Teacher-Student Collaborative Platform

BY

Md. Saiful Islam

ID: 113-15-1602

AND

Mujib-La-Sani

ID: 093-15-849

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

Supervised By
Narayan Ranjan Chakraborty
Senior Lecturer
Department of CSE
Daffodil International University

DAFFODIL INTERNATIONAL UNIVERSITY

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APPROVAL

This Project/Internship titled **"Teacher-Student Collaborative Platform"**, submitted by Md. Saiful Islam and Mujib-La-Sani 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 22 August 2015.

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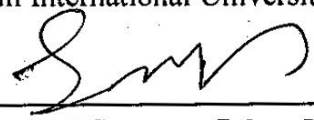

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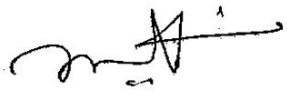

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DECLARATION

We hereby declare that, this project has been done by us under the supervision of **Narayan Ranjan Chakraborty, Senior 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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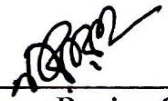
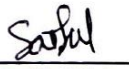
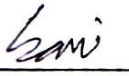


Narayan Ranjan Chakraborty
Senior Lecturer
Department of CSE
Daffodil International University

Submitted by:



Md. Saiful Islam
ID: 113-15-1602
Department of CSE
Daffodil International University



Mujib-La-Sani
ID: 093-15-849
Department of CSE
Daffodil International University

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ABSTRACT

The search on new topics is very common and popular practice among the teachers and their students all over the world. Both of these two groups not only try to learn brand new things but also want to share with others. Research shows that sometimes it becomes hard to share some resources i.e. articles, files, images, audio or video files between two or more people due to some complications. To overcome this situation a proposed model has been developed. At the same time, a web based application has also been prepared. The proposed model enables the real time knowledge sharing environment among the both groups i.e. the educators and their undergraduates. Providing the facilities of different files, images or video sharing from any internet link, the system also allows individual users to upload their own files as well. However the viewers are able to place their opinions on the comment section the files. Another feature of the proposed model is comment filtering. With this feature an up loader can review and cluster unnecessary observations and remove those if required. That is how, the proposed system offers a hassle free environment to develop, share and manage somebody's articles, videos or any other posts without facing any complication.

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CHAPTER ONE
INTRODUCTION

1.1 Background of the Project

The main point of developing this system is to help student and teachers collaboration. The project is developing because , many student want to share their thought with other student and teacher, and also teachers wants to share their thought with other teachers and student and want to their feedback. This is the main feature of this project.

1.2 Reasons for Selecting this Project

There have no any place or web apps where student and teacher can share their thought. We visited many college and school's website but there have no this type of feature. Hence, we have decided to develop a website where that school or college can publish their exam results, other information and student and teacher can share their thought with each other and can get feedback from other student and teacher.

.

1.3 Main Objectives

Teacher-Student Collaborative Platform is the platform where management published academic and others activity and teacher and student can share their thought ,idea and teacher can take extra course and teacher can submit their exam question to the management.

1.4 Benefits of the Project

We want to develop a website that will provide a number of unique features:

a. Anyone can get information of that School or College.

b. Can be published their result

c. Teachers can be upgrade their profile

d. Teachers and student can share their thought in this website

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e. Teachers can add courses

f. Teachers and student can post

g. Teaches and student can comment in any post and course.

1.5 Methodology to be Used

Methodology can be -

a) Analyze existing systems and document the necessary extensions required to develop.

b) A systematic study of the existing procedures that are used to maintain a college.

c) A documented process for management of projects that contains procedures, definitions and explanations of techniques used to collect, store, analyze and present information as part of a research process in a given discipline.

Since we are re using a lot of re-usable components and the possibilities of upgrades are countless compared to short time we have followed the RAD methodology. Rapid application development is a software development methodology that involves methods like iterative development and software prototyping. According to Whitten, it is a merger of various structured techniques, especially data-driven Information Engineering, with prototyping techniques to accelerate software systems development. Every module was individually designed using the Waterfall Development Methodology then implemented and tested on real project. Figure 1.1 shows RAD Methodology [1].

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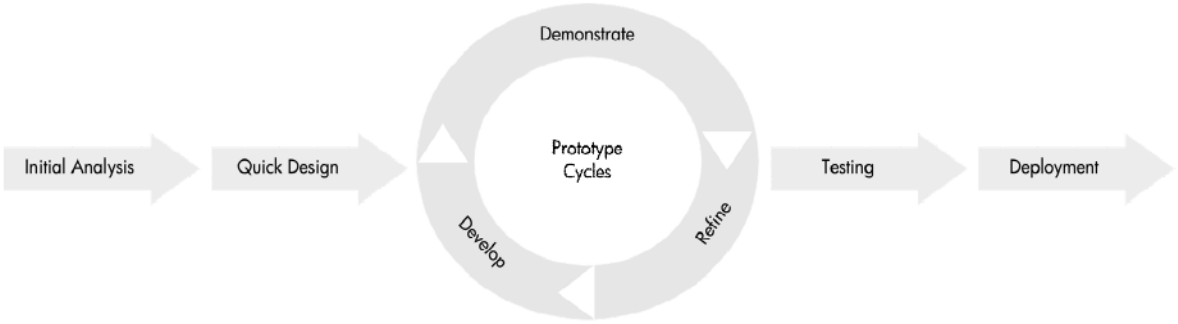

Figure 1.1: RAD Methodology

1.6 Organization of the Report

This report is organized in Six (6) chapters. Chapter 2 - gives an overview of Background study that must be achieved to find out probability of the project. In Chapter 3 - System analysis and feasibility study is described. Chapter 4 - described The system UML model and Data Flow Diagram (DFD). Chapter 5 – Database Design, Development and testing. Chapter 6- conclusion respectively.

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CHAPTER TWO
BACKGROUND STUDY

2.1 Introduction

A background study is a preliminary analysis which is prepared to determine the relative environmental impacts associated with a proposed project.

2.2 Project planning

The project initiation plan is the start planning for a project. We are three group members for the project. We had several ideas what to do as a project. The project initiation planning includes analysis of scope of project, identifying stakeholders etc. We have set the timeline and responsibilities to complete the project at due time. Our supervisor had given proper instruction and information that was very helpful for the work. Then we started our project. When we started our project firstly we visited many website and web application like Google classroom, khan academy, courser and several international website. Then we visited many school and college web site in our country like city college, Viqarunnesa School and college, Sristy academic school, Mothijil ideal school and college, Uttora high school. These school and colleges website only have information but they haven't any platform where teachers and student can share their thinking. That is why we decided to develop a system for our country where teachers and student share their thinking, idea and knowledge. After we are going to our development with the help of our supervisor .When we face any problem afterheat we communicated to supervisor and solved the problem.

Now we are fully dependent on web. Whenever we need any information, the first option for the IT users in goggling. That is why we have decided to develop our project name "Teacher-Student Collaborative Platform" that will provide complete guidelines for the user to select this favorite menu through website.

2.3 School and College Investigation and Information Collection

We also visited many School and College. We analysis those information which they provided us. We talk with some student and teacher and we share our plan with them and they took great interested to our project as they are also getting some advantage on

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"Teacher-Student Collaborative Platform". We have developed this website of on the basis of collected information.

2.4 Summary

Initial study confirmed us about the necessity of the proposed project. We are sure that both the student and teachers are benefitted from this website. The teachers and students are highly interested as they are getting the chance to share their thought with other students and teachers.

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CHAPTER THREE
SYSTEM ANALYSIS & FEASIBILITY STUDY

3.1 System Analysis

The system analysis is a detailed study of the various operations performed by the existing system and their relationships within and outside of the system. One aspect of analysis is defining the boundaries of the system and determining whether a candidate system should consider other related systems. Here we completed system analysis by the input analysis and output analysis of existing system. At the preliminary stage of the analysis, we had followed the Waterfall Development Methodology [2].

