

AN INTERACTIVE PARTICIPATORY SOLUTION TO DISTANCE LEARNING

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by

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of

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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.

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ABSTRACT

Distance education is thought to be an effective way of educating people geographically scattered. The delivery system in distance education is different than that in the conventional classroom education system where teaching takes place in a limited area. However, distance education is considered as a close substitute for the conventional on-campus teaching keeping in mind that different types of media are synchronized in the delivery process in distance education and open learning systems.

Bangladesh Open University (BOU) provides distance learning in Bangladesh using the television network, newspapers, audio, video and other media. However all these methods have drawbacks. We see that most of the classes of BOU are pre-recorded then telecast. There is no interaction between the speaker and the learner.

It has been attempted to solve these problems in this thesis. We prepare a solution to the DL problem using national TV and mobile technology. We have tested this method to find it as effective as face-to-face teaching.

TABLE OF CONTENTS

	Page
TITLE PAGE.....	I
DECLARATION	II
ACKNOWLEDGMENTS.....	III
ABSTRACT	IV
TABLE OF CONTENTS	V
LIST OF TABLE.....	IX
LIST OF FIGURES.....	X
CHAPTER I	
1. EDUCATION SCENARIO IN BANGLADESH.....	1
CHAPTER II	
2. WHAT IS DISTANCE LEARNING	3
CHAPTER III	
3. DISTANCE EDUCATION PROVIDERS	4
3.1 BANGLADESH OPEN UNIVERSITY	4
3.2 NEWSPAPER.....	5
CHAPTER IV	
4. PROBLEMS WITH CURRENT DISTANCE LEARNING PROCESS IN BANGLADESH	6
4.1 PRE-RECORDED TELECAST	6
4.2 NO FEEDBACK	6
4.3 NO MONITORING OF ATTENDANCE	6
CHAPTER V	
5. SOLUTIONS ABROAD	8

5.1 USING BULLETIN BOARDS.....	8
5.2 USING CHAT ROOM.....	9
5.3 VIDEO CONFERENCING.....	9
CHAPTER VI	
6. THESE SOLUTIONS IN THE CONTEXT OF BANGLADESH	11
CHAPTER VII	
7. WHAT CAN BE THE SOLUTION?.....	12
CHAPTER VIII	
8. OUR SOLUTION	13
8.1 OPERATION OF A SESSION	13
CHAPTER IX	
9. ADVANTAGES OF THIS SOLUTION	16
CHAPTER X	
10. BLOCK DIAGRAM OF THE OVERALL SYSTEM	18
GROUP MEMBERS	19
RESPONSIBILITIES.....	19
CHAPTER XI	
11. MY MODULES	20
CHAPTER XII	
12. INTRODUCTION TO MY MODULES	21
CHAPTER XIII	
13. MODULES.....	22
13.1 PROGRAM INFORMATION DETAILS.....	22
13.2 MONITOR SYSTEM	23
13.3 REPORT ANALYZER.....	23
CHAPTER XIV	
14. SPECIALTY OF MY MODULES	24
CHAPTER XV	

15. PLANNING AND ANALYSIS PHASE	25
15.1 TEST PLAN.....	25
15.3 BUSINESS NEED	29
15.4 FUNCTIONALITY	29
15.5 EXPECTED VALUE	29
15.5.1 <i>Tangible</i>	29
15.5.2 <i>Intangible</i>	30
15.6 SPECIAL ISSUES OR CONSTRAINTS	30
15.7 FEASIBILITY STUDIES	30
15.7.1 <i>Technical feasibility</i>	30
15.7.2 <i>Financial feasibility</i>	30
15.8 WORK PLAN	31
15.9 <i>Analysis Plan</i>	32
15.9.1 CONTEXT DIAGRAM.....	32
15.9.2 DATAFLOW DIAGRAM	33
PROGRAM INFO AND PROGRAM DETAILS.....	33
Monitor system	34
CHAPTER XVI	
16. DESIGN PHASE	37
16.1.2 <i>Table design</i>	38
16.2 INTERFACE DESIGN	41
CHAPTER XVII	
17. SYSTEM DEVELOPMENT	46
17.1 PROGRAM INFO AND PROGRAM DETAILS	46
17.1.1 <i>Code extract</i>	47
17.2 MONITORING SYSTEM	47
17.2.1 <i>Code extract</i> :.....	48
17.2 REPORT ANALYZER.....	49
CHAPTER XVIII	
18. ACTUAL TEST	50
CHAPTER XIX	
19. TEST DATA.....	57
19.1 PERFORMANCE TESTING.....	59
19.2 RESULTS.....	59
CHAPTER XX	
20. PROBLEMS FACING, LIMITATIONS AND FUTURE MODIFICATION .	62

20.1 PROBLEMS ENCOUNTERED WHILE TESTING MY MODULES	62
20.2 LIMITATIONS	62
20.3 FUTURE MODIFICATION	62
CHAPTER XXI	
21. CONCLUSION	63
REFERENCES	64
APPENDICES	65
A. USER INSTRUCTIONS FOR DISTANCE LEARNERS	65
B. QUESTION BANK	67
C. T-TEST ANALYSIS	71
<i>Pre test</i>	71
<i>Post test</i>	72
D. INCOMING MESSAGE LOG	74
E. SENDING MESSAGE LOG	80

LIST OF TABLES

Table	Page
Table 15.1: Checking data that has been used	25
Table 19.1: Evaluation Sheet of Pre-test and Post-test.....	59

LIST OF FIGURES

Figure	Page
Fig 10.1: Block diagram of the interactive participatory distance learning system...	18
Fig 10.2: Showing the members responsible for each part.....	19
Fig 15.1: Different Phases.....	31
Fig 15.2: Context diagram of proposed distance learning system.....	32
Fig 15.3: level-0 Dataflow diagram of program info and details.....	33
Fig 15.4: level-0 Dataflow diagram of monitor system.....	34
Fig 15.5: level-1 Dataflow diagram of monitor system.....	35
Fig 15.6: level-2 Dataflow diagram of monitor system.....	36
Fig 16.1: ERD of program info and monitoring system	37
Fig 16.2: Program Info.....	38
Fig 16.3: Program Details.....	38
Fig 16.4: Progress_Report_1.....	39
Fig 16.5: Progress_Report_2.....	40
Fig 16.6: Program Info.....	41
Fig 16.7: Program Details.....	42
Fig 16.8: report on student grade sheet.....	43
Fig 16.9.1: report on participant results according to the instant progress report.....	44
Fig 16.9.2: report on daily performance.....	45
Fig 18.1 Presenter delivering his speech to both of the groups.....	51

Fig 18.2 Face to face participants are in the class.....	51
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Figure	Page
--------	------

Fig 18.3 Face to face participant is writing class notes and the answers to question on paper.....	52
Fig 18.4 Mobile-User participants are in the class in the other room.....	53
Fig 18.5 Projector screen for distance learners (Television Screen).....	54
Fig 18.6 Mobile user participants are sending their answers via SMS.....	55
Fig 18.7 Presenter talking to participant in DL classroom.....	55
Fig 18.8 One of our group members administrates our system.....	56

CHAPTAR I

1. EDUCATION SCENARIO IN BANGLADESH

Bangladesh is a highly populated lower income country [1] struggling with huge poverty, which creates lots of chaos in the social, political and economic environment. To cope with the present economic backwardness and to avoid prospective fears of severe socio-economic crisis, it needs a big push toward better socio-economic performance of the country, which is not possible without improving the human capital position of the country. Therefore, it is essential for Bangladesh to enhance its general education level as soon as possible.

Over the last 20 years, Bangladesh has made a significant progress in education. Primary school enrollment increased from 12 million to over 18 million during 1990-1998. Other parts of the education system also made an expansion. Although access to schooling has improved considerably, the quality of education at all levels -- both in terms of student outcomes and the educational experiences that help produce those outcomes -- is extremely poor, and there are equity issues. About 40% of those who start school do not complete primary schooling. The low primary *completion rate* reflects problems with the quality of instruction, poor learning environment and the families' need for children contribution to work. Over 50% of those who start secondary school do not complete it.

Another problem is migration. Due to the socio economic problem people suffering in the rural areas of all over the country come to the big cities especially in the capital city (Dhaka) is search of a better life. Meager educational resources are one of the big problems in this country. Most of the people who have completed higher education come to the big

cities in search of better job opportunities. As a result qualified persons do not remain in rural institutions. And most of our education institute do not have strong financial backup. So Lack of quality teaching environment is seen all over the country as it is not possible to provide skilled teachers, good institutional infrastructure due to financial constraints.

However, due to the seat limitations and also for the inflexibility in space and time at the traditional educational institutions, only small number of people can gain education. It is not possible to provide the number of educational institutions, as is needed for Bangladesh. So a large number of people are not getting the required education. Thus despite the spread of education, there are still important access issues as well as a huge quality problem in Bangladesh's education system.

Encouraging and improving distance learning systems can only solve this problem. Thus it will ensure access to education for all. Now we have to understand distance learning process.

CHAPTER II

2. WHAT IS DISTANCE LEARNING

As defined by **Michael Moore**, the then director of **The American Center for the Study of Distance Education, Penn State**: "Distance education is planned learning that normally occurs in a different place from teaching and as a result requires special techniques of course design, special instructional techniques, special methods of communication by electronic and other technology, as well as special organizational and administrative arrangements". [From the text *Distance Education: A Systems View*, co-authored by Greg Kearsley California: Wadsworth Publishing Company, 1996].

From the **Distance Education: A Consumer's Guide...What distance learners need to know**, published by **Western Cooperative for Educational Telecommunications**: "Distance education is instruction that occurs when the instructor and student are separated by distance or time, or both." The Guide continues with other practical information for the potential distance education student. [\[3\]](#)

CHAPTER III

3. DISTANCE EDUCATION PROVIDERS

3.1 Bangladesh Open University

Small number of educational institutions (public and private) in Bangladesh offer distance and open learning programs. Among these, Bangladesh Open University (BOU) the only public institution which plays a major role. BOU was established in 1992 by an Act of the Parliament (BOU Act-1992 No-38). BOU offers several formal and non-formal programs that range from secondary to post-graduate level. The main objective of BOU's programs is to provide flexible need based education and training to the masses, particularly for the rural disadvantaged groups like rural women, agricultural workers, unemployed youths, uneducated adults, health and family planning workers etc.

It is seen that BOU uses only few methods of learning with limited media (few lectures on TV & radio, Face-to-face tutorials and Audio cassettes, Tapes, printed modules for independent study). It can be seen that the media used are one-way media. BOU cannot choose more electronic or computer-based media for delivery because of: (i) limited resources, (ii) access is not affordable for most of the learners.

BOU follows most of the stages of the standard instructional design process when it pens a programme. When it plans to launch a programme, it begins with curriculum development. Once the curriculum has been developed, then it goes for production of the study materials. After the preparation of the study package, the materials go for delivery [3].

3.2 Newspaper

Some very popular daily newspapers of Bangladesh have a great contribution on running distance learning for several years. Most of the children or students in Bangladesh do not have opportunity to get good guidance for improving their studies. Many of them do not have enough solvencies to buy extra books other than textbooks. So some daily newspaper like “Janakantha”, “Prothom Alo” publish good notes, solutions, suggestions and tutorials that are very useful to the poor students as well as other students of financially solvent family. Although most the daily newspapers have an IT section which gives up to date information as well as tips to the people.

CHAPTER IV

4. PROBLEMS WITH CURRENT DISTANCE LEARNING PROCESS IN BANGLADESH

Some problems are found with distance learning process currently running in Bangladesh. Those are pre-recorded telecast, no interactivity, no feedback, no monitoring of people attendance and monitoring quality of lecture. I am discussing this below:

4.1 Pre-Recorded Telecast

The classes taken by the Bangladesh Open University (BOU) are pre-recorded then telecast. Thus it does not provide real life class room environment. There is no interaction between teacher and student. So lack of classroom environment is a big problem. As a result it does not seem to offer quality education.

4.2 No Feedback

In the current distance teaching processes of both BOU and daily newspaper publications there is no way of getting feedback from the students. It does not allow monitoring whether students are learning.

4.3 No Monitoring Of Attendance

In the conventional education system the speaker take the attendance to count how many people are present in the class. But in the current distance learning process running in Bangladesh there is no system for monitoring the attendance.

4.4 No Monitoring Of Quality Of Lecture

Current processes do not allow monitoring of the quality of lectures. As the classes are pre-recorded it is not possible to provide quality classroom environment.

CHAPTER V

5. SOLUTIONS ABROAD

In developed countries different technologies are used to solve the above problems using on-line methods, e.g. email, chat room, video conferencing, etc., distance learning is provided there.

5.1 Using Bulletin Boards

Bulletin boards seem to be the most promising platform. Bulletin boards are a more advanced or better developed form of e-mail. An example of a commonly-used learning environment is *Blackboard™*. It is easy for teachers and learners to use, and the support team replies immediately and with very straightforward instructions when users have a problem or simply want to know how it works. It provides a simple way of sending and receiving messages and it supports a wide range of formats such as Microsoft Office, Adobe Acrobat (PDF), HTML, digital images, digital audio files, digital video files and multimedia (Flash, Shockwave, and so on). An interesting feature is the possibility of creating quizzes and password-protected, timed tests. These can be released and recalled at specific dates and times or once the student has accessed it.

Another platform that has been used is *Merlin®*. The University of Hull developed this web-based environment that allows tutors and course participants to exchange information, ideas and discuss issues in a very organized way. It is not so easy to use at first, but the facilitators are very helpful. Merlin includes a more visually attractive e-mail program in which photos and other images can be inserted without special effort.

5.2 Using Chat Room

Chat rooms are also used for distance learning [4]. The teacher and the students are present at a schedule time in a specific chat room that is pre-defined by the teacher or course conductor. Chat rooms are used as online conferences as well. Students request discussion. All the lecture notes and assignments are posted on the web page in Adobe® Portable Document Format (PDF) or in M.S. Word Format. Students ask question directly to the teacher in this system.

5.3 Video Conferencing

In the past, distance learning with two-way video was out of reach for many institutions. Recent innovations in telecommunications technologies such as ISDN and compressed videoconferencing systems have lowered equipment and transmission costs, making two-way video feasible for small colleges, businesses, classrooms, libraries, and even homes.

Compressed video holds great promise for expanding the classroom experience. Since a teacher can see and hear remote learners in real time, he can use conversation and body language to enhance communication. Frequent interaction increases understanding and encourages more personalized instruction. Interactive teaching strategies such as questioning and discussion can also help engage and motivate learners by making them active participants.

Remote experts can help validate understanding, provide feedback, and introduce practical examples. This real-world connection can greatly improve motivation, especially if students participate and the expert interacts at an appropriate level.

Photos and color graphics look great on video and can help convey a difficult concept or simplify instructions. Room-based systems usually include

an attachable document camera that allows transmission of a high-quality still image. This feature can be used to show objects as well as photos and graphics, and many instructors also project "slates" -- simple text displays with a few sentences (usually instructions). Slates are an easy way to shift learner focus from the video screen to a learning activity [\[5\]](#).

CHAPTER VI

6. THESE SOLUTIONS IN THE CONTEXT OF BANGLADESH

However these solutions are not suitable for Bangladesh. Among reasons are:

6.1 Only One Million Computers

There are very few people in Bangladesh who have computers. People in rural areas do not have computers. As this country is one of the poorest country in the world computer could not be accessed to every part of Bangladesh.

6.2 Expense Of Internet

Though some people have computers it is not possible to all of them to afford the expense of Internet. Internet is a very expensive media in Bangladesh. So Internet is not available to most of the people in Bangladesh.

6.3 Internet Speed

Video conferencing requires high bandwidth. The Internet speed in Bangladesh is very slow. Still we do not have optical fiber cable for data transfer. So it is not possible to run distance learning though video conferencing in Bangladesh.

CHAPTER VII

7. WHAT CAN BE THE SOLUTION?

We have to find out a way that would be effective for Bangladesh. As I mentioned earlier that it is not possible for us to afford Internet and computers for distance learning. So we have to find out a solution that would be acceptable for Bangladesh. This solution can use two things. That are-

- ✓ **Television**
- ✓ **Mobile phones**

7.1 Television

Distribution of TV in Bangladesh in 2000 [6] TV = 4 per 100 households. Thus BTV is available throughout the country. Every village has at least one television. Most of the people in every region of Bangladesh watch BTV as it is the national TV channel and cable TV channels are not available throughout the country. The Chinese TV sets imported are very low price. So the numbers of TV set in villages are increasing today.

