

Development of .Net Based Application:

Automatic Question Generator

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This Report Presented in Partial Fulfillment of the Requirements for the Degree of Bachelor of Science in Computer Science and Engineering.

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DAFFODIL INTERNATIONAL UNIVERSITY

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APPROVAL

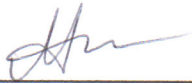
This Project titled “**Automatic Question Generator**”, submitted by Md. Shamrat Miah, ID No: 162-15-7969; Muhammad Ripon Hossain, ID No: 163-15-8333 and Golam Shahriar, ID No: 163-15-8335 to the Department of Computer Science and Engineering, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on 14-09-2019.

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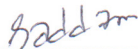
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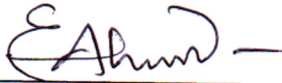
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DECLARATION

We hereby declare that; this project has been done by us under the supervision of **Mr. Eshtiak Ahmed, Lecturer, Department of CSE** Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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ABSTRACT

What makes the country's education stronger than any country's development, how strong is the education of the country. Therefore, the importance of education in all the countries is given due importance. What is the saddest thing in the country of the people is that before any public examination in our country, the question of the test was leak.

That is giving the young talent of the country a mess. This question generates software for dealing with this problem. Which does not only prevent leak from the question but rather provides a lot of easy with which to make the question? Through encryption we can protect the privacy of questions.

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CHAPTER 1

Introduction

1.1 Introduction

We can protect the privacy of any questions through this software.

It is not a question that is safeguarded by this software, but it is not possible to protect the privacy of the question of appointment. Through this software we can only create questions for mainly diploma engineer curriculum. Because this software has been built mainly in diploma pattern. This project, there is an arrangement for input of the old question for short, concise and constructive questions. Which is quite helpful in making questions?

1.2 Motivation

In this motivation, this is totally in real life an example. In every public examination in our country the final examination paper leaked. So this is a big criticism for our country to others. So we think we will develop such kind of project. And this project will be full of security for prevent leak of question paper.

1.3 Objective

The main objective of this project is :

❖ **Make question in easy way.**

- In this project, we try for how can we make question paper in very easy way and effectively. Sometimes teachers are feel to very short time to make question paper. So, from this project we can save our time.

❖ **Make ensure the security for exam question.**

- In this project our main target is how can we secure our question from leak. Because we believe in education. For develop a nation.

❖ **Safely question handle to the center of examination.**

- This is a fact to digitalization the route of exam board to exam center.

This software is idea for our Government for think to digitalize the process of our examination system.

❖ **Make question paper also for job circulation.**

- In this project we can make job circular question.

❖ **Ensure the quality of question.**

- For ensure the quality of question paper we can edit from question bank. At first teacher will select question .And if teacher think it need to change, then he can easily edit that for perfection.

❖ **Prevent leak of question.**

- In this time we have a big trouble. The trouble is leak of question paper. On previous experience we see in many times S.S.C /H.S.C/University level question leaked. That is a worse thing for our bone of education system.

❖ **For change the system of make question paper.**

- This is a digital world. We have to walk with this digitalization. From think like that this project is really need for us.

❖ **Digitalization make of question paper in whole system.**

- In Bangladesh, everything is now developing day by day. So we have to think how can we change and develop our education system. Every time we see the leak of question paper. So, this is the right time for think about this kind of problem. And need to come out such kind of problem.

❖ **Flexibility to make question.**

- Sometime make of question is very terrible for in a very short time. From this project we can save our time. From make question paper in a very short time.

1.4 Expected Outcome

The expected of outcome in this project is:

- Make question in easy way.
- Make ensure the security for exam question.
- Make ensure the security for exam question.
- Make question paper also for job circulation.
- Digitalization make of question paper in whole system.
- Flexibility to make question.

1.5 Report Layout

We developed an application which name is “Automatic Question Generator”. We make sure that the project complete in time. Respect to our workflow we design our project report.

In chapter 2 named Background discuss about the Introduction, Related Works, Comparative Studies, Scope of the Problem, Challenges.

In Chapter 3 named Requirement Specification we discuss about the Business Process Modeling, Requirement Collection and Analysis, Use Case Modeling and Descriptions, Logical Data Model, Design Requirements.

In chapter 4 named Design Specification we discuss about the Front-end Design, Back-end Design, UI Design and UX and Implementation Requirements.

In chapter 5 named Implementation and Testing we discuss about the Implementation of Database, Implementation of Front-end Design, Testing Implementation, Test Results and Reports.

In chapter 6 named Discussion and Conclusion we discuss about the Future Scope, Discussion and Conclusion of the whole project.

CHAPTER 2

Background

2.1 Introduction

This is very sorrow of a matter when we see prior of any public examination, the question paper is leak. And the media is social network or hand to hand. This is a great threat for us and our nation. For this reason we make this project .This project can help us for prevent leak of question paper also help the teachers for make their as usual question paper. There are some related software in online. But we works on Diploma base curriculum sector. In this time our country is developing day by day and it is very necessary develop to our education system. Need to be digitalization.

2.2 Related Works

There are some of question generator software is now on online world. But they are not similar with in this project. Here we can extra work. For take job question besides final question paper. We can encrypt and also decrypt with in secure algorithm. By this software we can also generate Bangle question paper. Which is not available in online site?

One of such kind of software is:

- **Test Generator ++**

Which is not similar with this project.

2.3 Comparative Studies

There are some of software or project in this time available on online system. But we think our project can be a good friend to all of teacher/lecturer. We use here a strong algorithm. Here we keep an encryption system and also decrypt system for protect the leak of question paper prior of examination. So, We hope our project result will be a better fruitful option in our country.

2.4 Scope of the Problem

Basically, teachers have to perform different types of exams in a year or a month. And for this, they had to work for questioning a while ago. Which is very annoying and trouble full?

Because:

- ❖ This take a long time for finish to make question paper.
- ❖ Sometimes they cannot able to make question for their capability of writing skill on software.
- ❖ This is a little bit chance to leak question on their entire group.
- ❖ Possibility to erase question for technical problem.
- ❖ Sometimes it hampers their own as usual work.

According this kind of problem this software will give them an opportunity solves their basic kind of problems. Like this:

- ❖ Just select very short, short and brought question option for select.
- ❖ After select all of them they can edit the three type of question pattern.
- ❖ Easy for store question paper inside the local server.
- ❖ Security level is high for access this software.