3.2 Waterfall Model

The waterfall model was the first process model. It is also referred to as linear-sequential life cycle model. It is a sequential software development process, in which progress is seen as flowing steadily downwards through the phases of Conception, Initiation, Analysis, Design, Construction, Testing and Maintenance [3].

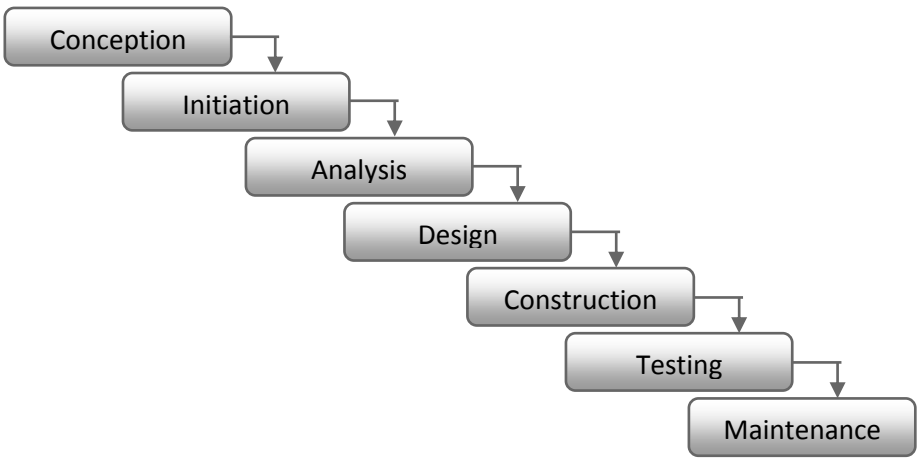

Figure 3.1: Waterfall Model

3.2.1 Conception

The "Teacher-Student Collaborative Platform" idea came from the convergence of technological innovation and the Information Age. Student and teachers will be globalized their thought with this website.

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3.2.2 Analysis

Software analysis patterns or analysis are conceptual models, which capture an abstraction of a situation that can often be encountered in modeling. Using specific analysis, we will do a system-risk-analysis. Based on the results of this analysis, we will define a test concept adapted to the risk requirements.

3.2.3 Design

A design pattern is a general reusable solution to a commonly occurring problem in software design. A design pattern is not a finished design that can be transformed directly into code. In this section, we will work for how to solve a problem that can be used in many different situations.

3.2.4 Construction

Construction means the implementation or the realization of an application, or execution of a plan, idea, model, design, specification, standard, algorithm, or policy.

In computer science, a construction is a realization of a technical specification or algorithm as a program, software component. Many implementations may exist for a given specification or standard. So, in this phase we will build up our application [4].

3.2.5 Testing

Software testing is an investigation conducted to provide stakeholders with information about the quality of the product or service under test [5] [6].

Several testing types are available:

- Black Box Testing
- White Box Testing
- Alpha Testing
- Beta Testing
- Software Application Testing

3.2.6 Maintenance

Maintenance is the modification of a software product after delivery to correct faults, to improve performance or other attributes. We will be responsible to solve for all kinds of software faults after delivery.

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3.3 Input Analysis

Inaccurate input data are the most common cause of errors in data processing. Errors entered by data entry operators can be controlled by input design. Input design is the process of converting user-originated inputs to a computer-based format. In the system design phase, the expanded data flow diagram identifies logical data flows, data stores, sources and destinations.

3.3.1 Input Data

The goal of designing input data is to make data entry as easy, logical, and free from errors as possible.

In entering data, users need to know the following:

- Field sequence, which must match in the source document.
- The format in which data fields are entered.

3.3.2 Output Analysis

Data output is the process and method by which data can be studied under different circumstances and manipulated as required. Data output also involves representation of the data. With the increased of technologies there are many software tools that help in data output.

3.4 Feasibility Study

A feasibility study is an evaluation of a proposal designed to determine the difficulty in carrying out a designated task. Generally, a feasibility study precedes technical development and project implementation. In the Feasibility stage, costs of the requirements are determined. For user requirements, the current cost of work is compared to the future projected costs once the new system is in place. Questions such as these are asked: “What are data entry errors costing us now?” Or “What is the cost of scrap due to operator error with the current interface?” Actually, the need for the new tool is often recognized as these questions come to the attention of financial people in the organization [7].

Some common factors are referred in feasibility study. These are as follows:

- Technical Feasibility

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- Software Availability
- Economic Feasibility
- Operational Feasibility

3.4.1 Technical Feasibility

Technical Feasibility is the process of proving that the concept is technically possible. The objective of Technical Feasibility step is to confirm that the product will perform and to make sure that there are no production barriers.

Technical feasibility is carried out to determine whether the company has the capability, in terms of software, hardware, personnel and expertise, to handle the completion of the project.

a. Software Availability

For implementing the project a couple of software is needed. First of all, we need server software which has strong security management. We can use our won server system if possible or we can take part of any professional server provider. Software will need for maintaining the database server.

At present we use the MYSQL and xampp server.

b. Hardware Availability

To maintain "Teacher-Student Collaborative Platform" needs to have an internet facility. We need high speed internet connection with large bandwidth to accept large traffic.

c. Manpower Availability

To maintain the project the project activities should be checked and observed by technical stuffs. We need administrators to manage any errors caused by user activities and handle the security break up issue. Administrator should be aware of the daily actions and other new updates. We need an IT expert also. IT expert need to professional and able to trace down the incompatibility. Administrator should bear the overall power to maintain the whole system, add/delete anything with the system. As the system contains sophisticated data we need an honest and reliable person as an administrator with superiority over other users.

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3.4.2 Economic Feasibility

Economic analysis is the most frequently used method for evaluating the effectiveness of a new system. More commonly known as cost/benefit analysis, the procedure is to determine the benefits and savings that are expected from a candidate system and compare them with costs. If benefits outweigh costs, then the decision is made to design and implement the system.

Time Based: This application will save working time and will change the regular working style.

Cost Based: Some investment is needed to manage the application. For this application host is needed. And also an IT expert is needed as the manpower.

3.4.3 Operational Feasibility

It is a measure of how well a solution meets the identified system requirements to solve the problems and take advantage of the opportunities envisioned for the system.

Majority, if not all, of the potential users of the new system have experience with computer applications and they are assumed to accept this new system willingly.

If the system can be made efficient and easy enough to use, every person can takes advantage of the opportunities. [11]

3.5 Summary

The trend and feasibility study suggest the need of a new information system to keep pace with the modern world. A system is never quite infeasible. It is often more or less feasible from different perceptions and perspectives. The earlier sections discussed all the feasibility checkpoints and respective problems and conditions. The project is extremely strong technically, financially and legally. As changes are not welcome in our country the change management is a big concern.

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CHAPTER FOUR
SYSTEM DESIGN

4.1 Introduction

Systems design is the process of defining the architecture, components, modules, interfaces, and data for a system to satisfy specified requirements. All entities of the system have been modeled as objects in order to separate their logic from presentational code and to isolate the database queries. Isolating the database queries makes it possible to make quick changes in the structures of entities and to ease the replacement of underlying database platform which is currently MySQL Server. With this approach of development, new entities and activities can be added to the system when needed. Thus, the system becomes highly extendable and modular [8].

4.2 DFD (Data Flow Diagram)

A data flow diagram (DFD) is a graphical representation of the "flow" of data through an information system, modeling its process aspects. Often they are a preliminary step used to create an overview of the system which can later be elaborated. DFDs can also be used for the visualization of data processing.

A DFD shows what kinds of data will be input to and output from the system, where the data will come from and go to, and where the data will be stored. It does not show information about the timing of processes, or information about whether processes will operate in sequence or in parallel.

