Chittagong University Of Engineering And Technology

A Report On

Development of a Result Processing Website

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Abstract

Processing of examination results is one of the most important activities of an Institution. Generally this processing depends on different parameters in many ways and thus processing becomes a tough task. Some computer applications such as MS Excel and other spread sheet software have made the task easier but these are not suitable for multiple and different grouped users. So, there is a need for a complete computerized system that is accessible within a specific network and has different interfaces based on different roles. A web-based system can easily remove the problems of a conventional manual system regarding the preparation of examination results. In this work, a simple web-based result processing system is developed which provides security and usability. Moreover, the developed client-server system is composed of simple operations and it is highly reliable. In the developed countries IT has long been the primary driving force for evaluation of education whereas the scenario has not been the same in developing nations. At present, like many other sectors, the education sector of Bangladesh is gradually entering into the IT arena. Many educational institutions are now equipped with computers and necessary networking equipments and others are expected to have this facility soon. As a result, the proposed web-based system can facilitate the institutions in Bangladesh in dealing with examinations. The developed system provides opportunity for teachers to submit student information and their marks while the system computes the data and provides the result in different formats. In addition, the students can view their results through the system. Consequently, the developed scheme will save time and effort and will provide much reliable output than the existing manual procedures. Therefore, the developed system can be a welcome addition to the Institutions of our country.

Acknowlegdement

The satisfaction that accompanies the successful completion of any task would be incomplete without the mention of people whose ceaseless cooperation made it possible, whose constant guidance and encouragement crown all efforts with success.

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Chapter 1

Introduction

1.1 Motivation

Processing of examination results is one of the most important activities of a University. Generally, this processing depends on different parameters in many ways and thus processing becomes a tough job. Some computer applications such as MS Excel and other spread sheet software have made the task easier but these are not suitable for multiple and different grouped users. So, there is a need for a complete computerized system that is accessible within a specific network and easily remove the problems of a conventional manual system regarding the preparation of examination results. In this work, a simple web-based result processing system is developed which provides security and usability. Moreover, the developed client server system is composed of simple operations and it is highly reliable. In the developed countries IT has been the primary driving force for evaluation of education whereas the scenario has not been the same in developing nations.

The followings made me determined to do such a Database Project-

1. Although ours is an Engineering University, the result processing system is still manual.
2. Result sheet is hanged on the notice board rather than published it on website.
3. When the students went on vacation in term break, students have no way to know their results.

4. In the past few term final results, I faced this horrible situation.
5. In our previous term, we had to wait till 10.00pm to know Electrical Course result since the next day was our course registration date.
6. One of my friend went in the department three times for the result and finally got the result on the notice board at 10pm.

1.2 Description

As it is a website, it can be accessed by all the people of the world. For the users our website comprises the three main modules. They are

- Admins Section
- Teachers Section
- Students Section.

1. **Admins Section:**
   (a) Add/Delete Member : An admin can add or delete any member while verifying them.
   (b) Update Data : Update of any information in the notice board will be run by the admin.
   (c) Supervision : Supervision on every aspects will be run by him.
2. **Teachers Section:**
   (a) Log in: Every teacher must be logged using verified ID.
   (b) Log out: After doing his job one has to log out
   (c) Course: In teachers profile, the courses taught by him will be shown and will be updated when necessary.
   (d) Publication: Published paper titles will be added in the list.
   (e) Contact No.: Email Id, Mobile No will be shown.
3. **Students Section:**
   (a) Log In: Every student must have to sign in first and using the verified id and password one has to log in to ones account.

(b) Marks Sheet: Marks sheet will be updated after publication of result automatically. Any student can get his/her own mark sheet using personal Id.

(c) Notice: Any important notice will be notified as notification message.

(d) Contact No: Email Id and Mobile No. will be provided.

1.3 Characteristic

The web based result processing has following features:

1. In comparison to the present system the proposed system will be less time consuming and is more efficient.
2. Analysis will be very easy in proposed system as it is automated.
3. Result will be very precise and accurate and will be declared in very short span of time because calculation and evaluations are done by the simulator itself.
4. Marks of the students are stored and can be kept as back up for future use.

1.4 Feasibility Study

If the project is to proceed, the feasibility study will produce a project plan and budget estimates for the future stages of development.

1.4.1 Economic Feasibility

This part of feasibility study gives the top management the economic justification for the new system. This is an important input to the management because very often does not like to get confounded by the various technicalities that bound to be associated with a project of this kind. In the system, the institute is most satisfied by economic feasibility. Because, if the institute implements this system, it need not require any additional hardware resource as well as it will be saving lot of time.

1.4.2 Technical Feasibility

According to feasibility analysis procedure the technical feasibility of the system is analyzed and the technical requirements such as software facilities, procedure, inputs are identified. It is also one of the important phases of the system development activities. The system offers greater levels of user friendliness combined with greater processing speed. Therefore cost of maintenance can be reduced. Since processing speed is very high and the work is reduced in the maintenance point of view management convince that the project is operationally feasible.

1.4.3 Behavioural Feasibility

People are inherently resistant to change and computer has been known to facilitate changes. An estimate should be made of how strong the user is likely to move towards the development of computerized system. These are various levels of users in order to ensure proper authentication.

1.4.4 Disadvantages of Current System

- The current system is very time consuming.
- It is difficult to analyze.
- Result processing takes more time as it is done manually.
- It is not error free.

Chapter 2

Literature Review

2.1 Technologies Used

The successful running of any project primarily depends upon hardware and software used in its compilation. The hardware used in the machine should be such that it supports the software that is to be mounted for assembling the project. This project deals with the hardware and software, which is available readily and easy on each and every machine given to the user.

