



DEVELOPING A SOFTWARE FOR BRAC BANK
UNIT/ZONAL OFFICE MANAGEMENT SYSTEM FOR
SMOOTH SME OPERATION

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The internship Report on “Developing software for BRAC Bank Ltd. Unit/Zonal Office Management System (BBLUZOMS) for Smooth SME operation” submitted by ABUL KALAM AZAD, ID No 01201068 to the Department of Computer Science and Engineering, BRAC University has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of Bachelor of Science in (Computer Science) and approved as to its style and contents.

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Transmittal Letter

July 26, 2006

Md. Sumon Shahriar

Lecturer

Department of Computer Science and Engineering

BRAC University, Dhaka

Subject: Internship Report submission.

Dear Sir:

It is great pleasure for me to submit my Internship Report on “Developing software for BBL Unit / Zonal Office Management System (BBLUZOMS) for Smooth SME operation of BRAC Bank Limited”.

This report has given me the opportunity to work with the current situation with problems and prospects and also meet my academic purpose. I think that I have tried more to find out the prospects, problems, related information and data for my proposed System to develop and tried heart and soul to give appropriate solution. Last but not the least, I appreciate this opportunity to show my profound gratitude to you for sparing your valuable time, guidance, constant effort and prompt attention as and when required for accomplishing this internship report. Now, I am requesting you to go through the whole report. I have attached with it and consider my findings with your great knowledge.

Sincerely Yours,

Abul Kalam Azad

ID # 01201068

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Table of Contents

	Page
Title	1
Approval	2
Transmittal letter	3
Table of contents	4
Abstract	6
Acknowledgements	7

Chapter One: Introduction

1.1 Goals and Objectives	9
1.2 Project Scope	9
1.3 Why “BBL Unit / Zonal Office Management System?”	9
1.3* Conversation with BRAC Bank Authority	10
1.4 System	10
1.4.1 System Analysis and Design	11
1.5 Systems Development Life Cycle	11
1.6 Identifying and Gathering Requirements	17
1.6.1 Gathering Information by Interviewing	18
1.6.2 Gathering Information by Observation	22

Chapter Two: Description

2.1 Administrator Mode	24
2.2 User Mode	26
2.3 Product History	28
2.4 Run Time Environment	29
2.5 VB Development Environment	29
2.6 Data Access Programming	31

Chapter Three: Investigation and Information gathering

3.1 Feedback after using the Demo	32
3.2 Information gathering	32
3.2.1 Information Gathering by taking Interview	33
3.2.2 Information Gathering by Observation	37
3.3 Determining Systems Requirements	38
3.4 Methods of collecting system requirements	39
3.5 Questions to Develop the Software	39



Chapter Four: Proposed Design of the Software

4.1	Data Flow Diagram of the Proposed System	41
4.2	Class Diagram.....	42
4.3	System Flow Diagram.....	43

Chapter Five: Database Concepts

5.1	How an update is transmitted to the data source	45
5.2	Passing Parameters.....	47
5.3	Updating Related Tables	47
5.4	Refreshing the Dataset	48
5.5	Concurrency Control.....	49

Chapter Six: Design Tools

6.1	Deciding Which Technologies and Tools To Use	50
6.2	Microsoft Visual Data Tools	50
6.3	Middle Tier Components and Microsoft Transaction Server	50
6.4	ActiveX Data Objects (ADO).....	51
6.5	Data Sources and Data Controls	51
6.6	Dynamic Data Binding.....	51
6.7	Presenting Data to the End User	52
6.8	Data Formatting and Data Validation	52
6.9	Language Features	52
6.10	DHTML and Data Access	53

Chapter Seven: Implementation and Testing

7.1	Implementation	59
7.2	Testing.....	60

Chapter Eight: Conclusion.....61

References & bibliography

References	64
Bibliography	65



ABSTRACT

The target purpose of the thesis is to develop a software, which is capable of storing all the information of Customer Relation Officer (CRO), other officials and of Unit offices / Zonal offices and also able to generate the report for Individual staff, Individual unit office or altogether for operating the SME Loan smoothly and properly. I plan to focus on analysis and design of the existing system. A user provides the data of the Customer Relation Officer (CRO), other officials and of Unit offices / Zonal offices along with specifications. The software is responsible for finding a solution. The difficulty of this research project is designing an effective method to resolve the SME loan scheme and to come up with a properly compensated system.

[Back to Table of Contents](#)



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First I would like to thank BRAC University for giving me the opportunity to be here and to do the internship in BRAC Bank Ltd. My deepest thanks to my thesis supervisor, Md. Sumon Shahriar; his help and support in the writing of this thesis will always be greatly appreciated and I thank him for his friendship simplicity. Thanks to Pro-Vice Chancellor, Dr. Salehuddin Ahmed Sir, for supporting me to do my internship in BRAC Bank Ltd. I would also like to express sincere gratitude to Mr. Faruk Ahammad, Senior Assistant Vice President, BRAC Bank Ltd, for his all types of help and support while I was doing my duties in the BRAC Bank. I also want to express my gratitude to Mr. Shyamal Kumar Biswas, AVP, Mr. Mustafa Sarwar –E-Alam, SPO, Mr. Bashir Ahmed, Officer, and Miss. Masrura Begum (Lipi), Executive for their invaluable help, support and for the encouraging discussion and guidance.

At the end of my thesis, I would like to acknowledge all the persons who have cooperated and worked together with me. Without their help, this report writing would have been quite impossible. So my earnest thanks to them for their collaboration and support.

This Internship give me the chance of visiting Financial Administration Department (FAD) of BRAC Bank Ltd. with real life experience, which helped me to acquire clear insight about the real life Banking systems. It was a thoroughly enjoyable experience.

I am thankful to all of the staffs of BRAC Bank Ltd and my classmates- for continuous support, assistance, and inspiration.

However, I am the only responsible for the errors and omissions in the report, if any.

[Back to Table of Contents](#)



Chapter One

Introduction

This report contains the documentation of the Software of “BBL Unit / Zonal Office Management System”. This documentation has the representation of my software and how the software works in the system. I tried to explain each of the modules and how the modules work. My main software has been developed basing on the existing MS Excel Application through which BRAC Bank is currently maintaining its Unit / Zonal office Management System. This Software is corrected and checked by the Authority of Financial Administration (FAD) of BRAC Bank Limited. In the main software, I have introduced the security section and the multi-user accessibility option. The Admin mode will allow to change, add, edit the unit / Zonal offices, staffs and nothing else. But the user mode will allow to change, add, edit only the records / data of the staffs. They can't add, change or edit staff or unit / zonal offices. In this documentation I am also going to brief all the steps I have done and what I am going to do at future.

Computer is a machine that performs tasks, such as calculations or electronic communication, under the control of a set of instructions called a program. Programs usually reside within the computer and are retrieved and processed by the computer's electronics. The program results are stored or routed to output devices, such as video display monitors or printers. Computers perform a wide variety of activities reliably, accurately, and quickly.

There are not only a variety of uses of computers in systems, but there are also many different ways to build systems. Sometimes a system just evolves .it may start with a very simple program to which more and more functionality is gradually added. Sometimes systems are built experimentally, trying out new ideas as the system is built. On the other hand, the development of an information system for a large business application must be carefully planned and monitored. Many information systems now use computer systems for manipulating information and are sometimes called computer-based information



systems.

1.1 Goals and Objective:

My main goal is to develop a fully automation Software and secure BBL Unit / Zonal Office Management System for the enhancement of BRAC Bank Ltd. , where user-friendly environment is my main concern matter.

1.2 Project Scope:

The main goals of the BBL Unit / Zonal Office Management System are to bring easy access, viewing and printing any essential data or reports. After successfully completion of the System, we can reach to the target purpose.

1.3 Why “BBL Unit / Zonal Office Management System”:

The reasons to convert the traditional system into the automated “**BBL Unit / Zonal Office Management System**” are:

- Easy and First Transaction
- Less error
- More Security and Authorization
- Less paper work
- Easy reporting
- Multi User Accessibility
- Job Distribution
- Time consuming
- Easy and speedy search and query



[Back to Table of Contents](#)

1.3 *Conversation with BRAC Bank Authority:

I have done several meetings, and conversation to study and learn about the traditional MS Excel Application system of BRAC Bank Ltd for Unit / Zonal Office management System. They gave me the both hard copy of sample format as well as the soft copy format as an instruction of the current system that they are using for their Unit / Zonal office management.

1.4 System

System is any collection of component elements that work together to perform a task. In computer science, system is used in a variety of contexts. A computer is a hardware system consisting of a microprocessor and allied chips and circuitry, plus an input device (keyboard, mouse, disk drive), an output device (monitor, disk drive), and any peripheral devices (printer, modem). Within this hardware system is an operating system, often called system software, which is an essential set of programs that manage hardware and data files and work with application programs. External to the computer, system also refers to any collection or combination of programs, procedures, data, and equipment utilized in processing information: an accounting system, a billing system, a database management system.

System is an integrated aggregation of end items, interfaces, and support functions designed to fulfill a specific mission requirement. A system may include equipment, trained personnel, facilities, data and procedures, and software. For project purposes, a system is typically defined as the highest level of hardware organization composed of multiple subsystems. The term is also used to describe a disciplined and consistent approach to accomplish a task.



[Back to Table of Contents](#)

1.4.1 System analysis and design

System analysis and design is a complex, challenging and simulating organizational process that a team of business and systems professionals uses to develop and maintain computer-based information system.

System analysis is “finding out what a system does and what its needs are“. System analysis is an important activity that takes place when new information systems are being built or existing ones are changed. Its more crucial role is in defining user requirements. System analysis, often now called business systems analysis to emphasize its business emphasis, is needed in the first instance to clearly identify what is possible and how a new system will work. This includes gathering the necessary data and developing models for new systems.

Information systems are developed for different purposes, depending on the needs of the business. Transaction processing system (TPS) function at the operational level of the organization; office automation system (OAS) and knowledge work system (KWS) support work at the knowledge level. High-level systems include management information system (MIS) and decision support system (DSS). Expert system applies the expertise of decision makers to solve specific, structured problems. On the strategic level of management we find executive support system (ESS). Group decision support system (GDSS) and the more generally computer supported collaborative work (CSCW) system aid group-level decision making of a semi structured of unstructured variety.

1.5 Systems Development Life Cycle

Systems Development Life Cycle (SDLC) is the overall process of developing



information systems through a multi step process from investigation of initial requirements through analysis, design, implementation and maintenance.

[Back to Table of Contents](#)

There are many different models and methodologies, but each generally consists of a series of defined steps or stages. The Systems Development Life Cycle (SDLC) is a conceptual model used in project management that describes the stages involved in an information system development project from an initial feasibility study through maintenance of the completed application. Various SDLC methodologies have been developed to guide the processes involved including the waterfall model (the original SDLC method), rapid application development (RAD), joint application development (JAD), the fountain model and the spiral model. Mostly, several models are combined into some sort of hybrid methodology.

