobile):

26.  Fax:

27.  E-mail:

28.  Year of Establishment:

29.  Name of the Chief Executive with Address and Residential Telephone No., if any:

30.  Name and Designation of the Authorized Person in absence of the Chief Executive:
18. **Ainagor Atbachan: Nirbakha (Legal Status: Registration) [জাতীয় স্তরের কোম্পানী, সমাজ সেবা অধিপত্র, এনএলও বিবর্ধি মূলধনের জন্য এক্সেপ্টর রেজিস্ট্রেশন নম্বর ও তারিখ উল্লিখন করার]**

**Name of Registration Authority**

**Registration No.**

**Date**

---

22. **Sangobhaer Sangit Kari Porichit (Bijotibit Taba Aalana Kapor) Losun Aftab Murti Thakol Sei Sambhuk Karan):**

Brief Introduction of the Organization (Please attach separate sheet for detail information or enclose printed copy if available)

2. Sangobhaer Kti Kti Thakol Sei Karmoshti Aacho (Abaartha Tariikhbar Dui Boshor Ba Taratibik Sandha Chunamjal Mull Karmoshti Samajh Mon Aacho Ba Sambhuk Karmoshti Tariikhbar Abartha Ba Sambhuk Tariikhbar):  
Name of the Organization’s main Programmes completed and on-going:

1. 

2. 

3. 

4. 

5. 

6. **Karmoshti Sohagbaranor Jeel, Upazila o Elakaamsush (Aabartha Kapor Sambhu Karan):**  
Name of districts, upazilas and areas where programmes are implemented (Please write in separate sheets):

7. **Monta Kothi Jeebar Karmoshti Avach:**  
Total number of districts covered

8. **Monta Kothi Upazila o Elakamsush Karmoshti Avach:** Upazila- , Elakamsush-  
Total number of upazilas covered

---

26. **Sangobhaer Ratriyan Din Karmoshti Barta Mon Hol:**  
Present Status of ongoing projects/programmes

---
07. Where the organization intends to belong: District ☐ Metropolitan ☐

08. Type of the organization: Implementing NGO ☐ Sector Network ☐ International NGO ☐

09. If it is an implementing Agency
   ☐) The name of the implementing body is ____________________________

10. Whether it belongs to any Coalition, Network or Sector Network:

11. If the organization is a Sector Network:

12. Which kind of programmes or NGOs being supported by this Network:

13. Total number of members or partners of the Sector Network:

14. Total expenditure of the organization over the last three years:

15. Total number of permanent staff on the date of application:

16. Total number of beneficiaries:
আবেদনকারীর ঘোষণা (Declaration of the Applicant)

আমি, নিউপোর্টার্ম এক্সিউটিভ প্রধান নিযুক্ত করিয়ে আছি, আমার সংগঠন (..................................................)
ফেডারেশন অব এনজিওস ইন বাংলাদেশ-এর আদর্শ, উদ্দেশ্য ও কর্মকাণ্ডে আকৃতি হয়ে এবং সংগঠনের পর্যায়ে প্রতি পূর্ণ আশা ও আনুভূতি প্রকাশ করে তার সদস্যপদ লাভে অসাধ্য ব্যক্তি করিয়ে।

আমি প্রত্যেক্ষ নিযুক্তি দ্বারা, আমার সংগঠনকে সম্মান করা হলে আমি বা আমার সংগঠন উক্ত ফেডারেশনের গঠনকারী,
আদর্শ, উদ্দেশ্য ও কর্মকাণ্ডের গুরুত্ব সম্পর্কে অস্ত্রিশীল ধারক। আমি আরো ঘোষণা করি যে, আমি বা আমার
সংগঠন কোন রাজনৈতিক দলের সদস্য বা কর্মকাণ্ডের সাথে সম্পৃক্ত নই এবং ভিন্নতের সম্পর্ক হবে না।

I, the undersigned hereby declare that my organization (..................................................) being
attracted by the objectives and activities of the Federation of NGOs in Bangladesh (FNB) and expressing
allegiance to the Constitution and Memorandum of FNB seeks its membership.