Technologies that are used are given below:

- Front End: HTML, CSS, JavaScript, jQuery.
- Back End:PHP.
- Database: MySQL
- APACHE Server: XAMPP

2.2 Software and Hardware

2.2.1 User interface

The new system shall provide a very intuitive and simple interface to the user and the administra tor, so that the user can easily navigate through pages, assignments, groups and sub-groups, start discussion threads, share data, old papers sharing and the administrator can easily manage groups and revoke user permiss ions.

2.2.2 Hardware Interface

The web application will be hosted on a web server which is listening on the web standard port, port 80. RAM size of 1gb is used as it will provide fast reading and writing capabilities. Intel core i3 2nd generation is used as processor because it is faster and provides reliable and stable working environment.

2.2.3 Software Interface

The softwares we need to create the project are divided into two types. Some softwares are required for front-end design and others are for back-end processing. Besides these two types of softwares we need a browser software to run and a text editor for coding. All the softwares that are used to make this project are given below:

- PHP is a scripting language originally designed for producing dynamic web pages.
- HTML, which stands for Hypertext Mark up Language,is the predominant mark up language for web pages.
- Cascading Style Sheets (CSS) is a style sheet language used to describe the presentation (that is, the look and formatting) of a document written in a mark up language.
- MySQL is a relational database management system (RDBMS) which has more than 6 million installations. MySQL stands for "My Structured Query Language".
- Querying Language SQL (Structured Query Language) is a database computer language designed for managing data in relational database management systems (RDBMS).
- Apache The Apache HTTP Server, commonly referred to as Apache is a web server notable for playing a key role in the initial growth of the World Wide Web.

2.2.4 Why we used PHP

Developing a website is a priority these days to your business on the Internet. Designing and Development are the steps that are important. PHP Programming the Languages mostly commonly used for Website and Web Application Development. PHP is a general purpose, server-side scripting language run a web server that's designed to make dynamic pages and applications. PHP as a web development option is secure, fast and a reliable that offers lots more advantages to make it accessible to a lot of people. It is to be given a thought as to what has made PHP Programming as one of the most commonly programming language for the Web industry. Using PHP as its language has many benefits, a few of which could be listed as below.

- PHP supports like MySQL, Oracle, Sybase, etc.
- It is by far the compatible with servers like Apache, IIS, etc.
- PHP runs on platforms, such as, Windows, Linux, etc.
- Using PHP to create a is very simple because of the easy functions, methods, and syntax of this language
- PHP also supports database management system and other open source databases
- Not only this, PHP has been compatible with open source software integration, such as, Drupal, Joomla, Typo3, osCommerce, etc.

2.2.5 Advantages of PHP

To understand the role of PHP, lets look at how a normal web request and a web request that involves PHP happen. Please note that there can be many intermediate steps involved but only the main and important ones have been mentioned for understanding purposes.