7.2 Mobile Phone

For the last few years telecommunication in Bangladesh become so easy as the number of mobile phone users have increased dramatically. Grameenphone claims that they have 2 million subscribers where Aktel has 1 million. Adding the sets of Citycell (179,058) [7] and Bangla link (Old Sheba) the number of subscribers in Bangladesh would be around 3.5 million. And this number is increasing rapidly. Within next five years this number should be at least 6 to 7 million.

CHAPTER VIII

8. OUR SOLUTION

We tried to find a solution that would be acceptable and accessible to the people of Bangladesh. After studying the context of Bangladesh we thought of using mobile phones as interactive tools for distance learning.

It is possible to provide a live telecast classroom to every region of Bangladesh through BTV. There will be a live show in the BTV where a person will be the speaker who will conduct the learning process. A one-hour program can be conducted.

Mobile phones have a Short Messaging Service or SMS that allows text of maximum 160 characters to be sent in one short burst worldwide between sets. Such text can be easily interfaced with a computer that can then process the text as desired. As such, the mobile set can serve as a (somewhat limited) remote input device for a computer.

8.1 Operation Of A Session

8.1.1 Live presentation

The class would be conducted “live”, so that a speaker (presenter) can ask questions and respond to clear up wrong concepts. The speaker should also be able to talk to participants real-time. Conducting the class on national television would allow accessing to greater number of people. A course or a country wide training program can be conducted in this manner.

8.1.2 Class timing

The class time would be scheduled at fixed date and pre-announced. This would be just like the conventional time tabled class for the entire course or training program. Thus each program may consist of 10 sessions (classes) for one-credit. Two sessions per week would mean that the program would last for 5 weeks. Each session can be between 60 minutes to 75 minutes. A fixed timing would allow participants to organize themselves accordingly.

8.1.3 Question based lesson

The lesson would be pre-planned and structured. The speaker will provide a lecture on a specific topic. Then he/she will ask a question after 2 to 5 minutes about the topic has been lectured. The questions would have multiple-choice answers that would be displayed as A, B, C and D. All the questions for the lesson would be pre-defined and entered into the computer.

The participant would send the chosen answer by SMS. The serial number of the question should also be included such as Q1D, if the chosen answer for **Question 1** is **D**. The server would register the answer against the candidates' phone number or ID and would do three things:

8.1.4 Monitor the session

The computer would send a message to those who have not attempted the question. The participant would feel that the speaker can see him/her and that he/she is being monitored.

8.1.5 Computer plots graphs of answer

The computer would create a bar chart of the questions answered and mark the correct answer. The bar chart would be visible to the speaker. To interact with the participants, the speaker would select a wrong answer on the graph and the computer would show the IDs (mobile number) of those who have the selected wrong answer. The speaker or computer would randomly select a phone number that the computer would then dial. Being connected,

the presenter would ask the student the logic behind selecting the answer. Wrong concepts can then be corrected by the presenter in real time on air. A few other random selections can be similarly made. This would help clear up wrong concepts immediately; “live” during the presentation.

A complete record of each student’s performance would be kept. This record would be used to issue participant’s performance notification via SMS and also used to issue certificates at the end of the training session of a program.

8.1.6 Progress report

At the end of the lesson, each participant’s results could be posted via SMS saying whether the participant has passed or failed the session. Correct responses could also be posted via SMS. The participant would have a record of his/her status. This would motivate the participant to be more attentive next session or be pleased that he/she has done well.

CHAPTER IX

9. ADVANTAGES OF THIS SOLUTION

9.1 Lower Cost

The cost to the participant during a session is around Tk.30/- at current rates for the SMS messages sent to the service center and of course the initial cost of a mobile set. A SMS burst actually costs around Tk. 0.1 to the mobile company. For educational purposes mobile companies may agree to examine their cost structure.

Other costs would involve airing the presentation using a satellite station, around Tk.1000/- per minute and initial costs of setup. This would include cost of server, interfaces and software.

9.2 Monitoring And Feedback

Attendance and participation would be monitored. The students would get a feeling of participation and be forced to follow the class. They would feel that the presenter could see them individually as well as the audience coverage would be larger. Thus this would be possible to provide a real life classroom environment in the rural setting. It is however not possible to monitor every participant in the real life classroom face-to-face which can be done in our solution.

9.3 Quality Teaching Method

It is possible to provide qualified and skill teacher in this system. The speaker will prepare the sessions first then it would be presented in a well-structured manner. And the classes will not be run in within any boundary. So

there is no need to have any institutional structure. Participant can participate there session from any place where a television set is available.

9.4 Courses Suitable for Such Technology

Countrywide training of teachers in various schools or health workers can be conducted in this manner. It is possible to conduct any conference, class and training session using this technology

CHAPTER X

10. BLOCK DIAGRAM OF THE OVERALL SYSTEM

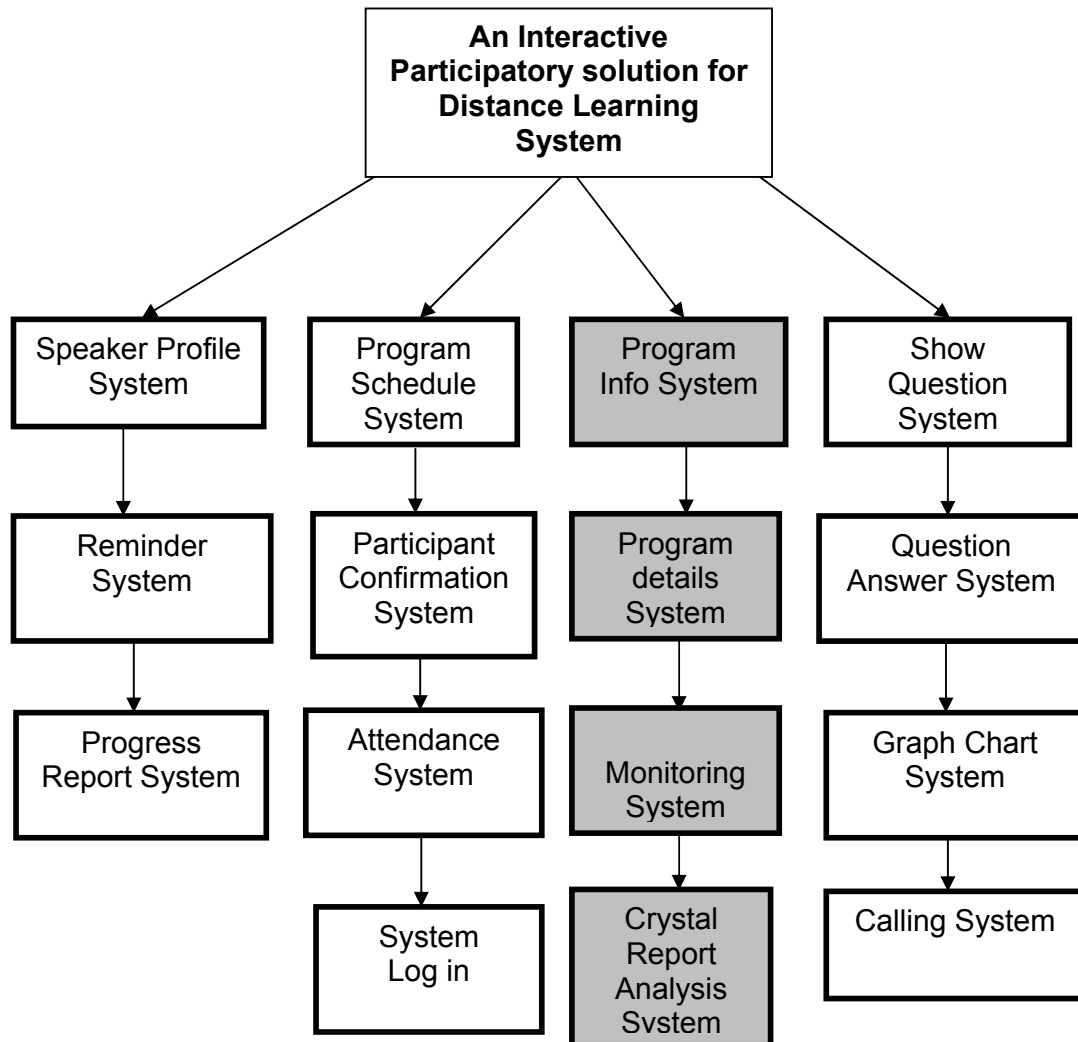


Fig 10.1: Block diagram of the interactive participatory distance learning system

The block diagram represents the overall system. The total system was distributed between the four group members. The responsibilities are given on the next page.

GROUP MEMBERS	RESPONSIBILITIES
Shafique Shamsur Razzaq	Reminder System Speaker profile System Progress Report System
Shoeb Ahmed	Program Schedule System Participant confirmation System Attendance System Log in System
Shakib Zaman	Program Info System Program Details System Monitoring System Report Analyzing System
Khalequzzaman	Show Question System Question Answer System Graph Chart System Calling System

Fig 10.2: Showing the members responsible for each part

The shaded portion in both the figures presents **my modules**. My modules are described starting from the next section.

CHAPTER XI

11. MY MODULES

PROGRAM INFORMATION DETAILS SYSTEM, MONITOR
SYSTEM AND REPORT ANALYZER

CHAPTER XII

12. INTRODUCTION TO MY MODULES

In our distance learning solution there are some significant differences improved that have been proposed. One of the key parts of the solution is a Monitoring system. In the current distance learning system there are no processes to make interaction between teacher and student. But our monitoring system will provide a real life environment to the learning process. It will keep track of the participants who are not present in the class and participants who are not attempting to answer the questions. Thus the system can identify the absentees and the defaulters. Because of this process the participant will feel that the speaker is monitoring him. To make a successful learning system there are also some parts that support the overall distance learning process. One is "Program Information System" which would keep track on all the programs that will be run and also providing the participants all the information about the programs. Another module is report analyzer. This will provide useful report on the participant performance for each session and also for each program. This analyzer will help the speaker to get participant performance by showing graphs. My part of the work was to implement these three systems.

Chapter xiii

13. Modules

13.1 Program Information Details

One of my modules is “Program Information”. This module will keep track of all the Information of an individual program. Before enrolling a program (course) a person want to know every thing about a program. So my module “Program Info” will give all the information like program name, starting date, closing date and the number of lecture for the program. Thus how does this module provide these? For keeping track on all of this information there would be a store where all of these like program name, program id, name the organization that offers the program, starting date, closing date and the duration of the whole program and the number of participant enrolled for that program will be kept.

Now a question might arise. How the information would be sent to the person who wants to know about a program. So there would be a rule for this job. That is to get the information about a program a person have to send a short massage (SMS) through mobile phone like “**info,prog1**”. After sending this message the person will get a Short message (SMS) form our system. That is like “**Quadratic Function, Start: 1/02/2005, End: 8/03/2005, 16 Lectures**”. Thus a person will know the Information about the program before confirming to register the program.

13.2 Monitor System

One of the key parts of our “***Interactive Participatory Solution to Distance Learning***” is monitoring system. This makes our proposed solution different from the current distance learning process provided in Bangladesh.

This system is responsible for monitoring participant attendance and participant performance. Now the question is how? First it checks the session starting time from the ***Program Schedule***. Then find out the participants who are not attended within 10 minutes after the session started. Then the monitoring system will send the absentees a short message (SMS) that they are not present in that particular session.

The next purpose of the monitor system is to find out the participants who are not attempting the question answer session. To do this first the system will find out the participants who are present and check their Id in the initial progress report whether they are attempting to answer the question asked by the presenter. If not then it marked their id in the initial progress report according to the question no “Not Attempted”. Then it will send the participant a short message (SMS) that they have not attempted the question. It will also increase the number of not attempting answers in the daily progress report.

13.3 Report Analyzer

The responsibility of the report analyzer is to give the feedback of participant’s performance to the presenter. At the end of the day after creating daily progress report it shows the graphs and reports on participant’s performance. It will help the presenter to know the ratio of participant’s attendance, percentage of the student who gave the correct answer according to question. It will also provide a preview of a ratio of final grade of participants.

CHAPTER XIV

14. SPECIALTY OF MY MODULES

The essential difference is interactivity during a distance learning session. My modules make it easier for the presenter to reach the participants.

In the conventional education system there is no way to interact with distant participants (students). In the current distance learning process there is no attendance system. So no question would be asked about interaction between Presenter and Learner. But in our solution my module “Monitoring System” will make interaction between presenter and participant.

In the traditional on campus learning system it is not possible to know who are not participating in the answering session. But monitoring system not only flagged the participants not answering but also interacts with them. So the participant feels that the presenter is monitoring him.

In the traditional education system and also in the current distance learning process it is not possible to get daily feedback from the learner. But our report system shows daily performance of the learners that helps the presenter to know how many participants are attending, how many participants are giving the correct answer, how many participants are not attempting to answer.

So these processes should make a significant difference between our system and traditional education/distant education system.

CHAPTER XV

15. PLANNING AND ANALYSIS PHASE

15.1 Test Plan

Table 15.1: Checking data that has been used

Name of the field	Validation	Test Input Data	Expected Result	Expected output	Actual Message
Message key word 	First word should be "info" then", " "prog" after that it would be Program id like"1" or "2"	Reg,prog1 Or Prog1informat ion	Wrong message	No Program information will be shown	"NO MATCH FOUND IN DATABANK PLEASE SPELL CHECK AND TRY AGAIN."

(Program information)	There would be no space between “info”, “,” and “Program id”.	info , prog1 or info, prog 1 or info,prog 1	Wrong	No Program information will be shown	“NO MATCH FOUND IN DATABANK PLEASE SPELL CHECK AND TRY AGAIN.”
Program name (Program information or Program Schedule)	Program name should be within 50 character	“ “	Wrong	Program information program schedule system will not record the blank entry of program name	"ENTER THE PROGRAM NAME"
Organization name (Program information)	Organization name should be within 50 character	“ “	Optional	Program information system will record the organization name field as "Not Provided"	No message will be shown
Program id (Program details, program schedule)	Program id should be within 10 character	“ ”	Wrong	Program details or program schedule system will not record the blank entry of program id	"ENTER THE PROGRAM ID" (Program details) or "SELECT THE PROGRAM ID"(Program schedule)

Number of lecture (Program detail)	Number of lecture should be an integer number	“ ”	Wrong	Program details system will not record the blank entry of number of lecture	"ENTER THE NUMBER OF LECTURE"
Number of participant (Program detail)	Number of lecture should be an integer number	“ ”	Wrong	Program details system will not record the blank entry of number of participant	"ENTER THE NUMBER OF PARTICIPANT"
Program confirmation (program schedule)	Program confirmation should be yes or no	“ ”	Wrong	Program schedule system will not record the blank entry of Program confirmation	"GIVE PROGRAM CONFIRMATION"
Presenter id (program schedule)	Presenter id should be within 13 character	“ ”	Wrong	Program schedule system will not record the blank entry of PRESENTER ID	"SELECT PRESENTER ID"
Program Confirmation (program)	Program confirmation should be	“ ”	Wrong	Program schedule system will	"GIVE PRESENTER CONFIRMATION"

schedule)	yes or no			not record the blank entry of presenter confirmation	
Start Time (program schedule)	Starting time should be like Hr:Min:Sec	“ ”	Wrong	Program schedule system will not record the blank entry of start time	"SELECT THE START TIME"
End Time (program schedule)	End time should be like Hr:Min:Sec	“ ”	Wrong	Program schedule system will not record the blank entry of presenter end time	"SELECT THE END TIME"

15.3 Business Need

To provide an effective learning environment that will ensure participation of the learners from all over the country and interactivity between presenter and all the learners by creating a virtual classroom.

15.4 Functionality

Our distance learning solution satisfies following functionalities of my modules:

1. Any person will get information about a specific program by sending a short message (SMS).
2. If the DL (Distance learning) system is not getting the attendance within the 10 minutes after the session started then the registered participant will be marked as absentee and get an SMS that he/she is not present and the system will not take anymore attendance.
3. If any attended participant does not participate in answering question thus he/she will be marked as defaulter and will get an SMS that he/she did not attempted that specific question.
4. At the end of the class the presenter will get some reports of participant's overall performance.

15.5 Expected Value

15.5.1 Tangible

1. It is possible to provide effective learning to every region of the country within a short period of time.
2. It is possible to save lots of money for learning and learn without having to migrate or travel to the large cities.
3. Technical education can be reached to every kind of people who has at least some literacy on using a mobile phone by our DL system

15.5.2 Intangible

1. It will provide real life class room environment.
2. Quality teaching can be provided to every door.

15.6 Special Issues or Constraints

Conventional Distance Learning System does not ensure participants learning because lack of interactivity and monitoring. Although there is Distance Learning process but most of the people in Bangladesh is still not introduced with it. So before starting our process it has to be introduced in the national TV. Though people know how to operate a mobile phone and write SMS they should know the steps and processes needs to be registered or to give answer etc through SMS. So first a presentation on our system is needed to be introduced with the technologies needed to conduct our proposed system.