The DFD was first developed by Larry Constantine as way of expressing system requirements in graphical form. This led to a modular design. A DFD also known as “bubble chart” has the purpose of clarifying system requirements and identifying major transformations that will become programs in systems. So, it is the starting point of the design phase that functionally decomposes the requirements specifications down to the lowest level of detail. A DFD consists of a series of bubbles join by lines. The bubbles represent beta transformations and the lines represent data flow in the system[9].

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4.2.1 DFD Symbols

In the DFD, there are four symbols, as shown in figure 4.1. The descriptions of each symbol are given below:

- A square defines a source (originator) or destination of system data
- An Arrow identifies data flow— data in motion. It is a pipeline through which information follows.
- A circle or "bubble" (an oval bubble used by somewhere) represents a process that transforms incoming data flows into outgoing data flows.
- An open rectangle is a data store —data at rest, or temporary repository of data. [9]

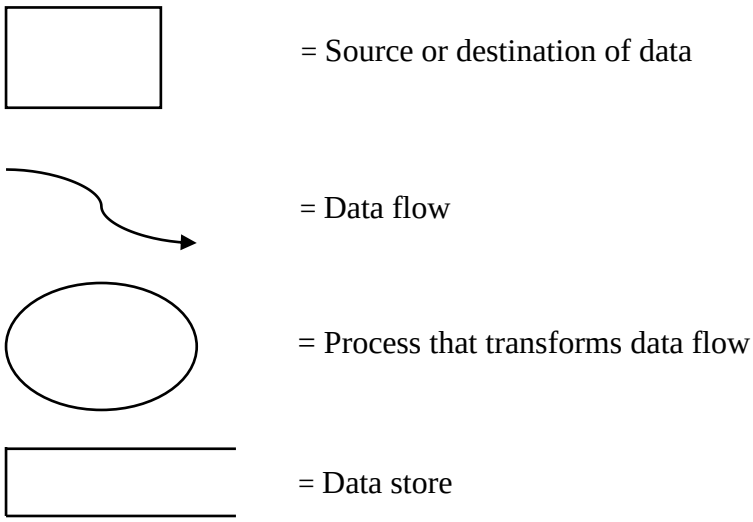

Figure 4.1: DFD-Basic Symbols

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4.3 DFD of Proposed System

Admin create teacher and store data in faculty member. Teacher and Student can login and update his profile, Article Post, Comment these are store in Table blog, Table comment. Students can registration and these data store in student Table.

DFD of System shown on Figure 4.2.

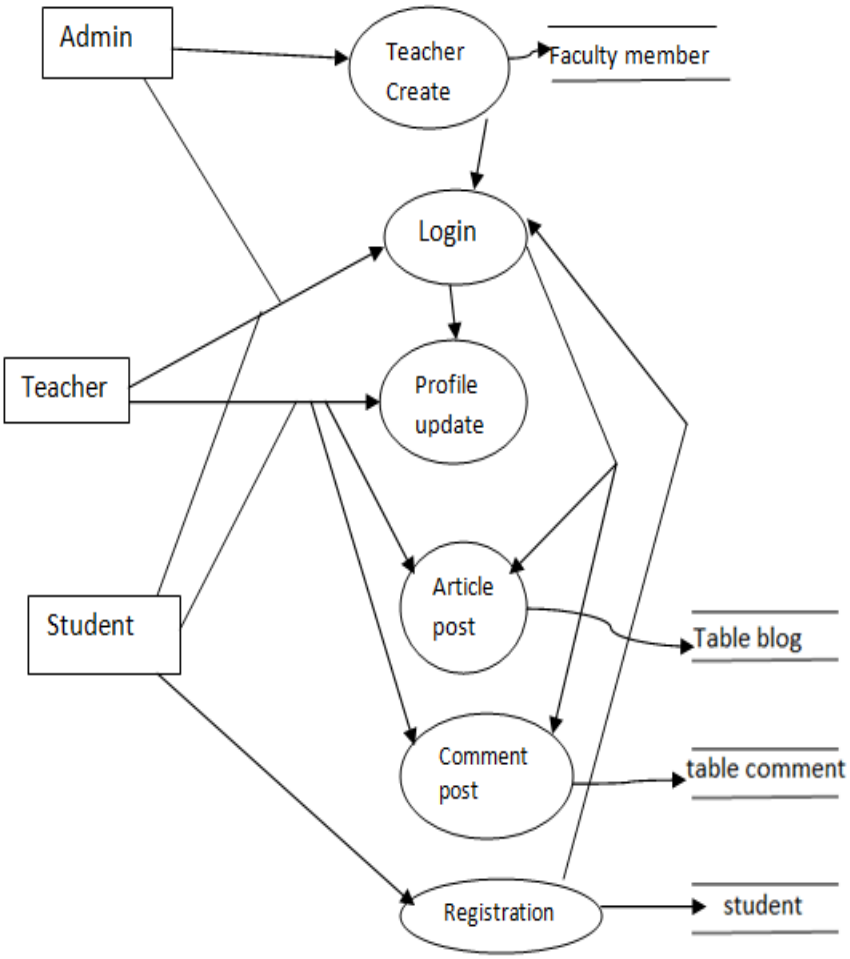

Figure 4.2: DFD of System

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4.4 Use - Case Diagram

A use case diagram in the **Unified Modeling Language** (UML) is a type of behavioral diagram defined by and created from a Use-case analysis. Its purpose is to present a graphical overview of the functionality provided by a system in terms of actors, their goals (represented as use cases), and any dependencies between those use cases. The main purpose of a use case diagram is to show what system functions are performed for which actor. Roles of the actors in the system can be depicted [10].

In the proposed system there are three types User. Each user has use cases.

- Admin
- Teacher - Student
- Public User

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4.4.1 Use Case Diagram of Admin

Use Case Diagram of Admin shown on Figure 4.3.