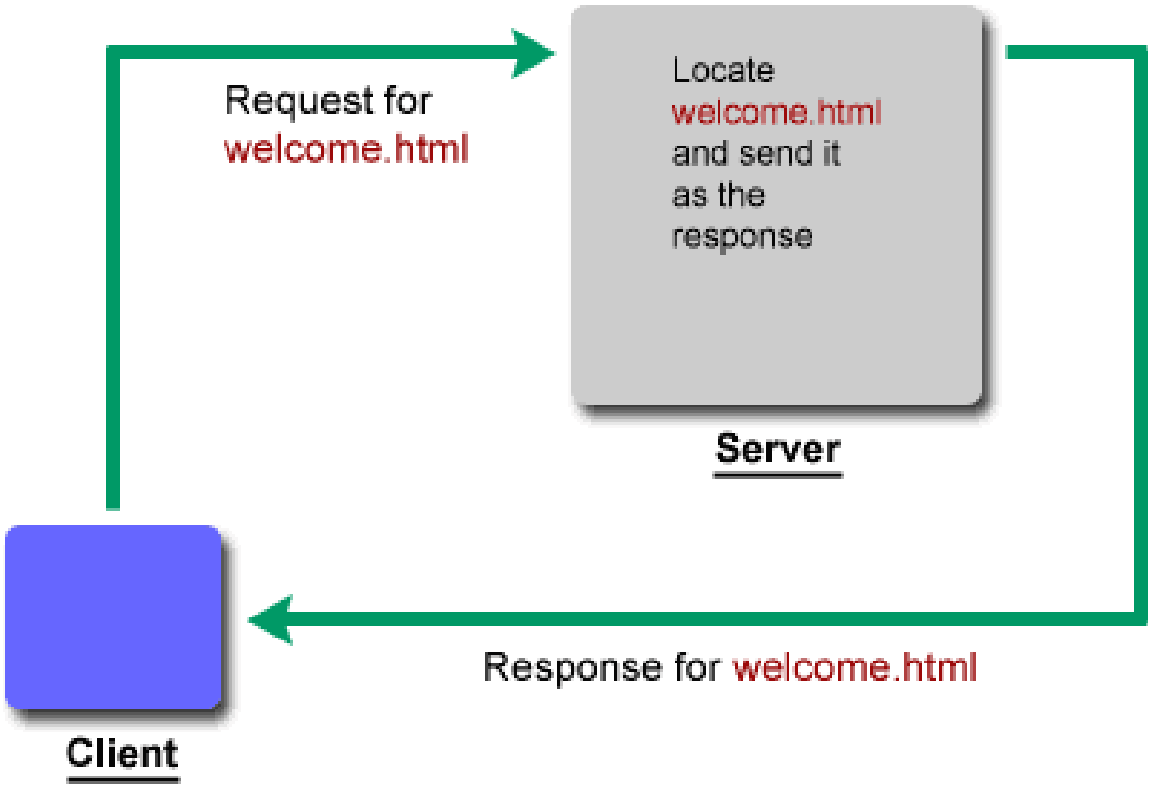

Figure 2.1: Cycle of a Normal Web Request

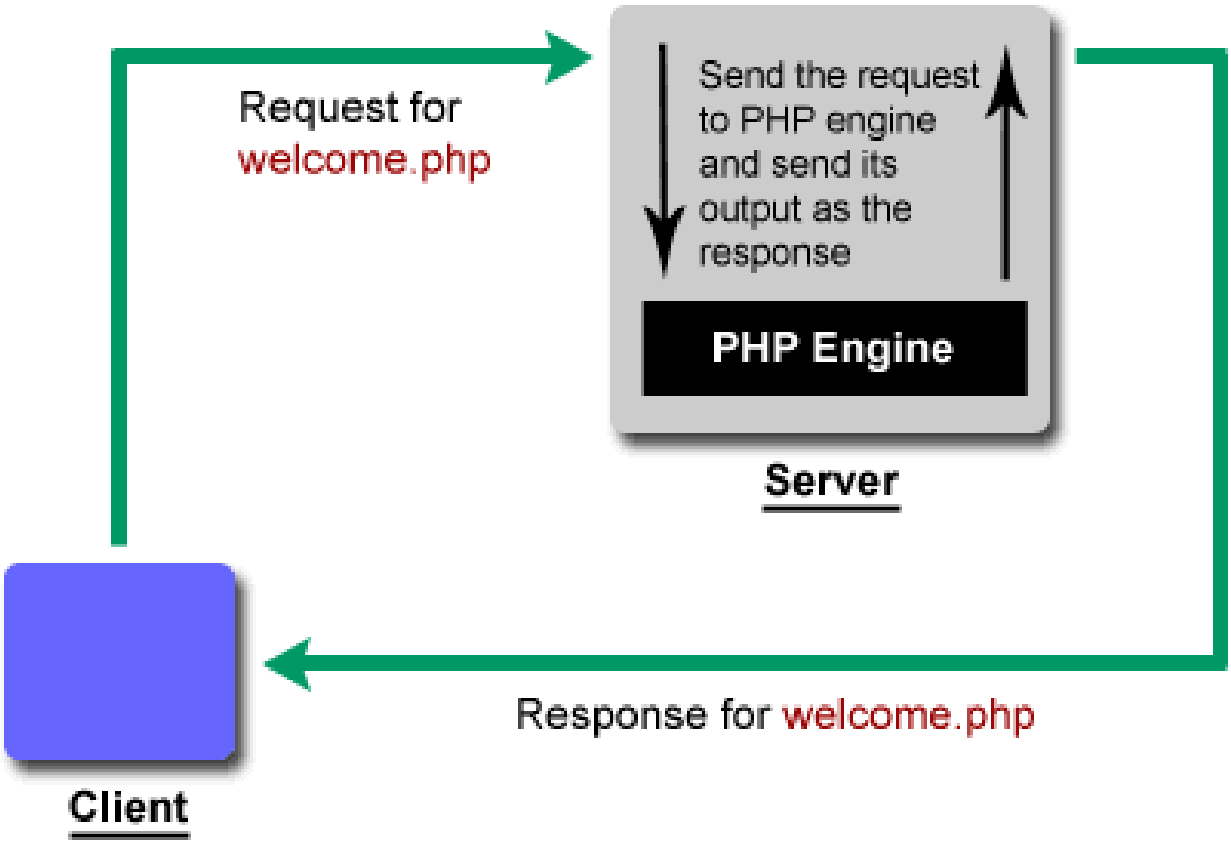

Figure 2.2: Cycle of a Web Request That Involves PHP

Chapter 3

E-R Diagram

3.1 Basic of an E-R Diagram

The ER model defines the conceptual view of a database. It works around real-world entities and the associations among them. At view level, the ER model is considered a good option for designing databases.

3.2 Entity

An entity can be a real-world object, either animate or inanimate, that can be easily identifiable. For example, in a school database, students, teachers, classes, and courses offered can be considered as entities. All these entities have some attributes or properties that give them their identity.

An entity set is a collection of similar types of entities. An entity set may contain entities with attribute sharing similar values. For example, a Students set may contain all the students of a school; likewise a Teachers set may contain all the teachers of a school from all faculties. Entity sets need not be disjoint.

Table 3.1: Entities used in the E-R diagram (figure 3.1)

ADMIN	The person who controls the whole system
TEACHER	Teacher Access data of the students
STUDENT	Gets the result card
GRADE SHEET	It contains the result.

3.3 Attribute

Entities are represented by means of their properties, called attributes. All attributes have values. For example, a student entity may have name, class, and age as attributes.

There exists a domain or range of values that can be assigned to attributes. For example, a student's name cannot be a numeric value. It has to be alphabetic. A student's age cannot be negative, etc.

Table 3.2: Attributes used in the E-R diagram (figure 3.1)

ENTITY	ATTRIBUTES
ADMIN	A-id, Name
GRADESHEET	S-id,Cgpa,Grade
TEACHER	Fname,Mname,Lname,T-id,Publication,Course,Contact-No
STUDENT	S-id,Fname,Mname,Lname,Dept,Contact-No

3.3.1 Types of Attributes

- Simple attribute Simple attributes are atomic values, which cannot be divided further. For example, a student's phone number is an atomic value of 10 digits.
- Composite attribute Composite attributes are made of more than one simple attribute. For example, a student's complete name may have first name and last name.
- Derived attribute Derived attributes are the attributes that do not exist in the physical database, but their values are derived from other attributes present in the database. For example, average salary in a department should not be saved directly in the database, instead it can be derived. For another example, age can be derived from data of birth.