I do affirm that if my organization is given membership of FNB it shall always remain committed to the
constitution, objectives and activities of the FNB. I further declare that neither me nor my organization is
associated in any way with any political party, nor will be in future.

নির্বাহী প্রধানের স্বাক্ত
Signature of the Chief Executive

নাম (Name): ........................................

ঐতিহ্য (Date): ...................................

জাতীয় কার্যনির্বাহী বোর্ডের সভায় উপস্থাপন ও অনুমোদনের সতর্কতা
Date of submission and approval by NEB:

ফেডারেশন সভাপতির স্বাক্ত
Signature of the NEB Chair:

বিবর্ধ:

● প্রয়োজনমতে অতিরিক্ত কপি ব্যবহার করুন। [Please use extra sheets if required]

● পূর্বপক্ষ ফরমের সাথে সংগঠনের রেজিস্ট্রেশন সার্টিফিকেটের সত্যিকর অনুপ্রাণিত, সার্টিফিকেট অভিযোগ এবং কর্ম-হিসেবের

● এ৫ সূত্রের নির্বাহী কমিটির সদস্যদের নামের পূর্ণ তালিকা ও ঠিকানাএ আবেদনকারীর সাথে সম্পর্ক করতে হবে। [Also enclose

the full list and address of the Executive Committee Members of the Organization]
The Federations of NGOs in Bangladesh (FNB)
Information sheet for the Directory of NGOs in Bangladesh

Central Office:
House # 64/A, Road#15/A
Dhanmondi R/A, Dhaka-1209

Name of the organization :  
Address :  

Phone :  
Fax :  

E-mail :  
Web-site :  

Name of the Chief Executive :  
Designation:  

Regional/Project/Branch office:
(Attach extra sheet with detail address)

Working Day :  
Office Time :  

Name of the Programmes (put tick marks in the box of programmes which you are implemented or involved)

- Adivasis/Emic Minority
- Advocacy & Lobbying
- Agriculture
- Child Education
- Credit
- Dev.Com.&Pub
- Election Monitoring
- Fisheries
- Gender & Development
- Human Resources Dev.
- Institution Building
- Library
- Media Linkage/Campaign
- Non-formal Primary Education
- Reproductive Health
- Scholarship Programme
- Street Children
- Village Volunteer Programme
- Women’s Development

- Adolescent Children
- Aids Prevention
- Arsenic
- Child Survival
- Day care centre
- Disabled
- Entrepreneurship Development
- Food Processing
- Health & Nutrition
- Human Rights
- Land Reform & Dev.
- Livestock
- Micro Enter.Dev.
- Poultry
- Research
- Sectoral Forum
- Sustainable Agriculture
- Voter Education
- Working with the Old

□ Adult Education/Mass Lit
□ Alternative Tech.Dev.&Trg
□ Capacity Building
□ Coordination
□ Democracy
□ Disaster Pre.& Management
□ Env. & Social Forestry
□ Functional Education
□ Housing
□ Infrastructure Dev
□ Legal Aid/LegalEdn.
□ MCH & FP
□ Networking
□ Prevention of Drug/Add
□ Rural Enterprise Dev.
□ Social Mobilisation
□ Training
□ Water & Sanitation
□ Others

Signature:
Chief Executive
Date:
C.2 REPORTS OF PATRON MANAGEMENT SYSTEM
# Fund Information

## BRAC

<table>
<thead>
<tr>
<th>Fund Source</th>
<th>Remarks</th>
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<tbody>
<tr>
<td>Bangladesh Bank</td>
<td></td>
</tr>
<tr>
<td>Janata Bank</td>
<td></td>
</tr>
<tr>
<td>Khan Foundation</td>
<td>Private Company</td>
</tr>
</tbody>
</table>
# The Federations of NGOs in Bangladesh (FNB)