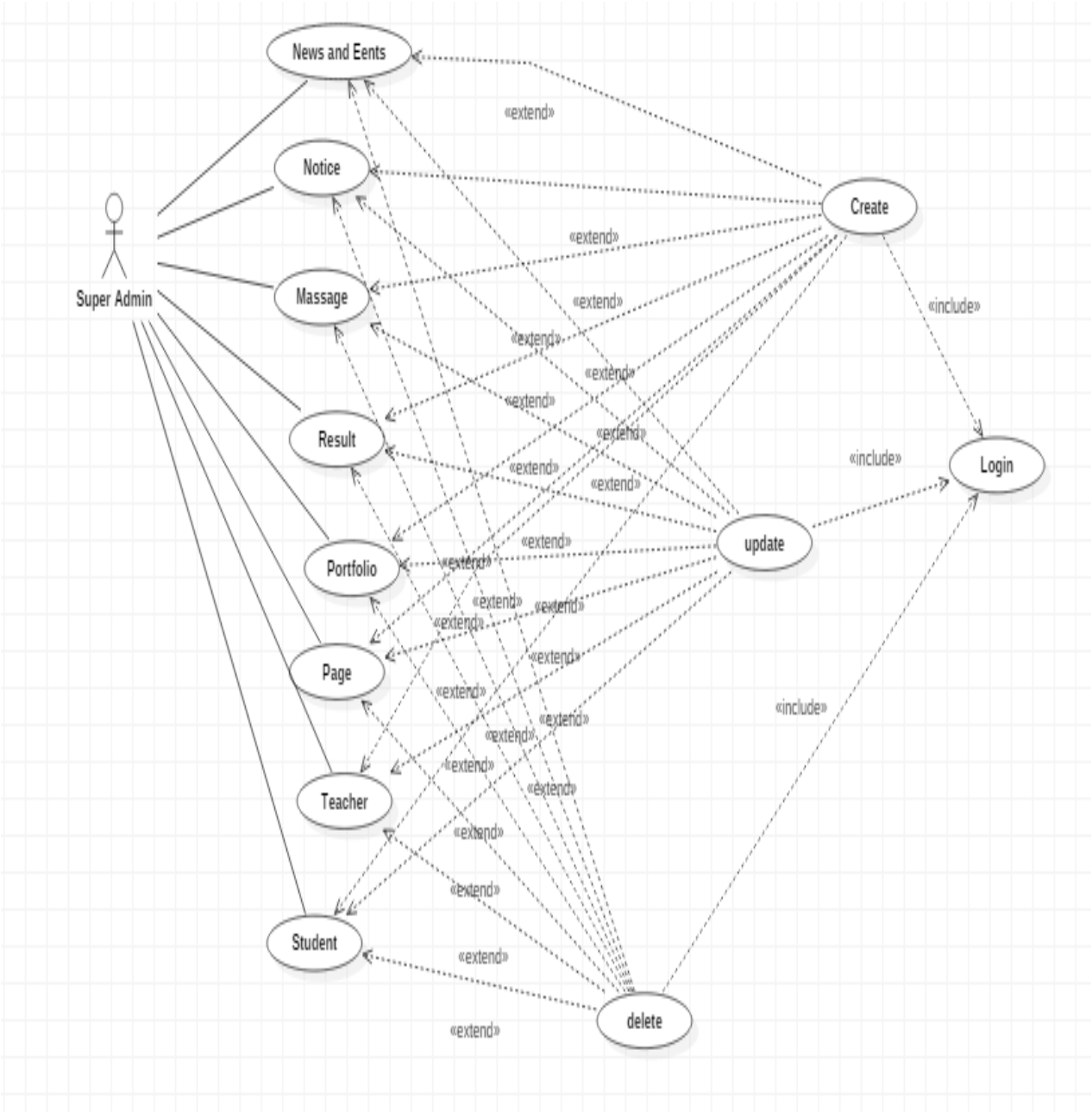

Figure 4.3: Use Case Diagram of Admin

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4.4.2 Use Case Diagram of Teacher-Student

Use Case Diagram of Teacher-Student shown on Figure 4.4.

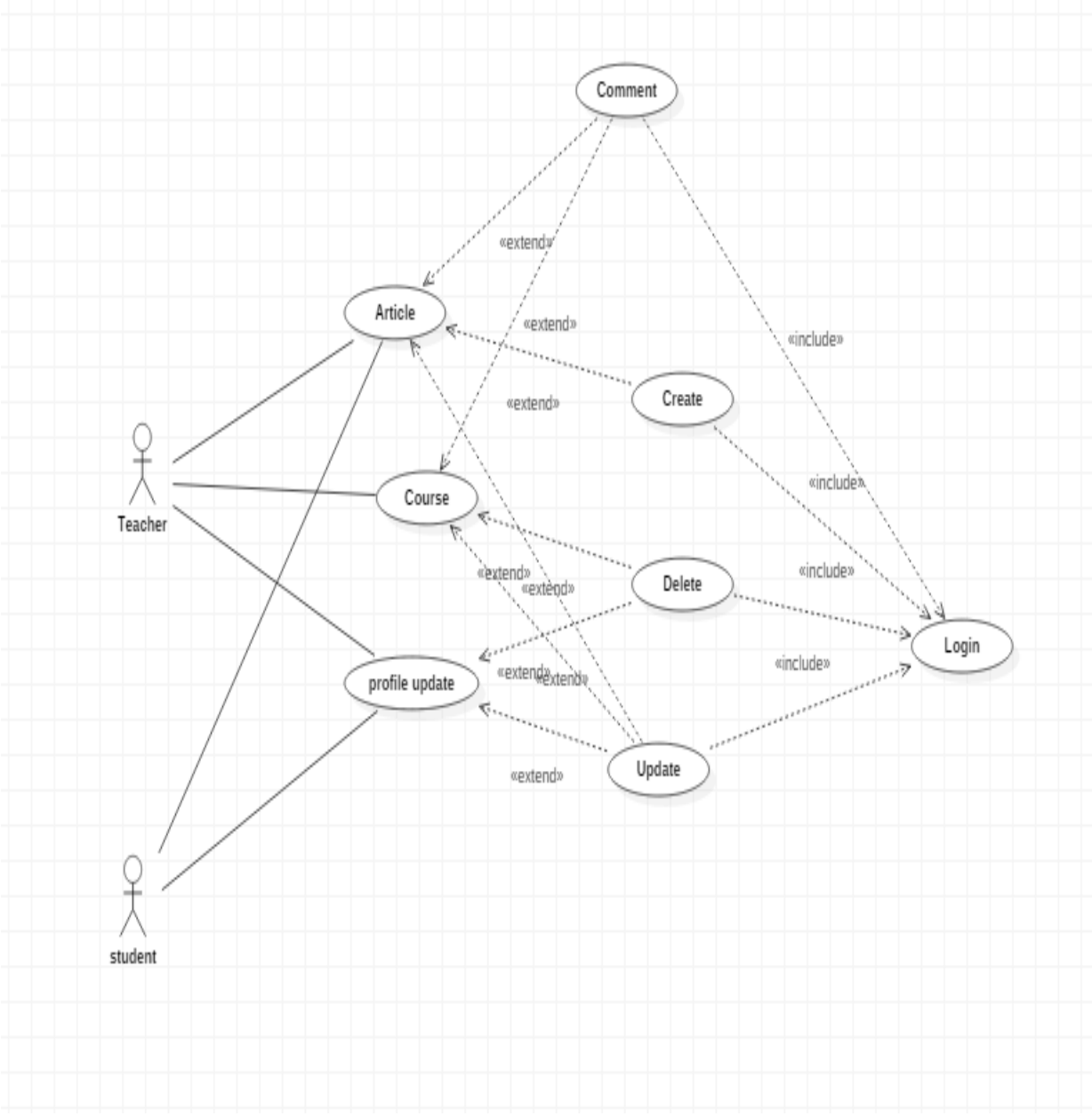

Figure 4.4: Use Case Diagram of Teacher-Student

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4.4.3 Use Case Diagram of Public User

Use Case Diagram of Public User shown on Figure 4.5.