In general, an SDLC methodology follows the following steps:

1. The existing system is evaluated. Deficiencies are identified. This can be done by interviewing users of the system and consulting with support personnel.
2. The new system requirements are defined. In particular, the deficiencies in the existing system must be addressed with specific proposals for improvement.
3. The proposed system is designed. Plans are laid out concerning the physical construction, hardware, operating systems, programming, communications, and security issues.
4. The new system is developed. The new components and programs must be obtained and installed. Users of the system must be trained in its use, and all aspects of performance must be tested. If necessary, adjustments must be made at



this stage.

[Back to Table of Contents](#)

5. The system is put into use. This can be done in various ways. The new system can be phased in, according to application or location, and the old system gradually replaced. In some cases, it may be more cost-effective to shut down the old system and implement the new system all at once.
6. Once the new system is up and running for a while, it should be exhaustively evaluated. Maintenance must be kept up rigorously at all times. Users of the system should be kept up-to-date concerning the latest modifications and procedures.

Phase I: Project Identification and Selection

The first phase of SDLC is project identification and selection. In this phase, an organization's total information system needs are identified, analyzed, prioritized and arranged. Someone identifies the need for a new or enhanced system. Project identification and selection consists of three primary activities:

- a. Identifying potential development projects
- b. Classifying and ranking projects
- c. Selecting projects for development

Phase II: Project Initiation and Planning

In project initiation and planning phase a potential information systems project is explained and an argument for continuing or not continuing with the project is presented and a detailed plan is also developed for conducting the remaining phases of SDLC for proposed system. Two major activities in this phase are investigation of the system

problem or opportunity and the reasons why the system should or should not be developed by the organizations. The scope of the proposed system is determined in this phase.

[Back to Table of Contents](#)

Elements of project planning are:

- ✓ Describe the Project Scope, Alternatives and Feasibility
- ✓ Dividing the Project into Manageable Tasks
- ✓ Estimating Resources and Creating a Resource Plan
- ✓ Developing a Preliminary Schedule
- ✓ Developing a Communication Plan
- ✓ Determining Project Standards and Procedures
- ✓ Identifying and Assessing Risk
- ✓ Creating a Preliminary Budget
- ✓ Developing a Statement of Work
- ✓ Setting a Baseline Project Plan

Phase III: Analysis

In analysis phase the current system is studied and alternative replacement systems are proposed. Analysis phase have several sub phases. The first is requirements determination. Methods for determining requirements are:

- ✓ Interviewing and Listening
- ✓ Directly observing Users
- ✓ Analyzing Procedures and other Documents
- ✓ Joint Application Design
- ✓ Using Prototype Identifying
- ✓ Processes to Reengineer

Then according to the requirement structure the system in context of their interrelationship and eliminate redundancies. Third, generate the alternative initial designs to match the requirements. Then from the alternatives determine the best solution



that meet requirement properly and the cost, labor and technical levels of the organization is willing to commit to the development process. The output of the analysis phase is the alternative solution of the existing system.

[Back to Table of Contents](#)

Phase IV: Design

In the design phase description of the recommended solution is converted into logical and then physical system specifications. Design focuses on high level design like, what programs are needed and how are they going to interact, low-level design (how the individual programs are going to work), interface design (what are the interfaces going to look like) and data design (what data will be required). During these phases, the software's overall structure is defined. Analysis and Design are very crucial in the whole development cycle. Any glitch in the design phase could be very expensive to solve in the later stage of the software development. Much care is taken during this phase. The logical system of the product is developed in this phase.

Design phase has two parts: logical design and physical design. Logical design is the part of the design phase in which all functional features of the system chosen for development in analysis are described independently of any computer platform. Physical design is the logical specifications of the system from logical design are transformed into technology-specific details from which all programming and system construction can be accomplished.

Design phase highlighted on:

- ✓ Files and Databases
- ✓ Forms and Reports
- ✓ Dialogues and Interfaces
- ✓ System and Program Structure



- ✓ Distributed Systems

[Back to Table of Contents](#)

Phase V: Implementation

In implementation phase information system is coded, tested, installed and supported the organization. In this phase the designs are translated into code. Computer programs are written using a conventional programming language or an application generator. Programming tools like Compilers, Interpreters, and Debuggers are used to generate the code. Different high level programming languages like C, C++, Pascal, Java are used for coding. With respect to the type of application, the right programming language is chosen.

Implementation activities also include initial use support such as finalization of documentation, training programs and ongoing user assistance. Elements of implementation phase are:

- ✓ Coding
- ✓ Testing
- ✓ Installation
- ✓ Documentation
- ✓ Training
- ✓ Support

Phase VI: Maintenance

In the maintenance phase information system is systematically repaired and improved. After implementation users faces some problems about how the system works and often think of better ways to perform its function. So modification or change is needed. Software will definitely undergo change once it is delivered to the customer. There are many reasons for the change. Change could happen because of some unexpected input values into the system. In addition, the changes in the system could



directly affect the software operations. The software should be developed to accommodate changes that could happen during the post implementation period. Major activities that occur in maintenance phase are:

[Back to Table of Contents](#)

- ✓ Obtaining Maintenance Requests
- ✓ Transforming Requests into Changes
- ✓ Design Changes
- ✓ Implementing changes

There are several types of maintenance. Corrective maintenance refers to changes made to repair defects in design, coding and implementation of the system. Adaptive maintenance involves making changes to an information system to evolve its functionality to changing business needs or technologies. Perfective maintenance involves making enhancements to improve processing performance, interface usability, and add desired requirements and features. Preventive maintenance changes the system to reduce the chance of future system failure.

1.6 Identifying and Gathering Requirements

Defining user requirements requires an understanding of how the system works and what its problems are. There are many important issues to consider in getting a clear picture of a system. One is to look at the current business processes in the system and identify the tasks in those processes. Or one can begin by examining particular system functions and their tasks. The tasks can then be examined in detail. Such examination can identify the users, who carry out the tasks, the interactions between the users, the tools they use and the artifacts on which they operate. Thus an analyst must always consider the users and what they do. To have preconceived ideas about a system and analysts must approach any study with an open mind. There are two main ways of doing this – namely



by:

- ✓ Asking questions by interviewing people in the system, through surveys and questionnaires, or by electronic means using e-mail or a discussion database.
- ✓ Directly observing the users.

[Back to Table of Contents](#)

1.6.1 Gathering Information by Interviewing

Interviewing is perhaps the most commonly used technique in analysis. There is no real way to avoid interviews, as they must precede any other method for gathering information about system requirements it is always necessary first to approach someone and ask them what their problems and priorities are, and later to discuss with them the results of the analysis.

Questionnaire: Gathering information by filling in a form. It provides an alternative to interviews for finding out information about a system. Questionnaires are made up of questions about information sought by the analyst. The questionnaire is then sent to the user, and the analyst analyzes replies.

Electronic data gathering: Electronic communication systems are increasing being used to gather information. Thus it is possible to use electronic mail to broadcast a question to a number of users in an organization to obtain their viewpoint on a particular issue.

In the organization some time must be spent in talking to or interviewing people. Such interviews may only be in the initial stages to identify the major issues, or they can proceed throughout the entire life of a project. Interviewing is the main approach used to analyze large structured system. Interviewing is gathering information by asking questions.

It is important to establish a good relationship with interviewees and this should start right at the beginning.



There are some basic premises that you should always be aware of when conducting interviews. First, you must gain the confidence of your interviewees. To do this you must convince the interview of your own abilities and show that you are proceeding in an organized way and will not waste their time.

[Back to Table of Contents](#)

You must also be sympathetic to their problems and not become aggressive and create the impression that you are there to apportion blame.

It is not important to force solutions upon users but rather to play the role of an advisor. Computer jargon should not be used to impress the user, though interviewers should explain the limitations of the computer in user terms and describe how it can assist users in their work. You should not try to elicit the response you want by asking leading questions.

Interviewers should also take care to ensure that they obtain all the needed information from interviews. It helps to let the user to know what information is required from the interview. The interviewer should then seek this information gradually and be precise and direct in their questioning.

The model and information about it grows at each interview. Analysts will be satisfied because their knowledge about the system is continually growing. The interviewees will more cooperative because they can see that their time is being used productively.

Interview search procedures: Search procedure is the process followed to gather information about a system. Information gathering in large systems with many information sources must proceed in an organized way to ensure that all the relevant information needed to build the system is obtained. Analysts must determine what information needs to be gathered and the users who are to supply this information. They



must then seek this information in an orderly way so that vital information is not neglected and being asked the same questions does not repeatedly bother people. To avoid such problems, it is necessary to develop a search procedure for gathering information. This procedure will define the steps to be followed in gathering information and the information to be obtained at each step.

[Back to Table of Contents](#)

Such steps usually require the search to proceed in a top-down manner, objectives to be set for each step, and an appropriate search method to be chosen for each step.

The search procedure suggests what order is to use to search information sources and what methods are to be used as the search proceeds. Thus the search procedure becomes a plan starting what information is to be obtained from each source and what sequence is to be used to search the sources.

The interview plan specifies:

- ✓ The users to be interviewed
- ✓ The sequence in which the users are interviewed and
- ✓ The interview plan for each user

The first step in developing an interview plan is to identify the users to be interviewed. Often an organization chart can be used to identify such users. This chart describes the organization's units, the positions in these units and each position's occupant. The analyst uses the project's terms of reference to select the organizational units that fall within the boundary of the system study and is likely to be affected by any new system. Persons in these units then become candidates for interviewing. It is usually wise to begin interviewing at the top levels of the organizational areas, in order to get support and cooperation from managements before beginning to look into particular organizational activities or suggesting new solutions. Management may then often suggest other users that should be interviewed and is more likely to support any proposed



changes.

There are also some common goals in each interview. Preparation for the interview is always essential. The analyst should have an idea of what information is needed from the interview and ask direct questions to get this information. If the current interviewee cannot answer, the analyst should ask for advice about where to go next.

[Back to Table of Contents](#)

Preparation for the interview is always essential. The analyst should have an idea of what information is needed from the interview and ask direct questions to get this information.

One of the most important points about interviewing is what question you need to ask. It is important to ask the right questions in the correct order to get the most out of interviews. Questions can be characterized by their subject content and type. Obviously, the subject content of a question will depend on the specific system study. However, the type of question can be generalized and there are general guidelines to help you to choose the most appropriate questioning method for the interview in question.

It is often convenient to make a distinction between three kinds of questions. These are

- ✓ Open questions
- ✓ Closed questions
- ✓ Probes

The above three are explain in the following way:

Open Questions: Open questions are general questions that establish a person's viewpoint on a particular subject. It requires the responder to express a viewpoint.

The first interview with a user should emphasize open questions. This enables



analysts to identify the values a user places on the system helps in gaining impression about the users like and dislike. This may then shape future interviews. Open questions also prompt the user to volunteer more detailed information so that closed questions may be unnecessary.

[Back to Table of Contents](#)

Closed Questions: Closed questions are more specific. It is a question that requires a direct answer. A closed question often restricts an interviewee to some specific answer. This may be a number, an explanation of a report, or a reason for doing something. The answer to closed questions can then be followed with a probe to get more detail.