- Single-value attribute Single-value attributes contain single value. For example Social Security Number.
- Multi-value attribute Multi-value attributes may contain more than one values. For example, a person can have more than one phone number, email address, etc.

3.4 Entity-Set and Keys

Key is an attribute or collection of attributes that uniquely identifies an entity among entity set.

For example, the roll number of a student makes him/her identifiable among students.

- Super Key A set of attributes (one or more) that collectively identifies an entity in an entity set.
- Candidate Key A minimal super key is called a candidate key. An entity set may have more than one candidate key.
- Primary Key A primary key is one of the candidate keys chosen by the database designer to uniquely identify the entity set.

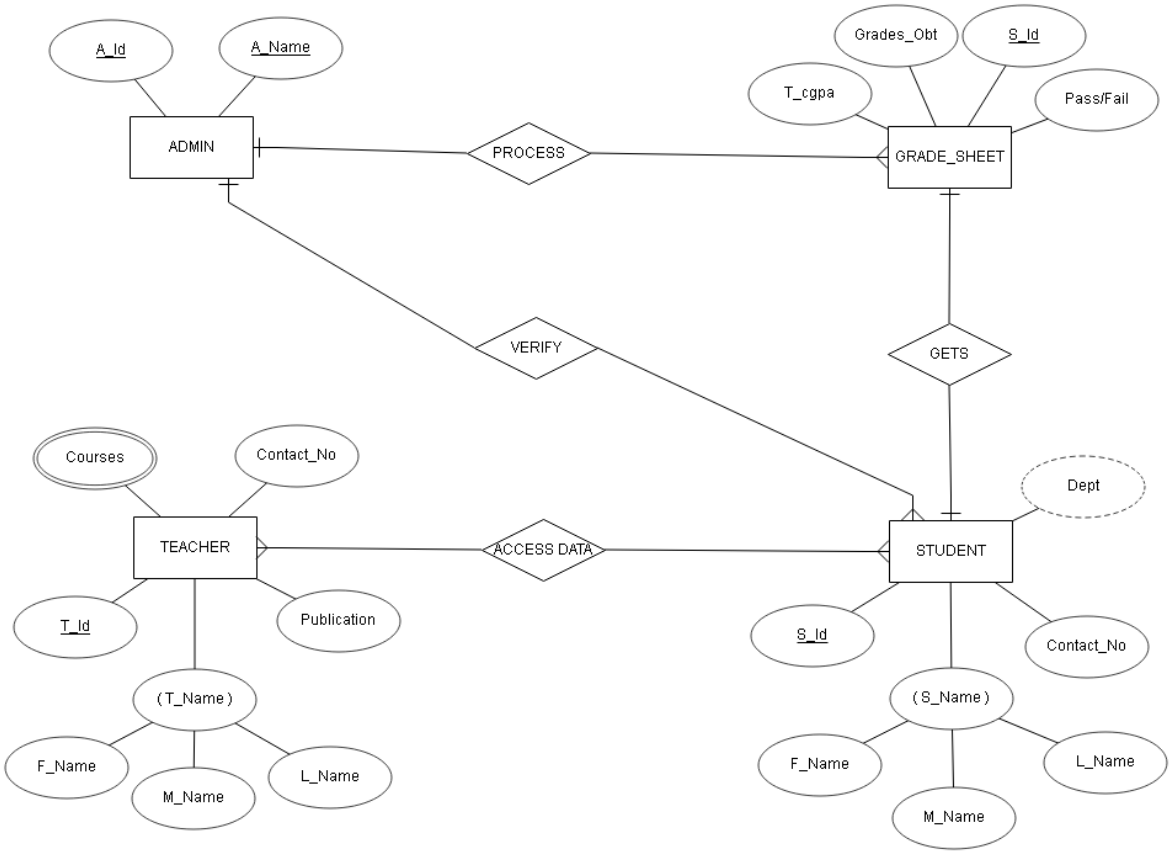

Figure 3.1: ER diagram of a Result Processing Website

Chapter 4

Relational Mapping

4.1 Basic of Relational Mapping

In this chapter, we describe relational mapping or logical database design, with special emphasis on the relational data model. Logical database design is the process of transforming the conceptual data model (described in chapter 3) into a logical data model that is con- sistent and compatible with a speci c type of database technology. An experienced database designer often will do logical database design in parallel with conceptual data modeling if he or she knows the type of database technology that will be used. It is, however, important to treat these as separate steps so that we concentrate on each important part of database development. Conceptual data modeling is about un- derstanding the organization, getting the right requirements. Logical database design is about creating stable database structures and cor- rectly expressing the requirements in a technical language. Both are important steps that must be performed carefully.

4.2 Steps in Relational Mapping

- Step 1: Mapping of Regular Entity Types
- Step 2: Mapping of Weak Entity Types
- Step 3: Mapping of Binary 1:1 Relation Types
- Step 4: Mapping of Binary 1:N Relationship Types.
- Step 5: Mapping of Binary M:N Relationship Types.

- Step 6: Mapping of Multivalued attributes.
- Step 7: Mapping of N ary Relationship Types.