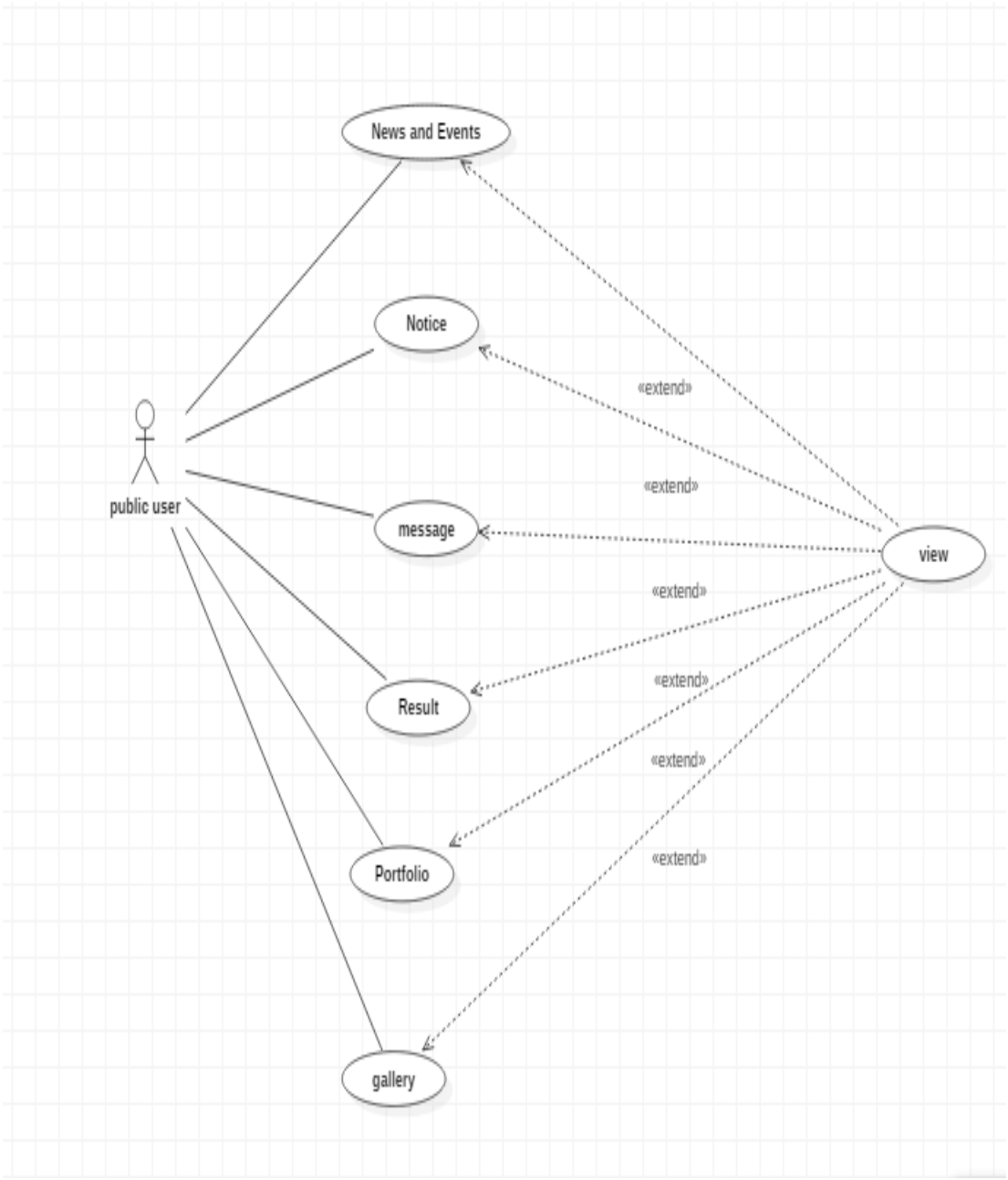

Figure 4.5: Use Case Diagram of Public User

4.5 Summary

Data flow diagrams (DFD) and the Use case Model (UCL) of the proposed system have been described along with the typical course of events. So this analysis will help us to designing the proposed system.

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CHAPTER FIVE
DATABASE DESIGN, DEVELOPMENT & TESTING

5.1 Introduction

Database design is the process of producing a detailed data model of a database. This model contains all the necessary tables and relations needed to manage the system.
In this chapter, we are discussing about database design.

The objective of interface design is to give the detail view of the interface that is how the login forms; each modules interface etc is designed. How and where database is used, how the input and output methods are connected to the interface etc are analyzed here [11].

5.2 Overview of the Design Process

The term database design can be used to describe many different parts of the design of an overall database system. Principally, and most correctly, it can be thought of as the logical design of the base data structures used to store the data. In the relational model these are the tables and views. In an object database the entities and relationships map directly to object classes and named relationships. However, the term database design could also be used to apply to the overall process of designing, not just the base data structures, but also the forms and queries used as part of the overall database application within the database management system.

The process of database design contains a lot of tasks. It needs designing database schema, designing programs that access and update the data and designing of a security schema to control the access of data. The needs of the users play a central role to design process. [16]

For designing the database model we went through some steps. At first, we designed a rough plan based on the architecture and the user needs. Then, we identified all the entities that are essential to be kept in the database. We figured out all available entities that we need to keep the database more flexible. Then the relations between every table were found out. So, there were some modifications to be made. Finally the full Schema is created. After that, normalization was done to store the data more efficiently in the

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database. Then, the necessary checks were found out. And to manage the database and necessary checks some roles, procedures and triggers were developed[12][13].

5.3 Table structure

Our proposed system has 22 tables.

5.3.1 Article Table

Teacher - Student Article shown on Figure 5.1.

Figure 5.1: Article Table

5.3.2 Article Comments Table

Teacher - Student Article Comment shown on Figure 5.2.

Figure 5.2: Article Comments Table

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5.3.3 Course Table

Teacher Add Course shown on Figure 5.3.

Figure 5.3: Course Table

5.3.4 Course Comments Table

Course comments shown on Figure 5.4.

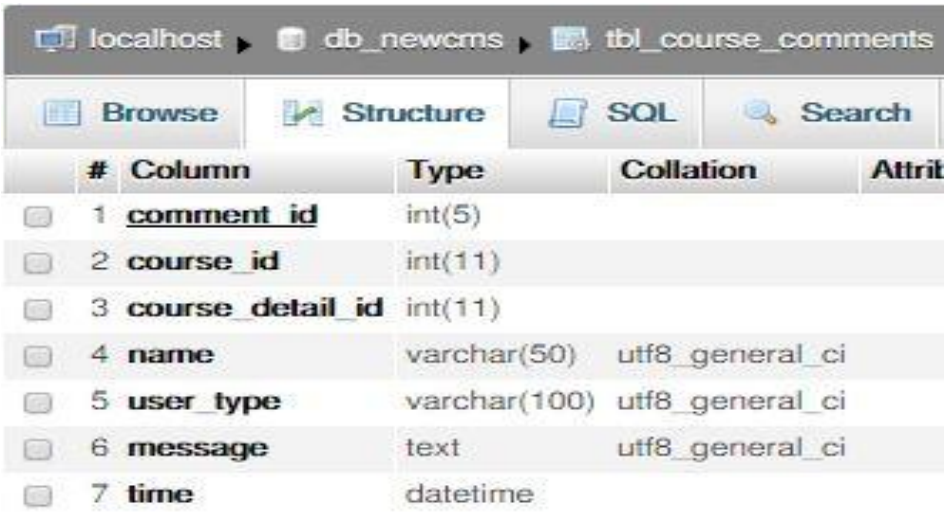

Figure 5.4: Course Comments Table

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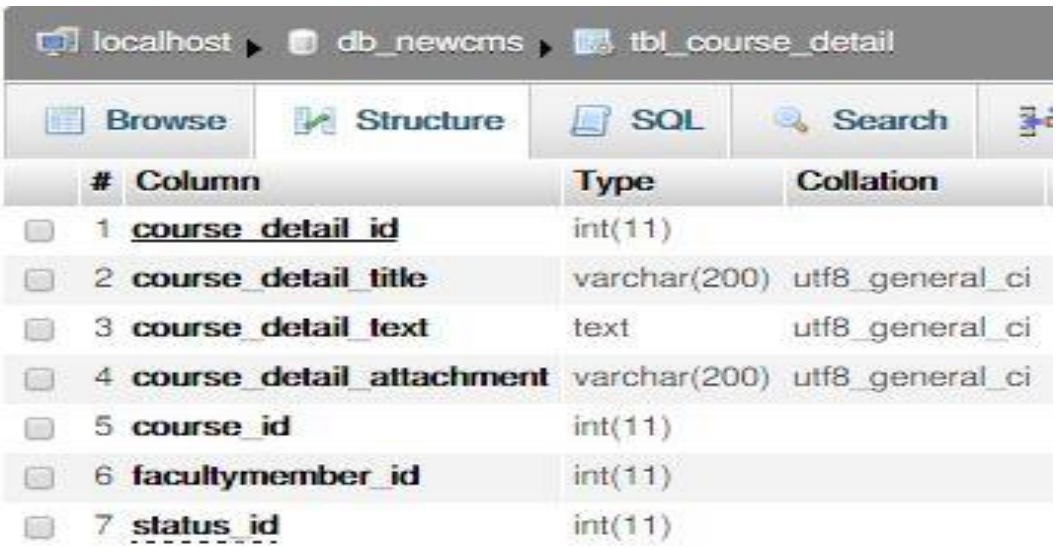
5.3.5 Course Details Table

Teacher Add Course details shown on Figure 5.5.