It is possible to start with open questions follow then closed questions and then finished up with some more open questions. This approach is used mostly in follow-up interviews. It is an easy way to gradually lead a user into detailed questioning. Some people, when answering an open question, may provide enough information to make future detailed questions unnecessary. It is also possible to start with detailed questions and finished with open questions.

Probe: Probes are questions that follow up an earlier answer.

Interviewers must often select a particular questioning method for an interview. This method will use alternate sequence of closed and open questions.

1.6.2 Gathering Information by Observation

Interviewing and other ways of asking questions are characterized by having analysts learn about the system without themselves getting involved in the system. Interviews often emphasize what an individual does and how to support them, rather than



looking at the individual's relationship to their group. The analyst then has to correlate findings about individuals and determine how the whole group works. It is also the interviewer's responsibility to find out the objectives of each individual and try to make them cohesive.

[Back to Table of Contents](#)

Using ethnography: Ethnography is gathering information by observation. It is not a new field but, rather, a new approach to analyzing computer system requirements. One of its most important goals is not to superimposing the interviewer or analyst's viewpoint on the system but to use the viewpoint of the people within the system.

Analysis by observation: The goal here is to observe what people do in an unobtrusive way. The best way to do this is by video recording. It is important in video recording to ensure that the presence of the video camera itself does not alter behavior while at the same time collecting sufficient in depth information to make useful observations.

From observation to design: Another characteristic of the ethnographic approach is that objectives are developed with user participation. Considerable time, for example, may be spent on the design of workspaces through experimentation. Such workspaces not only include the computer screen but also the physical space used for any manual work on associated documentation or paperwork.

[Back to Table of Contents](#)

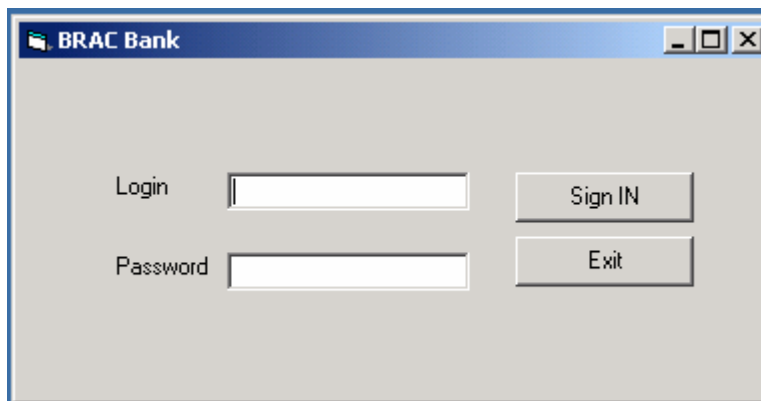
Chapter Two

Description

The Software named “BBL Unit / Zonal Office Management System” has been developed with Microsoft Visual Basic 6.0 and Microsoft Access and also with the help of Crystal Report 8.5. There are two modes of accessing the “BBL Unit / Zonal Office Management System” like 1) Administrator Mode and User Mode. These two modes are described here details:

2.1 Administrator Mode

Only the administrator can access this type of mode for any kinds of changing like staff adding, staff transferring, staff details updating, User adding, user editing and User deleting using the valid admin ID and admin password.

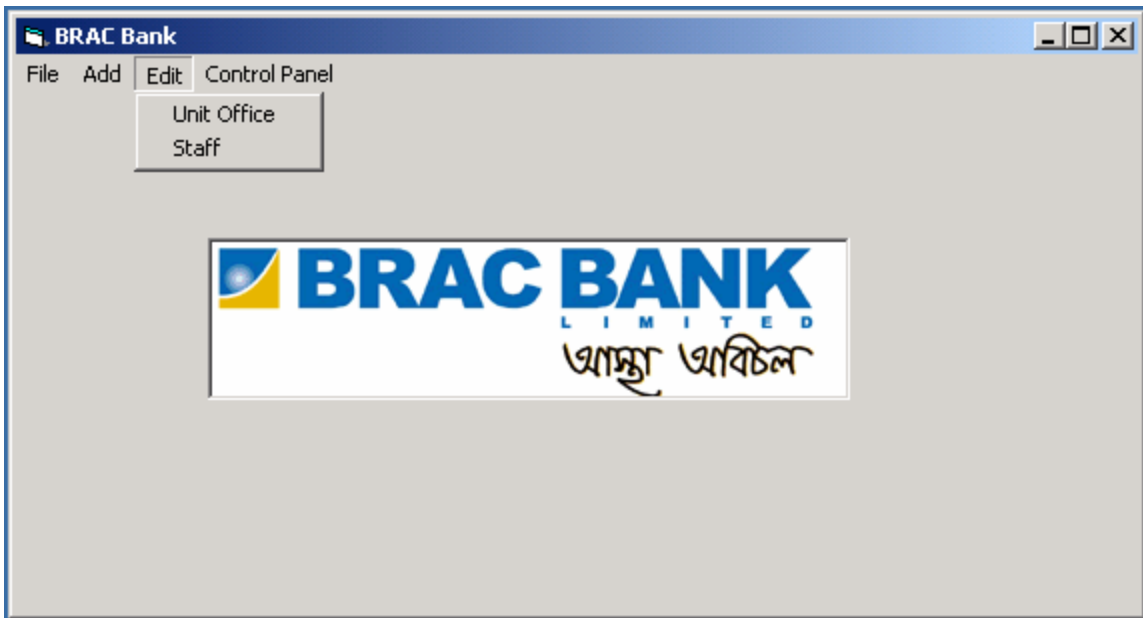


The screenshot shows a window titled "BRAC Bank" with a standard Windows-style title bar (minimize, maximize, close buttons). The window contains a login form with two input fields and two buttons. The first row has a "Login" label, a text input field, and a "Sign IN" button. The second row has a "Password" label, a text input field, and an "Exit" button.

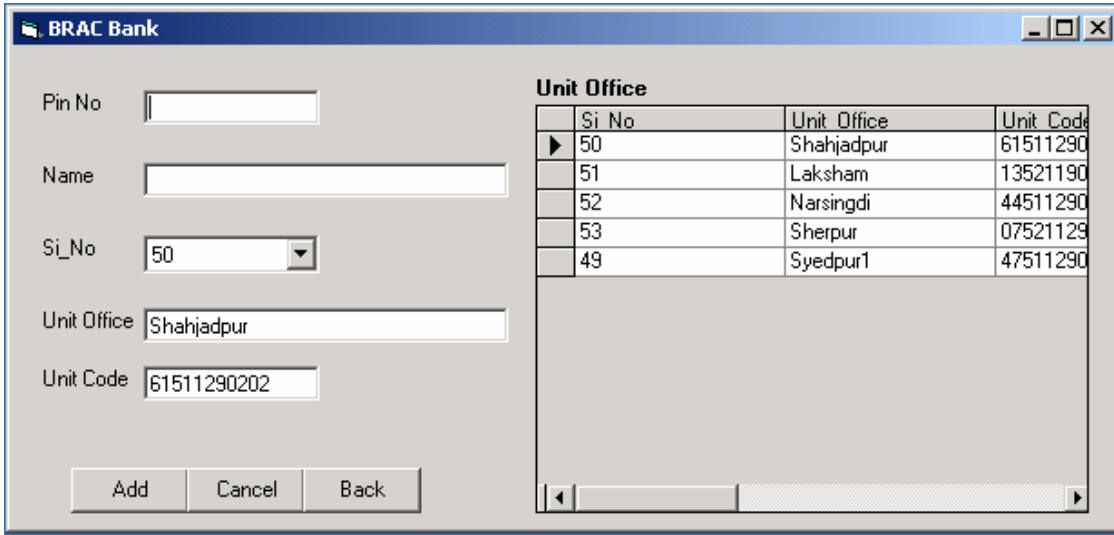


This is the main login form from where any one i.e. valid user or Administrator can enter the system with valid password. I am giving the admin ID and administrator password to enter the admin mode.

[Back to Table of Contents](#)



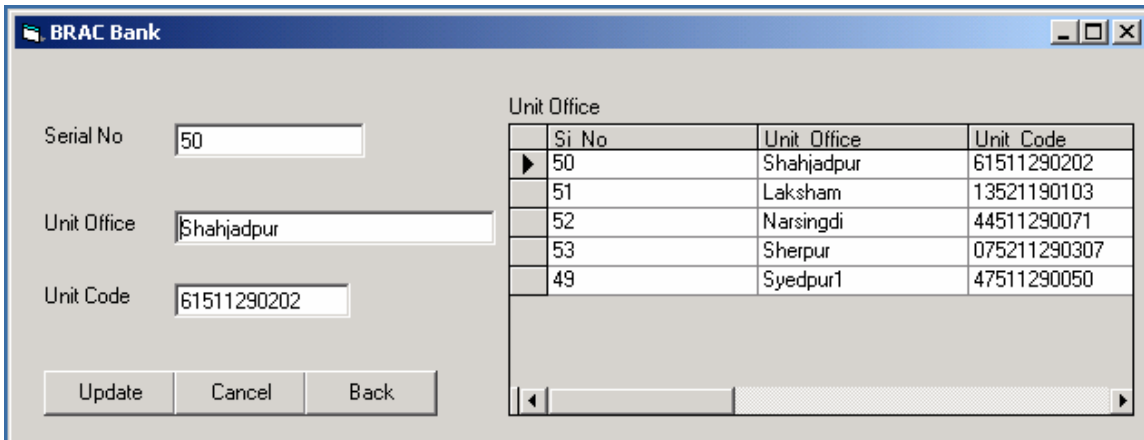
This is the administrator mode from where the administrator can add new staff, new unit office and can edit existing staffs and unit offices. From this page the administrator can add new user, edit existing user and also can delete any existing user.



Si No	Unit Office	Unit Code
50	Shahjadpur	61511290
51	Laksham	13521190
52	Narsingdi	44511290
53	Sherpur	07521129
49	Syedpur1	47511290

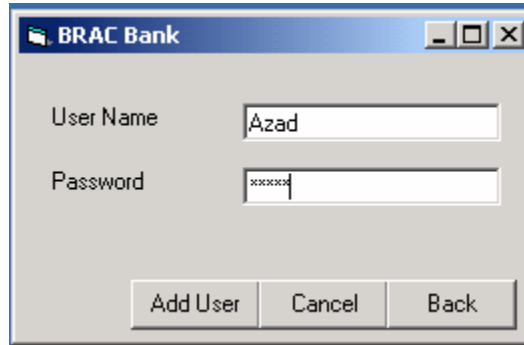
This is the staff-adding page where the administrator is required to enter the name and PIN of the new staff.

[Back to Table of Contents](#)



Si No	Unit Office	Unit Code
50	Shahjadpur	61511290202
51	Laksham	13521190103
52	Narsingdi	44511290071
53	Sherpur	075211290307
49	Syedpur1	47511290050

Using this page the administrator can edit unit offices.



A screenshot of a Windows-style application window titled "BRAC Bank". The window contains two input fields: "User Name" with the text "Azad" and "Password" with masked characters "xxxxxx". Below the fields are three buttons: "Add User", "Cancel", and "Back".

Using this page the administrator can add new users.