So at last it is very easy to everyone for make and prevent leak of question.

2.5 Challenges

Here is some challenges. And they are:

- ❖ Need to high speed photo copier machine, which can be able to make photo copy minimum 80-100 in a perminute.
- ❖ Need to ensure electricity will be ok.
- ❖ Ensure a good bandwidth of internet line.
- ❖ Need to minimum digitalization of board to every exam center.
- ❖ At last our government needs to think about budget for such kind of requirements.

CHAPTER 3

Requirement Specification

3.1 Business Process Modeling:

For business process modeling ,here is a mode diagram below description. In this project is a teacher need to access he should be give user id and password .And after checking authentication the teacher can insert subject,semester,select very short,short,brought question and generate and also update or remove.

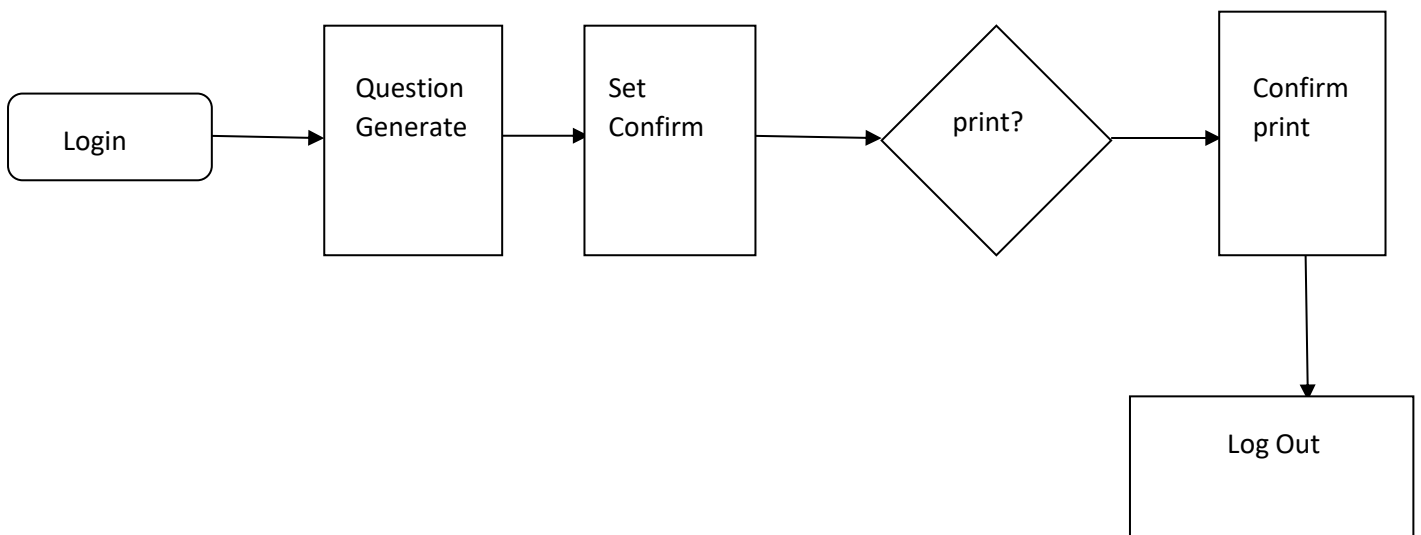


Fig 3.1: BPM of Automatic Question Generator

3.2 Requirement Collection and Analysis

Here is requirement collection and and analysis description:

- User password and account id
 - By this form we can access our main form. So at first we need to give our username and password.
- Type of question set

- This project has 3 type of question.
 - ✓ Very short question.
 - ✓ Short question.
 - ✓ Brought question.
- Need to select Very short, Short, Brought question.
 - For make question set. We have to select at first very short, Short, Brought question.

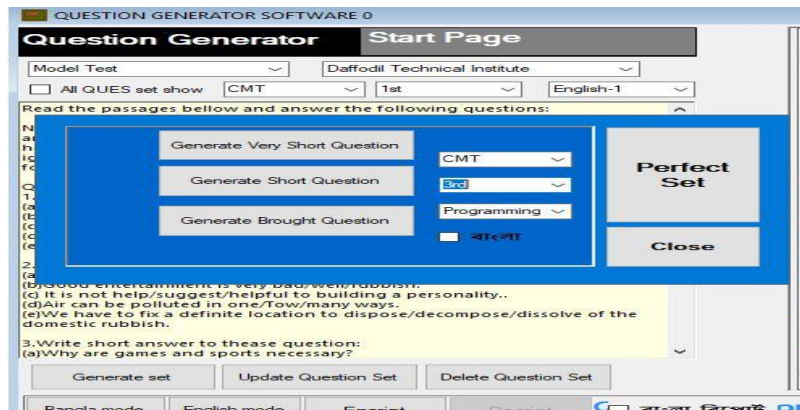


Fig 3.2: Question Generation process

- Marks
- Institute name
- Generate set
 - When Short, Very short and brought question had selected, then need to be click generate question.
- Encrypt(if teacher want)
 - For security and secure our question from prevent leak of question we can encrypt our question and after we can decrypt by use our decrypt option.

Hardware and Software Requirements for our system:

- Windows operating system.
- SQL server
- Report software(Crystal report)

- For this project, we use the built in crystal report system in visual studio 2008 IDE system.

3.3 Use Case Modeling and Description:

A use case model is a graphic description of the interactions among the elements of a system. A use case is a methodology used in system analysis to identify, clarify and organizing system requirements.