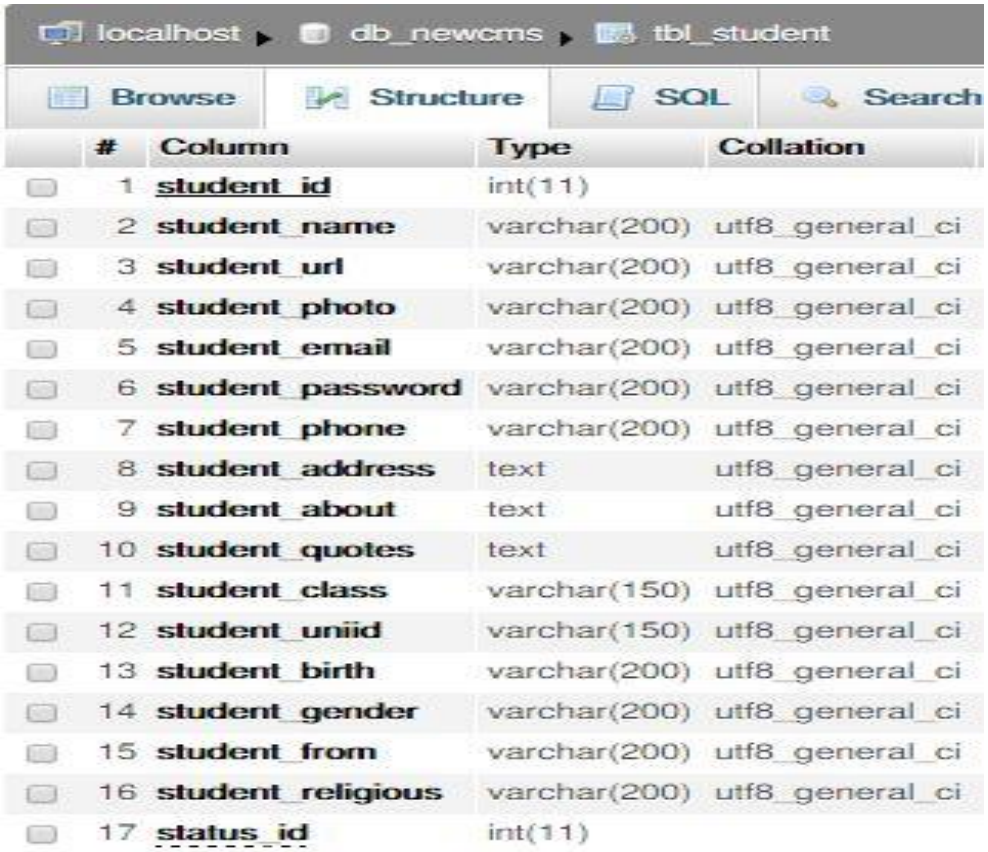


#	Column	Type	Collation
1	course_detail_id	int(11)	
2	course_detail_title	varchar(200)	utf8_general_ci
3	course_detail_text	text	utf8_general_ci
4	course_detail_attachment	varchar(200)	utf8_general_ci
5	course_id	int(11)	
6	facultymember_id	int(11)	
7	status_id	int(11)	

Figure 5.5: Course Details Table

5.3.6 Student Table

Student Information shown on Figure 5.6.



#	Column	Type	Collation
1	student_id	int(11)	
2	student_name	varchar(200)	utf8_general_ci
3	student_url	varchar(200)	utf8_general_ci
4	student_photo	varchar(200)	utf8_general_ci
5	student_email	varchar(200)	utf8_general_ci
6	student_password	varchar(200)	utf8_general_ci
7	student_phone	varchar(200)	utf8_general_ci
8	student_address	text	utf8_general_ci
9	student_about	text	utf8_general_ci
10	student_quotes	text	utf8_general_ci
11	student_class	varchar(150)	utf8_general_ci
12	student_uniid	varchar(150)	utf8_general_ci
13	student_birth	varchar(200)	utf8_general_ci
14	student_gender	varchar(200)	utf8_general_ci
15	student_from	varchar(200)	utf8_general_ci
16	student_religious	varchar(200)	utf8_general_ci
17	status_id	int(11)	

Figure 5.6: Student Table

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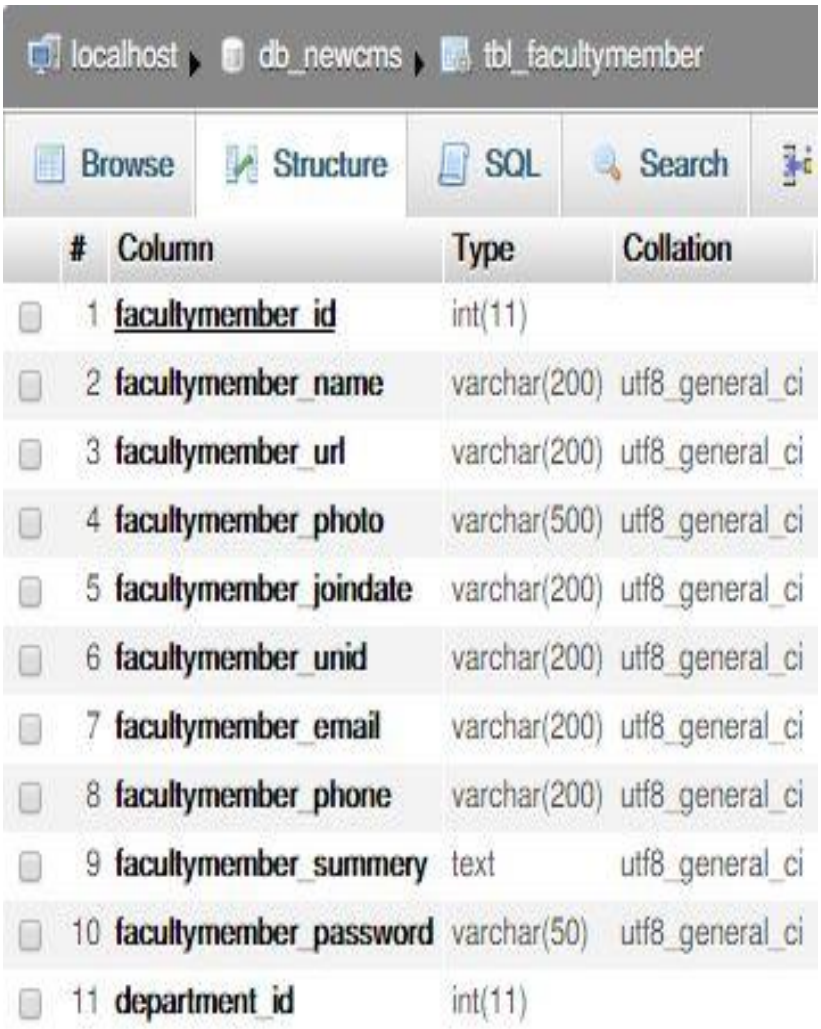
5.3.7 Teacher Table

Teacher Information shown on Figure 5.7.