**House# 64/A, Road# 15/A**  
Dhanmondi R/A, Dhaka-1209  
Tel: 815 1920-1, Fax: 815 1920-1  
Website: www.fnb-web.org

## Program Information

### BRAC

<table>
<thead>
<tr>
<th>SL No.</th>
<th>Programs Supported</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Arsenic</td>
</tr>
<tr>
<td>2</td>
<td>Child Education</td>
</tr>
<tr>
<td>3</td>
<td>Democracy</td>
</tr>
<tr>
<td>4</td>
<td>Disabled</td>
</tr>
<tr>
<td>5</td>
<td>Health and Nutrition</td>
</tr>
<tr>
<td>6</td>
<td>Livestock</td>
</tr>
<tr>
<td>7</td>
<td>Micro Finance</td>
</tr>
<tr>
<td>8</td>
<td>Networking</td>
</tr>
<tr>
<td>9</td>
<td>Poultry</td>
</tr>
<tr>
<td>10</td>
<td>Sanitation</td>
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<tr>
<td>11</td>
<td>Street Child</td>
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<tr>
<td>12</td>
<td>Trining</td>
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<td>13</td>
<td>Water</td>
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### Districts Covered

<table>
<thead>
<tr>
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</tr>
<tr>
<td>3</td>
<td>Faridpur</td>
</tr>
<tr>
<td>4</td>
<td>Narayanganj</td>
</tr>
<tr>
<td>5</td>
<td>Rajshahi</td>
</tr>
<tr>
<td>6</td>
<td>Sylhet</td>
</tr>
</tbody>
</table>
# The Federations of NGOs in Bangladesh (FNB)

**House #: 84/A, Road #: 15/A**  
**Dhanmondi R/A, Dhaka-1209**  
**Tel: 815 1920-1, Fax: 815 1920-1**  
**Website: www.fnb-web.org**

## Detail Information

### BRAC

<table>
<thead>
<tr>
<th>Member</th>
<th>Member</th>
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<tbody>
<tr>
<td>Membership Type</td>
<td>Regular Member</td>
</tr>
<tr>
<td>Street</td>
<td>66, Mohakhali</td>
</tr>
<tr>
<td>Post</td>
<td>1212</td>
</tr>
<tr>
<td>Area</td>
<td>Mohakhali</td>
</tr>
<tr>
<td>Upazila</td>
<td>Dhaka</td>
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<tr>
<td>District</td>
<td>Dhaka</td>
</tr>
<tr>
<td>Phone</td>
<td>897877</td>
</tr>
<tr>
<td>Mobile</td>
<td>01718768768</td>
</tr>
<tr>
<td>Fax</td>
<td>87789889</td>
</tr>
<tr>
<td>WebAddress</td>
<td><a href="http://www.brac.com">www.brac.com</a></td>
</tr>
<tr>
<td>Email</td>
<td><a href="mailto:brac@yahoo.com">brac@yahoo.com</a></td>
</tr>
<tr>
<td>Head Office Street</td>
<td>66, Mohakhali</td>
</tr>
<tr>
<td>Head Office Post</td>
<td>1212</td>
</tr>
<tr>
<td>Head Office Area</td>
<td>Mohakhali</td>
</tr>
<tr>
<td>Head Office Upazila</td>
<td>Dhaka</td>
</tr>
<tr>
<td>Head Office District</td>
<td>Dhaka</td>
</tr>
<tr>
<td>Year of Establishment</td>
<td>1990</td>
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<td>Organization Belongs to</td>
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<tr>
<td>Type of Organization</td>
<td>Sector Network</td>
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<td>Working Days</td>
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</tr>
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<td>Working Hours</td>
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</table>

<table>
<thead>
<tr>
<th>Total Number of Partners</th>
<th>Total Number of Employees</th>
<th>Total Number of Beneficiaries</th>
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</thead>
<tbody>
<tr>
<td>0</td>
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<td>21,312,323</td>
</tr>
</tbody>
</table>