2.2 User Mode

Only the valid users can access this type of mode for any kinds of changing like adding staff details (various costs, TA, DA, Cleaner, WASA, Transportation conveyance etc.) staff details updating, using the valid User ID and User password.

[Back to Table of Contents](#)



A screenshot of the BRAC Bank main menu application window. The window title is "BRAC Bank". It features a menu bar with "File", "Record", "Staff", "View", and "Report". Under the "Record" menu, there are sub-options for "Add" and "Edit". The main area of the window displays the BRAC Bank logo and the Bengali text "আমরা আবিষ্কার".

Using this page the user can enter into adding records page to enter records to the database. The page below shows the records entry for Md. Nazrul Islam for March 2006



BRAC Bank

Year: 2006 Month: March

PIN: 10297

Name of Staff / Party: Md. Nazrul Islam

Zonal / Unit Office Name: Shahjadpur

Code Of Zone / Unit: 615

Transportation Convey: 0

MotorCycle Allowance: 0345

TA / DA: 0

Stationery: 0

StaffWelfareExp_Entertmnt: 0

Petty Cash: 0

Electricity: 0

Telephone: 0

Courier: 0

B.D.Promotion(B.HalkhataP): 0

Newspaper: 0

Crockeries: 0

P.M.Expenses: 0

Lawyer Fees: 0

Court Fees - Stamps: 0

Transport Maintenance: 0

Trade License: 0

Advance agnst M. Cycle Purchase: 0

Furniture - Fixture: 0

WASA: 0

Security: 0

Cleaner: 0

Miscellaneous: 0

Total: 345

Deduction MC Loan: 45

Net Payment: 300

Buttons: Calculate, Net Payment, Entry, Back

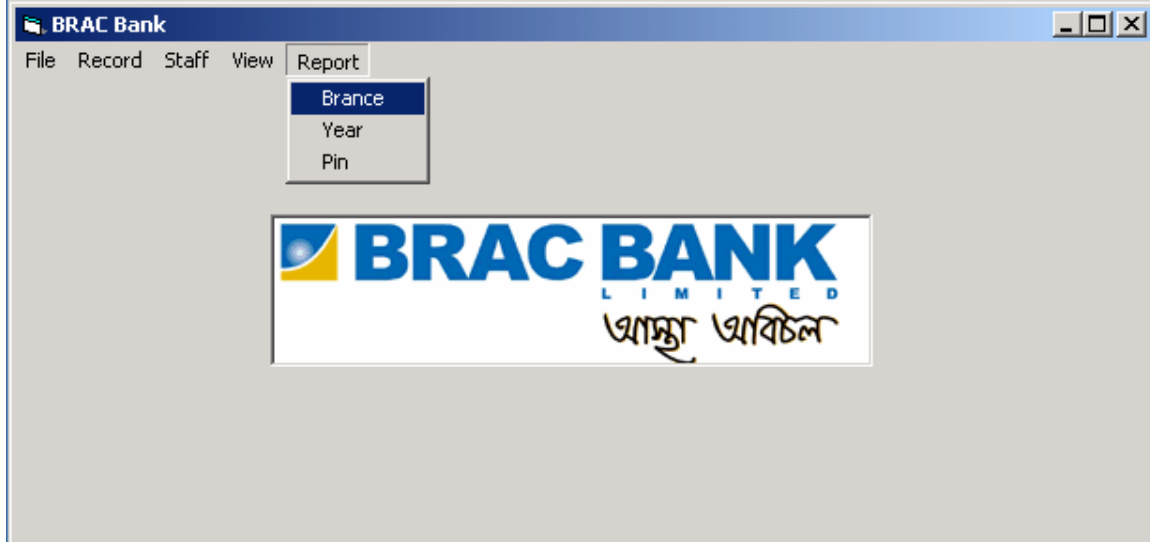
BRAC Bank

File Record Staff View Report

Staff Information
Transaction
Individual Transaction

BRAC BANK
LIMITED
আমরা আবিচল

Using this page, the user can view staff information, Transaction and Individual Transaction.



Using this page, the user can generate reports of details information to print according to Unit / Zonal Office, Year or PIN of staff.

2.3 Product History

Visual Basic is a product in Microsoft's Visual Studio suite of software development tools (which include Visual Interdev, C++, Visual J++, and Visual FoxPro).

[Back to Table of Contents](#)

The prior version is named "Visual Studio 97". The current version, released in July 99, is called "Visual Studio 6.0"

2.4 Run Time Environment

- Computer **users** perform **work tasks** with the help of computer **application programs** which provide **functionality** such as looking up a list and presenting them on the screen.
- In Windows operating systems, there are several ways to initiate an application:
 - From the Windows desktop, Start list, or Explorer file icon, users execute (invoke) a program by clicking on the **icon** associated with a application program. Executable file names end with ".exe".
 - The operating system loads application files when a user opens an Active X visual basic document (files with **.vbd** extension) which has been associated with the application.
- An **application project** is a collection of several types of files.

- .cls - Class (source code) file
- .EXE - Executable file or ActiveX remote component
- .OCX control
- .DLL - In-process ActiveX component
- Exports file
- .vbd - ActiveX document state file
- .wct - WebClass HTML template

2.5 VB Development Environment

Microsoft calls the VB integrated development environment (IDE) **Developer Studio**.

- The elements which are **compiled** into an executable file are stored as a Visual Basic **project** which have a file extension of **.vbp**.
- The **Project Explorer** window presents a tree-structure view of the files and objects associated with the active project.
- Visual Basic is often called **object-based** because **source code** text, are associated with objects such as buttons on **form layouts** .
- The form location and form size coordinates at the left of the toolbar buttons are measured, in **twips** (where each twip is 1,440th of an inch).
- Form files end with the extension **.frm**.
- Visual Basic is called a **component-based** application development system because projects are created by defining **components** such as ActiveX controls. A **control** controls what is displayed on the monitor and manipulation of data.
- Each control has **properties** .

[Back to Table of Contents](#)

- Visual Basic **controls** are used to build screens by specifying the location and other properties of **controls** such as text edit boxes, radio buttons, checkboxes, listboxes, dropdown lists, etc.
- **Events**, such as a user clicking a control, trigger events to be occur. This is why Visual Basic is called **event-driven** programming.
- Visual Basic and Microsoft Office 2000 share the same Visual Basic for Applications 6.0 **language** .
- is used to specify a series of actions.
 - The compiler ignores all comments to the right of a ' (single quote).
 - All variables must be **declared** at the beginning before use.
 - .ani - animated icons

Native Code Compiler Switches

Unlike Java and C, Visual Basic does not support **inheritance**. The Implements keyword lets you add standard interfaces to your objects. These common

interfaces enable polymorphic behavior for objects provided by a component, or for objects provided by many different components. Objects provided by components can raise events. You can handle these events in a host process or in another application - with the Enterprise Edition, such an application can even be running on a remote computer. **enumerations** provide named constants for all component types. You can choose a default property or method for each class of object your component provides. You can allow users of your component to access the properties and methods of a global object without explicitly creating an instance of the object.

- Programmers define actions by coding **functions** such as ... **Global functions** can be called by any object. **Friend functions** allow the objects provided by a component to communicate with each other internally, without exposing that communication to applications that use those objects.
- An ActiveX documents have file extension of **.vbd**
- An ActiveX **DLL** is a component that performs complex calculations runs in the same process with an application.
- **standard built-in controls** include the CheckBox control and others (listed in alphabetical order)
- ActiveX controls (list by name) have the file name extension **.ocx**. ActiveX controls need to be installed in the \Windows\System or System32 directory.

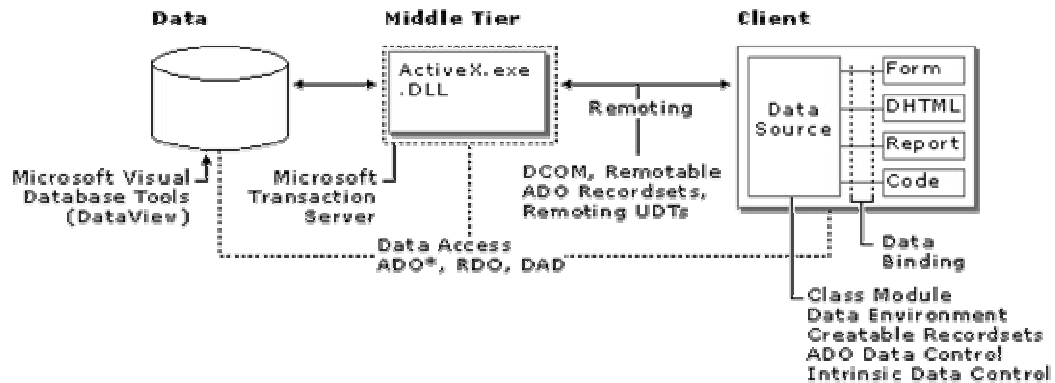
VBX custom controls are no longer supported in Visual Basic.

They are selected from the **Toolbox**. Only 32-bit controls are allowed in VB6.
ActiveX control classes

[Back to Table of Contents](#)

- **Windows Common controls** allows you to create applications with the look and feel of Windows 95 (or later) toolbars, status bars, and tree views of directory structures

2.6 Data Access Programming



XML (Extensible Markup Language) is a meta-markup language that provides a flexible approach for describing and structuring data.

Document Type Definitions (DTDs) can optionally accompany XML documents for an XML parser to provide a basis for validating the data. Data sent along with a DTD is known as "valid XML". Data sent without a DTD is known as "well-formed".

[Back to Table of Contents](#)

Chapter Three

Investigation and Information Gathering

In order to develop the “BBL Unit / Zonal Office Management System” I just investigate the current system, how the users use it for various purposes. I asked them various types of questions about their satisfaction. What is their expectation from the system that is going to be developed by me?

3.1 Feedback after Using the Demo:



On June 22, 2006 after using the software, the users give us some advice and correction for the demo and these were:

- It should have the options to transfer the staff from one unit office to another.
- It should have the options to print report by Unit / Zonal office, PIN
- It should have the options to search records by individual employee name, PIN

3.2 Information gathering

Defining user requirements requires an understanding of how the system works and what its problems are. There are many important issues to consider in getting a clear picture of a system. One is to look at the current business processes in the system and identify the tasks in those processes. Or one can begin by examining particular system functions and their tasks. The tasks can then be examined in detail. Such examination can identify the users, who carry out the tasks, the interactions between the users, the tools they use and the artifacts on which they operate. Thus an analyst must always consider the users and what they do. To have preconceived ideas about a system and analysts must approach any study with an open mind. There are two main ways of doing this – namely by:

[Back to Table of Contents](#)

- ✓ Asking questions by interviewing people in the system, through surveys and questionnaires, or by electronic means using e-mail or a discussion database.
- ✓ Directly observing the users.

3.2.1 Information Gathering by taking Interview

Interviewing is perhaps the most commonly used technique in analysis. There is no real way to avoid interviews, as they must precede any other method for gathering



information about system requirements it is always necessary first to approach someone and ask them what their problems and priorities are, and later to discuss with them the results of the analysis.

Questionnaire: Gathering information by filling in a form. It provides an alternative to interviews for finding out information about a system. Questionnaires are made up of questions about information sought by the analyst. The questionnaire is then sent to the user, and the analyst analyzes replies.