15.7 Feasibility Studies

15.7.1 Technical feasibility

- ❖ SMS has never been used as a media for Distance Learning process in Bangladesh.
- ❖ The members involved in proposed dl system development have idea on the programming and the SMS based application system.
- ❖ According to our estimation the project size is moderate and design of the project is not too complicated.

15.7.2 Financial feasibility

- ❖ It seems that the cost involve in setup the system is very high. But later it will save lot of money as it will cover a huge number of people.
- ❖ The participants have to spend money for the sending and receiving SMS. However, highly technical subjects may also be

taught using the DL process, for which otherwise they would have to come to Dhaka.

- ❖ So it will save a lot of money as they can do their courses sitting in front of a TV set in their village.

15.8 Work Plan

<u>Step</u>	<u>Deliverables</u>
Planning Phase	System Request, Feasibility Studies (Technical, financial), Information Gathering Plan
Analysis Phase	Analysis for the Plan
<i>Examine As-Is System</i>	Information Summaries
<i>Identify Improvements</i>	Structural Model
<i>Develop Concept for To-Be System</i>	Ideas for system
	System Concept
	Structural Model
Design Phase	
<i>Develop Physical Models</i>	Structural Model
<i>Design Architecture</i>	System Architecture
<i>Design Infrastructure</i>	Infrastructure Design
	Network Model
	Hardware/Software
	Security Plan
<i>Design Interface</i>	Interface Structure Design
	Interface Standards
	Interface Design
	Use Scenarios
Implementation Phase	
<i>Construction</i>	Programs
	Test Plan
	Documentation
	Completed System
<i>Implementation</i>	Conversion Plan
	Change Management Plan
	Training Plan
	Implemented System

Fig 15.1: Different Phases

15.9 Analysis Plan

After gathering all the information needed for my system I have to make a structural model for my system. To do this I am making the Context Diagram and Data Flow Diagram (DFD) for my system.

15.9.1 Context diagram

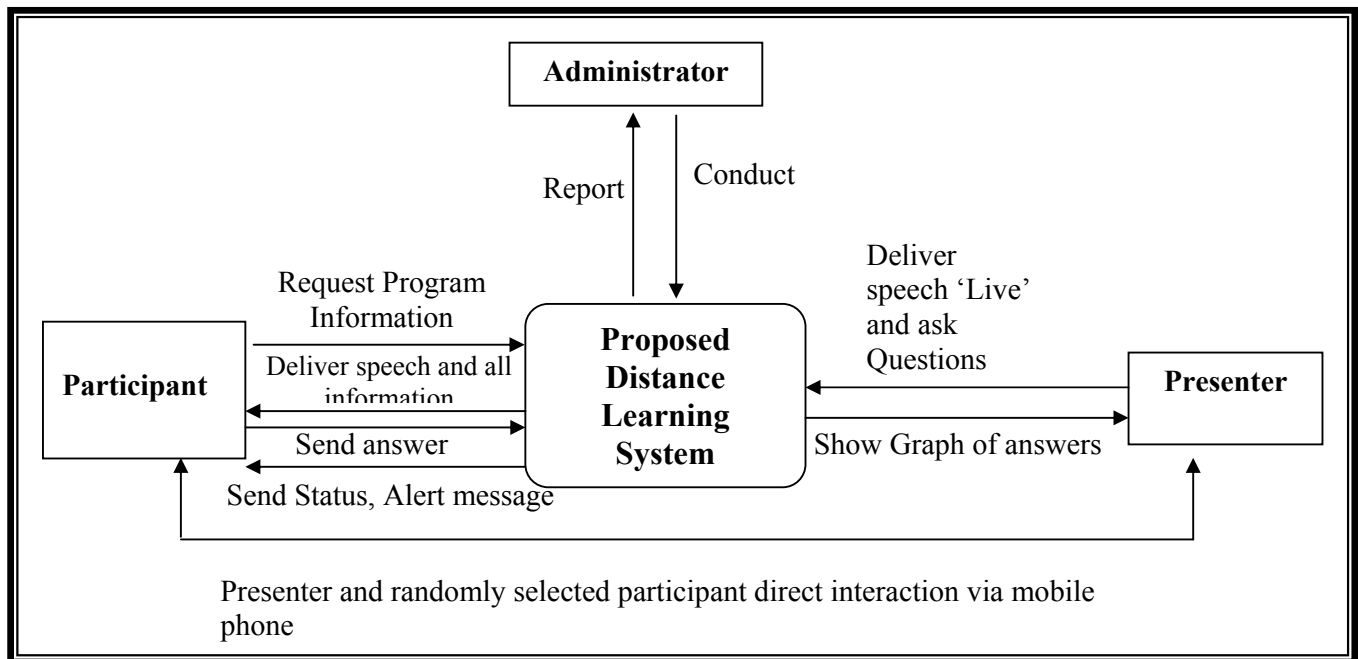


Fig 15.2: context diagram of proposed distance learning system

This figure shows the context diagram of our proposed Interactive Distance Learning System. Participants are requesting the system for getting information. The Administrator sends all the information through the system and the presenter giving his speech through the DL system. Participants are giving their answer to the proposed DL system. And system is showing the performance chart to the presenter and sends status and alert message to the participants. And the system is also ensuring interactivity between presenter and participants via mobile phone.