4.3 RM Model

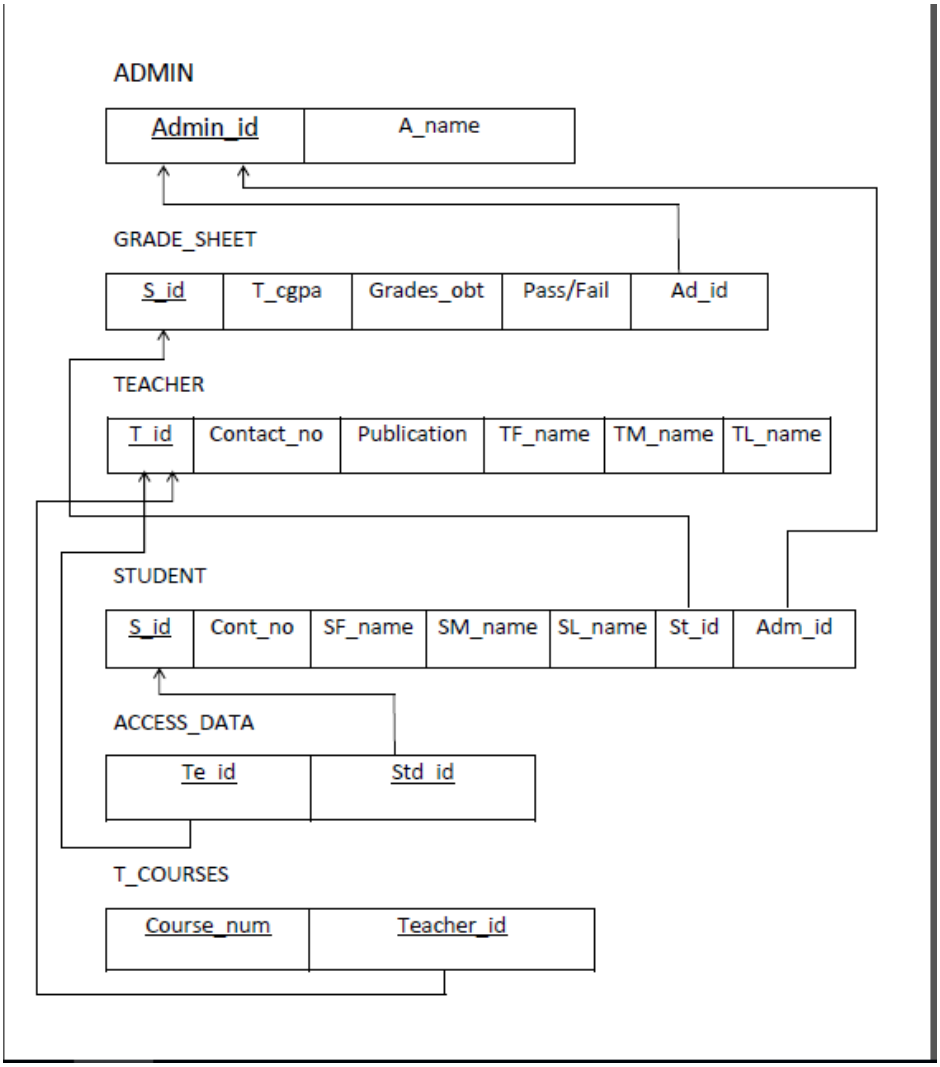

Figure 4.1: RM model of a Result Processing Website

Chapter 5

Normalization

5.1 Basic of Normalization

Database normalization, or simply normalization, is the process of organizing the columns (attributes) and tables (relations) of a relational database to reduce data redundancy and improve data integrity.

Normalization involves arranging attributes in tables based on dependencies between attributes, ensuring that the dependencies are properly enforced by database integrity constraints.

Normalization is accomplished through applying some formal rules either by a process of synthesis or decomposition. Synthesis creates a normalized database design based on a known set of dependencies. Decomposition takes an existing (insufficiently normalized) database design and improves it based on the known set of dependencies.

5.2 Requirements for a table to fit as a relation:

- It must have a unique name
- Every attribute value must be atomic (not multivalued, not composite)
- Every row must be unique (cant have two rows with exactly the same values for all their fields)
- Attributes (columns) in tables must have unique names
- The order of the columns must be irrelevant
- The order of the rows must be irrelevant

5.3 Steps in Normalization

Normalization can be accomplished and understood in stages, each of which corresponds to a normal form. A normal form is a state of a relation that requires that certain rules regarding relationships between attributes (or functional dependencies) are satis ed. We describe these rules brie y in this section and illustrate them in detail in the following sections

1. First normal form: Any multivalued attributes (also called repeat- ing groups) have been removed, so there is a single value (possibly null) at the intersection of each row and column of the table.
2. Second normal form: Any partial functional dependencies have been removed (i.e., non-key attributes are identi ed by the whole primary key).
3. Third normal form: Any transitive dependencies have been re- moved (i.e., non-key attributes are identi ed by only the primary key).
4. Boyce-Codd normal form: Any remaining anomalies that result from functional dependencies have been removed (because there was more than one possible primary key for the same non-keys).
5. Fourth normal form: Any multivalued dependencies have been re- moved.
6. Fifth normal: form Any remaining anomalies have been removed