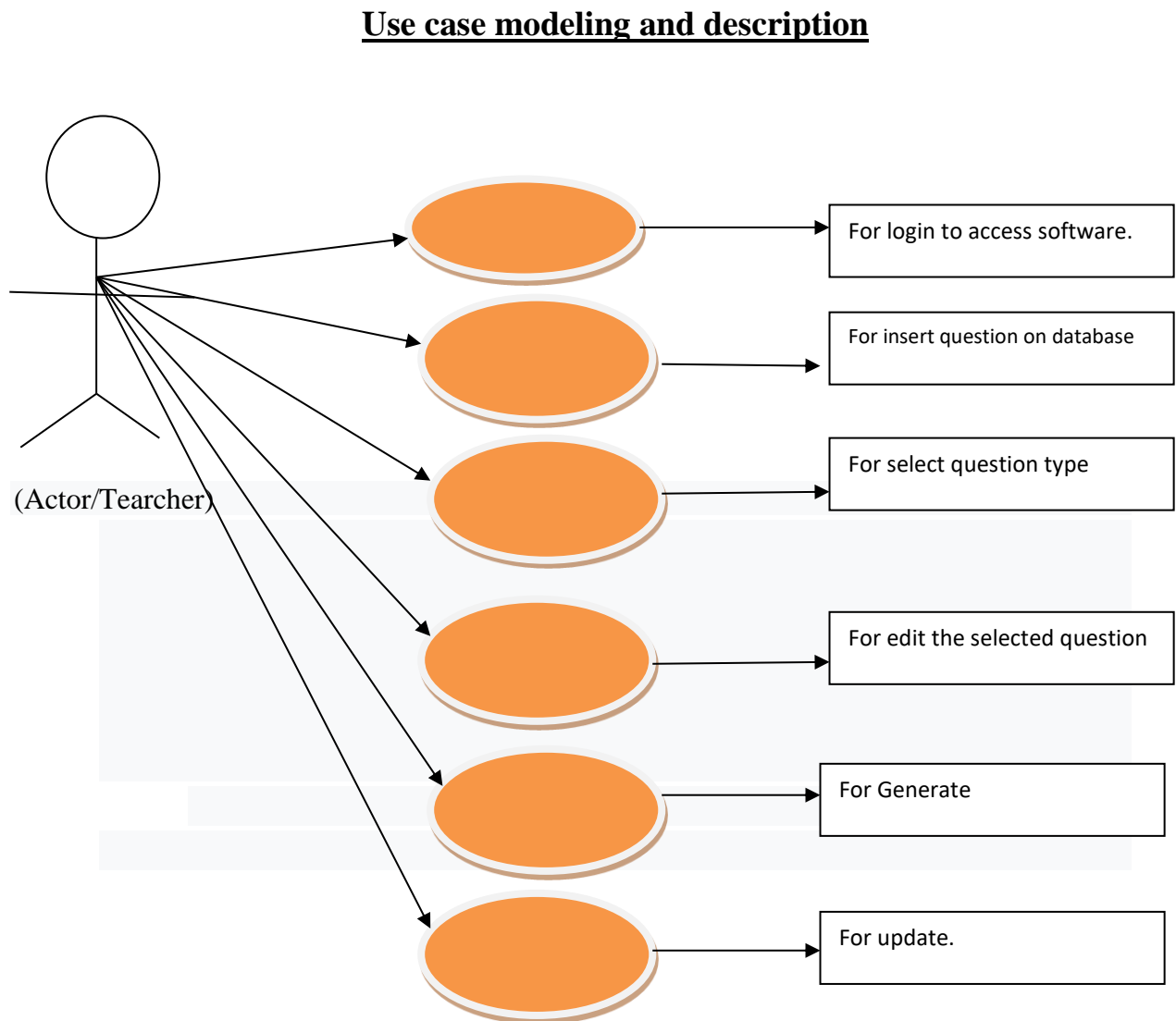


Fig 3.3: Use case diagram of Automatic Question Generator

Use Case Description for Automatic question generator

Use case description

Use case is a view of any project . from this use case we can see, a teacher at first need to complete the login form for access this software.

Use Case: Sign-In

Actor: Teacher

Pre-condition: NULL

Primary Path

- Choose sign in as teacher
- Fill the data fields
- Click the login button

Alternate Path

- Data field is empty
- Connection error

Post-condition

- If sign-in successful
- If Main page is loaded

Use Case: Insertion technology

Actor: Teacher

Pre-condition: Sign In

Primary Path

- Choose sign in as teacher
- Fill the data fields
- Click the ok button

Alternate Path

- Data field is empty
- Connection error

Post-condition

- If information insert successful

Use Case: Select question type

Actor: Teacher

Pre-condition: SignIn

Primary Path

- Choose sign in as teacher
- Select the data fields

Alternate Path

- Data field is not select
- Connection error

Post-condition

- If select successfully complete

Use Case: Edit select question

Actor: Teacher

Pre-condition: Sign in

Primary Path

- Choose sign in as teacher
- edit the data fields
- Click the generate button

Alternate Path

- Connection error

Post-condition

- If edit successfully complete

Use Case: Update

Actor: Teacher

Pre-condition: Sign in

Primary Path

- Update the data fields
- Click the update button

Alternate Path

- Connection error

Post-condition

- If update successfully complete

Use Case: Encryption system

Actor: Teacher

Pre-condition: Sign in

Primary Path

- Choose encryption.
- Select question set.
- Click the encrypt button

Alternate Path

- Connection error

Post-condition

- If encrypt successfully complete

Use Case: Decryption system

Actor: Teacher

Pre-condition: Sign in

Primary Path

- Choose decryption code for unlock
- Select Decrypt button.

Alternate Path

- Connection error

Post-condition

- If decrypt successfully complete.

Use Case: Search system

Actor: Teacher

Pre-condition: Sign in

Primary Path

- Choose id for search.

Alternate Path

- Connection error

Post-condition

- If search is successful

3.4 Logical Data Model

From logical data model we can easily understand the relation between Question generator software and teacher. The model is:

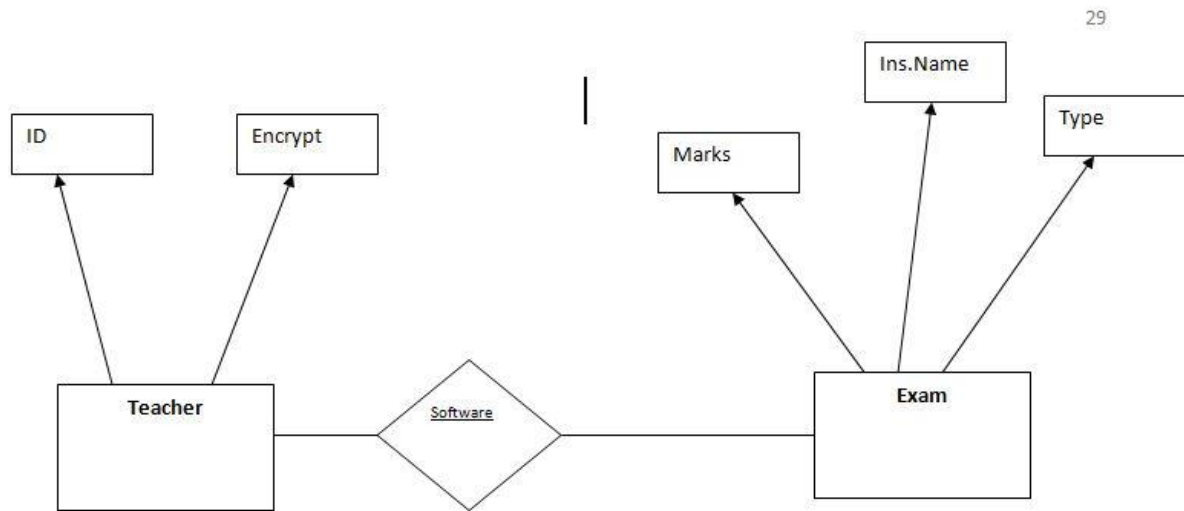


Fig 3.4: ER Diagram of Automatic Question Generator

3.5 Design Requirements

When we design a software or system, we consider some requirements to make the project efficient. The following requirements are almost mandatory to do.

Ensure the system Easy Facile and Flexible: This system will be designed in such a easy way that the users feel satisfaction, easy way to facile and flexible to use it.

Make the system Balanced: This system must be suitable in the whole system and future maintenance.

Efficiency: The most important thing of software is its efficiency. The system must be capable to run and work with a minimal level of hardware resource available with a good use of time.

CHAPTER 4

Design Specification

4.1 Front-end Design

This project is making by use of C# programming language and the server is use of (local) SQL server 2008R2 version.

The front end design of this project is totally built of .net framework. In this front end view,this project take help from Microsoft Visual Studio 2008.

In this project, we have some of form. Like as:

- Main form:



Fig 4.1: Main form of Automatic Question Generator

In this project, this is our main front page. In this page we have a start page. When we want to make any question or work then we need to close this start page. When it will be done then this is ok for work. In this main form we have two divided side.

- One is only for use to select and edit our selected question.
- And other side is use for only view our selected question report view.

➤ Question choice Form:

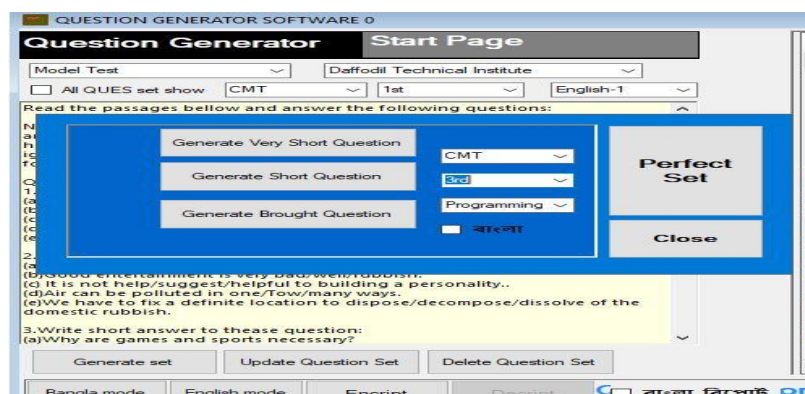


Fig 4.2: Question choice pattern

At first for select question we have to select 3 category of question.

The three part of this question is:

- Generate very short question
- Generate short question
- Generate brought question

But prior for select this category, at first we have to select

- Technology
- Semester and
- Subject name.

➤ Report system:

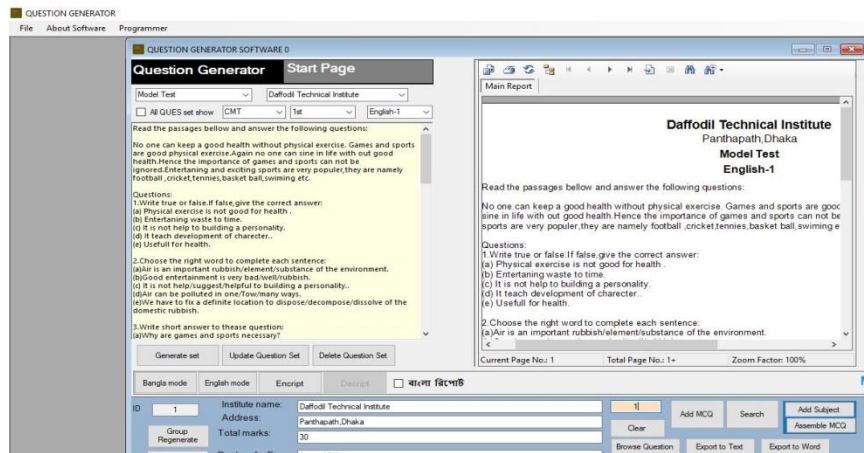


Fig 4.3: Report System process

When all of selected question will be ok then we need to generate question set. After do this the report of this question will be ok for view and print and others. We can also encrypt, decrypt and put institute name and marks etc.

When report and question generate will be ok, and then we can also update it again and again in very easily process.

➤ Encrypt and Decrypt system:

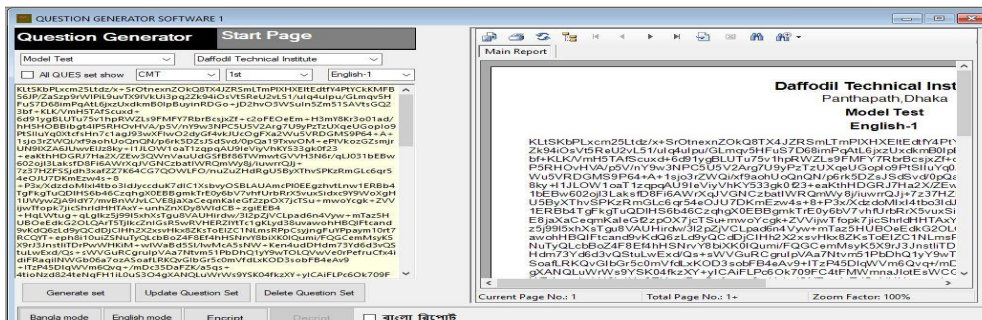


Fig 4.4: Encryption and Decryption system

In this project, it is very necessary for secure from leak. For this reason, here is a little option and this is encrypt .This is very easy way to encrypt from secure our question from others.