15.9.2 Dataflow diagram

Program Info and Program Details

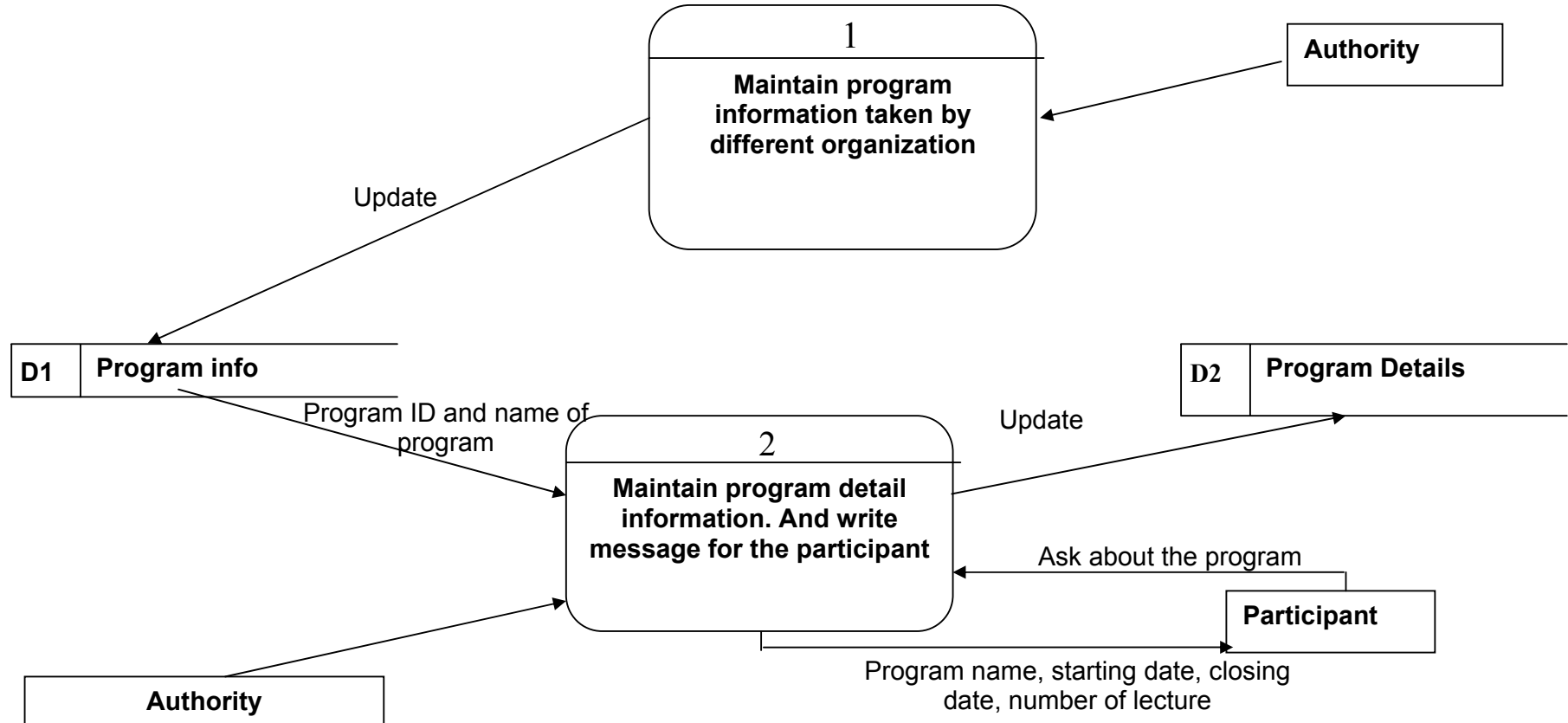


Fig 15.3: level-0 Dataflow diagram of program info and details

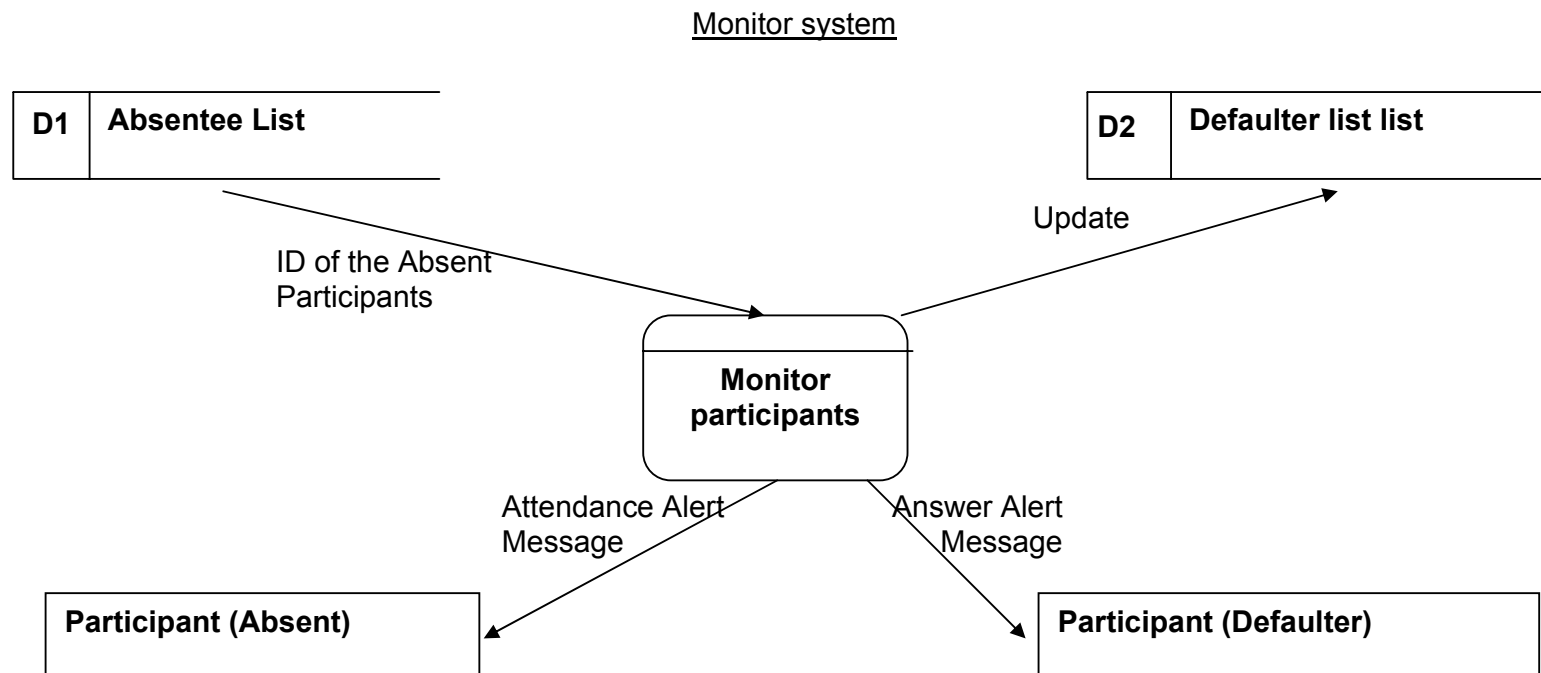


Fig 15.4: level-0 Dataflow diagram of monitor system

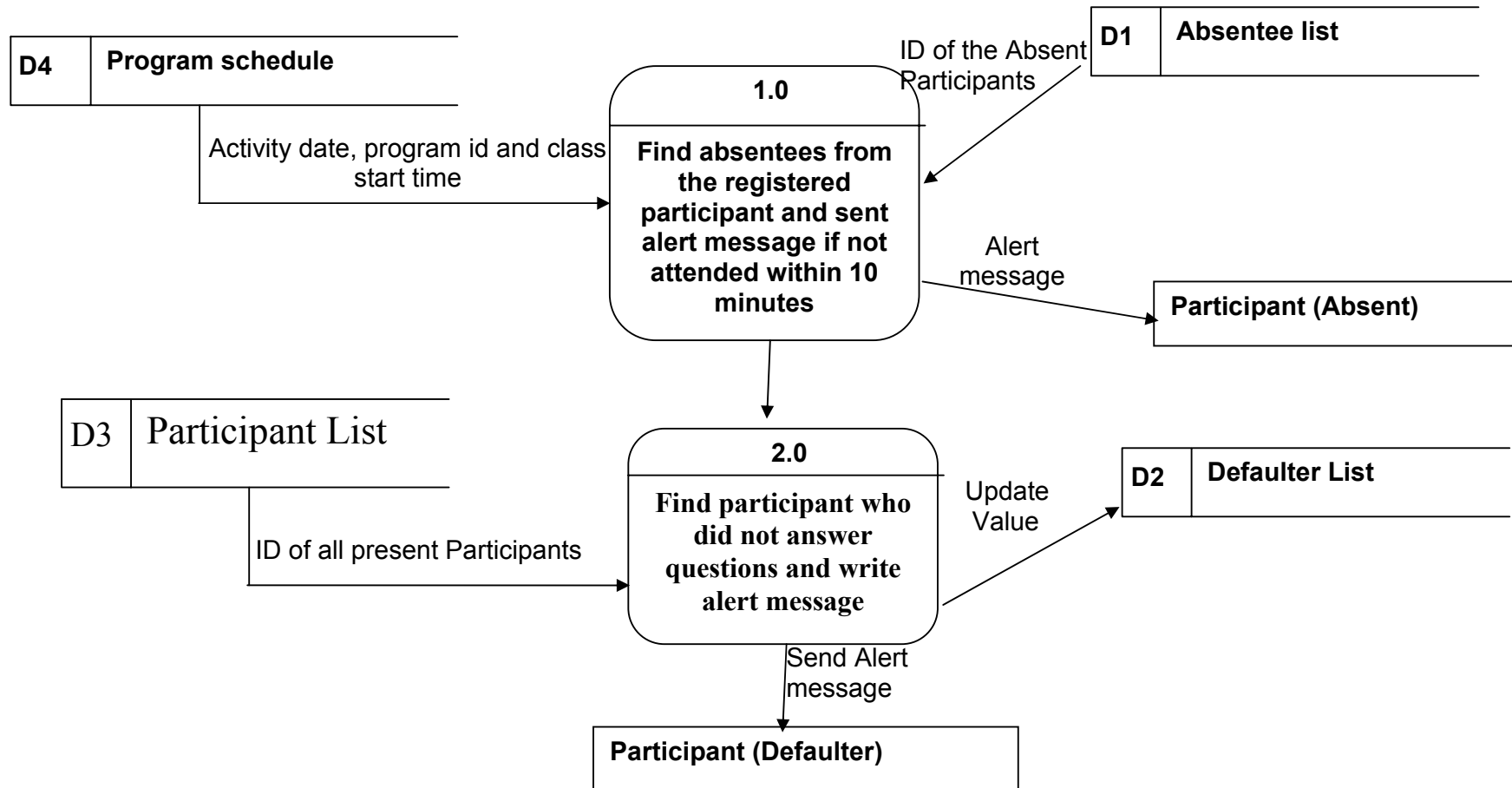


Fig 15.5: level-1 Dataflow diagram of monitor system

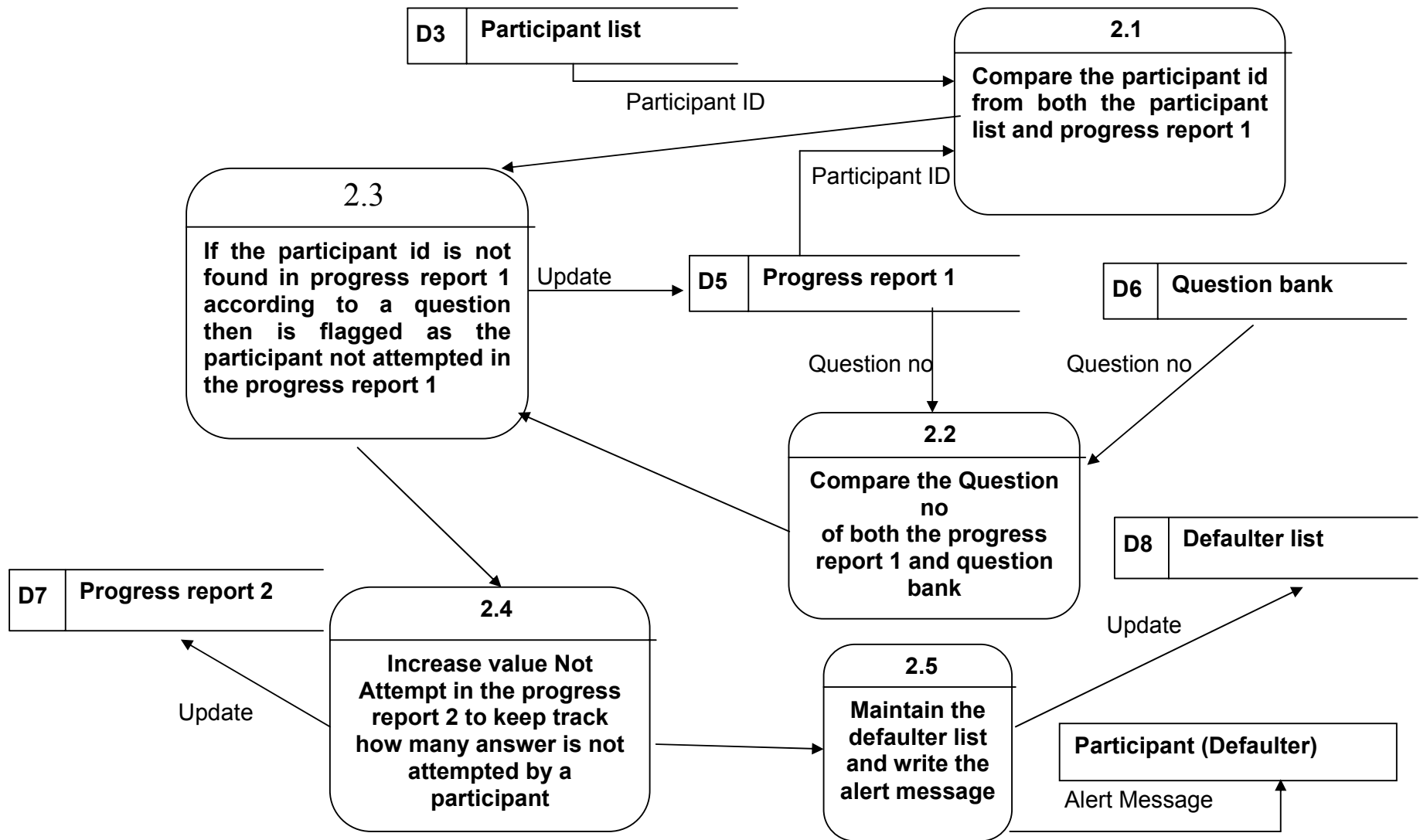


Fig 15.6: level-2 Dataflow diagram of monitor system

CHAPTER XVI

16. DESIGN PHASE

16.1 Database Design

16.1.1 Entity relationship diagram

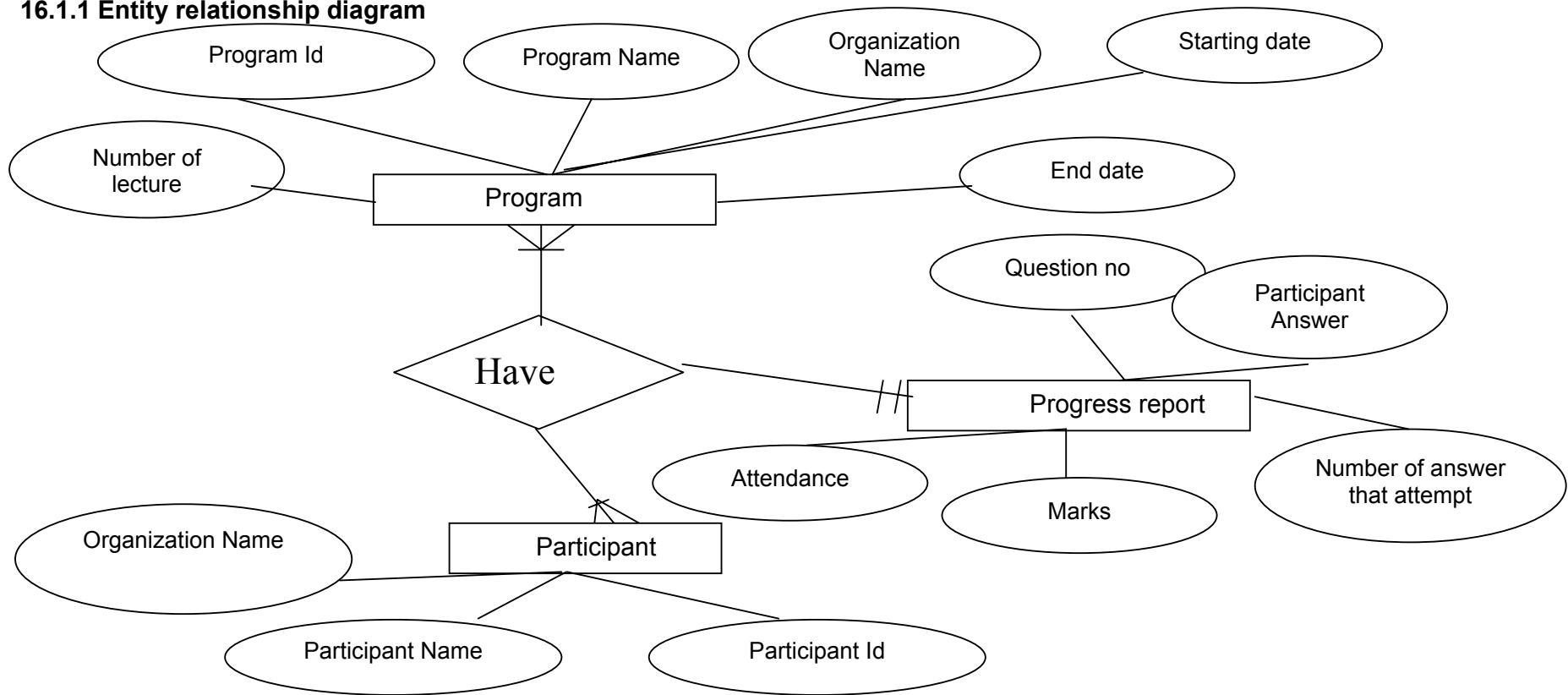


Fig 16.1: ERD of program info and monitoring system

16.1.2 Table design

Table Name: **PROGRAM_INFO**.

Purpose: Keeping information on programs taken by the organizations

Columns						
Name	Datatype	Size	Scale	Nulls?	Default Value	
PROGRAM_ID	VARCHAR2	10				
PROGRAM_NAME	VARCHAR2	50				
ORGANIZATION_NAME	VARCHAR2	50				

Fig 16.2: Program Info

Description:

PROGRAM_INFO table contains several programs' information. Each program is conducted by different organization. Here PROGRAM_ID is the primary key.

PROGRAM_INFO (PROGRAM_ID, PROGRAM_NAME, ORGANIZATION_NAME)

Table Name: **PROGRAM_DETAIL**

Purpose: Keeping all the specific information of every program.

Columns						
Name	Datatype	Size	Scale	Nulls?	Default Value	
PROGRAM_ID	VARCHAR2	10				
START_DATE	DATE					
END_DATE	DATE					
PROGRAM_DURATION	NUMBER	10	0			
NO_OF_PARTICIPANT	NUMBER	10	0			

Fig 16.3: Program Details

Description:

PROGRAM_DETAIL table contains all the information of all individual programs. Each program has a specific starting date end date number of days

it will run and number of participant registered for that course. Here PROGRAM_ID is the foreign key.

PROGRAM_DETAIL (PROGRAM_ID, START_DATE, END_DATE, PROGRAM_DURATION, NO_OF_PARTICIPANT)

Table Name: **PROGRESS_REPORT_1**.

Purpose: Keeping instant results of the participants.

Columns						
Name	Datatype	Size	Scale	Nulls?	Default Value	
ACTIVITY_DATE	VARCHAR2	15				
PARTICIPANT_IDENTITY	VARCHAR2	13				
QUESTION_NO	VARCHAR2	10				
PARTICIPANT_ANSWER	VARCHAR2	15				
MARK	NUMBER	10	0			
CORRECTNESS	VARCHAR2	10				

Fig 16.4: Progress_Report_1

Description:

PROGRESS_REPORT_1 contains initial result of the participants. It is as a temporary file. Each session data is stored in this table. The next session data is overwritten. Here ACTIVITY_DATE and PARTICIPANT_IDENTITY is the foreign key.

PROGRESS_REPORT_1 (ACTIVITY_DATE, PARTICIPANT_IDENTITY, QUESTION_NO, PARTICIPANT_ANSWER, MARK, CORRECTNESS)

Table Name: **PROGRESS_REPORT_2**.

Purpose: Keeping daily results of the participants.

Columns						
Name	Datatype	Size	Scale	Nulls?	Default Value	
ACTIVITY_DATE	VARCHAR2	10		✓		
PARTICIPANT_IDENTITY	VARCHAR2	13		✓		
HOME_TASK	NUMBER	10	0	✓	0	
ATTENDANCE_MARK	NUMBER	10	0	✓	0	
QUESTION_MARK	NUMBER	10	0	✓	0	
ANSWER_MARK	NUMBER	10	0	✓	0	
ATTEMPT_ANSWER	NUMBER	10	0	✓	0	
NOT_ATTEMPT	NUMBER	10	0	✓	0	
PASS_FAIL	VARCHAR2	3		✓		

Fig 16.5: Progress_Report_2

Description:

PROGRESS_REPORT_2 contains daily results of the participants. It keeps track on participant performance storing data on number of question attempted, mark obtain by answering, sending homework, attendance. Each session data is stored in this table. The next session data is overwritten. Here ACTIVITY_DATE and PARTICIPANT_IDENTITY is the foreign key. At the end of the date participants get report on their performance according to this table.

PROGRESS_REPORT_2 (ACTIVITY_DATE, PARTICIPANT_IDENTITY, HOME_TASK, ATTENDANCE_MARK, QUESTION_MARK, ANSWER_MARK, ATTEMPT_ANSWER, NOT_ATTEMPT, PASS_FAIL)

16.2 Interface Design

<i>Program ID</i>	PROG1	<i>Add</i>
<i>Program Name</i>	Quadratic Function	<i>Delete</i>
<i>Organization Name</i>	BRAC University	<i>Edit</i>

|< << >> >|

Fig 16.6: Program Info

The figure shows the interface where the information on program taken by different organization is maintained. Administrator assign program id to the individual programs using this interface. This interface allow administrator to add new program or any kind of editing on any program.

The screenshot displays a 'Program Details' form on a dark blue background. The form contains five input fields with labels to their left: 'PROGRAM ID' (a dropdown menu showing 'PROG1'), 'PROGRAM DURATION' (a text box with '1'), 'PROGRAM START' (a date picker showing '12/22/2004'), 'PROGRAM END' (a date picker showing '12/22/2004'), and 'NUMBER OF PARTICIPANT' (a text box with '25'). To the right of these fields are three buttons: 'ADD', 'EDIT', and 'DELETE'. Below the input fields, there are four navigation buttons: '|<', '<<', '>>', and '>|'. At the bottom center, there is a button labeled 'BACK TO MAIN'.

Field Label	Value	Action
PROGRAM ID	PROG1	ADD EDIT DELETE
PROGRAM DURATION	1	
PROGRAM START	12/22/2004	
PROGRAM END	12/22/2004	
NUMBER OF PARTICIPANT	25	

Navigation: |< << >> >|

BACK TO MAIN

Fig16.7: Program Details

This interface is used to update detail information on an individual program. This interface defines the program duration, starting date of the program, the date that the program will end and the number of participants already enrolled for the program. When a person wants to know about a program then from this interface he/she gets the information.

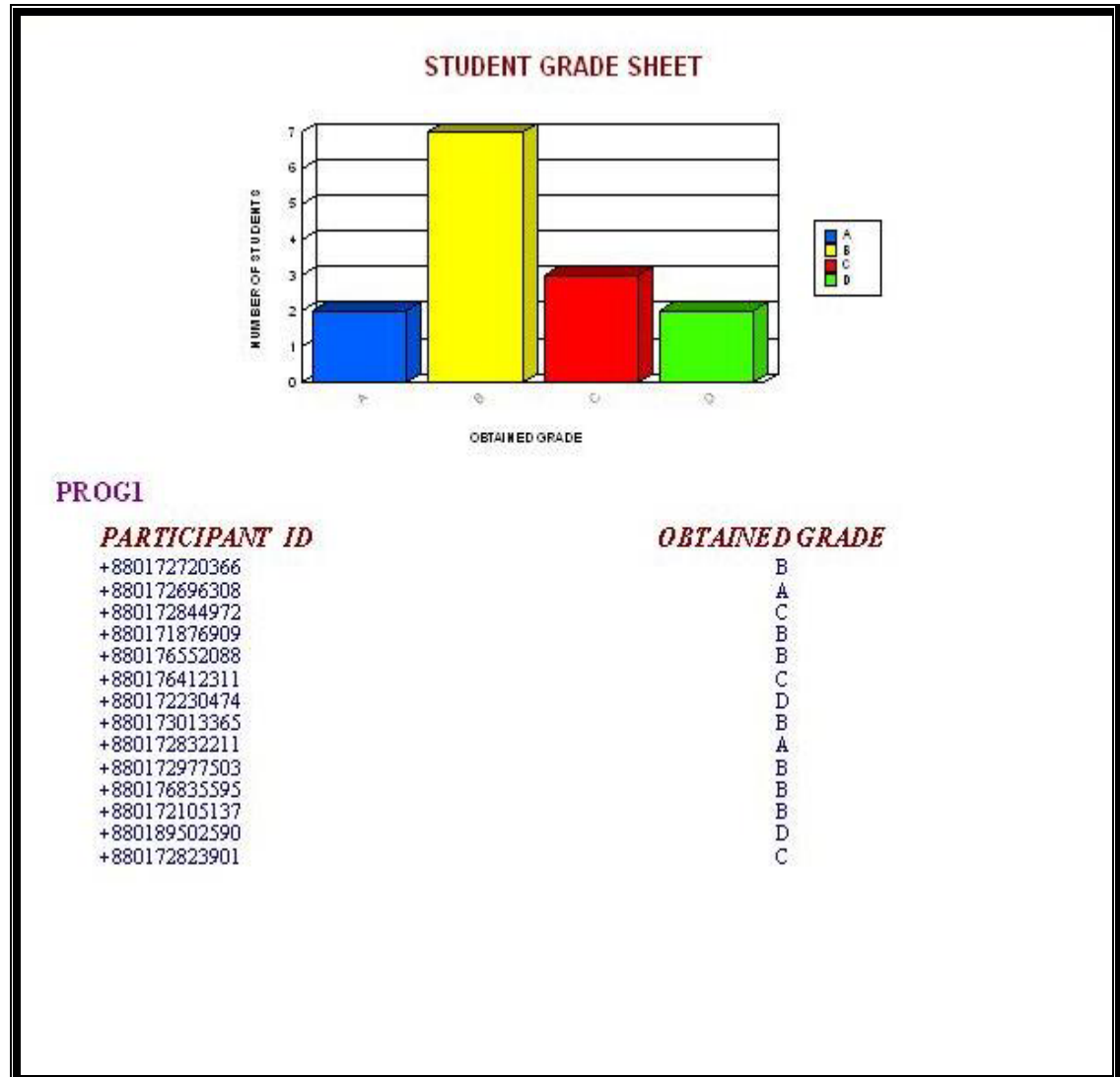


Fig 16.8: report on student grade sheet.

Fig 16.8 is presenting a graph which represents the final grade of the Participants. This will help to know the presenter about Participant performance on an individual course.