Electronic data gathering: Electronic communication systems are increasing being used to gather information. Thus it is possible to use electronic mail to broadcast a question to a number of users in an organization to obtain their viewpoint on a particular issue.

In the organization some time must be spent in talking to or interviewing people. Such interviews may only be in the initial stages to identify the major issues, or they can proceed throughout the entire life of a project. Interviewing is the main approach used to analyze large structured system. Interviewing is gathering information by asking questions.

[Back to Table of Contents](#)

It is important to establish a good relationship with interviewees and this should start right at the beginning.

There are some basic premises that you should always be aware of when conducting interviews. First, you must gain the confidence of your interviewees. To do this you must convince the interview of your own abilities and show that you are proceeding in an organized way and will not waste their time. You must also be sympathetic to their problems and not become aggressive and create the impression that you are there to apportion blame.



It is not important to force solutions upon users but rather to play the role of an advisor. Computer jargon should not be used to impress the user, though interviewers should explain the limitations of the computer in user terms and describe how it can assist users in their work. You should not try to elicit the response you want by asking leading questions.

Interviewers should also take care to ensure that they obtain all the needed information from interviews. It helps to let the user to know what information is required from the interview. The interviewer should then seek this information gradually and be precise and direct in their questioning.

The model and information about it grows at each interview. Analysts will be satisfied because their knowledge about the system is continually growing. The interviewees will more cooperative because they can see that their time is being used productively.

Interview search procedures: Search procedure is the process followed to gather information about a system. Information gathering in large systems with many information sources must proceed in an organized way to ensure that all the relevant

[Back to Table of Contents](#)

information needed to build the system is obtained. Analysts must determine what information needs to be gathered and the users who are to supply this information. They must then seek this information in an orderly way so that vital information is not neglected and being asked the same questions does not repeatedly bother people. To avoid such problems, it is necessary to develop a search procedure for gathering information. This procedure will define the steps to be followed in gathering information and the information to be obtained at each step. Such steps usually require the search to proceed in a top-down manner, objectives to be set for each step, and an appropriate search method to be chosen for each step.



The search procedure suggests what order is to use to search information sources and what methods are to be used as the search proceeds. Thus the search procedure becomes a plan starting what information is to be obtained from each source and what sequence is to be used to search the sources.

The interview plan specifies:

- ✓ The users to be interviewed
- ✓ The sequence in which the users are interviewed and
- ✓ The interview plan for each user

The first step in developing an interview plan is to identify the users to be interviewed. Often an organization chart can be used to identify such users. This chart describes the organization's units, the positions in these units and each position's occupant. The analyst uses the project's terms of reference to select the organizational units that fall within the boundary of the system study and is likely to be affected by any new system. Persons in these units then become candidates for interviewing. It is usually wise to begin interviewing at the top levels of the organizational areas, in order to get support and cooperation from managements before beginning to look into particular

[Back to Table of Contents](#)

organizational activities or suggesting new solutions. Management may then often suggest other users that should be interviewed and is more likely to support any proposed changes.

There are also some common goals in each interview. Preparation for the interview is always essential. The analyst should have an idea of what information is needed from the interview and ask direct questions to get this information. If the current interviewee cannot answer, the analyst should ask for advice about where to go next.

Preparation for the interview is always essential. The analyst should have an idea of what information is needed from the interview and ask direct questions to get this information.

One of the most important points about interviewing is what question you need to ask. It is important to ask the right questions in the correct order to get the most out of interviews. Questions can be characterized by their subject content and type. Obviously, the subject content of a question will depend on the specific system study. However, the type of question can be generalized and there are general guidelines to help you to choose the most appropriate questioning method for the interview in question.

It is often convenient to make a distinction between three kinds of questions. These are

- ✓ Open questions
- ✓ Closed questions
- ✓ Probes

The above three are explain in the following way:

Open Questions: Open questions are general questions that establish a person's viewpoint on a particular subject. It requires the responder to express a viewpoint.

[Back to Table of Contents](#)

The first interview with a user should emphasize open questions. This enables analysts to identify the values a user places on the system helps in gaining impression about the users like and dislike. This may then shape future interviews. Open questions also prompt the user to volunteer more detailed information so that closed questions may be unnecessary.

Closed Questions: Closed questions are more specific. It is a question that requires a direct answer. A closed question often restricts an interviewee to some specific answer. This may be a number, an explanation of a report, or a reason for doing



something. The answer to closed questions can then be followed with a probe to get more detail.

It is possible to start with open questions follow then closed questions and then finished up with some more open questions. This approach is used mostly in follow-up interviews. It is an easy way to gradually lead a user into detailed questioning. Some people, when answering an open question, may provide enough information to make future detailed questions unnecessary. It is also possible to start with detailed questions and finished with open questions.

Probe: Probes are questions that follow up an earlier answer.

Interviewers must often select a particular questioning method for an interview.

This method will use alternate sequence of closed and open questions.

3.2.2 Information Gathering by Observation

Interviewing and other ways of asking questions are characterized by having analysts learn about the system without themselves getting involved in the system. Interviews often emphasize what an individual does and how to support them, rather than looking at the individual's relationship to their group. The analyst then has to correlate findings about individuals and determine how the whole group works. It is also the interviewer's responsibility to find out the objectives of each individual and try to make them cohesive.

Using ethnography: Ethnography is gathering information by observation. It is not a new field but, rather, a new approach to analyzing computer system requirements. One of its most important goals is not to superimposing the interviewer or analyst's viewpoint on the system but to use the viewpoint of the people within the system.

Analysis by observation: The goal here is to observe what people do in an unobtrusive way. The best way to do this is by video recording. It is important in video recording to ensure that the presence of the video camera itself does not alter behavior



while at the same time collecting sufficient in depth information to make useful observations.

From observation to design: Another characteristic of the ethnographic approach is that objectives are developed with user participation. Considerable time, for example, may be spent on the design of workspaces through experimentation. Such workspaces not only include the computer screen but also the physical space used for any manual work on associated documentation or paperwork.

3.3 Determining Systems Requirements

List of things we need to understand for the “BBL Unit / Zonal Office Management System” are:

- The business objectives that drive what and how the work is done in BRAC Bank Ltd. in their traditional system.
 - The information people need to know to do the job or what knowledge do they have to do such kind of work.
 - The data handled within the organization to support the job like definition, volume, size etc.
 - When, how and by whom or what data are moved, transformed and stored.
 - The sequence and other dependencies among different data-handling activities.
- [Back to Table of Contents](#)
- The rules governing how data are handled and processed.
 - Policies and guidelines that describe the nature of the business and the market and environment in which it operates.
 - Key events affecting data values and when these events occur.

3.4 Methods of collecting system requirements:

- Joint Application Design (JAD) sessions

- Group support system
- Case tools
- Prototype

3.5 Questions to Develop the Software:

- ✓ What is the intent of the developers?
- ✓ What are the analysis team's impressions of the original system design?
- ✓ How this software is different from the present software?
- ✓ How this "BBL Unit / Zonal Office Management System" software their traditional system?
- ✓ How this will be cost effective?
- ✓ How this software will be efficient on respect of time?
- ✓ Is there any multi user options?
- ✓ How the security of database will be managed?

[Back to Table of Contents](#)

- ✓ How long it will take to finish the project?
- ✓ What do you mean by the prototype?
- ✓ How much your prototype will be change in your main software?
- ✓ How the input will be verified?
- ✓ Is there any leveling or classification to administrate the software?



- ✓ Do you continue any tanning session after completing the software?
- ✓ Is the any guideline to operate the software?
- ✓ What we will do if the software does not works properly?

[Back to Table of Contents](#)

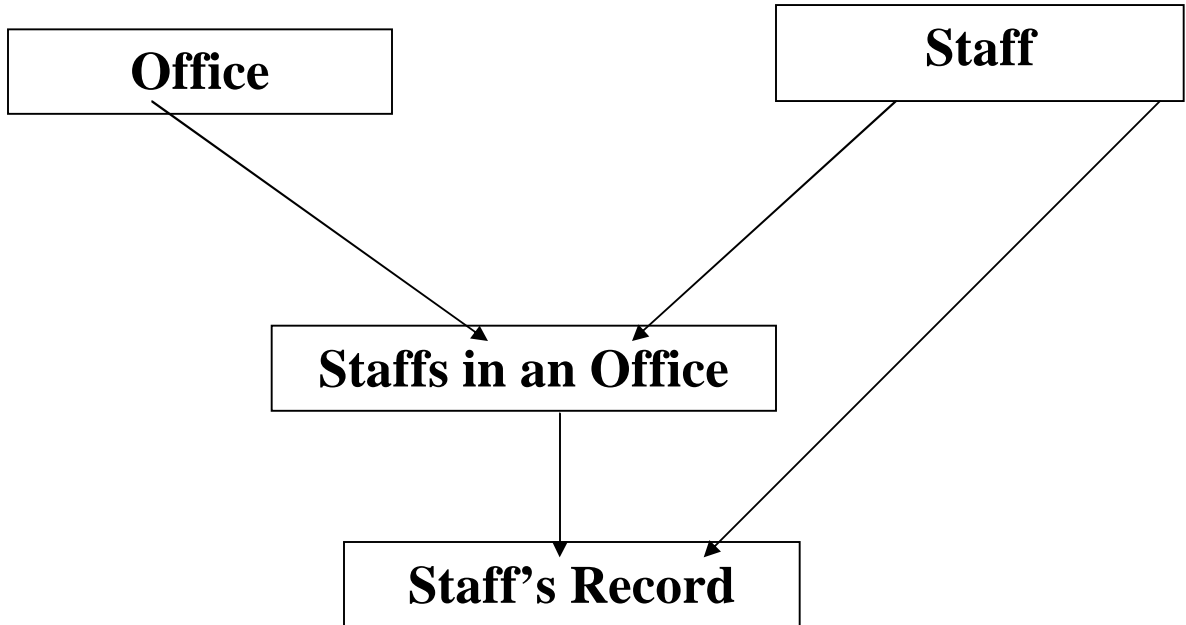
Chapter Four

Proposed Design of the Software

The proposed “BBL Unit / Zonal Office Management System” would be very easy to access, generate report, print report according to Unit / Zonal office, PIN and by Year, where the user can access the system through their valid password. The valid user has the right to update all types of data and records but they can’t change or update any administrative data like adding or editing staffs and unit offices. All the information and