When final examination will be held that time the exam center need this software for decrypt to use this plain text view mode.

Here is a option for use Bangla. In Bangla question also is a chance for encryption.

4.2 Back-end Design

Back end design of this software is build up totally the language of C#. This c# programming code is directly connected to the local server of SQL server.

For using such kind of language and server this is very easy to any of programmer to build up any kind of project.



Fig 4.5 : Back end design

4.3 Interaction Design and UX

Interaction Design is most important part with User Experience (UX) design. Application fruition depends on User satisfaction. How an application is more attractive to user is depends on interaction and Design part. In our application we used useful model of Interactive design.

4.4 Implementation Requirements

The implementations Requirements was given us a very good idea. The main task of this part is to make the entire things easier, user friendly. The list of implementation requirements is given bellow;

- Easily can create account
- Easily can maintains account
- Easily can analysis account
- Dynamic pages
- Simple and User-friendly

CHAPTER 5

Implementation and Testing

5.1 Implementation of Database

For make this software we are using SQL server database software. Which will

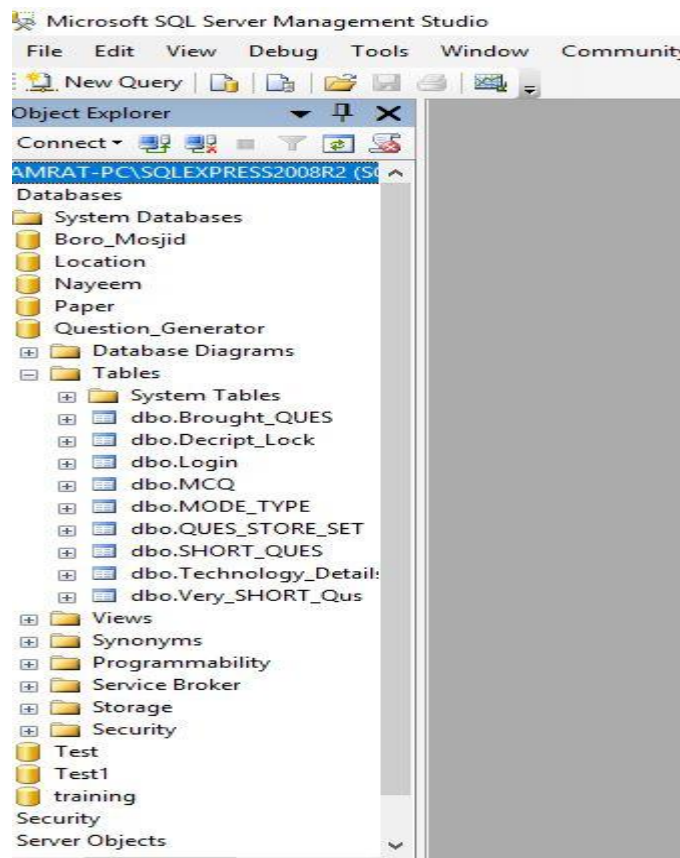


Fig 5.1: Table of Question Generator

Beserving our all of question paper information. At first we make some of table for transaction our questions information separately. This project has 9 tables for store data.

They are:

- **Brought QUES:**
 - In brought question table, we can store brought question separately.
- **Decrypt Lock:**
 - In this Decrypt lock table, we will find out the code of decrypt.
- **Login:**
 - This login table reserves the password of Login and username identity.
- **MCQ:**
 - For Job examination we, this table will be used for reserve the question for job.
- **MODEL_TYPE:**
 - In this table we can reserve minimum 3 type of question.
They are:
 - ✓ Model Test.
 - ✓ Class Test
 - ✓ Final examination.
 - And another type of is:
 - ✓ Job examination (developing now).
- **QUES STORE TYPE:**
 - In this table we can reserve short, very short and brought question.
- **SHORT QUES:**
 - This SHORT_QUES table will be reserve short question only.
- **Technology Details:**
 - This Technology Details table will be reserve only technology of a polytechnic institute.
- **Very SHORT Ques:**
 - This table will be reserve only very short question.

In every Table has their own appropriate column (Field). Those column has their own data type. Like this:-