5.4 Normalization Figure

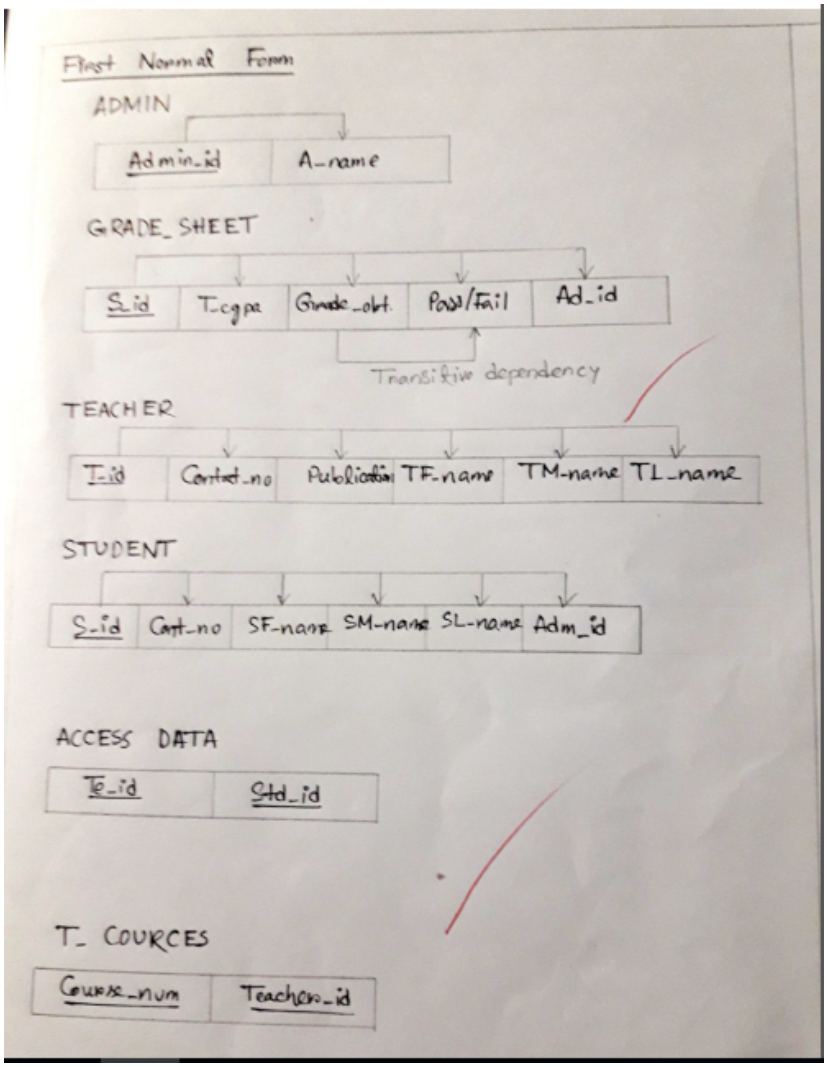

Figure 5.1: First Normal Form

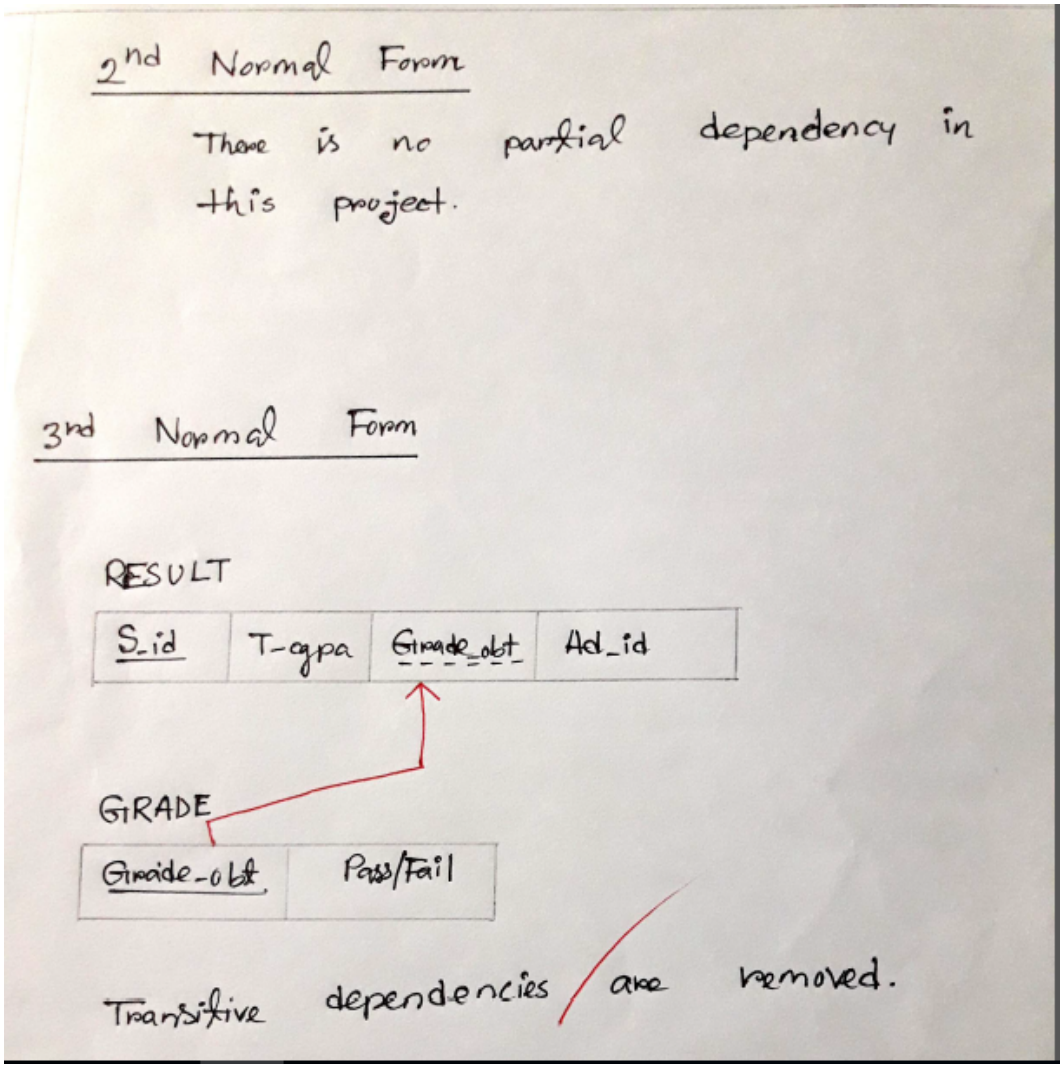

Figure 5.2: Third Normal Form

Chapter 6

SQL Queries and Implementation

6.1 Introduction to SQL

Originally based upon relational algebra and tuple relational calculus, SQL consists of a data definition language, data manipulation language, and data control language. The scope of SQL includes data insert, query, update and delete, schema creation and modification, and data access control. Although SQL is often described as, and to a great extent is, a declarative language it also includes procedural elements.