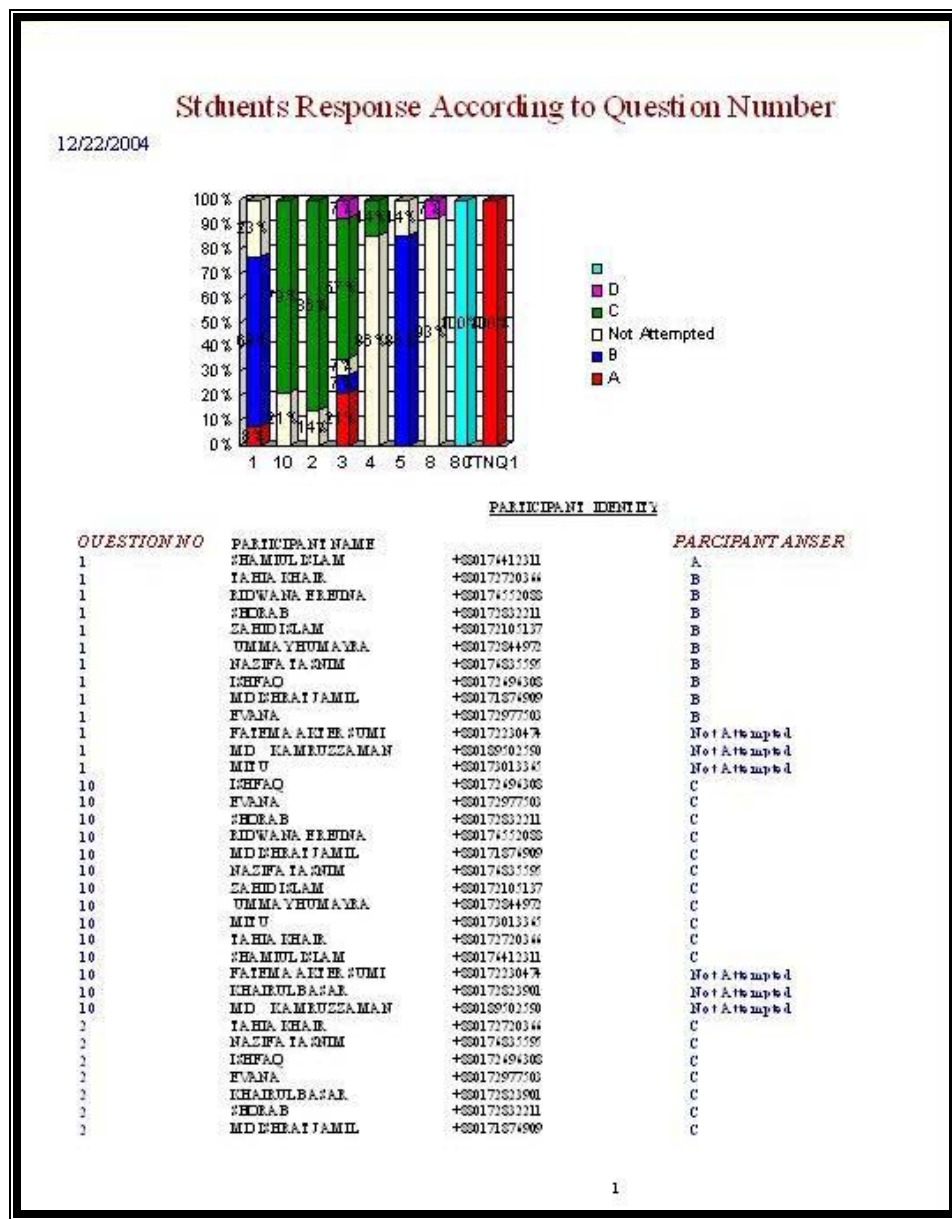


Fig 16.9.1: report on participant results according to the instant progress report.

Fig 16.9.1 is showing participant answers according to individual question. This will help the presenter to know which participant is attempting or not and whether the participants understand the presentation.

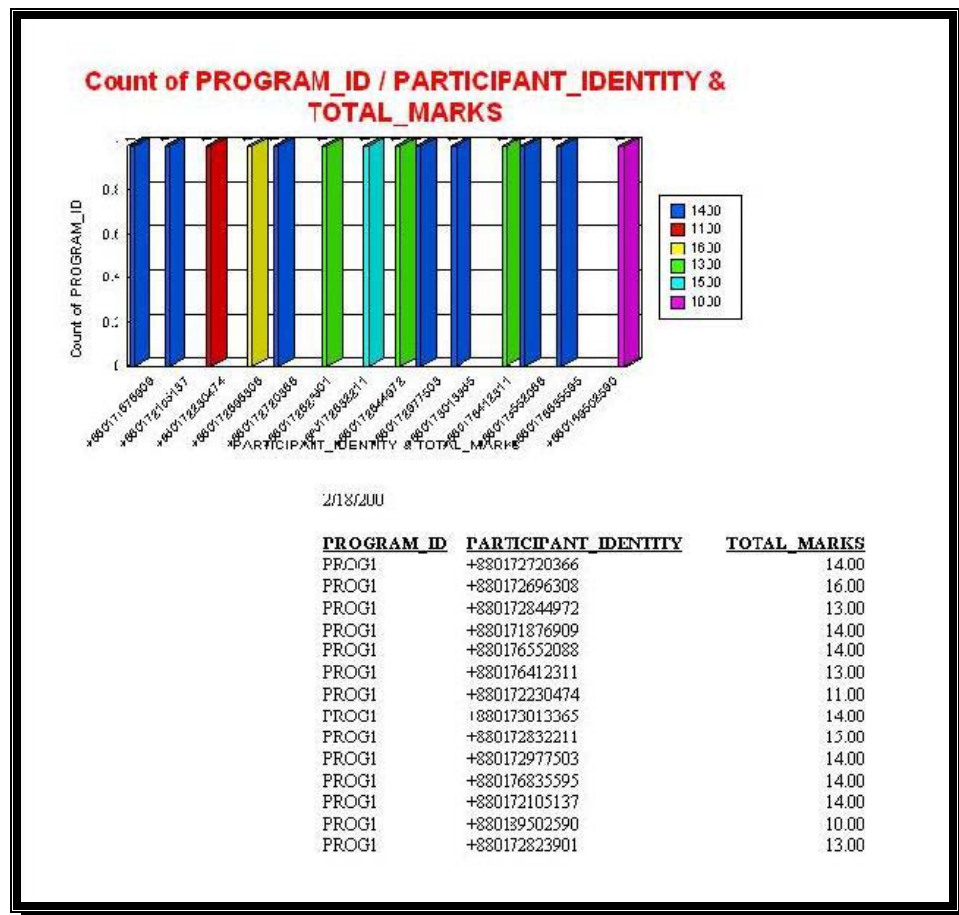


Fig 16.9.2: report on daily performance.

Fig 16.9.2 is showing marks that participants got after end of the class. This will help the presenter to know daily performance of the participants

CHAPTER XVII

17. SYSTEM DEVELOPMENT

17.1 Program Info and Program Details

When a person wants to know the information of an individual program then Program info and program details send him all the information. To do this these processes keep two databanks where all the information like program name, program id, organization name, starting date, end date, program duration, number of participant enrolled for that course are stored. These processes are works as follow:

- ❖ When a person send an SMS to know information about a program it has been stored in incoming log file.
- ❖ This SMS should be maintained a rule. In the query SMS the person have to send the keyword “**INFO**” first then a “.” then the program id like “**info.prog1**”
- ❖ When the system gets the SMS it uses the parsing function to parse keyword info and program id.
- ❖ If the key word is info then checks whether there is any data in program info databank.
- ❖ If there is data then it checks data in the Program detail databank according to the program id.
- ❖ If there is data on an individual program then it creates a message with data like program name, start date, end date and number of lecture.
- ❖ Then send it to the person who wanted to know the information.

17.1.1 Code extract

```

If token1 = "INFO" Then
    openprog

    If rs.BOF Or rs.EOF Then
        finalsms = "No match found in databank please spell check and try
again"
        rs.Close

    Else
        finalsms = rs1(1) + ", Start: " + str(rs(1)) + ", End: " + str(rs(2)) +
", " + str(rs(3)) + " Lectures"
        rs.Close
        rs1.Close
    End If

```

17.2 Monitoring System

Monitor system is responsible for keeping track of the absentee and defaulter participants.

The steps of the monitoring system are as follows:

- ❖ First the system adds ten minutes with the starting time of scheduled session.
- ❖ The participants who did not gave their attendance within the added time then the monitor system send them a message like **“You are absent for the 08/03/2005 Class of prog2 “**
- ❖ Then the system first checks whether there is any participant present at that session. The present participant would be in the participant list.
- ❖ After each question answering session the system will check is the participant id of participant list (list of registered participant gave attendance) is in the progress report 1 (when a participant answer a question then his/her id comes to the progress report 1). And also check the sent question number with the question number in question data bank.
- ❖ If the system does not get the participant id in progress_report_1 and question number in the question bank then it flagged the participant answer of the progress report 1 “Not Attempted”.

- ❖ It will add 1 to the “not attempt” field in progress report 2 data bank where daily result stored.
- ❖ Then it will update the defaulter list.
- ❖ After that the system will send a message to the participant like "You Did not attempt Ques No 2".

17.2.1 Code extract:

```

hr = frm_sms.GetToken(rs(5), ":")
min = frm_sms.GetToken("", " ")
min = frm_sms.GetToken(min, ":")
se = "30"
min = Int(min) + 11
If Int(min) >= 60 Then
    hr = Int(hr) + 1
    min = Int(min) - 60
End If

If Int(hr) = Int(hr_now) Then
    If Int(min) = Int(min_now) Then
        If Int(se_now) - Int(se) <= 6 And Int(se_now) - Int(se) > 0 Then
            monitor_msg = " You are absent for the " + Date + " Class of " +
rs(0)
            monitoring = True
        End If
    End If
End If
End If

```

This portion of code is working for finding out the absentee participants.

17.2 Report Analyzer

Report analyzer is used to provide feed back on participant's performance. To create report I used Crystal Reports 8.

- ❖ It will show a graph on the participant answer according to the question. It will show the presenter the ratio of participant not attempt to answer or the participant answering different answer.
- ❖ A report that shows the graph on participant performance according to grade. It will show the ratio of participant's grade. It will also show the participant Id(mobile number) and his/her grade.
- ❖ Another report will show which participant get what marks by daily basis result.

CHAPTER XVIII

18. ACTUAL TEST

18.1 Presentation Testing

For the testing purpose first we arranged a presentation testing. Our thesis advisor was the presenter. One of the objectives of our testing was to observe the interaction between the presenter and our system. The presenter arranged a lesson session using our system. He conducted a whole class before a camera and we got a feedback from him about our system after end of the class. We also tested the lesson with the working of the software system. From this presentation testing some problem encountered. The presenter could not set the time frequently. Later we modified the interface by adding an option so that the presenter can set and the start timer after the question is visible on the screen.

18.2 Sequence Of Class Test

We have tested our Distance Learning (DL) system at BRAC University Savar residential campus. Students taking the course MAT-101 participated on the test program. We divided the participating students into two groups. Each group had about 20 students. Dr. Yousuf M. Islam took a class on Quadratic functions. One group sat in front of the presenter face to face (a usual face-to-face class situation) and other group sat in the next room each with a mobile set. Students with the mobile set heard the presenter's speech on the sound system and watched him on a projected screen. That day we tested the complete sequence of a 'live class. As the sequence of THE learning steps of our system first the students with the mobile set send SMS to know a program then registered for that program. The presenter started the class session at the scheduled time. Within 5 minutes the registered participant gave their attendance. The students send the attendance got the attendance mark processed by our system. After lecturing each topic the presenter displayed questions to the participant. The presenter selected the question and set the time for answering that question from our system. The system processed the answer and also checked the answer. The system alerted the students who did not attempt to answer. It also showed the graph of student's answer and the presenter elected on of the students form the list to talk to him about the answer he answered. At last

reminder system delivered the daily progress report at the end of the session to the participants via SMS.

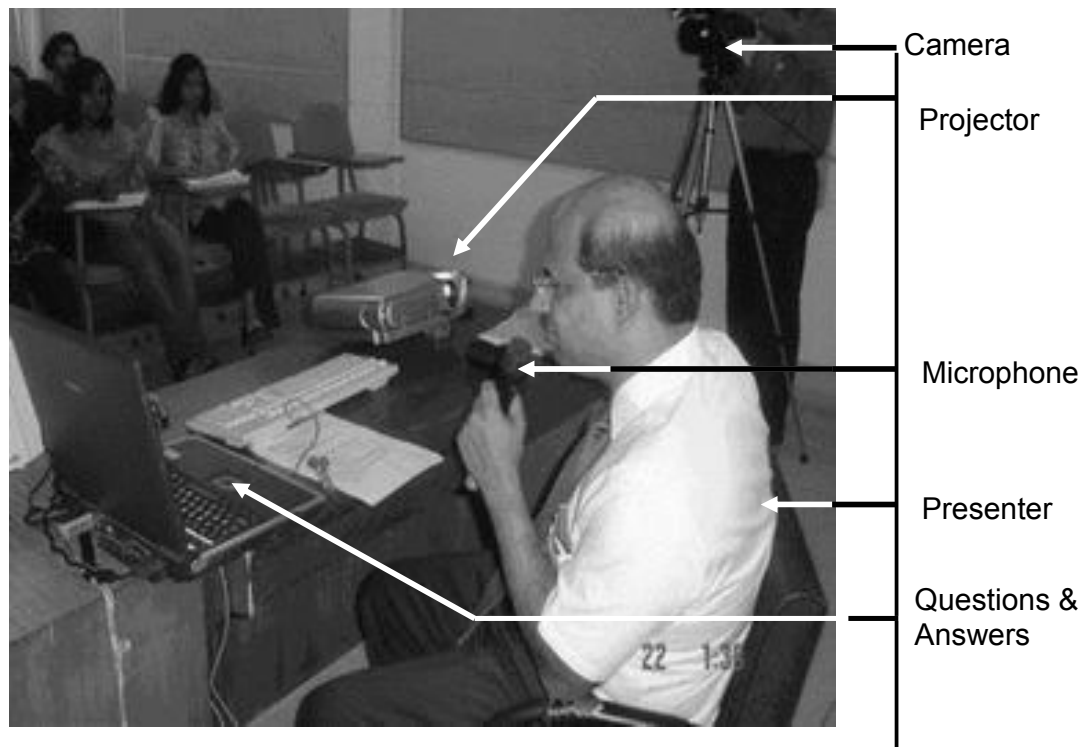


Fig 18.1 Presenter delivering his speech to both of the groups



Fig 18.2 Face to face participants are in the class

The fig 18.2 shows the presenter delivering his speech in the face-to-face classroom and this speech was broadcast to other classroom through a camera. Figure 18.3 shows the group of participants who joined face-to-face classroom. The participants can see and listen to the presenter directly face to face (usual class room situation). They can ask questions directly to the presenter.



Fig 18.3 Face to face participant is writing class notes and the answers to question on paper.

The Fig 18.3 shows the group of participants who joined the class in a face-to-face classroom. The participants are taking class notes and writing down the questions answers that are shown in the class. The presenter had no way of monitoring whether they are actually answering the questions.

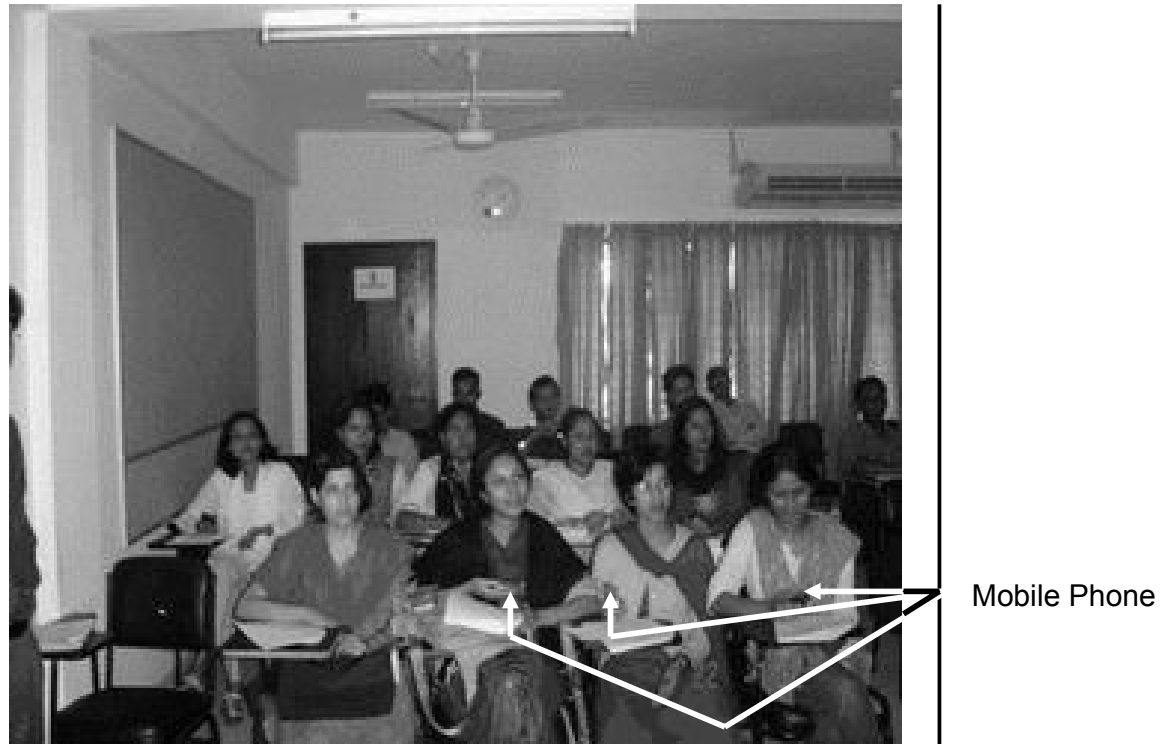


Fig 18.4 Mobile-User participants are in the class in the other room.