#	Column	Type	Collation
1	faculty member_id	int(11)	
2	faculty member_name	varchar(200)	utf8_general_ci
3	faculty member_url	varchar(200)	utf8_general_ci
4	faculty member_photo	varchar(500)	utf8_general_ci
5	faculty member_joindate	varchar(200)	utf8_general_ci
6	faculty member_unid	varchar(200)	utf8_general_ci
7	faculty member_email	varchar(200)	utf8_general_ci
8	faculty member_phone	varchar(200)	utf8_general_ci
9	faculty member_summery	text	utf8_general_ci
10	faculty member_password	varchar(50)	utf8_general_ci
11	department_id	int(11)	

Figure 5.7: Teacher Table

5.4 Black Box Testing of Developed System

Black Box Testing treats an application as a black box and only looks at the outputs that are produced by specific inputs into the application. The black box tester does not need to understand why the code does what it does, and they should not have access to the source code of the application. Requirements are used to determine the correct outputs of black box testing, and these test cases are used to validate that the right software is being built [14].

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5.4.1 Home

Site Home page view shown on Figure 5.8.

Figure 5.8: Home Page

5.4.2 All Faculty members Page

Department and Faculty member page of the site in Figure 5.9.

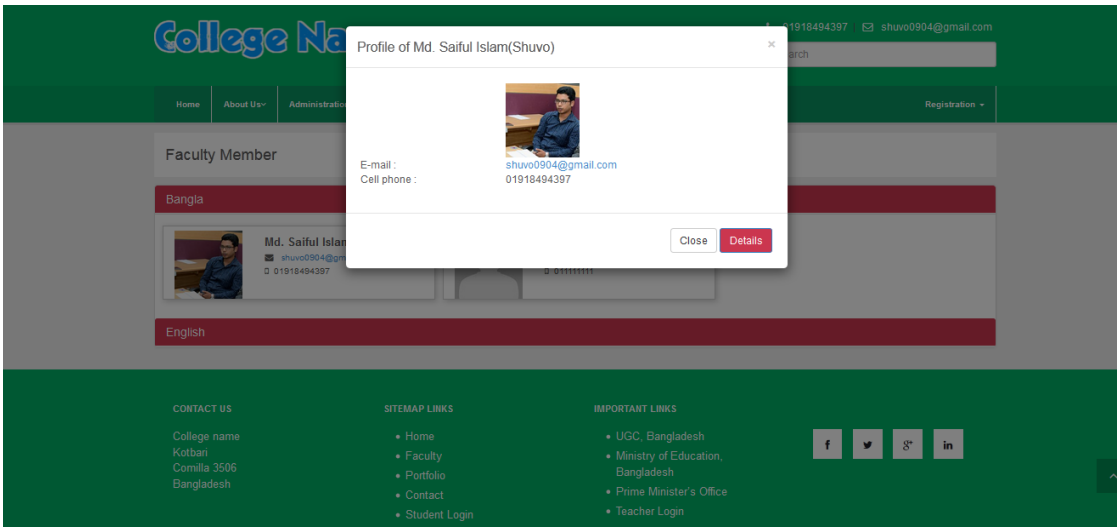

Figure 5.9: Faculty member Page

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5.4.3 Single Faculty member Page