**Programs Covered in:**

<table>
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<th>Total Number of Districts</th>
<th>Total Number of Upazilas</th>
<th>Total Number of Unions</th>
</tr>
</thead>
<tbody>
<tr>
<td>5,654</td>
<td>435,345</td>
<td>353,454</td>
</tr>
</tbody>
</table>

**Brief Introduction of the Organization**

...
The Federations of NGOs in Bangladesh (FNB)

Houseoff 64/A, Road# 15/A
Dhanmondi R/A, Dhaka-1209
Tel: 815 1920-1, Fax: 815 1920-1
Website: www.fnb-web.org

Contact Information

<table>
<thead>
<tr>
<th>Name of the Contact Person</th>
<th>Designation</th>
<th>Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr. Matin</td>
<td>Director</td>
<td>68-2 Dhanmondhi</td>
<td>88 02 4335</td>
<td>85464556</td>
<td><a href="mailto:matin@yahoo.com">matin@yahoo.com</a></td>
</tr>
<tr>
<td>A. Rahman</td>
<td>General Manager</td>
<td>20-C Lalmatia</td>
<td>97878797</td>
<td>798798787</td>
<td><a href="mailto:rahman@yahoo.com">rahman@yahoo.com</a></td>
</tr>
</tbody>
</table>
C.3 FEEDBACK FROM USERS ON THE USE OF PROTOTYPE
To Whom It May Concern

A Microsoft Excel sheet was provided to FNB by the ConnectBD Limited after some participatory interview session. Since we have knowledge in Excel it was easier for us to insert required information in the sheet. It also gave us a clear idea about the information required to develop the Patron Management software for FNB and we could easily provide our feedback on the sheet concerning the other information required to be included and/or removed.

On the basis of our feedback on Excel sheet ConnectBD Limited developed a Demo version of software that helped us to understand the way the system and the data flows will work, the types and designs of the forms and reports. It also helped us to explore and enhance our ideas and overall understanding on the whole process.

We found it to be a good method of communication and understanding between the software developers and the people who will be using the system.

Taposh Kumar Ghosh
Accounts Manager
CHAPTER I

SYSTEM REQUIREMENTS
PREPARING YOURSELF

Before installing Patron Management System (PMS) for Foundation of NGOs in Bangladesh (FNB), you need the following hardware and Operating System.

1.1. Hardware and Software Requirements

- To use System you need the following hardware and software configuration:

- Pentium II or higher or any other equivalent processor with a minimum of 64 MB (megabytes) of RAM.
- Minimum 2 GB free spaces in Hard Disk are recommended.
- CD-ROM drive
- VGA monitor, SVGA monitor or better. Monitor display of 1024 x 768 is recommended.
- Either Windows 98 or higher or Windows NT 8.0 or higher with service pack 3 or higher.
- Printer supported by your operating system, if you plan to print reports.
1.2. **Network Requirements**

If you want to use PMS in LAN environment you will need the following network requirement. PMS network requirements are the same whether you are sharing a data base file or printing to a network printer.

- Network using either Windows 95 or higher or Windows NT 8.0 or higher with Service Pack 3 or Novell Server (as file server) version - 8.0 or higher.

You should choose one location as data site for your company’s data base file. The location you choose should be accessible from all the computers that need to use PMS. You may also put the data base file on the computer of the person who uses the system most. This allows that person to have the fastest access to the data base file.

1.3 **Safety Requirements**

To ensure safety of the system Norton or any other anti-virus software should be used. To protect loss of data, back up should be taken at the end of every week. Anti-virus is recommended to be updated within every 15 days.

1.4 **Security Requirements**

To ensure security every user should be given a user name and password by the administrator. The user can change his/her password if s/he wishes but the password must not be disclosed to anybody else.
CHAPTER II

INSTALLING PATRON MANAGEMENT SYSTEM (PMS)
2.1 Installing Patron Management System (PMS)

This section will instruct you how to install PMS.

- If you are a new user of Windows, Onscreen Tutorial (comes with Windows) will help you to learn about basic Windows techniques.