The Fig 18.4 shows the group of participants who joined the class from through Mobile phones. They are in other classroom (distance learning class room).

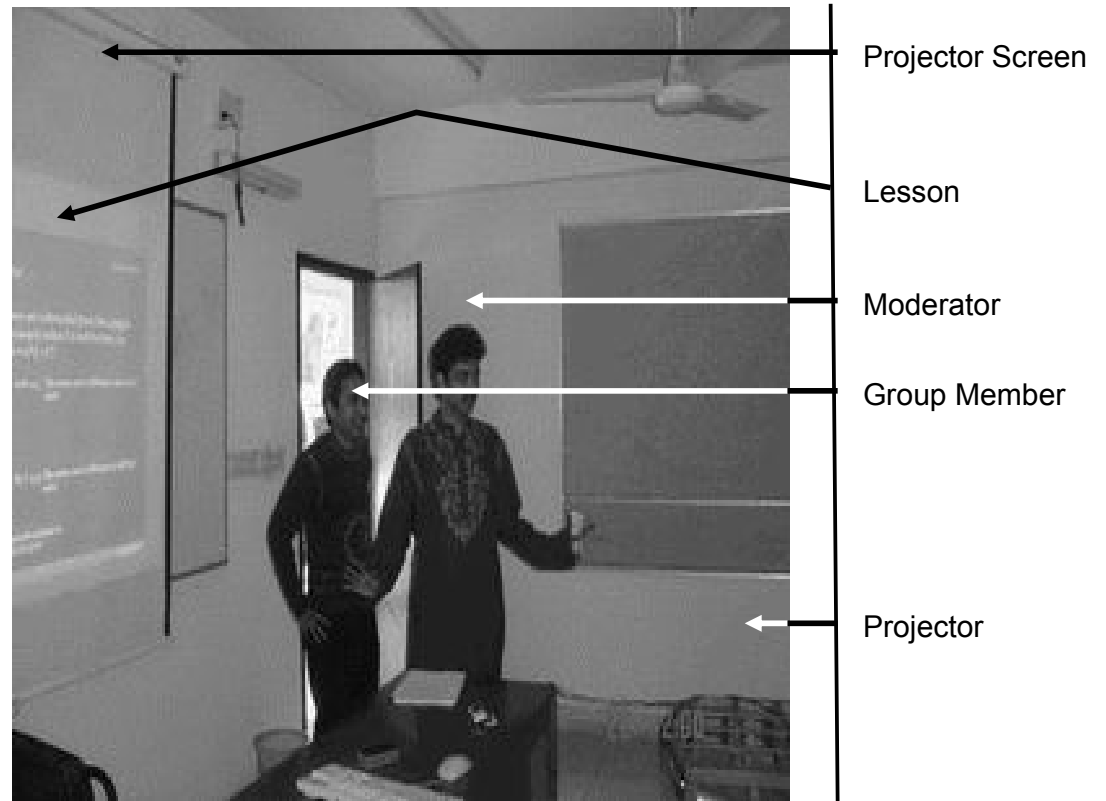


Fig 18.5 Projector screen for distance learners (Television Screen).

The Fig 18.5 shows the projector screen on which the students see the presenter, power point displays and the questions. Our Moderator Mr. Zillur Rahman and one of the team member's Shoeb Ahmed are observing the class.



Fig 18.6 Mobile user participants are sending their answers via SMS

The figure 18.6 shows participants sending answers through SMS. They have an instruction sheet [\[Appendix A1\]](#) on how to send answers.



Figure 18.7 Presenter talking to participant in DL classroom

Using our proposed system, presenter interacts directly with participant real time through mobile phone. Computer randomly selects a participant from the participant lists found from the Graph chart system and then asks the

participant the reason for choosing an answer. The Figure 19.8 shows the real time conversation between presenter and a participant.



Group Member
Khalequzzaman

Fig 18.8 One of our group members administrates our system.

CHAPTER XIX

19. TEST DATA

The live system was tested using following data:

Program Information:

At the beginning of the class at savar campus we inputted the program ID, program name and organization name in program in program information table.

PROGRAM_ID	PROGRAM_NAME	ORGANIZATION_NAME
PROG1	Quadratic Function	BRAC University

Program Details:

And then we inputted the starting date, ending date, program duration and number of the participants for joining this program.

PROGRAM ID	START DATE	END DATE	PROGRAM DURATION	NO. OF PARTICIPANT
PROG1	22-Dec-2004	22-Dec 2004	1	25

Presenter Profile:

The following data were inputted into the Presenter table to keep the information about presenter.

Presenter ID	Presenter Name	Presenter Address	Presenter E-mail	Presenter Contact No
SP1	Dr. Yousuf M. Islam	Gulshan -2	yislam@bracuniversity.net	9881265, EXT-434

Program Schedule:

The following data were inputted into the program schedule table to confirm the program.

PROGRAM ID	ACTIVITY DATE	PROGRAM CONFIRMATION	SPEAKER ID	SPEAKER CONFIRMATION	PROGRAM START TIME	PROGRAM END TIME
PROG1	12/22/2004	Yes	SP1	Yes	13:29:00	14:10:00

List of registered participants:

The following table contains the registered participant list as their registration message (SMS). The list of the messages are added to the Appendix

PARTICIPANT_IDENTITY	PARTICIPANT_NAME	ORGANIZATION_NAME
+880172844972	UMMAY HUMAYRA	BRAC University
+880172720366	TAHIA KHAIR	BRAC University
+880176412311	SHAMIUL ISLAM	BRAC University
+880172849812	SHAHIDA CHOWDHURY	BRAC University
+880171288829	TONIMA AZAM	BRAC University
+880176835595	NAZIFA TASNIM	BRAC University
+880172105137	ZAHID ISLAM	BRAC University
+880172696308	ISHFAQ	BRAC University
+880172832211	SHORAB	BRAC University
+880176552088	RIDWANA E REJINA	BRAC University
+880189405131	SAJJAD AHMED	BRAC University
+880172977503	EVANA	BRAC University
+880189502590	MD KAMRUZZAMAN	BRAC University
+880171876909	MD ISHRAT JAMIL	BRAC University
+880172823901	KHAIRUL BASAR	BRAC University
+880189419681	RUBAMA AHMED NIRU	BRAC University
+880172230474	FATEMA AKTER SUMI	BRAC University
+880173013365	MITU	BRAC University
+880176593790	ISHTIAQ	BRAC University
+880172798525	AMITABH	BRAC University
+880176484892	SHAMIMA SIDDIQUA	BRAC University

19.1 Performance Testing

For system testing we tested the performance of the entire system with actual classroom data. Performance testing determines how the system performs on the range of possible environments in which it may be used.

For testing whether the proposed distance learning system was effective we took a pre-test and post-test for both the face-to-face and the Distance Learning class. A T-test [\[Appendix A2\]](#) was used to compare the results both systems of teaching.

19.2 Results

At the beginning of the program we arranged a test (pre-test) for both of the face-to-face and mobile user participants. We tested them on 6 questions. We also divided them as Bangla medium and English medium participants. After end of the program we also arranged another test (post-test) for both of them using the same questions. And then we evaluated their tests. The following table contains the evaluation sheet of pre-test and post-test.

Table 19.1: Evaluation Sheet of Pre-test and Post-test.

Interactive Distance Education Using SMS Evaluation Research						
		Marks out of 6	Eng Med	Bang Med	Eng Med	Bang Med
Section 1			Face to Face		Face to Face	
SI #	Student ID	Name	Pre-test		Post-test	
1	04304067	Md. Showkat Ali		1		4
2	04303008	Jhumoor		0		3
3	04303004	Nazma Akter		0		5
4	04304010	Md. Zakir Hossain		1		3
5	04304025	Istiaq Ahmed		0		2.5

6	04304088	Nusrat Farzana		1		4.25
7	04304087	Sumayla Nahrin		0		4.25
8	04304097	Md. Moniruzzaman		1.5		4
9	04304099	Khorshed Alam		1.5		2
10	04304038	Faria Rafiq		0		3
11	04304034	Zahid		1		3
12	04304089	Tahsin Rahman		0		2.5
13	04304043	Md. Arif Hossain		0		2
14	04304064	Md. Anamul Hasan		1		3
15	04303005	Nadia Saleh		2		4.25
16	04304047	Faria Afsana		1		3
17	04305003	Nusrat Nadia		1		3
18	04304048	Rajib Kumar Cahda		2		1
19	04304029	Shamir		1		4.5
20	04304052	Md. Imran Khan		1		5
			SMS		SMS	
Section 2			Pre-test		Post-test	
1	04304030	Rubana Ahmed Niru		1		5
2	04304066	Md. Shamiul Islam				
3	04304040	Shoeb Ahmed				
4	04304045	Nahid Raja Tina		1		1
5	04303003	Tonima Azam		0		4
6	04304014	Fatema Akter Sumi		0		5
7	04304020	Shumaisa Tameem		0		5
8	04303002	Nazifa Tamim		0		5.5
9	04309003	Ummay Humayra Rumana		0		5.5
10	04302049	Shamima Siddiqua		0		5.5
11	04304073	Ishrat Jamil		1		3
12	04303001	Tahia Khair	1.5		5.5	
13	04303006	Shahida Chowdhury		1		5.5
14	04309002	S.M. Kamrul Bahar		0		3
15	04305002	Sajjad Ahmed		1.5		3.25

16	04304016	Israt Jahan		1		5
17	04304081	Mehboob Hafiz		1		5
18	04304021	Md. Kamruzzaman		0		5
40	04304056	Md. Shorab Hossain		0		5
19	04304051	Ridwana-E-Rejina		1		3
20	04304017	Ishtiaque Ahmed Mallick		0		1

Pre-test:

➤ Face-to-face

We consider a total mark is 6. On face-to-face Pre test there is no English medium participant. Seven people do not get any mark. Out of 6 the average mark is 0.8.

➤ DL group:

We consider a total mark is 6. Ten people did not get any mark. Out of 6 the average mark is 0.5

Post-test:

➤ Face-to-Face

We consider a total mark is 6. On face-to-face Pre test there were no English medium participant. At post-test their performance is better than pre-test. Out of 6 the average mark is 3.24.

➤ DL group

We consider a total mark is 6. Out of 6 the highest mark is 5.5 and average mark is 3.60.

19.3 Comparison:

From the upper discussion we found that the SMS user participant's performance is marginally better than face-to-face test. The average mark at face-to-face is 3.24 and using the proposed Distance Learning system the average is 3.60. The ratio of performance is $\text{SMS/Face-to-face} = 3.60/3.24 = 1.11$. Finally the performance of using our proposed DL system $\geq$ face-to face (traditional) system. A T-test analysis is added to the Appendix [A3](#).

CHAPTER XX

20. PROBLEMS FACING, LIMITATIONS AND FUTURE MODIFICATION

20.1 Problems Encountered While Testing My Modules

- The arrangement of a suitable place for testing was difficult.
- Arranging number of mobile phones needed to support the system was difficult.

20.2 Limitations

Our proposed system has the following limitations:

- One of the modules of our system is summary question system. We were able to list the question. However if the number of participant is large, we would have to cluster or group the question.
- It needs a good mobile network service.
- The system will work for GSM Mobile phone system only.

20.3 Future Modification

The summary question system should be developed to handle a large number of questions.

CHAPTER XXI

21. CONCLUSION

World is developing day by day with the use of technology. Now it is the era of information sharing. Daily we get information of new invention. It makes us surprised. We are seeing hi-tech competition between countries. But where are we the Bangladeshi people. It is 2005. Still we could not ensure education for all. We are far behind the developed countries. So we have to upgrade our education sector. It is not possible only by making new schools or employing new teachers what is done by conventional system. We do not have financial strength like the developed countries. Most of our people cannot eat three times a day adequately. It is not possible for us to reconstruct our education sector. We should think differently. We have to invent new thoughts and implement them. One of them can be our proposed “Interactive participatory Distance learning System”. It will ensure every learner’s participation that is not present in our convention education system. It will grow participant’s interest in answering questions as he/she is getting instant feedback. It will possible to provide technical education to door to door through our system. Finally it will make possible to provide quality presenter and quality teaching method to every door. We have compared our system with conventional classroom face-to-face teaching and found it to be as effective.

References

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APPENDICES

A. USER INSTRUCTIONS FOR DISTANCE LEARNERS

Program Information System:

This module keeps program information. If a participant wants to know about any particular program, he/she has to send a SMS as like:

info<dot> Program id (Not Case Sensitive but no space)

Info.prog1	0171442013
SMS Message	Destination number

The return message gives the particular program information.

Participant Registration System

Participant has to complete his/her registration before the start of a program. The Participant has to send his/her details with program id. The SMS format is:

Reg<dot>program id<dot>Participant name<dot>Organization name

Reg.prog4.Abdul Karim.BRAC	0171442013
SMS Message	Destination number

Note that, here a participant can give space between his/her first and last name. But except that no space is allowed.

Attendance system:

The attendance system takes individual participant's attendance. When a session start the Participant has to send a SMS within next 10 minutes. The SMS format for attendance as:

Attn(Not case Sensitive but no space)

attn	0171442013
SMS Message	Destination number

If there is any home task the SMS format is:

Attn.h1a

Attn.h1a	0171442013
SMS Message	Destination number

Then the attendance system will reply a confirmation message as "BRAVO you are the attentive participants in the class".

Show Question system:

The speaker can throw question on screen to test the participants. He/she just select question from question bank and set time (in minute) for that question. On that time participant send his/her answer through SMS. Like for question one and answer is a. then the SMS format is

q1a

q1a	0171442013
SMS Message	Destination number

B. QUESTION BANK

The following questions were asked during the class on Quadratic Functions.

Q1. What do a satellite dish and the mirror of a car headlight have in common?

- a. They are circular in shape.
- b. They are parabolic in shape.
- c. They have a square cross-section.
- d. Their shape is unknown

Answer: Q1b

Q2. Which of the following subjects tells us why we need a parabolic shape for the satellite dish and for the mirror of a car headlight?

- a. Mathematics
- b. Biology
- c. Physics
- d. English Language

Answer: Q2C

Q3. On normal paper that we use, i.e. in a plane, how can we best describe complete curved lines or shapes?

- a. By using a series of X, Y coordinates
- b. By drawing a curved line

- c. Using X and Y axis
- d. By describing the curved line verbally

Answer: Q3A

Q4. A formula given in terms of X is sometimes called a function of X or $f(x)$. Which of the following function does not describe a curved line?

- a. $f(x) = x^3 + x^2 + 2x + 1$
- b. $f(x) = x^2 + 2x + 1$
- c. $f(x) = x$
- d. $f(x) = x^2 + 1$

Answer: Q4C

Q5. The simplest Parabola is described by the following function

- a. $f(x) = x^2 + 2x + 1$
- b. $f(x) = x^2$
- c. $f(x) = 4x^2 + x + 3$
- d. $f(x) = 2x + 1$

Answer: Q5B

Q6. How can we find out what a particular function of x or $f(x)$ looks like?

- a. By estimating or approximating the curve
- b. By plotting the x and y axis
- c. By working out the minimum and maximum value of $f(x)$
- d. By working out the value of $f(x)$ for a range of x values and plotting the x and corresponding $f(x)$ values

Answer: Q6D

Q7. When $f(x) = x^2$, what is the value of $f(x)$ when $x = 3$?

