

**DESIGN AND IMPLEMENTATION OF DIGITAL
NOTICE BOARD (DNB)**

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**This Project Report submitted in fulfilment of the requirements for the
award of the degree of
Bachelor of Science Information and Communication Engineering**

**BACHELOR OF SCIENCE INFORMATION and COMMUNICATION
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ACCEPTANCE

This project report is submitted to the Dept. of Information and Communication Engineering of Noakhali Science and Technology University in partial fulfillment of the requirement for having the B.Sc. in Information and Communication Engineering (ICE).

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Chairman

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DECLARATION

This project report is submitted to the Dept. of Information and Communication Engineering of Noakhali Science and Technology University in partial fulfillment of the requirement for having the B.Sc. in Information and Communication Engineering (ICE). So, I hereby declare that this project report has not been submitted elsewhere for the requirement of any kind of Degree, Diploma or Publication.

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ABSTRACT

In an institution or organization, rapid information spreading is very important. Using of wall Notice Board in every place is a tedious work since it needs to be updated vigorously and with correct and right information manually. A Digital Notice Board System (DNB) is presented here to reduce the delaying time of the information to spread across the institution or organization as well as managing the right information only to being displayed on the notice board. DNB will help the students to get the updates and know what is going on within the environment wherever they are in due time. The prime objective of our system is to create a fully, fledged application which will display the notices of events happening in and around the institution or organization so that no one will miss out being notified of interesting events like education, courses, and all about university students such as conferences, workshops, placements, etc. These notices can have text, images or include any kind of attachment files. Users can browse events categorically from the various category like sports, department, cultural, etc. happening in the institute with a single tap. This project includes major activity entities: add notices, add news, and add student result which is handled by Admin. The Admin can add, delete, and update them simultaneously on the online system. These can then be viewed by the Students, Teachers, Employees and Guests. The system will primarily be web-based so as to facilitate easy access to all staff or students regardless of their location or the type of machine. This project will teach us the practical implementation of object-oriented programming. Moreover, this will also provide us first-hand experience in several important fields of a Computer Engineering like Web Development and Application Development. It will also help us to learn web development scripts like PHP, JavaScript, HTML, JQuery and CSS and DBMS like MySQL. Apart from these, we strongly believe going through this project will make us more competent for similar future tasks and enhance our technical and other abilities.

Keywords: DNB, E-Notice Board, News, Web application, Digital, Traditional notice board.

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LIST OF SYMBOLS

Symbol	Meaning
™	Trade Mark
®	Registered
©	Copyright
Π	Pi

LIST OF ABBREVIATIONS

DNB	Digital Notice Board
PHP	Hypertext Preprocessor
CSS	Cascading Style Sheet
OS	Operating System
SQL	Structured Query Language
SDLC	Software Development Life Cycle
LSM	Linear Sequential Model
IDE	Integrated/Interactive Development Environment
PC	Personal Computer
UI	User Interface
ER	Entity Relation(ship)
APP	Application Software
API	Application Programming Interface
VLE	Virtual Learning Environments
GSM	Global System for Mobile communications
SDLC	Software Development Life Cycle
FCM	Firebase Cloud Messaging
DBMS	Database Management System

CHAPTER 1

INTRODUCTION

A Notice Board is a place where people can leave public messages, for example, to advertise things to buy or sell, announce events, or provide information. Notice boards are often made of a material such as cork to facilitate addition and removal of paper messages or it can be placed on digital devices such as computers, phones so people can leave and erase messages for other people to read and see. The main aim of this research work is to make information dissemination much easier in a paperless community as the world tends to graduate into that line of interaction. To develop a Digital Notice Board facility as a software for use in University's Administration. This research work is about the implementation of a DNB in a university system. This research work generally intends to act as a support system for the existing method by which notices are being posted in the University environment [1].

1.1 Motivation of the Study

Generally innovation has come as a key factor to help to make administrative work much easier, campus executives are using new and improved versions of existing technologies to get better control of administrative activities, campus technology leaders are dramatically enhancing data, wired/ wireless network, and device security, and are borrowing formalized quality assurance models from the corporate world in order to end the practice of purchasing and implementing technology that just doesn't deliver as promised. The DNB is a sub type under the Virtual Learning Environments (VLE), in most case the DNB can come as a feature on a website [1].