- To install the system shut down all running programs, including virus protection programs because some virus protection programs interfere with installation.

- Before using PMS install it from CD. Make sure that you have enough space in your hard disk. The process of installing the software is described below:

2.2 Browse from Installation CD.

Insert PMS Installation CD into the CD ROM Drive of your computer. Open the CD from My Computer or Explorer and Figure 2.2 will be displayed on the screen:
Figure 2.2 Contents of the Installation CD
2.3. Start Installation

Click `setup.exe` icon and it will start the installation wizard.

**Step 1:**

Click **OK** to install PMS or click **Exit Setup** to exit.

![Figure 2.3.1 Welcome Window](image-url)
Step 2:

The Change directory window will appear as figure 2.3.2. The default directory is C:\Program Files\PMS. You can click Change Directory and select the path if you want to change this path. Click Setup Icon to continue.

Figure 2.3.2 Change Directory Window
Step 3:

Select Program Group Window will appear as figure 2.3.3. You can Choose Program group where PMS will be found in [Start]→[Programs] on your computer. Press [Continue] to continue installation.
Step 4:

Progress Window will appear as figure 2.3(d). After completing installation this window will be closed automatically and show the message of successful installation.

Figure 2.3.4 Progress Window
CHAPTER III

BASIC SETTINGS
3.1 Database Connection Form:

At the first time when you run the software, you will see the following form on the screen:

![Database Connection Form](image)

Figure 3.1(a): Database Connection Form

This is the form by which you can connect your database from your server machine. Write your Server name in the “Host Name” text box. Enter ID in the “User ID” text box. If you have Password then enters the password in the “Password” text box. Write your database name in the “Database” text box. Now click on the “OK” button and the Sign-in form will be displayed on the screen as bellow:
Each user name must be different and have a password to sign-in to that user’s session. When you install this software a user named “admin” and password “admin” is automatically created. You must login with this default User Name and Password when you login for the first time after installation and then you can create new user if necessary (the steps to create new user is described in section 3.3).

Write User Name as “admin” and Password as “admin” in the corresponding text boxes. Click on “OK” button and you will get the permission to use this software.

When Sign-in the menu is displayed on the screen. Click on settings and this menu serves 3 purposes:

- The user can enter company information from the Company Information submenu.
- The user can enter user related information from the Admin submenu.
- The user can exit from the system from Exit submenu.
3.2 Company Information Entry Screen:

Figure 3.2 is company information entry screen. This Form will store the information about your organization. In this screen you must enter the name of your organization in the “Organization” field and address of the organization in the “Address” field. These two fields are mandatory i.e. you must have to supply values for these two fields. Other fields are optional. Only one company information should be stored in your system. You can modify the information but not delete it. This will be the title address of all reports generated from the inventory system.

After any new entry or modification click the “Save” button to make the changes permanently.
3.3 Create/Delete User:

User name is the name of the users who use this software. The maximum length of user name and password will be 10 character of any valid character (Numeric or Alphabetic or any combination). The administrator of the application can create users of three different levels.

**User levels**: Levels of user is nothing but the privilege grants for a user.

**Admin**: is the Top-level user and has the authority to perform any kind of activities. This user can create new user and can invoke every corners of the software.
Supervisor: is the Medium-level user. This user can perform any kind of activities but cannot create any new user.

Entry: is the Low-level user. This user can perform searching, adding or modifying records but does not have the right to delete records.

Figure 3.3 New User Entry Screen.

To create a new user, follow the steps given below:

- Click on the “Settings” menu, click “Admin” and click “Add New/Delete User”.
- Set user name and press Tab
• Click the User Level according to the authority you want to grant for the user & Press Tab.

• Enter password & press Tab.

• Enter the same password in the Confirm Password field to confirm that the password has been typed correctly. Press Tab and click Save.

  A new user has been created and the user can log in using the new User Name and Password.

  You can delete an existing user if you are an admin level user.

  To delete a user follow the steps given below:

  • Enter the User Name (the User Name must be an existing user name) and press Tab.