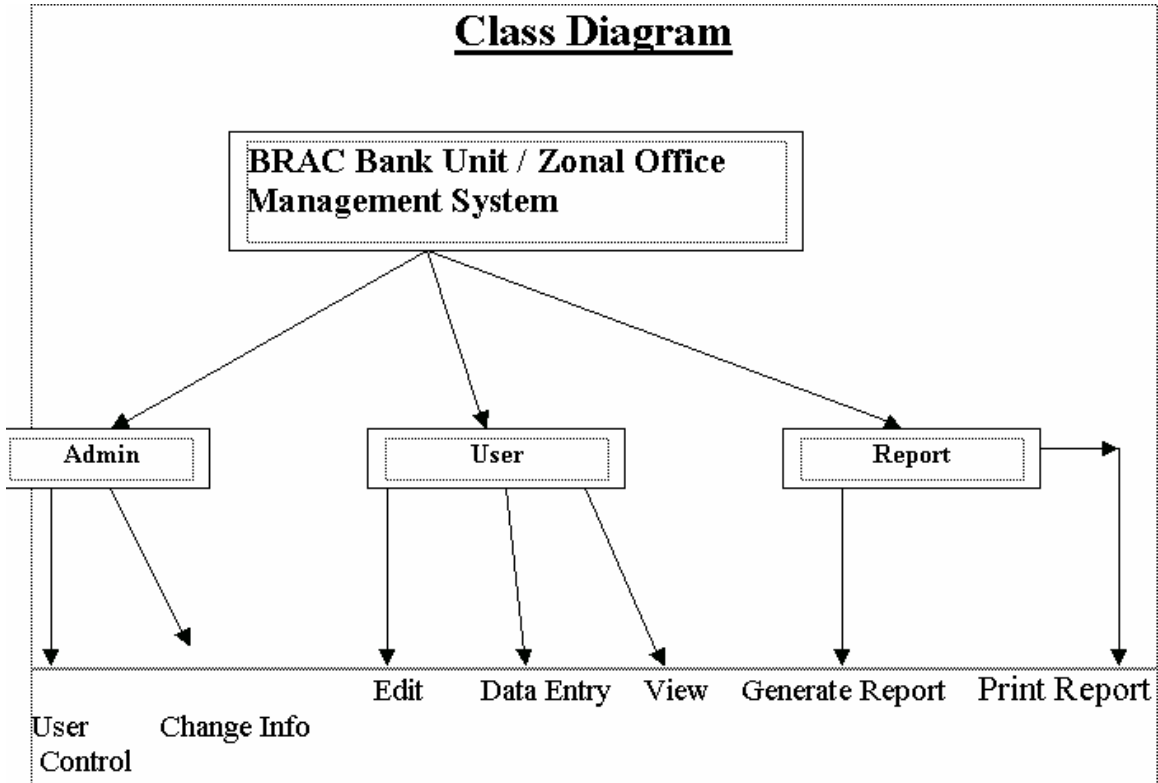
data provided by the valid user will be stored in the database (MS Access). The reports will display various information according to the user requirements from the database with the help of Crystal Report 8.5. I think this system will help the BBL unit / zonal offices to keep their data and information up to date, secret and confidential.

4.1 Data Flow Diagram of the Proposed System

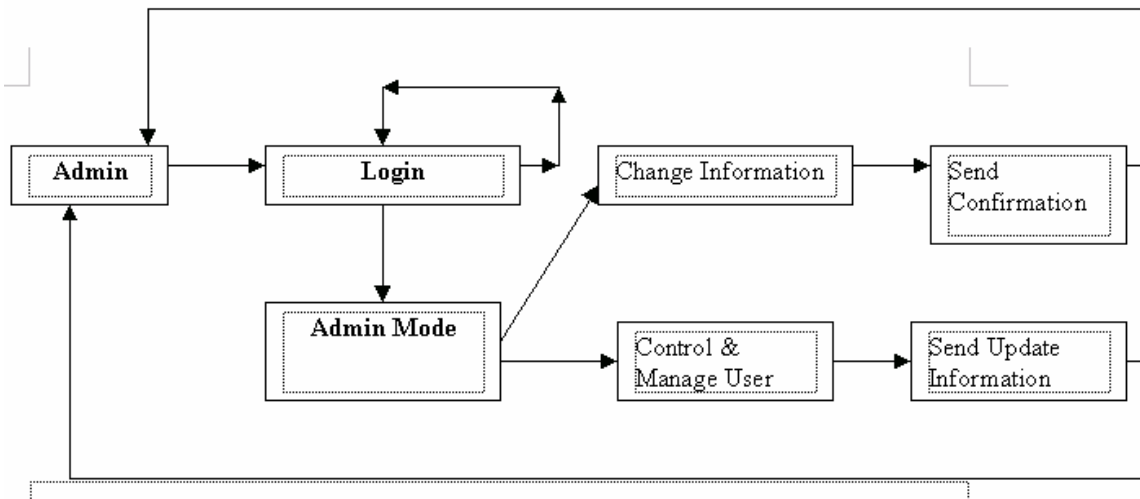
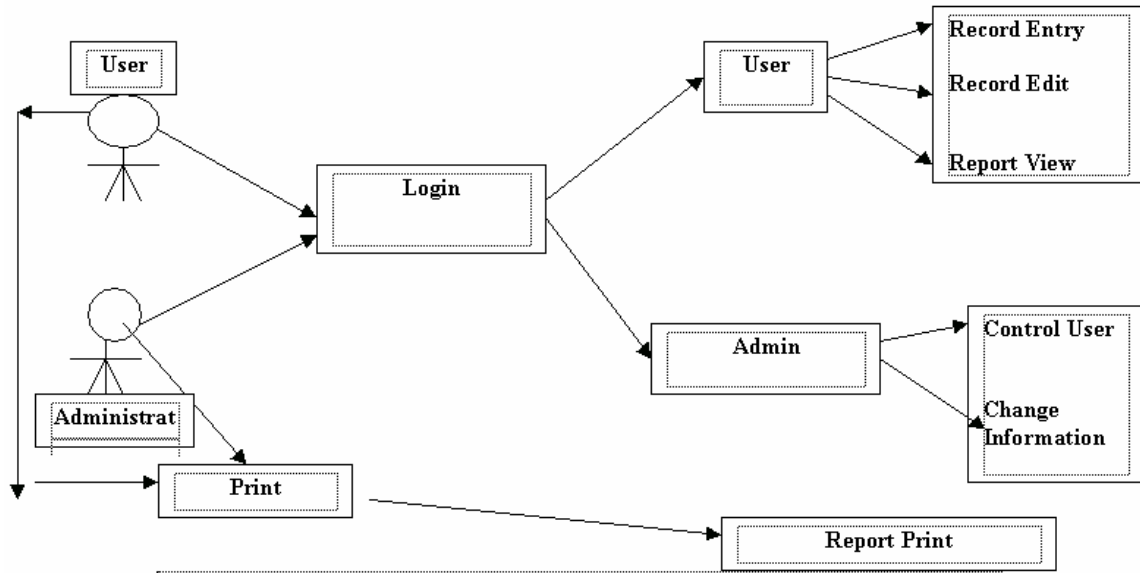


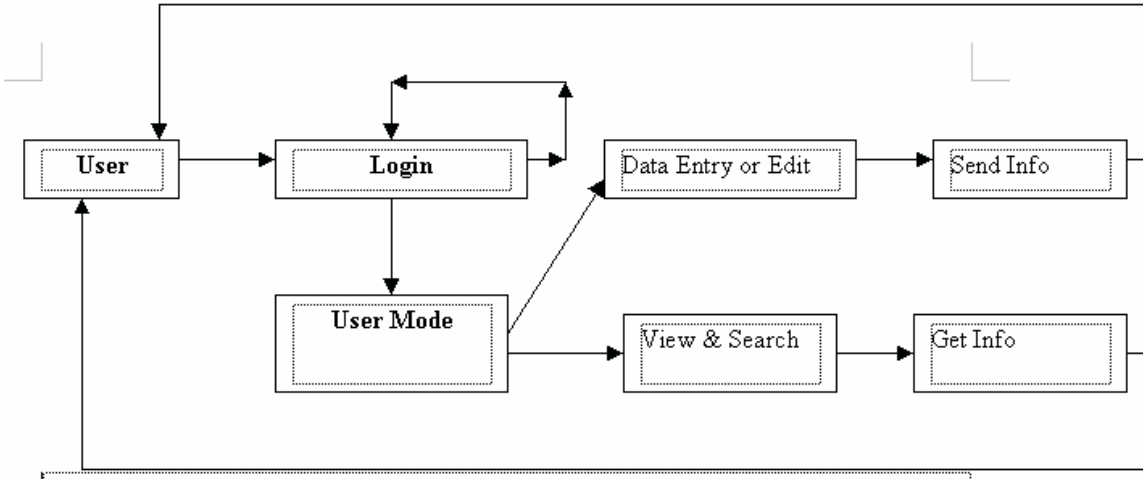
[Back to Table of Contents](#)

4.2



4.3 System Flow Diagram of the Proposed System







Chapter Five

Database Concepts

Since data access is the most used feature in corporate development, it is important for developers to understand the most effective and efficient way to access data using .NET technologies. Continue to use techniques developed by Jeffrey McManus that provide solutions to problems faced by developers every day. Database concepts provide clear explanations of how to use ADO.NET to access data stored in relational databases, as well as how XML integrates with ADO.NET. The authors use their years of experience to relate key topics to real-world applications through use of Business Cases that include code listings in Visual Basic .NET.

After changes have been made in a dataset, you can transmit the changes to a data source. Most commonly, you do this by calling the Update method of a data adapter. The method loops through each record in a data table, determines what type of update is required (update, insert, or delete), if any, and then executes the appropriate command.

Security Note When using data commands with a CommandType property set to **Text**, carefully check information that is sent from a client before passing it to your database. Malicious users might try to send (inject) modified or additional SQL statements in an effort to gain unauthorized access or damage the database. Before you transfer user input to a database, you should always verify that the information is valid; it is a best practice to always use parameterized queries or stored procedures when possible. For more information, see Scripting Exploits.

5.1 How an Update Is Transmitted to the Data Source

As an illustration of how updates are made, suppose your application uses a dataset containing a single data table. The application fetches two rows from the database. After the retrieval, the in-memory data table looks like this:

(RowState)	PIN	Name	Unit Office
(Unchanged)	10286	Md. Narul Islam	Sherpur
(Unchanged)	10297	Md. Mamun	Sherpur

[Back to Table of Contents](#)



Your application changes Nancy Buchanan's status to "Preferred." As a result of this change, the value of the **DataRow.RowState** property for that row changes from **Unchanged** to **Modified**. The value of the **RowState** property for the first row remains **Unchanged**. The data table now looks like this:

(RowState)	PIN	Name	Unit Office
(Unchanged)	10286	Md. Narul Islam	Sherpur
(Unchanged)	10297	Md. Mamun	Sherpur

You application now calls the **Update** method to transmit the dataset to the database. The method inspects each row in turn. For the first row, the method transmits no SQL statement to the database, because that row has not changed since it was originally fetched from the database.

For the second row, however, the **Update** method automatically invokes the proper data command and transmits it to the database. The specific syntax of the SQL statement depends on the dialect of SQL supported by the underlying data store. But the following general traits of the transmitted SQL statement are noteworthy:

- The transmitted SQL statement is an UPDATE statement. The data adapter knows to use an UPDATE statement because the value of the **RowState** property is **Modified**.
- The transmitted SQL statement includes a WHERE clause indicating that the target of the UPDATE statement is the row whose PIN = 10297. This part of the SELECT statement distinguishes the target row from all others because the **PIN** is the primary key of the target table. The information for the WHERE clause is derived from the original version of the record (**DataRowVersion.Original**), in case values required to identify the row have been changed.
- The transmitted SQL statement includes the SET clause, to set the new values of the modified columns.