The proposed system aims to create a platform for issuing notice, sharing information and files between the members of the department. Different users shall have different level of access to the

content. In the context of a college, there shall be four users of the software – administrator, head of the department, student, teachers, staffs and guest. The administrator shall be able to issue notice, upload files, and view students' activities on the software. The teacher shall be able to issue notice, upload files (on a general basis or to a particular classroom), and view result and students' activities. The student shall be able to upload/download files, submit to faculty/teacher and view result. A guest will simply be able to view public notices.

1.2 Problem Statement

In today's world, everything is digitalized and paper is being used less and less every day. How often has it happened that we miss some important notice because we have to go to a wall and read the notice there? There are dedicated file hosting sites and clouds used by some institutions, but there is a definite need for a dedicated noticeboard system. The proposed system is such a system.

1.3 Objective and Purpose of the System

The main objective of the proposed system are given below-

- i. To develop supplementary website for the said noticeboard.
- ii. To create a user-friendly interface.
- iii. To develop and manage a proper database system to ensure data safety and proper management with Archive system.
- iv. To allocate various levels of users and have proper authentication.

1.4 Scope

The proposed system is currently mainly intended to be applied in educational institutes as a Digital Notice Board and News sharing system. Further applications of this system may include any type of office or business organizations where computers with working internet connection is available (which is pretty much every organization).

We also can use this site any kind of government project where Government want to spread awareness message to the general people.

1.5 Limitation

There are a number of constraints upon the project that will have to be taken into consideration:

Time constraints – Time is an obvious factor when building a system for an institution as the system not only has to be built to a high standard, but also needs to be fully tested and implemented in the Centre before the projects final deadline.

Budget – As there are no funds being allocated to this project cost is a major factor. It limits the selection of hardware and software that could be used in the production of the solution.

Performance – As the projector system is constantly running it is imperative that it is able to retrieve the content from the database, format it and display it as soon as possible. As any latency and lags would cause the system to jitter and look unprofessional. It is also important that the code is extremely efficient, both for ease of use and to avoid having to make the compiler do any unnecessary work.

At the end of this project we can overcome all of this limitations and introduce all of you a perfect web application which is pretty much user friendly and useable for all of the institution and organizations. It is an open source work for the students, teachers and employees of the institutions.

CHAPTER 2

LITERATURE REVIEW

There are some work has done before about digital notice board but most of them are not complete.

- ❖ Display Message on Notice Board using GSM (Global System for Mobile communications) [2].
- ❖ Digital Notice Board Using Power Line Communication [3].
- ❖ E-Notice board.
- ❖ Digital Notice Board Using Raspberry Pi [4].
- ❖ LCD notice board.

2.1 The Manual Wooden System

In our case study (University), there is the manual method of passing information around as they are pinned on notice boards placed in strategic positions around the University Campus. Notice boards are located in department, all the respective hostels, University Library. The notice board is a flat solid object placed at strategic positions makes it an object which notices and posters are being placed on it. In our University, notices spring up from different officers bringing reminders, warnings, advice, results, and appointments to be placed on the notice board. As these notices are being placed on the boards, some of the old notices are not removed and with time the notice boards get filled up with relevant and irrelevant notice messages, as a result of this, a person might not take caution of any new notice being displayed as the person feels he cannot go through the stress of browsing through the whole notice board searching for relevant notices. It is obvious that developing DNB program would help in disseminating information much easier between

different members of the university [1]. The comparison with an existing and the proposed systems are as shown in the Table 2.1 [5].