  • Enter password.

  • Click Delete to delete the User.

---

Note: If the “Delete” button is not enabled then the user name entered in the “User Name” field is not an existing user.
3.4 Change User Password Screen:

Any user can change his/her password. To do this the user must enter his/her User name, old password to confirm that he/she has the right to change the password and then enter the new password in the “New Password” and “Confirm Password” fields.

![Change Password Screen](image)

Figure 3.4 Change Password Screen.
CHAPTER IV

PATRON MANAGEMENT SYSTEM (PMS)
This section will instruct you how to use Patron Management System section of the software. Patron Management System Operating Manual is very easy and user friendly, which is described below. The Basic Settings for User and Company has been described in Chapter 3.

The software has three menus from where the user can easily navigate between various options and functionality of the software.

4.1 Data Entry Menu:

This menu provides two functionalities to the user

- The user can add, edit, delete and view NGO Information.
- The user can add, edit, delete and view member information.

![Data Entry Menu]

Figure: 4.1 Data Entry Menu
4.2 NGO Information Screen:

To view “NGO Information” screen click “Data Entry” option in the menu and then click on “NGO Information”.

![NGO Information Screen](image)

Figure: 4.2(a) NGO Information Screen

- You can also view information of the existing NGOs by clicking on the “information of the existing NGO” icon beside Organization Id.
- To ADD any new NGO Click on the “Add” Button. Enter all the required information in the corresponding text boxes.
If the NGO is a member organization then click on “Member” and select the type of membership. This will enable “Legal/Program Information” and “Network Supported/Expenses” tab. Click on the required tab and input all the information. A member Organization will have NGO/Contact Information(fig. 4.3(a), Legal/Program Information, Network Supported/Expenses and NGO Directory information. The Legal/Program, Network Supported/Expenses and NGO Directory are as follows:

![NGO Information](image.png)

Figure 4.2(b) Legal/Program Information
Figure: 4.2(c) Network Supported/Expenses
A non-member organization will have only NGO/Contact and NGO Directory information.

To add Contact Information/Registration Information/Expenses/Branch Information/Financial Information type the information in the corresponding text boxes and click button. To Remove an information from a list double click on the information and click . To make changes to any of the information in the list double click on the information and the information will appear in the corresponding text boxes. Make required changes and click on “Add Row”. Note that changes made in the first field (column) of the list will be considered as a new record.
To select a program from Program Information click beside the textbox “Program” and select the program.

- If the Program is not in the list click the button “Program” and carry out the process described in 4.3(d) and then click on and double click on the program or select the program and click add.

- When all the information of an organization is entered click on “Save”. Note that, Legal/Program Information and Network Supported/Expenses can be only entered if the organization is a member NGO.

- To edit or delete an information click on button beside “Organization ID” text box and select the organization. Click on Edit, make changes and click on save. To select the organization and click on Delete.
To add a new Program Information click on Add and input information in the corresponding text boxes and “Click on Add Row”.

To edit a program information click on “Edit” and double click on the program information you want to edit. The selected program information will appear in the corresponding text boxes. Make required changes and click on “Add Row”. Note that change in the Program ID will be considered as a new record.
To delete a program information click on Edit and double click on the information. The information will be shown in the corresponding text boxes. Click on Del Row and Save. This will delete the program from the list and the new list will be saved.

4.3 Renew Membership Screen

This form helps to select the NGOs who has renewed their membership. Click “Data Entry” from the menu and then click “Renew Membership”.

Figure 4.3 Membership Renewal Screen
To view the members of the previous years click on and the NGOs who were members during that particular year will appear on the list under the title “List of Members”. The names of the NGOs which will appear under the title “List of NGOs” are the NGOs who were not the members for that particular year.

To add members into a year click Add, select the year by clicking on , select the ID or name of the NGO and click when all the member NGOs have been added click Save. To remove a NGO from the list click .

To edit an information click on “Edit” select the year, add or remove information from the list and click on Save.

To delete an information select the year and click Delete.