Note If the data adapter's **UpdateCommand** property has been set to the name of a stored procedure, the adapter does not construct an SQL statement. Instead, it invokes the stored procedure with the appropriate parameters passed in.



[Back to Table of Contents](#)

5.2 Passing Parameters

Values for records to be updated in the database are usually passed using parameters. When the data adapter's **Update** method executes an UPDATE statement, it needs to fill in the parameter values. It gets these values from the **Parameters** collection for the appropriate data command — in this case, the **UpdateCommand** object in the data adapter.

If you have used the Visual Studio tools to generate a data adapter, the **UpdateCommand** object will contain a collection of parameters that correspond to each parameter placeholder in the statement.

The SqlParameter.SourceColumn property of each parameter points to a column in the data table. For example, the **SourceColumn** property for the `au_id` and `Original_au_id` parameters is set to whatever column in the data table contains the author id. When the adapter's **Update** method runs, it reads the author id column from the record being updated and fills the values into the statement.

In an UPDATE statement, you need to specify both the new values (those that will be written to the record) as well as the old values (so that the record to be updated can be located in the database). There are therefore two parameters for each value: one for the SET clause and a different one for the WHERE clause. Both parameters read data from the record being updated, but they get different versions of the column value based on the parameter's SqlParameter.SourceVersion Property. The parameter for the SET clause gets the current version, and the parameter for the WHERE clause gets the original version.

Note You can also set values in the **Parameters** collection yourself in code, which you would typically do in an event handler for the data adapter's RowChanging event. For more information, see Parameters in Data-Adapter Commands.

5.3 Updating Related Tables

If your dataset contains multiple tables, you have to update them individually by calling the **Update** method of each data adapter separately. If the tables have a parent-child relationship, it is likely that you will have to send updates to the database in a particular order. A common scenario is that you have added both parent and related child records to a dataset — for example, a new customer record and one or more related order records.



[Back to Table of Contents](#)

If the database itself is enforcing relational integrity rules, it will raise errors if you send the new child records to the database before the parent record has been created.

Conversely, if you delete related records in the dataset, you generally have to send updates in the reverse order: child table first, then parent table. Otherwise, the database is likely to raise an error because referential integrity rules will prevent you from deleting a parent record while related child records still exist.

A general rule for sending updates for related tables is to follow this order:

1. Child table: delete records.
2. Parent table: insert, update, and delete records.
3. Child table: insert and update records.

5.4 Refreshing the Dataset

In many circumstances, after updating a data source, you will want to refresh the dataset by repopulating it. Doing so has several benefits:

- The dataset reflects any changes that have been made to the database by other users.
- It retrieves that values of columns that are calculated by the database, such as identity columns or columns with default values.
- It refreshes the timestamp on records in the dataset, in case you want to use the timestamp for concurrency control.

You can refresh a dataset manually by calling an adapter's **Fill** method after calling its **Update** method.

Alternatively, you can configure the data adapter to automatically execute an SQL **SELECT** statement or stored procedure after performing the update. In that case, the data adapter creates two SQL statements for the **UpdateCommand** and **InsertCommand** objects. The first statement executes the update, and the second statement is a **SELECT** statement designed to refresh the dataset.

Note In order for the second **SELECT** statement to execute, the data source must



support batch queries as in SQL Server.

[Back to Table of Contents](#)

5.5 Concurrency Control

Because datasets are disconnected from the data source, you do not hold locks on records in the data source. Therefore, if you want to update the database, and if it is important for your application to maintain concurrency control, you must reconcile records in the dataset with those in the database. For example, you might find that records in the database have changed since last filling the dataset. In that case, you must execute application-appropriate logic to specify what should happen with the database record or the changed record you have in your dataset. For more information, see [Concurrency Control in ADO.NET](#).



[Back to Table of Contents](#)

Chapter Six

Design Tools

Microsoft® Visual Basic® 6.0 is a language rapid application development environment that gives you fast, easy, and intuitive tools to quickly develop Windows® applications. Using Visual Basic, you can develop simple utilities or sophisticated applications. Data access features allow you to create databases, front-end applications, and scalable server-side components for most popular database formats. ActiveX® technologies allow you to use the functionality provided by other applications, and even automate applications and objects created using the Professional or Enterprise editions of Visual Basic. Internet capabilities make it easy to provide access to documents and applications across the Internet or intranet from within your application, or to create Internet server applications.

6.1 Deciding Which Technologies and Tools To Use

When designing my application, I may need help choosing between different technologies or approaches. This page summarizes the choices and provides links to more information about application development with Visual Studio and the .NET Framework.

In my project, I have used MS Visual Basic 6.0, MS Access for creating database and Crystal Report 8.5 for viewing and printing reports.

6.2 Microsoft Visual Data Tools

Using Visual Basic 6.0 you can create components that encapsulate every step in a data access system. Beginning with the data source, Microsoft Visual Data Tools (accessible through the Data View window) give you the ability to view and manipulate tables, views, stored procedures, and database schemas on SQL Server and Oracle systems.

6.3 Middle Tier Components and Microsoft Transaction Server

The power of Visual Basic is also leveraged to create the middle tier components in your application, as you make your own ActiveX DLLs and EXEs. Visual Basic now includes enhancements that tailor applications to work with Microsoft Transaction Server.



[Back to Table of Contents](#)

6.4 ActiveX Data Objects (ADO)

The bridge between the data providers and data consumers is through data sources created using Microsoft ActiveX Data Objects (ADO), which is the primary method in Visual Basic to access data in any data source, both relational and non-relational. For backward compatibility and project maintenance, Remote Data Objects (RDO) and Data Access Objects (DAO) are still supported.

6.5 Data Sources and Data Controls

On the client side, several new data sources are available, including the Data Environment, a graphical designer that allows you to quickly create ADO Connections and Commands to access your data. The Data Environment designer provides a dynamic programmatic interface to the data access objects in your project. In addition, the Data Environment provides advanced data shaping services — the ability to create hierarchies of related data, aggregates, and automatic groupings, all without code.

The new ADO Data control is similar to the intrinsic data control and Remote Data control, except that it uses ADO to access data. You can now use an ADO Recordset as a data source for your controls and objects in Visual Basic.

In Visual Basic you can now create your own data sources either as user controls or classes, to encapsulate business rules or proprietary data structures. The class module now features the DataSourceBehavior property and the GetDataMember event, which allow you to configure a class as a data source.

6.6 Dynamic Data Binding

The ability to dynamically bind a data source to a data consumer is now possible in Visual Basic. At run time, you can now set the DataSource property of a data consumer (such as the DataGrid control) to a data source (such as the ADO Data control). This capability, unavailable in previous versions of Visual Basic, allows you to create applications, which can access a multitude of data sources.



[Back to Table of Contents](#)

6.7 Presenting Data to the End User

Visual Basic offers a variety of rich ways to present data to your end users. ADO/OLE DB-based versions of all the data bound controls are included in Visual Basic:

- The DataList and DataCombo controls are the ADO/OLE DB equivalents of DBList and DBCombo controls.
- The DataGrid is the successor to DBGrid.
- The Chart control is now data bound.
- A new version of the FlexGrid control, called the Hierarchical FlexGrid, supports the hierarchical abilities of the Data Environment.
- The new DataRepeater control functions as a scrolling container of data bound user controls where each control views a single record.

The Data Report is a new ActiveX designer that creates reports from any data source, including the Data Environment. With the Data Report designer, formatted reports can be viewed online, printed, or exported to text or HTML pages.

6.8 Data Formatting and Data Validation

The new DataFormat object allows you to display data with custom formatting, but write it back to the database in the native format. For example, you can now display dates in the format appropriate to a country, while the actual data is stored in a date format. Data is formatted coming out of the source, and unformatted going back in. You can also do custom formatting and perform additional checks using the Format and Unformat events.

Data validation is also enhanced using the CausesValidation property with the Validate event. By setting the CausesValidation property to True, the Validate event for the previous control in the tab order will occur. Thus, by programming the Validate event, you can prevent a control from losing focus until the information it contains has been validated.

6.9 Language Features



New data-related enhancements to the Visual Basic language include the ability to pass User-defined Types (UDTs) and arrays across processes. You can now define a UDT and pass it as a parameter to another process, such as an ActiveX EXE or DLL. [Back to Table of Contents](#)

6.10 DHTML and Data Access

Using Visual Basic, you can create complete web applications for data access. All of the data tools and technologies can also be used in DHTML pages, and on web server (IIS) applications.

After studying the below mentioned features, we can decide which tools and technologies can be used for which type of application.

With a User Interface

- **Applications** - for help deciding between Windows Forms and Web Forms
- **Controls**
 - **Windows Forms Controls**
 - **Web server controls**
 - **HTML server controls**
 - **Web user control**
 - **Web custom control**
- **Server-Based Components**
 - **Windows services**
 - **Processes** - use the Monitoring component
 - **PerformanceCounter**
 - **EventLog File system**
 - **Active Directory - Messaging component**
 - **Timers on the server**
 - **Timers on the client**

Executable

- **Command-line application**
- **Windows service**
-

Library

- **XML Web service** - XML Web services are applications that can exchange

interoperable messages in a loosely coupled environment, using standard protocols such as HTTP, XML, XSD, SOAP and WSDL. XML Web services can be accessed from a Web application, a Windows desktop application, or another XML Web service. [Back to Table of Contents](#)

- To learn more about development with Web services in the Distributed System Designers, which are part of Visual Studio Team Edition for Architects, see Overview of ASP.NET Applications on Application Diagrams.

.NET component

. If you ...

Are navigating between multiple, discrete tables of results ...

- Are manipulating data from multiple sources (for example, from different databases, from XML files, spreadsheets, and so on, all in the same dataset) ...
- Are exchanging data with other applications ...
- Are reusing the same set of rows and intend to cache them (for example, sorting, searching, and filtering cached results) ...
- Are doing a lot of processing per row ...
- Are manipulating the data using XML operations such as XML transforms or XPath ...
- Want ease of programming ...

Then use a dataset.

Otherwise, use direct access (data commands and data readers) For example, you would use data commands and data readers for:

- Performing DDL commands
- Performing updates or deletes based on a selection criteria
- Programmatically inserting records that are not based on user interaction
- Calling stored procedures to execute logic inside the server
- Retrieving scalar values from the database
- Processing a set of results in a forward only manner without updating and without caching the results



- Processing a set of results too large to fit in memory

Web-based Data Applications

[Back to Table of Contents](#)

XML Web services are applications that can exchange interoperable messages in a loosely coupled environment, using standard protocols such as HTTP, XML, XSD, SOAP and WSDL. An XML Web service can be accessed from desktop applications (Windows Forms), Web applications, or other XML Web services. Windows Forms-based Data Applications

.If you ...

- Are performing DDL commands ...
- Are calling stored procedures to execute logic inside the server ...
- Are retrieving scalar values from the database ...
- Are processing a set of results in a forward-only manner without displaying, updating, or caching the results ...
- Are processing a set of results too large to fit in memory ...

Then use direct access (data commands and data readers) - **Otherwise, use a dataset** -.