Table 2.1: Table for comparison of existing and developed systems

ID	Description	Existing Wooden Notice Board	Developed Digital Notice Board
1	Location	On wooden boards.	On computer systems or cell phones.
2	Time consumption	Consumes a lot of time.	Consumes less time.
3	Storage	Limited storage space.	Huge database used for storage purpose.
4	Reliability	Less reliable.	Highly reliable.
5	Efficiency	Not so efficient.	Highly efficient as keeps updating through notifications.
6	Accessibility	Cannot be accessible outside physical location.	Accessible from anywhere and at any time.
7	Availability	Once notices removed will no more be available.	Any notice is available at any point of time as stored in database for longer period of time.

In this Table 2.1 we can see that our developed DNB is very much reliable and user friendly process for all of the students and other members who want to use it in there institution or organizations.

2.2 Existing System

Currently, our University has a manual system of putting notices on notice board. It's outdated now. As nobody has time to stand in rush in order to read the notices on the noticeboard.

Limitations of Existing System

Order of Data: Notice can get out of order in traditional notice board system. If someone accidentally puts some data in the wrong place, it can lead to lost data. Automated notice management systems allow users to quickly check whether information already exists somewhere in the system, which helps avoid problems like redundant data.

Complexity: An Automated system is less complex than a manual system of handling notices, which can make it easier for untrained people to access and manipulate data. Anyone having the basic knowledge of mobiles can work on the automated system.

Inconsistency of data: There will be an unavailability for future use since notice might get misplaced during manual notices management. So notice won't be preserved properly for future use.

Damage: Manual notices stack are vulnerable to damage, destruction and theft in ways that digital databases are not. A company may back up its digital data both on-site and at offsite locations, ensuring its security if the office building suffered a fire or similar disaster. A manual database, however, may only exist in one place without any copies. As a result, a manual database would be very vulnerable to a fire or other natural disaster. In addition, while access time in a manual database system, information must be found by hand rather than electronically. While a digital database will typically allow users to search the entire database for specific information in seconds, someone looking for information in a manual system may have to spend hours searching for a particular piece of data.

Editing and Communication: Manual notices do not allow users to easily edit data or information. Manual notices often cannot be edited directly, forcing users to make new copies. To circulate notice on paper, users must require the peons and other staff. DNB allows users to edit information fields directly, and because data is stored digitally, it is already in a form that can be easily transmitted.

2.3 Proposed System

Proposed System will be able to do the following:

- **To eliminate wastage of time and energy:** DNB app will be able to save a lot of paper and time. It directs both teacher and pupil's energy and attention to one thing at a time by

placing proper persons at their proper places at the proper time. Everything will be instantaneous.

- **To avoid duplication and overlapping:** This application will help to remove the duplicity of notices. Only one person, who is admin can post the notice. No one else would be able to do so. So student and staff will be given the correct information all the time.
- **To ensure the due attention of the student to each and every notice:** DNB App ensures that everyone has kind attention to every notice and updates going on in college. There will be a buzz at each and every notice to drive the attention of the student to check it once. In this way, students will be well informed about their college activities.
- **To bring the system into college life:** It would be a dire need of all colleges as it's easy and shortcut method to inform all the students. In the absence of a proper notification system will make it very difficult to inform students at right time.
- **Searching a particular Notice:** This application allows you to search the notice very easily through the title of notice. If anyone forgot about the notice details, he can search it out very easily.
- **Free Service:** It gives free service to notify all the students. There will be no cost of sending a notification to all. Just have the good system implemented in college and that too free of cost.
- **Prevent Crowd in College:** As you can see, there is always a crowd at the notice board. As notice board is one, and people to see notice are more. With this application, there will be no more crowd. Everyone will be well informed even at their homes. So they are free to do their other work.
- **Automatically Updated Dashboard:** The dashboard of notice is automatically updated when a new message arrives. The user can himself refresh the dashboard to see any new notice.
- **Anytime Anywhere Service:** With this application, notices will be delivered anytime and at any place. There is no restriction of time to send a notice.
- **Keeping Notices at one place:** This application allows you to have notices in one place only. If there is an attachment with that, all will be placed in a separate folder dedicated to that application. So there will be no here and there of notices.