- a. 4
- b. 9
- c. 6.25
- d. 2.25

Answer: Q7B

Q8. What is the value of x and $f(x)$ at the lowest points shown on the graph?

- a. -1, 1 and 1, 1
- b. -0.5, 0.25 and 0.5, 0.25
- c. -0.25, 0.25 and 0.25, 0.25
- d. None of the above

Answer: Q8B

Q9: What is the minimum value of the simplest parabola?

- a. 3
- b. 0
- c. -3
- d. 0.5

Answer: Q9B

Q10. What would happen terms are subtracted from the simple function $f(x) = x^2$, for example when 3 is subtracted, i.e. when the function is $f(x) = x^2 - 3$?

- a. The entire curve will move up by 3 units
- b. The entire curve will move to right by 3 units
- c. The entire curve will move down by 3 units
- d. The entire curve will move to left by 3 units

Answer: Q10C

Q11. When the coefficient $a=-1$, each value of x^2 will be multiplied by -1 . The resulting curve will:

- a. Move down by -1 and have a minimum at $f(x) = -1$.
- b. Be a mirror image of $f(x) = x^2$ around the x -axis with a maximum value at $f(x) = 0$.
- c. Shift to the left by -1 and have a minimum at $f(x) = 0$.
- d. Shift to the right by 1 and have a minimum at $f(x) = 0$.

Answer: Q11A

Q12. When the coefficient $|a| > 1$, x^2 would increase for each value of x , therefore the curve

- a. Will be sharper with the max / min still at $f(x) = 0$.
- b. Will move up by the value of " a " and the minimum at $f(x) = a$.
- c. Will move down by the value of " a " and the minimum at $f(x) = a$.
- d. Will invert and have a maximum value at $f(x) = a$.

Answer: Q12B

C. T-TEST ANALYSIS

We test the hypothesis that “there is no true difference between the two means” (NULL hypothesis). We have used MATLAB as the test-tool through the following command:

```
[h, significance, ci] = ttest2(x,y,alpha)
```

Here the '**alpha**' is related to the degree of certainty we require in order to reject the null hypothesis in favor of the alternative. Using this we decide in advance to reject the null hypothesis if the probability of observing your sampled result is less than the significance level. For a typical significance level of 5%, the notation is $\alpha = 0.05$. For this significance level, the probability of incorrectly rejecting the null hypothesis when it is actually true is 5%. If we need more protection from this error, and then choose a lower value of alpha.

The '**significance**' (**p-value**) is the probability of observing the given sample result under the assumption that the null hypothesis is true. If the significance (p-value) is less than alpha, then we reject the null hypothesis.

Pre test

```
» x=load ('preface2face.txt');
```

```
» y=load ('presms.txt');
```

```
» mean(x)-mean(y)
```

```
ans = 0.2737
```

```
» [h, significance, ci] =ttest2(x, y, 0.05)
```

```
h =0
```

```
Significance = 0.1870
```

```
ci = -0.1387  0.6861
```

The result, $h = 0$, means that we cannot reject the null hypothesis. The significance is 0.1870, which means that by chance we would have observed values of t more extreme than the one in this example in 1870 of 10,000 similar experiments! A 95% confidence interval on the mean is $[-0.1387, 0.6861]$, which includes the theoretical (and hypothesized) difference of

0.1870.

Post test

```
» x=load ('face2face.txt');
```

```
» y=load ('sms.txt');
```

```
» [h, significance, ci]=ttest2(x,y,0.01)
```

```
h =0
```

```
Significance =0.0274
```

```
ci = -2.0463  0.1713 ..... (0)
```

```
» [h, significance, ci] =ttest2(x, y, 0.02)
```

```
h = 0
```

```
Significance = 0.0274
```

```
ci = -1.9303  0.0553 ..... (1)
```

» [h, significance, ci]=ttest2(x,y,0.03)

h = 1

Significance =0.0274

ci = -1.8591 -0.0159 (2)

» [h, significance, ci] =ttest2(x, y, 0.05)

h =1

Significance = 0.0274

ci = -1.7649 -0.1101 (3)

From (0) & (1) where 'alpha'= 0.02, the result, h = 0, means that we cannot reject the null hypothesis. The significance is 0.0274, which means that by chance we would have observed values of t more extreme than the one in this example in only 274 of 10,000 similar experiments! From (1) a 95% confidence interval on the mean is [-1.9303, 0.0553], which includes the theoretical (and hypothesized) difference of -0.9375

From (2) & (3) where 'alpha' = 0.03 or more, the result, h = 1, means that we can reject the null hypothesis. The significance is 0.0274, which means that by chance we would have observed values of t more extreme than the one in this example in only 274 of 10,000 similar experiments! In (3), a 95% confidence interval on the mean is [-1.7649,-0.1101], which includes the theoretical (and hypothesized) difference of -0.9375.

D. Incoming Message Log

The following table contains the incoming messages, which are sent by the participants. The shaded messages shown are from the modules that were developed by me.

Mobile Number	Date	Time	Message
+880171442013	22/12/04	01:27:54	info.prog1
+880188042525	22/12/04	01:30:10	Info.prog1
+880171442013	22/12/04	01:31:27	info.prog1
+880172961628	22/12/04	01:35:50	Reg.prog1.k.i
+880171442013	22/12/04	01:36:01	reg.proG1.ZAMAN.BU
+880172961628	22/12/04	01:43:44	Attn
+880171442013	22/12/04	01:43:48	attn
+880188042524	22/12/04	12:20:20	info.prog1
+880172105137	22/12/04	12:54:37	info.prog1
+880172961628	22/12/04	13:15:58	Info.prog1
+880172844972	22/12/04	13:16:23	Reg.prog1. Ummay humayra.BRAC
+880172720366	22/12/04	13:16:24	Reg.prog1.Tahia khair.BRAC
+880176412311	22/12/04	13:16:54	Reg.prog1.Shamiul Islam.BRAC
+880172849812	22/12/04	13:16:55	Reg.prog1.shahida chowdhury.brac
+880171288829	22/12/04	13:16:58	Reg.Prog1.Tonima azam.Brac
+880176835595	22/12/04	13:17:03	Reg.prog1.Nazifa Tasnim.BRAC
+880172105137	22/12/04	13:17:32	Reg.prog1.ZAHID ISLAM.BRAC
+880172696308	22/12/04	13:17:38	Reg.Prog1.Ishfaq.BRAC

+880172832211	22/12/04	13:18:12	Reg.prog1.shorab.BRAC
+880172230474	22/12/04	13:18:33	Reg.prog.Fatema Akter Sumi.BRAC
+880176552088	22/12/04	13:18:54	Reg.prog1.RIDWANA E REJINA.BRAC
+880189405131	22/12/04	13:17:59	Reg.Prog1.Sajjad Ahmed.BRAC
+880172977503	22/12/04	13:19:03	Reg.prog1.evana.BRAC
+880189502590	22/12/04	13:18:18	REG.PROG1.MD KAMRUZZAMAN.BRAC
+880171876909	22/12/04	13:19:22	Reg.prog1.Md Ishrat jamil.BRAC
+880172823901	22/12/04	13:19:27	Reg.prog1.khairul basar.BRAC
+880189419681	22/12/04	13:18:51	Reg.prog1.rubama ahmed niru.brac
+880172230474	22/12/04	13:20:08	Reg.prog1.Fatema Akter Sumi.BRAC
+880171876909	22/12/04	13:20:29	Reg.prog1
+880173013365	22/12/04	13:20:56	Reg.Prog1.Mitu
+880176412311	22/12/04	13:22:39	attn
+880172105137	22/12/04	13:22:45	attn
+880172849812	22/12/04	13:22:55	Attn
+880176552088	22/12/04	13:22:57	attn
+880171876909	22/12/04	13:23:20	Attn
+880172230474	22/12/04	13:23:30	attn
+880173013365	22/12/04	13:23:46	Attn
+880172977503	22/12/04	13:23:46	attn.h1a
+880172696308	22/12/04	13:23:49	Attn
+880172832211	22/12/04	13:23:55	attn
+880172823901	22/12/04	13:23:59	Attn
+880176835595	22/12/04	13:24:12	attn
+880176593790	22/12/04	13:25:33	Reg.prog1.ishtiaq.brac
+880172720366	22/12/04	13:26:25	attn
+880172696308	22/12/04	13:26:26	Attn

+880172844972	22/12/04	13:26:31	Attn
+880171876909	22/12/04	13:26:38	Attn
+880176552088	22/12/04	13:26:41	attn
+880176412311	22/12/04	13:26:43	attn
+880172230474	22/12/04	13:26:48	attn
+880172798525	22/12/04	13:26:53	Reg.prog1.amitabh.BRAC
+880173013365	22/12/04	13:26:54	Attn
+880172832211	22/12/04	13:26:57	attn
+880172977503	22/12/04	13:26:59	attn
+880176835595	22/12/04	13:27:36	attn
+880172105137	22/12/04	13:28:35	attn
+880171876909	22/12/04	13:28:37	Attn
+880189502590	22/12/04	13:22:59	ATTN
+880172720366	22/12/04	13:30:00	q1b
+880176552088	22/12/04	13:30:02	q1b
+880172798525	22/12/04	13:30:17	Attn
+880172832211	22/12/04	13:30:17	q1b
+880172696308	22/12/04	13:30:31	Q1b
+880171876909	22/12/04	13:30:32	Q1b
+880172977503	22/12/04	13:30:40	Q1b
+880176412311	22/12/04	13:30:45	q1a
+880172105137	22/12/04	13:30:46	q1b
+880172798525	22/12/04	13:30:54	Attn
+880176835595	22/12/04	13:30:55	Q1b
+880172844972	22/12/04	13:31:00	Q1b
+880173013365	22/12/04	13:31:25	Attnq1a
+880172823901	22/12/04	13:31:48	q1b
+880176593790	22/12/04	13:31:49	B
+880172230474	22/12/04	13:31:51	Q1.d
+880172798525	22/12/04	13:32:34	Q1.b
+880172823901	22/12/04	13:33:38	Attn
+880189502590	22/12/04	13:25:45	ATTN

+880176593790	22/12/04	13:34:10	Q2c
+880172720366	22/12/04	13:34:11	q2c
+880176552088	22/12/04	13:34:13	q2c
+880172798525	22/12/04	13:34:14	Q2c
+880172105137	22/12/04	13:34:14	q2c
+880173013365	22/12/04	13:34:18	Q2c
+880176412311	22/12/04	13:34:20	q2c
+880176835595	22/12/04	13:34:23	Q2c
+880172230474	22/12/04	13:34:24	Q2c
+880172696308	22/12/04	13:34:25	Q2c
+880171876909	22/12/04	13:34:31	Q2c
+880172977503	22/12/04	13:34:33	Q2c
+880172832211	22/12/04	13:34:34	q2c
+880172696308	22/12/04	13:34:34	Q2c
+880172823901	22/12/04	13:34:46	Q2c
+880172977503	22/12/04	13:34:59	Q2c
+880172230474	22/12/04	13:35:08	Q2c
+880176552088	22/12/04	13:37:06	q3c
+880173013365	22/12/04	13:37:15	Q3c
+880172696308	22/12/04	13:37:16	Q3a
+880171876909	22/12/04	13:37:23	Q3c
+880172720366	22/12/04	13:37:24	q3c
+880172230474	22/12/04	13:37:27	Q3c
+880176835595	22/12/04	13:37:29	Q3c
+880172798525	22/12/04	13:37:30	Q3b
+880172977503	22/12/04	13:37:39	Q3b
+880172105137	22/12/04	13:37:42	q3c
+880172832211	22/12/04	13:37:43	q3a
+880172844972	22/12/04	13:37:43	Q3c
+880172823901	22/12/04	13:37:51	Q3a
+880176412311	22/12/04	13:38:42	q3d
+880176593790	22/12/04	13:38:57	Q3D

+880176484892	22/12/04	13:39:13	Reg.prog1.Shamima Siddiqua.BRAC
+880176484892	22/12/04	13:43:12	attn
+880188042524	22/12/04	13:26:02	attn
+880172696308	22/12/04	13:43:59	Q4c
+880173013365	22/12/04	13:44:00	Q4C
+880172977503	22/12/04	13:44:04	Q4c
+880176552088	22/12/04	13:44:09	q4d
+880176412311	22/12/04	13:44:13	q4d
+880172105137	22/12/04	13:44:14	Q4d
+880172720366	22/12/04	13:44:15	q4c
+880172823901	22/12/04	13:44:19	Q4b
+880176593790	22/12/04	13:44:20	Q4C
+880172832211	22/12/04	13:44:23	q4b
+880172230474	22/12/04	13:44:26	Q4c
+880176835595	22/12/04	13:44:33	Q4c
+880171876909	22/12/04	13:44:37	Q4c
+880172844972	22/12/04	13:44:46	Q4c
+880176484892	22/12/04	13:44:59	attn
+880172696308	22/12/04	13:47:44	Q5b
+880172105137	22/12/04	13:47:46	Q5b
+880172720366	22/12/04	13:47:46	q5b
+880172977503	22/12/04	13:47:48	Q5b
+880173013365	22/12/04	13:47:49	Q5B
+880176835595	22/12/04	13:47:52	Q5b
+880172798525	22/12/04	13:47:57	Q5b
+880172823901	22/12/04	13:47:58	Q5b
+880176412311	22/12/04	13:47:58	q5b
+880172844972	22/12/04	13:48:02	Q5b
+880176552088	22/12/04	13:48:03	q5b
+880176484892	22/12/04	13:48:08	q5b
+880172832211	22/12/04	13:48:12	q5b

+880171876909	22/12/04	13:48:15	Q5b
+880176593790	22/12/04	13:48:41	Q5B
+880171876909	22/12/04	13:48:51	Q5b
+880176593790	22/12/04	13:52:01	ATTN
+880173013365	22/12/04	13:53:01	Q8d
+880172696308	22/12/04	13:53:36	Q8d
+880189405131	22/12/04	13:27:01	Attn
+880189502590	22/12/04	13:27:13	ATTN
+880176412311	22/12/04	13:53:47	q8c
+880176835595	22/12/04	13:53:49	Q8c
+880172105137	22/12/04	13:53:58	Q8c
+880172720366	22/12/04	13:53:59	q8c
+880176552088	22/12/04	13:54:00	q8c
+880176593790	22/12/04	13:54:04	Q8C
+880172977503	22/12/04	13:54:16	Q8b
+880171876909	22/12/04	13:54:19	Q8c
+880172696308	22/12/04	13:58:05	Q10c
+880172696308	22/12/04	13:58:22	Q10c
+880176412311	22/12/04	13:58:30	q10c
+880172720366	22/12/04	13:58:31	q10c
+880172696308	22/12/04	13:58:31	Q10c
+880172977503	22/12/04	13:58:32	Q10c
+880173013365	22/12/04	13:58:34	Q10c
+880172832211	22/12/04	13:58:35	q10c
+880172844972	22/12/04	13:58:37	Q10c
+880176552088	22/12/04	13:58:39	q10c
+880172105137	22/12/04	13:58:39	Q10c
+880176835595	22/12/04	13:58:50	Q10c
+880176593790	22/12/04	13:59:20	Q9C
+880171876909	22/12/04	13:59:48	Q10c
+880189502590	22/12/04	13:29:47	Q1B

E. Sending Message Log

The following table contains the messages that were sent by the Question Answer System. The shaded messages were sent to the participants automatically by the question answer system.