For example, you would use a dataset if you:

- Are binding results to a form to let the user view, insert, update, or delete records
- Are navigating between multiple tables of results
- Are manipulating data from multiple sources (for example, from different databases, from XML files, spreadsheets, and so on, all in the same dataset)
- Are exchanging data with other applications
- Are reusing the same set of rows (for example, sorting, searching, and filtering retrieved results)
- Are manipulating the data using XML operations such as XML transforms or



Xpath

[Back to Table of Contents](#)

Smart Device-based Data Applications

Office-based Data Applications

Create an XML Web Service

There are several walkthroughs to help you create an XML Web service. For details see [Creating and Accessing XML Web Services Walkthroughs](#). Also see [Accessing XML Web Services in Managed Code](#). For a step-by-step example of accessing an XML Web service from a Windows application.

For a step-by-step example of designing and evaluating the deployment of XML Web services in the [Distributed System Designers](#)

Create an Office Development Solution

Microsoft Visual Studio 2005 Tools for the Microsoft Office System enables you to customize Microsoft Office documents and Microsoft Office Outlook using managed code.

For details about creating solutions using Office applications

For details about working with Windows Forms controls (including securing applications, setting properties, handling events, anchoring controls, and so forth), For help deciding which way to create a control,.

Windows Forms Controls

.If you want to add to the functionality of an existing Windows Forms control, inherit directly from the Windows Forms control - for a step-by-step example If you want to



combine existing controls into a new control, inherit from the **User Control** class - for details, see How to: Inherit from the User Control Class.

[Back to Table of Contents](#)

- If you want to create a control from scratch, inherit from the **Control** class

- **Expose your .NET component to COM**
- Expose your COM component to the .NET Framework Components
- **XML Web service**, which is technically not a component, but can be called from Windows applications, Web applications, or other XML Web services.**NET component**
 - ☐Automate Tasks or Extend the Environment

- **Macro** (Visual Basic only) ,Automating Repetitive Actions by Using Macros
- **Add-in** ,How to: Create an Add-in
- **Wizard** ,Walkthrough: Creating a Wizard

For advanced customization of the development environment, such as creating a new project type or a customized editor

☐Build, Debug, or Test

To learn more about the Visual Studio build options available to you For general information about debugging in Visual Studio,.

- Debugging Managed Code
- How to: Debug XML Web Services in Managed Code



- Debugging Web Pages Overview
- Debugging Preparation: Windows Forms Applications

How to: Debug Windows Service Applications

[Back to Table of Contents](#)

Visual Studio solution,.

Web Application

Web Services.

Windows Applications For an example, **NET component. ActiveX control** .For a step-by-step example, Evaluate the deployment of an application system into a target data center using Visual Studio Team Edition for Architects.

[Back to Table of Contents](#)



Chapter Seven

Implementation and Testing

7.1 Implementation

This is one of the most important parts of developing the whole software because of the fact in this part of developing; the information system that is supposed to be developed is coded, tested, installed and given to an organization for the test using purpose. In this phase the logical and physical designs are translated into code. Computer programs are written using a suitable programming language or an application generator according to the type of the software (to be developed). Programming tools like Compilers, Interpreters, and Debuggers are used to generate the code. Different high-level programming languages like Visual Basic, C, C++, Pascal, and Java are used for coding. According to the type of application, programmer's expertness and flexibility, the right programming language is chosen. I have chosen here Microsoft Visual Basic 6.0 Enterprise edition for my proposed software to be developed because of the fact I think I am expert in Microsoft Visual Basic 6.0, I do feel comfortable to coding in Microsoft Visual Basic 6.0 and the type of the software to be developed require a database to store a huge data and information. This "BBLUZOMS" software is implemented by installing the "Crystal Report 8.5" and the "BBLUZOMS" software itself. Implementation activities include initial use support such as finalization of documentation, training programs and ongoing user assistance. Elements of implementation phase are:



- ✓ Coding
- ✓ Testing
- ✓ Installation
- ✓ Documentation
- ✓ Training
- ✓ Support

[Back to Table of Contents](#)

7.2 Testing

This is the testing part through which Developed system is systematically repaired and improved by gradually testing by the end users. After installing the “**Crystal Report 8.5**” and the “**BBLUZOMS**” software itself users faces some problems about how the system works and often think of better ways to perform its function. So modification or change is needed. I made several changes and modification in the software due to customer satisfaction and to meet the customer’s demand and expectation. Software will definitely undergo change once it is delivered to the customer. There are many reasons for the change. Change could happen because of some unexpected input values into the system. In addition, the changes in the system could directly affect the software operations.

The software should be developed to accommodate changes that could happen during the post implementation period. Major activities that occur in testing part are:

- ✓ Obtaining testing Requests
- ✓ Transforming Requests into Changes
- ✓ Design Changes
- ✓ Implementing changes

There are several types of testing. Corrective testing refers to changes made to repair defects in design, coding and implementation of the system. Adaptive testing involves making changes to an information system to evolve its functionality to changing business needs or technologies. Perfective testing involves making enhancements to improve



processing performance, interface usability, and add desire requirements and features. Preventive testing changes the system to reduce the chance of future system failure.

[Back to Table of Contents](#)

Chapter Eight

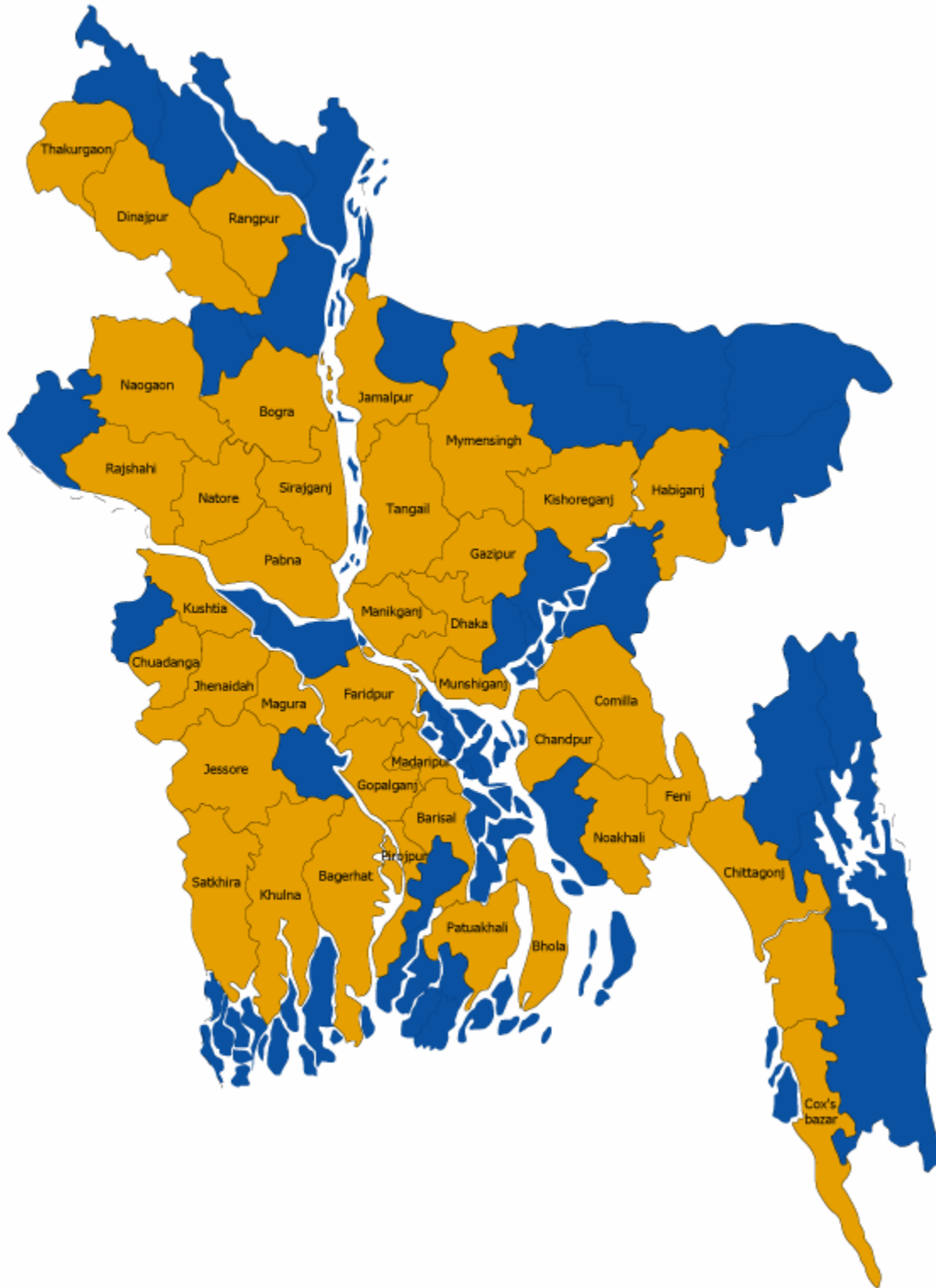
Conclusion

I think the developed software “**BBLUZOMS**” will be able to play an important role for the BRAC Bank for smooth, perfect and proper SME operations and SME is one the most important divisions of BRAC Bank Limited which has covered all most areas of Bangladesh. By implementing and using this software, SME divisions will be able to succeed and can play a major and vital role for the enhancement of BRAC Bank Limited. BRAC Bank is trying to develop economic condition of the country. So the bank provides loan facility 2 to 30 lacs taka to that small and medium enterprise that has no easy access to banks/financial institutes. The bank already established 36 Zones and 360 unit offices all over the country. There are 583 Customer Relation Officers (CRO) providing door-to-door service to clients. Till December 2004, the bank provides loan facilities to 14482 clients of the amount Tk 556.64 crore. Average loan size is Tk 3.28 lacs. The success of SME will largely depends on the selection of a business and man behind the business. The customer relation officers (CRO) also monitor the borrower’s activities after the loan disbursement. Monitoring also facilitates the build up of an information base for future reference. So we can easily realize that the BRAC Bank is playing an important role to develop the economy of the country by SME operations and this developed software will greatly enhance the SME activities.



[Back to Table of Contents](#)

SME Network Coverage in whole Bangladesh



[Back to Table of Contents](#)



From a secondary source, I have got a survey analysis that has been conducted through administering a questioner. The sample size of this project was 25. The survey result says that taking small loan from BRAC BANK satisfies clients but the satisfaction level should be improved. It has been found out that clients are very happy to get the loan at the right time. It has also been observed that many clients want to expand the business from trading to manufacturing. Because, manufacturing business are more profitable and which would carry out economic development. SME division supports their clients carrying out good business and also give suggestions and guidelines to develop their business. Client's wants fast services. This “**BBLUZOMS**” system will help in fast servicing. The customer relation officers are very cooperative to clients. Clients provide right information and show the right documents to customer relation officers to get the facility. From the above survey information, it can be easily concluded that the importance of the “**BBLUZOMS**” to BRAC Bank limited is too much and it will greatly enhance the SME client's satisfaction.

[Back to Table of Contents](#)



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[Back to Table of Contents](#)



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