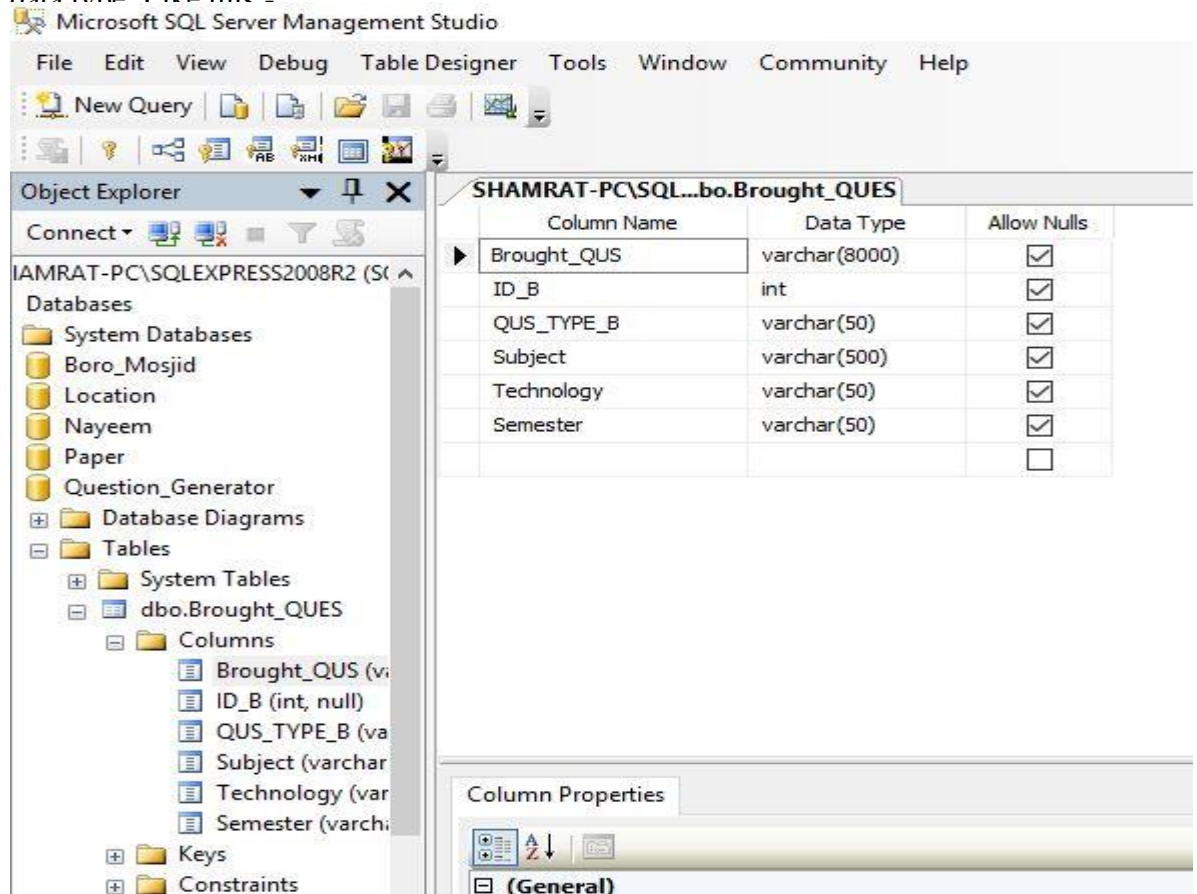


Fig 5.2: Column of Table

In figure 1.2, the Brought_QUES table has its some of column. They are:-

- Brought_QUS
- ID_B
- QUS_TYPE_B
- Subject
- Technology
- Semester

In this project, at first we need to make connection for access the entire local server. Like as:

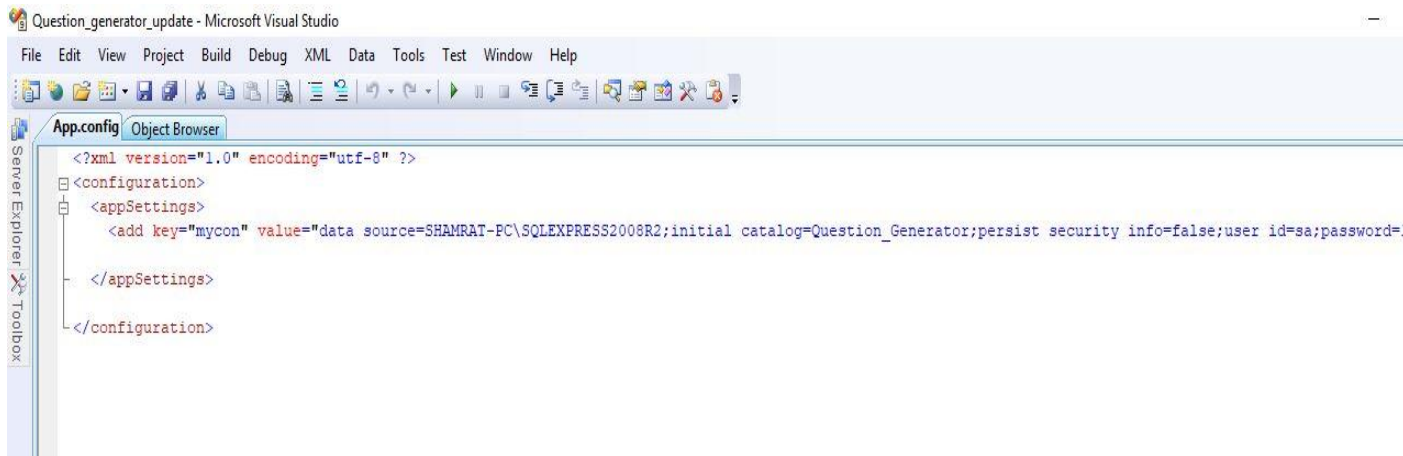


Fig 5.3: Connection process between sql server and Back end.

5.2 Implementation of Front-end Design

We make our front page design totally use of visual studio software.

This makes its attraction very much.

➤ Log in account:

At first to use this software , have to necessary User id and Password for access this software. There is chance to make new password and update user id .But do this we have to know it's old password too.

Fig 5.4: Log in account

➤ **Main Form:**

In this project, this is our main front page. In this page we have a start page. When we want to make any question or work then we need to close this start page. When it will be done then this is ok for work. In this main form we have two divided side.

- One is only for use to select and edit our selected question.
- And other side is use for only view our selected question report view.



Fig 5.5: Main Form

➤ **Form of question generate:**

When all of selected question will be ok then we need to generate question set. After do this the report of this question will be ok for view and print and others. We can also encrypt, decrypt and put institute name and marks etc.

When report and question generate will be ok, and then we can also update it again and again in very easily process

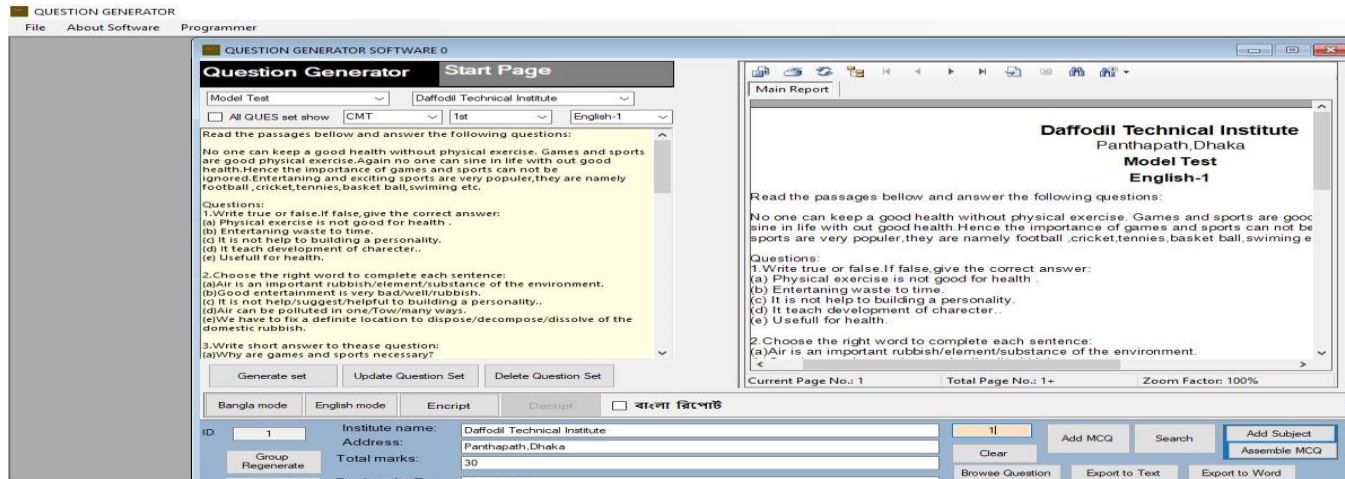


Fig 5.6: Form of question generate

Insertion option:

In this project it is very need to insert our subject wise question in this project's local database system. For this reason at first need to Very short question, Short question and Brought question with their own id, subjectname, semester name. After that we can generate question from main form in very easily. If for any mistake we can edit or remove those inserted question.