One faculty member details of the site in Figure 5.10

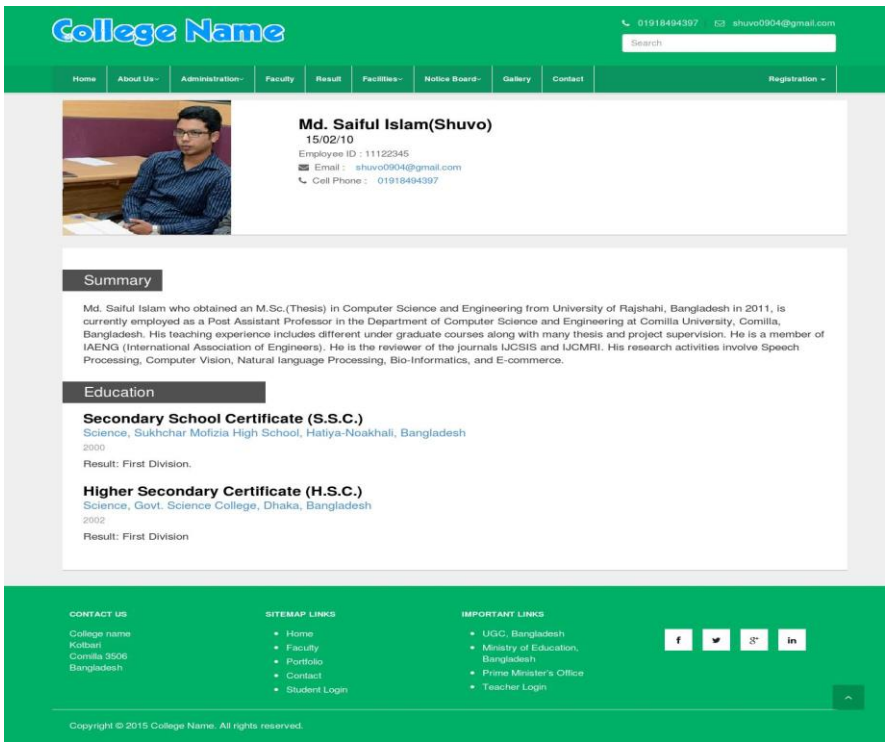

Figure 5.10: Single Faculty member Page

5.4.4 Result Page

Result page of the site in Figure 5.11

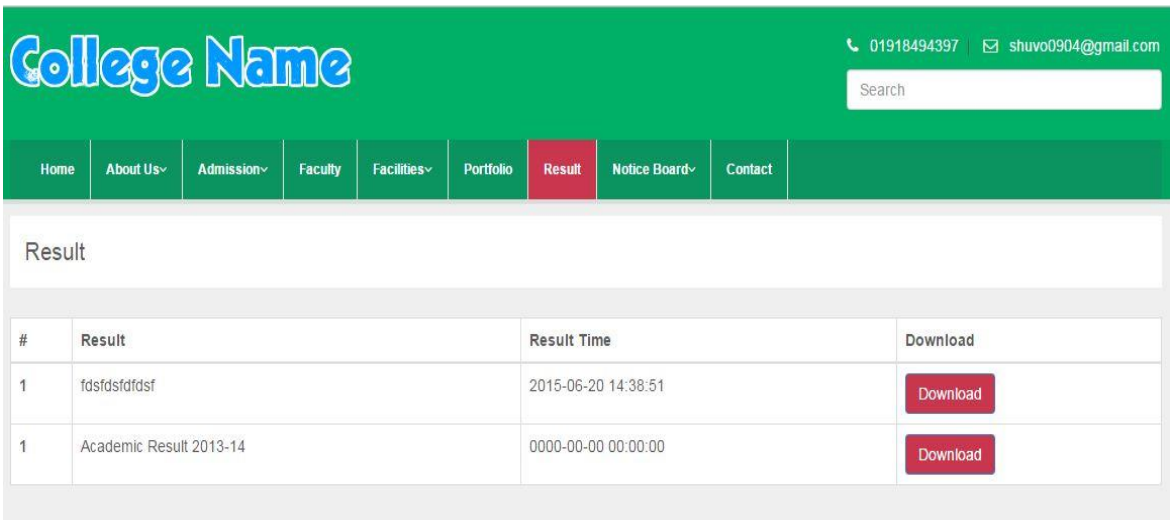

Figure 5.11: Result Page

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5.4.5 News & Events Page

News & Events page of the site in Figure 5.12

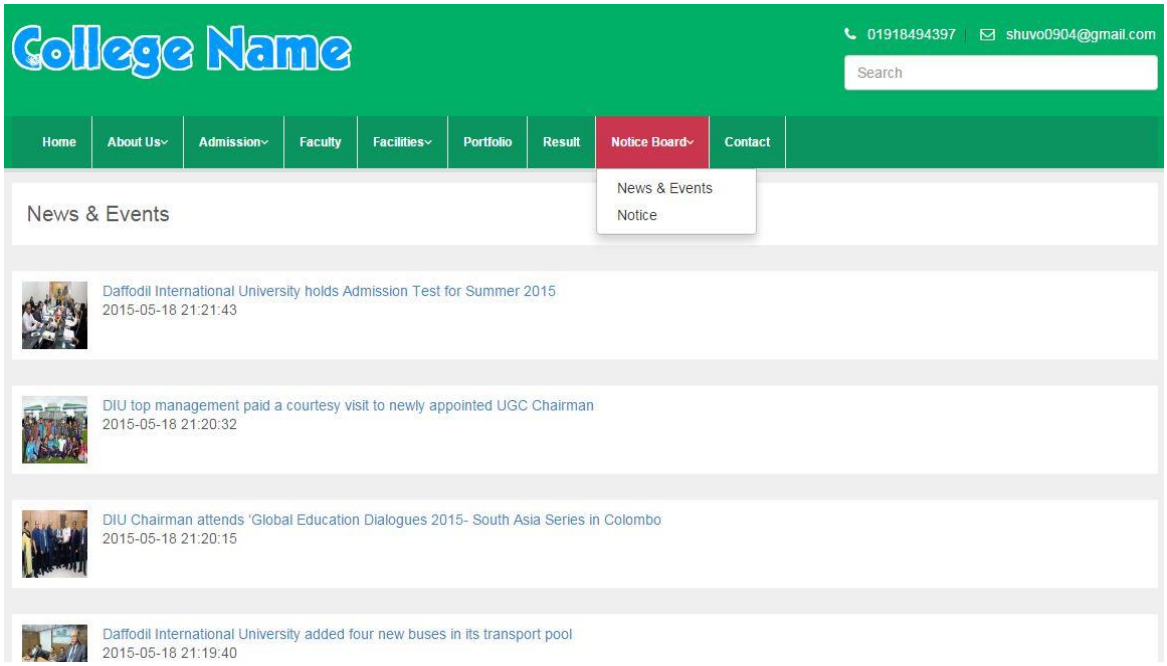

Figure 5.12: News & Events page

6.4.6 Student Dashboard

Student dashboard page after login of the site in Figure 5.13

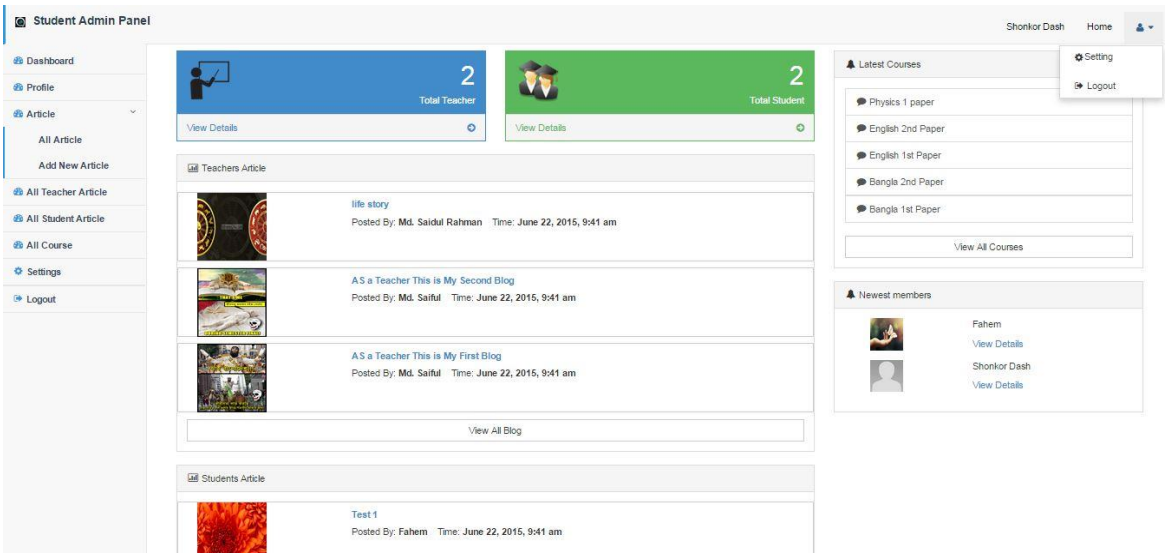

Figure 5.13: Student Dashboard page

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5.4.7 Teacher Dashboard

Teacher dashboard page after login of the site in Figure 5.14

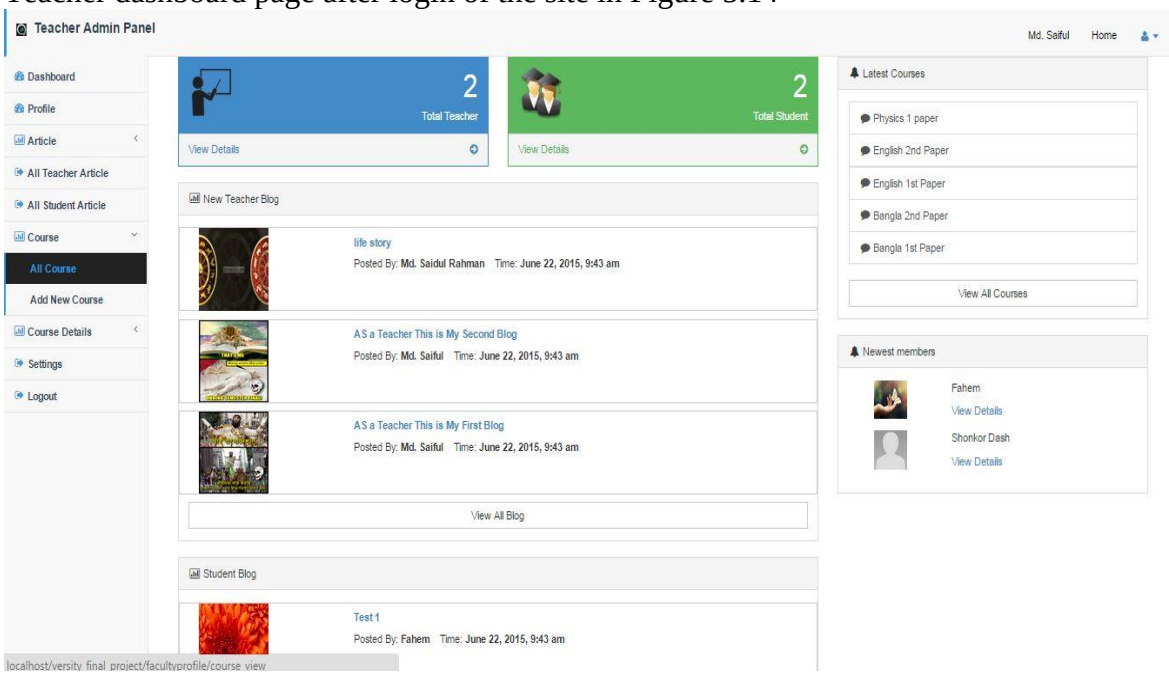

Figure 5.14: Teacher Dashboard page

5.5 Summary

In the part of interface design the screen resolution is the main fact, because the screen resolution may differ for various kind of monitor or users define resolution. In this application the resolution problem is not fact, because this website is fully responsive.

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CHAPTER SIX
CONCLUSION

6.1 Summary

In this time, we are completely depended on online system or web. This website is a strong of information where the students and public user will get a number of benefits such as knowing news& events, results ,notice ,message ,teacher portfolio, gallery and other information and an Teacher-Student Portal where Teacher and Student can communication with others and they can share their thinking and feedback.

6.2 Limitations

- A Student cannot upload files in course.
- A student cannot find their result by search student Id.
- Teacher cannot take examination

6.3 Future Work

- Chat system will be added to provide more communication.
- Rating System by the teachers and students can be applied to know the standard of article.
- Upload a file or video by students
- Quiz System (MCQ)
- Exam System
- Search Result by student's id

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