880171442013	12/22/2004 01:28:38 AM	"Quadratic Function , Start: 12/22/2004, End: 12/22/2004, 1 Lectures" OLE: Send_Message
880188042525	12/22/2004 01:31:32 AM	"Quadratic Function , Start: 12/22/2004, End: 12/22/2004, 1 Lectures" OLE: Send_Message
880171442013	12/22/2004 01:31:38 AM	"Quadratic Function , Start: 12/22/2004, End: 12/22/2004, 1 Lectures" OLE: Send_Message
880172961628	12/22/2004 01:35:57 AM	"You have been successfully registered for PROG1" OLE: Send_Message
880171442013	12/22/2004 01:36:08 AM	"You have been successfully registered for PROG1" OLE: Send_Message
880171442013	12/22/2004 01:40:34 AM	"Quadratic Function class is about to start within 10 minutes" OLE: Send_Message
880172961628	12/22/2004 01:40:40 AM	"Quadratic Function class is about to start within 10 minutes" OLE: Send_Message
880172961628	12/22/2004 01:43:50 AM	"BRAVO you are the attentive student of this class" OLE: Send_Message
880171442013	12/22/2004 01:43:56 AM	"BRAVO you are the attentive student of this class" OLE: Send_Message
880171442013	12/22/2004 01:50:46 AM	"You Did not attempted Ques No 5" OLE: Send_Message
880188042524	12/22/2004 12:21:25 PM	"Quadratic Function , Start:

12/22/2004, End: 12/22/2004, 1 Lectures" OLE: Send_Message
880172961628 12/22/2004 01:16:04 PM "Quadratic Function , Start: 12/22/2004, End: 12/22/2004, 1 Lectures" OLE: Send_Message
880172844972 12/22/2004 01:16:26 PM "You have been successfully registered for PROG1" OLE: Send_Message
880172720366 12/22/2004 01:16:37 PM "You have been successfully registered for PROG1" OLE: Send_Message
880176412311 12/22/2004 01:17:20 PM "You have been successfully registered for PROG1" OLE: Send_Message
880172849812 12/22/2004 01:17:30 PM "You have been successfully registered for PROG1" OLE: Send_Message
880171288829 12/22/2004 01:17:49 PM "You have been successfully registered for PROG1" OLE: Send_Message
880176835595 12/22/2004 01:18:05 PM "You have been successfully registered for PROG1" OLE: Send_Message
880172105137 12/22/2004 01:18:12 PM "You have been successfully registered for PROG1" OLE: Send_Message
880172696308 12/22/2004 01:18:20 PM "You have been successfully registered for PROG1" OLE: Send_Message
880172832211 12/22/2004 01:18:33 PM "You have been successfully registered for PROG1" OLE: Send_Message
880172230474 12/22/2004 01:18:45 PM "The program id does not exit;please check whether your program is PROG" OLE: Send_Message
880176552088 12/22/2004 01:18:59 PM "You have been successfully registered for PROG1" OLE: Send_Message
880189405131 12/22/2004 01:19:15 PM "You have been successfully registered for PROG1" OLE: Send_Message
880172977503 12/22/2004 01:19:52 PM "You have been successfully registered for PROG1" OLE: Send_Message
880189502590 12/22/2004 01:20:19 PM "You have been successfully registered for PROG1" OLE: Send_Message
880171876909 12/22/2004 01:20:37 PM "You have been successfully

registered for PROG1" OLE: Send_Message		
880172823901	12/22/2004 01:20:46 PM	"You have been successfully registered for PROG1" OLE: Send_Message
880189419681	12/22/2004 01:20:52 PM	"You have been successfully registered for PROG1" OLE: Send_Message
880172230474	12/22/2004 01:21:04 PM	"You have been successfully registered for PROG1" OLE: Send_Message
880171876909	12/22/2004 01:21:30 PM	"You have been already enlisted for PROG1" OLE: Send_Message
880173013365	12/22/2004 01:21:37 PM	"You have been successfully registered for PROG1" OLE: Send_Message
880176412311	12/22/2004 01:22:54 PM	"You are too late for attending the class" OLE: Send_Message
880172105137	12/22/2004 01:23:27 PM	"You are too late for attending the class" OLE: Send_Message
880172849812	12/22/2004 01:23:34 PM	"You are too late for attending the class" OLE: Send_Message
880176552088	12/22/2004 01:23:41 PM	"You are too late for attending the class" OLE: Send_Message
880171876909	12/22/2004 01:23:48 PM	"You are too late for attending the class" OLE: Send_Message
880172696308	12/22/2004 01:28:01 PM	"You are too late for attending the class" OLE: Send_Message
880172832211	12/22/2004 01:28:12 PM	"You are too late for attending the class" OLE: Send_Message
880172823901	12/22/2004 01:28:17 PM	"You are too late for attending the class" OLE: Send_Message
880172823901	12/22/2004 01:28:17 PM	"You are too late for attending the class" OLE: Send_Message
880176593790	12/22/2004 01:29:34 PM	"You have been successfully registered for PROG1" OLE: Send_Message
880172720366	12/22/2004 01:30:43 PM	"BRAVO you are the attentive

student of this class" OLE: Send_Message		
880172696308	12/22/2004 01:31:28 PM	"BRAVO you are the attentive student of this class" OLE: Send_Message
880172844972	12/22/2004 01:31:34 PM	"BRAVO you are the attentive student of this class" OLE: Send_Message
880171876909	12/22/2004 01:31:43 PM	"BRAVO you are the attentive student of this class" OLE: Send_Message
880176552088	12/22/2004 01:31:53 PM	"BRAVO you are the attentive student of this class" OLE: Send_Message
880176412311	12/22/2004 01:32:00 PM	"BRAVO you are the attentive student of this class" OLE: Send_Message
880172230474	12/22/2004 01:32:07 PM	"BRAVO you are the attentive student of this class" OLE: Send_Message
880172798525	12/22/2004 01:32:13 PM	"You have been successfully registered for PROG1" OLE: Send_Message
880173013365	12/22/2004 01:32:20 PM	"BRAVO you are the attentive student of this class" OLE: Send_Message
880172832211	12/22/2004 01:32:27 PM	"BRAVO you are the attentive student of this class" OLE: Send_Message
880172977503	12/22/2004 01:32:35 PM	"BRAVO you are the attentive student of this class" OLE: Send_Message
880176835595	12/22/2004 01:32:44 PM	"BRAVO you are the attentive student of this class" OLE: Send_Message
880172105137	12/22/2004 01:32:51 PM	"BRAVO you are the attentive student of this class" OLE: Send_Message
880171876909	12/22/2004 01:32:58 PM	"You are already attending the class" OLE: Send_Message
880189502590	12/22/2004 01:33:52 PM	"BRAVO you are the attentive student of this class" OLE: Send_Message
880172798525	12/22/2004 01:34:52 PM	"You are already attending the class" OLE: Send_Message
880172798525	12/22/2004 01:35:30 PM	"You are already attending the

class" OLE: Send_Message		
880172823901	12/22/2004 01:35:53 PM	"You are absent for today" OLE: Send_Message
880172230474	12/22/2004 01:36:00 PM	"You Did not attempted Ques No 1" OLE: Send_Message
880173013365	12/22/2004 01:36:07 PM	"You Did not attempted Ques No 1" OLE: Send_Message
880189502590	12/22/2004 01:36:13 PM	"You Did not attempted Ques No 1" OLE: Send_Message
880172823901	12/22/2004 01:37:37 PM	"BRAVO you are the attentive student of this class" OLE: Send_Message
880189502590	12/22/2004 01:37:48 PM	"You are already attending the class" OLE: Send_Message
880176593790	12/22/2004 01:38:32 PM	"You are absent for today" OLE: Send_Message
880172798525	12/22/2004 01:38:49 PM	"You are absent for today" OLE: Send_Message
880172844972	12/22/2004 01:39:58 PM	"You Did not attempted Ques No 2" OLE: Send_Message
880189502590	12/22/2004 01:40:04 PM	"You Did not attempted Ques No 2" OLE: Send_Message
880172977503	12/22/2004 01:40:11 PM	"You are late" OLE: Send_Message
880172230474	12/22/2004 01:40:17 PM	"You are late" OLE: Send_Message
880171288829	12/22/2004 01:40:33 PM	" You are absent for the 12-22-2004 Class of PROG1" OLE: Send_Message
880172849812	12/22/2004 01:40:40 PM	" You are absent for the 12-22-2004 Class of PROG1" OLE: Send_Message
880189405131	12/22/2004 01:40:46 PM	" You are absent for the 12-22-2004 Class of PROG1" OLE: Send_Message
880189419681	12/22/2004 01:40:53 PM	" You are absent for the 12-22-

2004 Class of PROG1" OLE: Send_Message		
880172798525	12/22/2004 01:42:01 PM	"You are absent for today" OLE: Send_Message
880176593790	12/22/2004 01:42:56 PM	"You are absent for today" OLE: Send_Message
880189502590	12/22/2004 01:43:02 PM	"You Did not attempted Ques No 3" OLE: Send_Message
880176484892	12/22/2004 01:43:23 PM	"You have been successfully registered for PROG1" OLE: Send_Message
880176484892	12/22/2004 01:47:11 PM	"You are too late for attending the class" OLE: Send_Message
880188042524	12/22/2004 01:47:44 PM	"You are Not Valid Participant" OLE: Send_Message
880172720366	12/22/2004 01:48:36 PM	"You Did not attempted Ques No 4" OLE: Send_Message
880172844972	12/22/2004 01:48:45 PM	"You Did not attempted Ques No 4" OLE: Send_Message
880171876909	12/22/2004 01:48:54 PM	"You Did not attempted Ques No 4" OLE: Send_Message
880176552088	12/22/2004 01:49:02 PM	"You Did not attempted Ques No 4" OLE: Send_Message
880176412311	12/22/2004 01:49:08 PM	"You Did not attempted Ques No 4" OLE: Send_Message
880172230474	12/22/2004 01:49:15 PM	"You Did not attempted Ques No 4" OLE: Send_Message
880172832211	12/22/2004 01:49:21 PM	"You Did not attempted Ques No 4" OLE: Send_Message
880172977503	12/22/2004 01:49:28 PM	"You Did not attempted Ques No 4" OLE: Send_Message
880176835595	12/22/2004 01:49:35 PM	"You Did not attempted Ques No 4" OLE: Send_Message
880172105137	12/22/2004 01:49:41 PM	"You Did not attempted Ques No

4" OLE: Send_Message		
880189502590	12/22/2004 01:49:48 PM	"You Did not attempted Ques No 4" OLE: Send_Message
880172823901	12/22/2004 01:49:54 PM	"You Did not attempted Ques No 4" OLE: Send_Message
880172720366	12/22/2004 01:50:00 PM	"You are late" OLE: Send_Message
880172823901	12/22/2004 01:50:06 PM	"You are late" OLE: Send_Message
880176593790	12/22/2004 01:50:12 PM	"You are late" OLE: Send_Message
880172832211	12/22/2004 01:50:18 PM	"You are late" OLE: Send_Message
880172230474	12/22/2004 01:50:25 PM	"You are late" OLE: Send_Message
880176835595	12/22/2004 01:50:31 PM	"You are late" OLE: Send_Message
880171876909	12/22/2004 01:50:37 PM	"You are late" OLE: Send_Message
880172844972	12/22/2004 01:50:43 PM	"You are late" OLE: Send_Message
880176484892	12/22/2004 01:50:49 PM	"You are too late for attending the class" OLE: Send_Message
880172798525	12/22/2004 01:52:18 PM	"You are absent for today" OLE: Send_Message
880176484892	12/22/2004 01:52:46 PM	"You are absent for today" OLE: Send_Message
880176593790	12/22/2004 01:53:02 PM	"You are absent for today" OLE: Send_Message
880172230474	12/22/2004 01:53:36 PM	"You Did not attempted Ques No 5" OLE: Send_Message
880189502590	12/22/2004 01:53:42 PM	"You Did not attempted Ques No

5" OLE: Send_Message		
880176593790	12/22/2004 01:55:59 PM	"You are too late for attending the class" OLE: Send_Message
880173013365	12/22/2004 01:56:59 PM	"You are late" OLE: Send_Message
880189405131	12/22/2004 01:57:43 PM	"You are too late for attending the class" OLE: Send_Message
880189502590	12/22/2004 01:57:49 PM	"You are too late for attending the class" OLE: Send_Message
880172720366	12/22/2004 01:58:20 PM	"You Did not attempted Ques No 8" OLE: Send_Message
880172844972	12/22/2004 01:58:26 PM	"You Did not attempted Ques No 8" OLE: Send_Message
880171876909	12/22/2004 01:58:32 PM	"You Did not attempted Ques No 8" OLE: Send_Message
880176552088	12/22/2004 01:58:38 PM	"You Did not attempted Ques No 8" OLE: Send_Message
880176412311	12/22/2004 01:58:44 PM	"You Did not attempted Ques No 8" OLE: Send_Message
880172230474	12/22/2004 01:58:51 PM	"You Did not attempted Ques No 8" OLE: Send_Message
880173013365	12/22/2004 01:58:57 PM	"You Did not attempted Ques No 8" OLE: Send_Message
880172832211	12/22/2004 01:59:04 PM	"You Did not attempted Ques No 8" OLE: Send_Message
880172977503	12/22/2004 01:59:11 PM	"You Did not attempted Ques No 8" OLE: Send_Message
880176835595	12/22/2004 01:59:17 PM	"You Did not attempted Ques No 8" OLE: Send_Message
880172105137	12/22/2004 01:59:23 PM	"You Did not attempted Ques No 8" OLE: Send_Message
880189502590	12/22/2004 01:59:29 PM	"You Did not attempted Ques No

8" OLE: Send_Message	
880172823901	12/22/2004 01:59:35 PM "You Did not attempted Ques No 8" OLE: Send_Message
880176412311	12/22/2004 02:02:04 PM "You are late" OLE: Send_Message
880176593790	12/22/2004 02:02:31 PM "You are absent for today" OLE: Send_Message
880176593790	12/22/2004 02:03:54 PM "You are absent for today" OLE: Send_Message
880172230474	12/22/2004 02:04:10 PM "You Did not attempted Ques No 10" OLE: Send_Message
880189502590	12/22/2004 02:04:16 PM "You Did not attempted Ques No 10" OLE: Send_Message
880172823901	12/22/2004 02:04:22 PM "You Did not attempted Ques No 10" OLE: Send_Message
880189502590	12/22/2004 02:07:43 PM "You are late" OLE: Send_Message
880172720366	12/22/2004 02:10:33 PM "Result of class of 12/22/2004:H.W: 0;attendance: 10,Qs mark: 0;Ans Mark: 4;Attmpted: 6;Not attmpted: 2,Pass" OLE: Send_Message
880172696308	12/22/2004 02:10:40 PM "Result of class of 12/22/2004:H.W: 0;attendance: 10,Qs mark: 0;Ans Mark: 6;Attmpted: 7;Not attmpted: 0,Pass" OLE: Send_Message
880172844972	12/22/2004 02:10:47 PM "Result of class of 12/22/2004:H.W: 0;attendance: 10,Qs mark: 0;Ans Mark: 3;Attmpted: 4;Not attmpted: 3,Pass" OLE: Send_Message
880171876909	12/22/2004 02:10:54 PM "Result of class of 12/22/2004:H.W: 0;attendance: 10,Qs mark: 0;Ans Mark: 4;Attmpted: 5;Not attmpted: 2,Pass" OLE: Send_Message
880176552088	12/22/2004 02:11:02 PM "Result of class of 12/22/2004:H.W: 0;attendance: 10,Qs mark: 0;Ans Mark: 4;Attmpted: 5;Not attmpted: 2,Pass" OLE: Send_Message

880176412311	12/22/2004 02:11:10 PM "Result of class of 12/22/2004:H.W: 0;attendance: 10,Qs mark: 0;Ans Mark: 3;Attmpted: 5;Not atmpted: 2,Pass" OLE: Send_Message
880172230474	12/22/2004 02:11:17 PM "Result of class of 12/22/2004:H.W: 0;attendance: 10,Qs mark: 0;Ans Mark: 1;Attmpted: 2;Not atmpted: 5,Pass" OLE: Send_Message
880173013365	12/22/2004 02:11:25 PM "Result of class of 12/22/2004:H.W: 0;attendance: 10,Qs mark: 0;Ans Mark: 4;Attmpted: 6;Not atmpted: 2,Pass" OLE: Send_Message
880172832211	12/22/2004 02:11:33 PM "Result of class of 12/22/2004:H.W: 0;attendance: 10,Qs mark: 0;Ans Mark: 5;Attmpted: 5;Not atmpted: 2,Pass" OLE: Send_Message
880172977503	12/22/2004 02:11:40 PM "Result of class of 12/22/2004:H.W: 0;attendance: 10,Qs mark: 0;Ans Mark: 4;Attmpted: 5;Not atmpted: 2,Pass" OLE: Send_Message
880176835595	12/22/2004 02:11:47 PM "Result of class of 12/22/2004:H.W: 0;attendance: 10,Qs mark: 0;Ans Mark: 4;Attmpted: 5;Not atmpted: 2,Pass" OLE: Send_Message
880172105137	12/22/2004 02:11:55 PM "Result of class of 12/22/2004:H.W: 0;attendance: 10,Qs mark: 0;Ans Mark: 4;Attmpted: 5;Not atmpted: 2,Pass" OLE: Send_Message
880189502590	12/22/2004 02:12:02 PM "Result of class of 12/22/2004:H.W: 0;attendance: 10,Qs mark: 0;Ans Mark: 0;Attmpted: 0;Not atmpted: 7,Pass" OLE: Send_Message
880172823901	12/22/2004 02:12:10 PM "Result of class of 12/22/2004:H.W: 0;attendance: 10,Qs mark: 0;Ans Mark: 3;Attmpted: 3;Not atmpted: 3,Pass" OLE: Send_Message