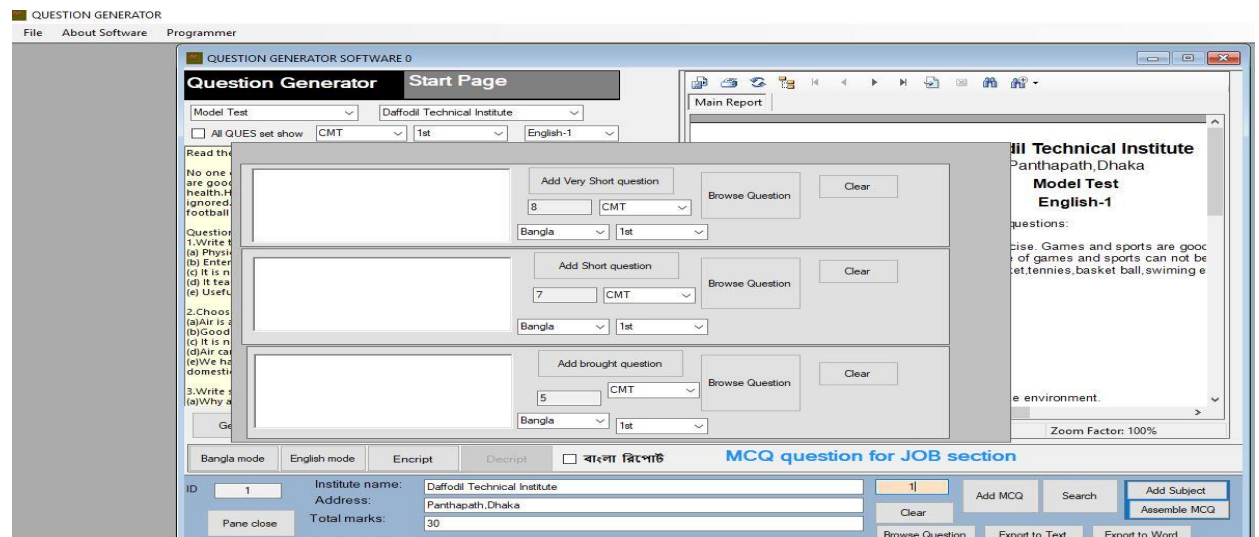


Fig 5.7: Insertion option

➤ **Question Generate option with type of question:**

At first for select question we have to select 3 category of question.

The three part of this question is:

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- Generate short question
- Generate brought question

But prior for select this category, at first we have to select

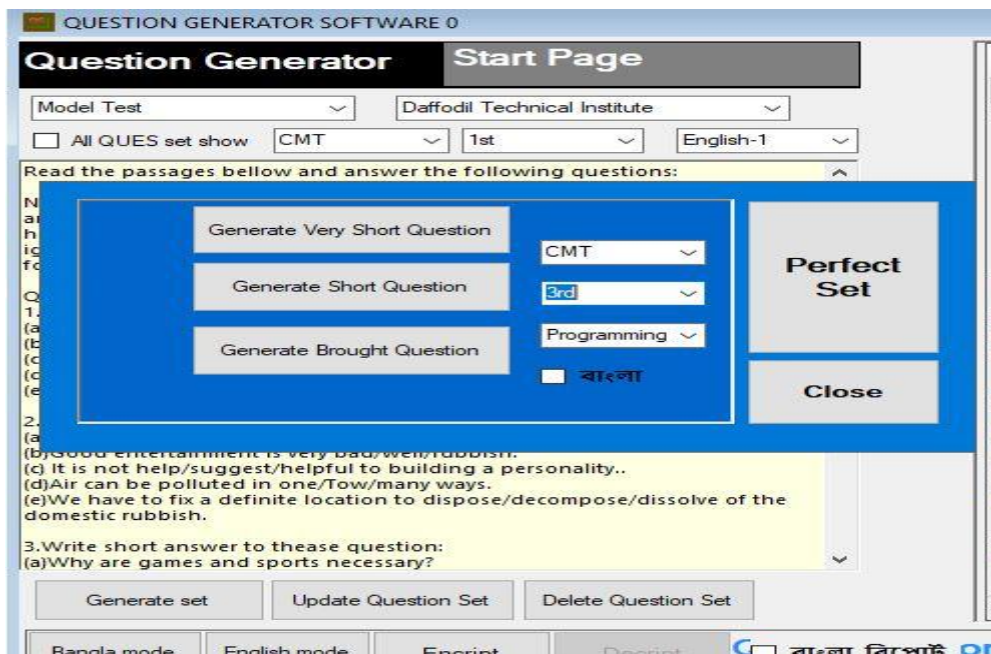


Fig 5.8: Question Generate option with type of question.

➤ **Encryption system and Decrypt system:**

In this project, it is very necessary for secure from leak. For this reason, here is a little option and this is encrypt .This is very easy way to encrypt from secure our question from others.

When final examination will be held that time the exam center need this software for decrypt to use this plain text view mode.

Here is a option for use Bangla. In Bangla question also is a chance for encryption.