SQL can perform several manipulation on database. Some of them are following.

- retrieve data from a database
- insert records in a database
- update records in a database
- delete records from a database
- create new databases
- create new tables in a database

6.2 Queries Used in the Project

Query 1:This order by query displays most recent ten notices

```
1 select *
2 from notice_board
3 order by publish_date desc LIMIT 0,5;
```

Figure 6.1: Query of order by

notice_id	notice_title	notice_image	notice_description	publish_date
21	Class Routine for CSE-12 Batch.	5416.jpg	This is the class routine.	2017-05-13
23	Result notice for CSE-11.	ete10616.jpg	Result for 11 batch.	2017-01-12
28	Class has been extended for CSE-13 batch.	cbsnall16.jpg	lkks	2017-01-01
11	Self Study for CSE-14 Batch.	eee111716.jpg	lksf	2016-12-22
6	Class Routine for CSE-11 Batch.	eee111716.jpg	This is important.	2016-12-20

Figure 6.2: Output of above Query

Query 2: This Search Query shows the searched result.

```
1 select * from notice_board
2 where notice_title like '%self study%';
```

Figure 6.3: Query of Searching

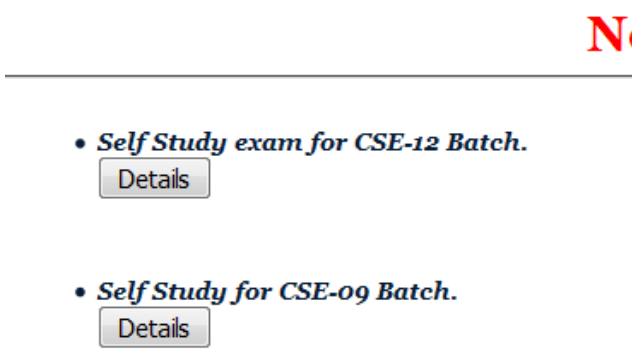

Figure 6.4: Result of Searching

Query 3: This Query shows the updates in the table.

```
1 UPDATE notice_board
2 SET notice_image='ete10616.jpg'
3 WHERE notice_title='Self Study exam for CSE-12 Batch.';
```

Figure 6.5: Query of Updation

notice_id	notice_title	notice_image	notice_description
2	Self Study exam for CSE-12 Batch.	ete10616.jpg	Follow the routine & get prepared.
6	Class Routine for CSE-11 Batch.	eee111716.jpg	This is important.
7	Class Routine for CSE-10 Batch.	961688.jpg	ahjjj
11	Self Study for CSE-09 Batch.	eee111716.jpg	lksf
17	Class Routine for CSE-13 Batch.	cse156616.jpg	This is notable
18	Class Routine for CSE-13 Batch.	cse156616.jpg	This is notable
19	Class Routine for CSE-13 Batch.	cse156616.jpg	This is notable

Figure 6.6: Output after Updation

6.3 Website View

Home View:

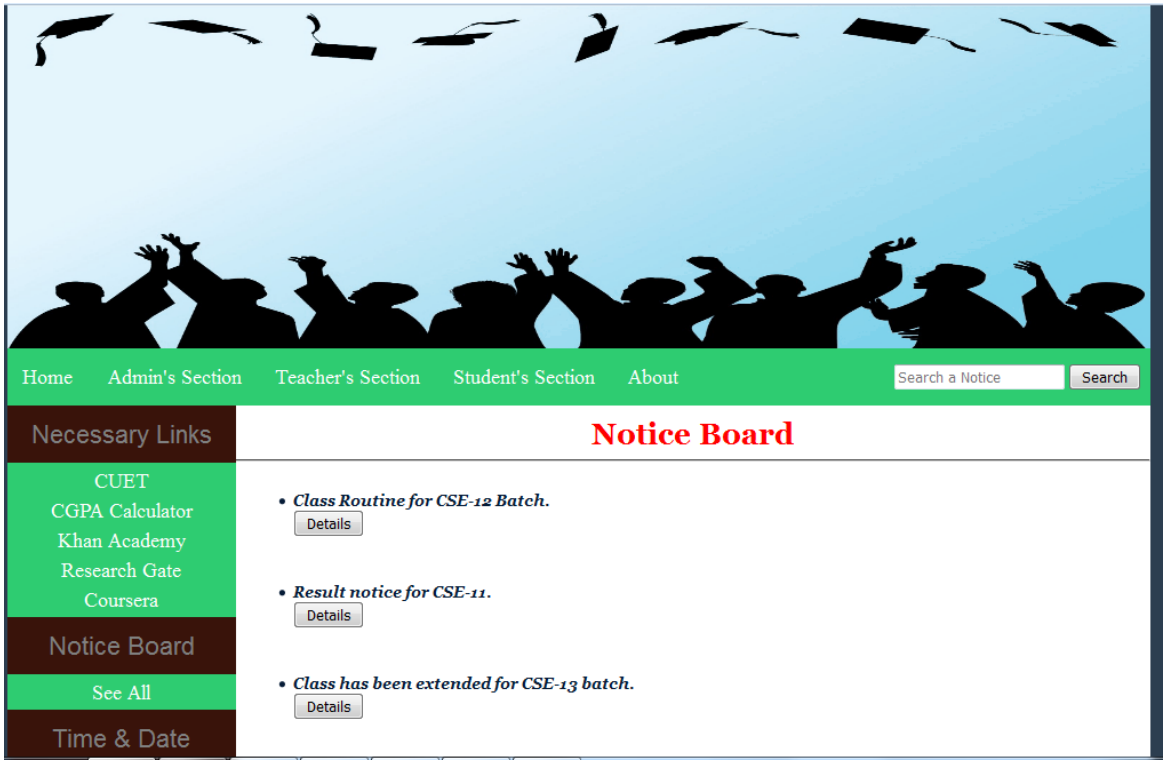

Figure 6.7: Homepage

Login:

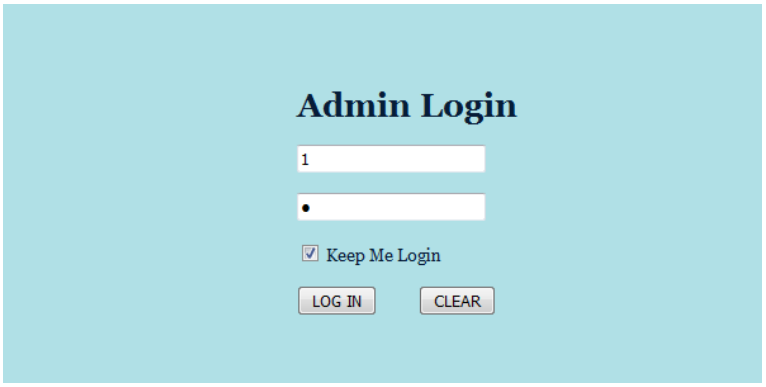

Figure 6.8: Admin Log in page

Insertion of Notice

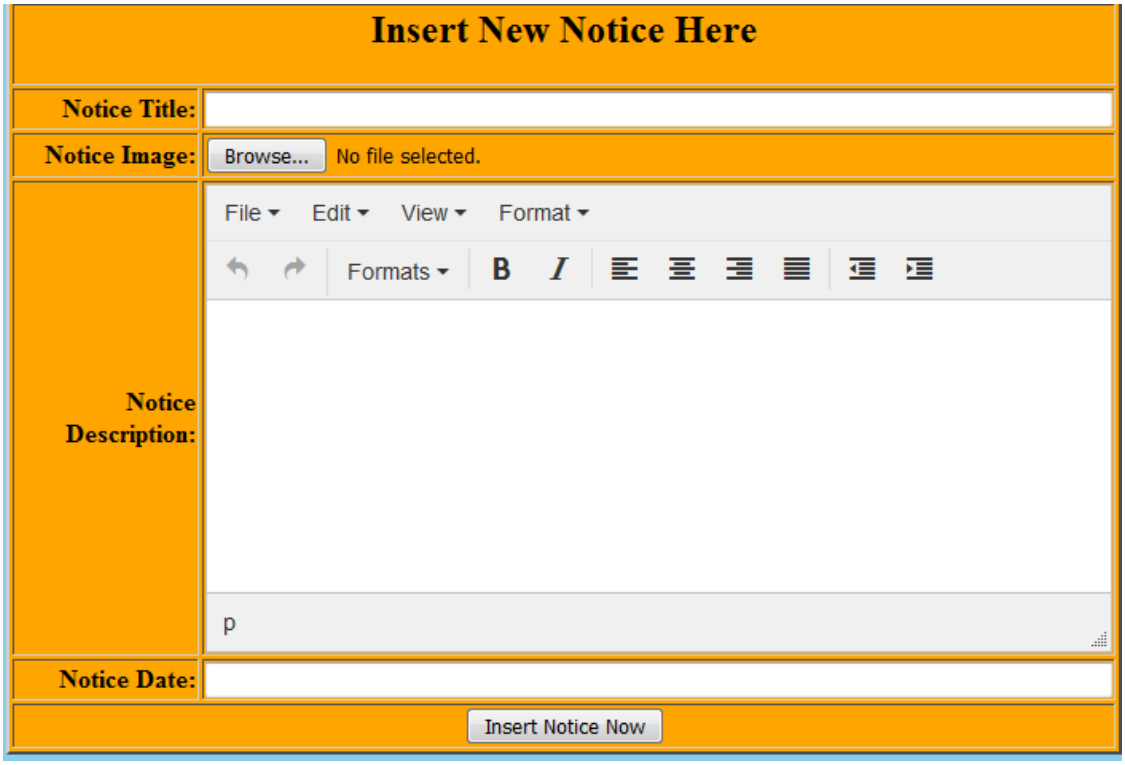

Figure 6.9: Insertion Form

Chapter 7

Conclusion

7.1 Conclusion

The result processing scheme is developed with the help of different tools such as PHP, MYSQL, HTMLI CSS etc. The developed system has met the objectives of result processing of any exam with reliability. Moreover, the proposed system is of high operational speed and it is user-friendly. In addition, it is a multi-user system and there is no limitation on the number of simultaneous users. The security of the system has been maintained and only the authorized users have access to the system. Therefore, this scheme is valuable and usable in the perspective of Bangladeshi educational institutes.

7.2 Future Works

The website can be modified to incorporate conduction of web based examinations. Consequently the result processing will be more easier as manual entry of marks will not be required.