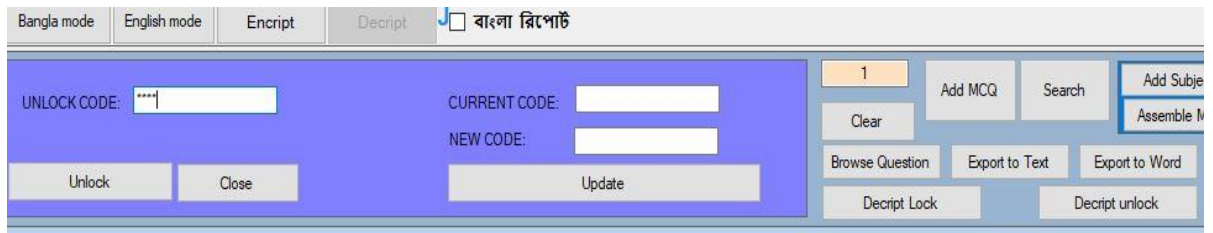
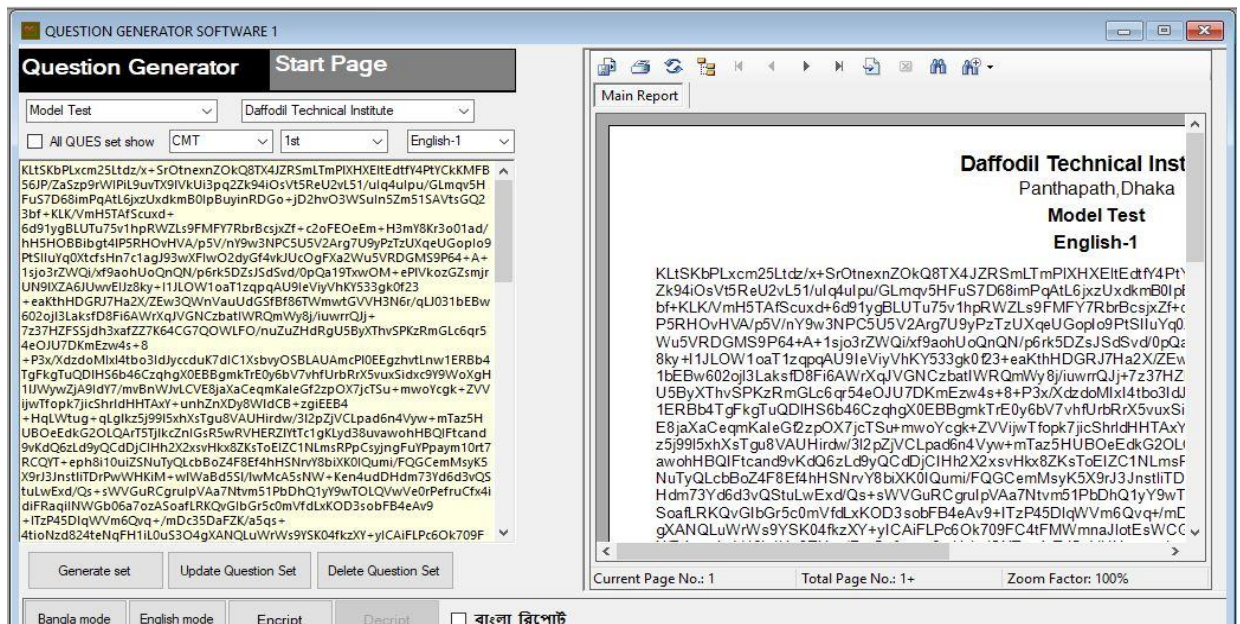


Fig 5.9: Encryption system and Decrypt system.

5.3 Implementation of Interactions

Implementation Test is very important for any project. In this project we are trying to implement this software in a local polytechnic institute.

5.4 Testing Implementation

We are now trying to implementation this project in a polytechnic institute for better result output.

5.4.1 Testing

Testing is an essential part of any system developing project. The main goal of testing is validating the contribution, authenticity, reliability and quality of the application. This project

is to implement an android based application that related to this project& Tutor communication system.

5.4.2 Unit Test

5.4.3 Every part of software is tasted to make sure that the design is exactly completed.

This make us ensure that each part of the application run as per the requirement.

5.4.3 Unit Test Case

Unit test case can be divided into two parts. Database handler and interface handler. We use some basic function in our application that's addingpost,editpost and delete post. Database handler will check these three functions. And now our database handler test cases will be like this.

- Tutor easily can add question or not.
- Tutor easily can edit questionor not.
- Tutor easily can delete questionor not.

5.4.4 Implementation Test

Implementation Test is very important for any project. In this project we are trying to implement this software in a local polytechnic institute.

5.5 Test Results and Reports

All of test result is now positive. But we have to develop more thing and we are now working on it.

CHAPTER 6

Conclusion and Future Scope

6.1 Discussion and Conclusion

Question Generator System is a very exciting topic to work. After going through the work, we faced many challenging tasks that are surprisingly related to our educational system.

We researched so many communication tools that showed us the direction how to develop our system. We interact with the students that what type of problems they are facing. They were very happy to take this application.

We talked with several teachers, took some guideline that helped us a lot to develop this application. They encouraged a lot to do this project.

Despite everything we achieved, we faced many challenges to finish this project. After all it's an online based system so in real life both teacher and student needs to follow the using rules otherwise its goal will be failed.

It's an innovative idea. The opportunities that provided through this application are huge. We interact with too many students, list their problems, try to understand the communication gap and come up with this application. Hope it will help them a lot.

6.2 Scope of Further Developments

Communication system is always a changeable system. It develops day by day, getting better and better. Today what's look good is tomorrow becomes old. So, we have to update this system from time to time. It can useable not only for universities but also for all the educational institutes from all over the world. To fulfill that goal, we have several ideas to do.

1. We want to develop it for all the tuition educational system.
2. We want to make this application more suitable, flexible, user friendly, keep update the users time to time.

Now it has only text messaging option to its user but we want to start the voice messaging, video sharing etc.

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APPENDIX

Appendix A: Project Reflection

The purpose of this Appendix is to provide an introduction to Project reflection. The group research project was a challenging and enjoyable experience typical of the course as a whole. We have had little exposure to group work at university. So, it was a nice change to be part of an effective and dynamic team. We complemented one another quite well both in bringing together interdisciplinary perspectives and in balancing the work at hand.

The experience taught us that planning and crafting responses takes a longer time in teams than on your own. The extensive effort required was ultimately a good thing. When working alone, we can end up with a result that is identical to our initial plans. In our group we are constantly developing and refining one another's ideas. It was fascinating just how productive our group meetings were. The time seemed to fly and yet we always got a lot done and managed to help one another along the way towards the end point of having a substantive policy.

shamrat

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