2.4 Unique Features of System

The unique features of this application are as follow:

- **Website based system:** Living in the digital world, a website is now a necessity for a business, big or small. If you have a business and don't have a website, you are probably losing a number of great opportunities for your business. A website itself can be used to accomplish many different marketing strategies to help your business grow. The web has a far wider reach than any other form of advertising.
- **Archive:** In Archive option we can save all the important notice at a place and found them searching any time at a short time.
- **Automatically Updated Dashboard:** The dashboard of notice is automatically updated when a new message arrives. The user can himself refresh the dashboard to see any new notice.
- **Anytime Anywhere Service:** With this application, notices will be delivered anytime and at any place. There is no restriction of time to send a notice.
- **Keeping Notices at one place:** This application allows you to have notices in one place only. If there is an attachment with that, all will be placed in a separate folder dedicated to that application. So there will be no here and there of notices.
- **Free Service:** It gives free service to notify all the students. There will be no cost of sending a notification to all. Just have the good system implemented in college and that too free of cost.
- **All Pictures in One Folder:** The attachments of notices can found one place only. If you want to see all attachments, you can go to the gallery and can see it. It's a good feature of this application that cares for our files organization in the site too.

We can use all this brand new features in our Digital Notice Board site. Which make easy and time consuming in the spreading of important Notice.

CHAPTER 3

METHODOLOGY and SYSTEM DESIGN

The Incremental model has been deemed the best suited for the Software Development Life Cycle (SDLC) process and shall be followed. Using this model will have the benefit over the Linear Sequential Model (LSM) in the sense that it will inherit the quality of the LSM but exclude the rigidity. Furthermore, the feedback process of Process Iteration model will also be available in the incremental model. Another contributing factor in choosing this model is the short period of time available to make a working initial version of the system.

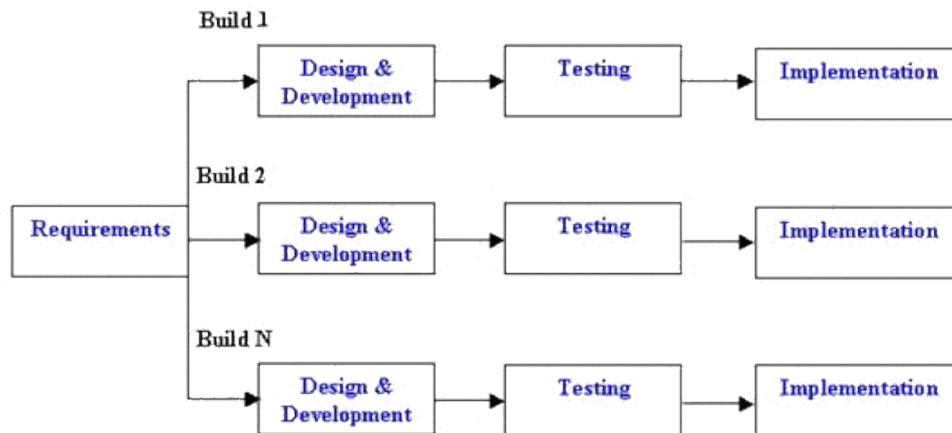


Figure 3.1: Incremental Process Model

3.1 Requirement Analysis

Existing system is time consuming and it makes difficult to convey huge amount of users about any event, class or seminar almost instantly. Also there is always a big crowd in front of noticeboard. So it was hectic to read any useful instruction and information. Thus all the problems

of the 24 existing system are summarized and proposing a new system that works as an online application. It is a value added solution to the problem. It resolves all the problems stated above. It will provide simple interface to the user to operate on and convey the intended users about events almost instantly, anytime and anywhere.

3.2 Design

It includes translation of the requirements specified in the SRS into a logical structure that can be implemented in a programming language. The output of the design phase is a design document that acts as an input for all the subsequent SDLC phases. The design of this app is simple and user friendly containing six main activities, namely:

- (a) Sign Up
- (b) Login
- (c) Noticeboard
- (d) Archive
- (e) Home
- (f) News and Contact

3.3 Coding/Implementation

The project is web based .For web based coding we will use PHP for back end programming, for database storing MYSQL. On the other hand, for design purpose we use HTML, CSS, Bootstrap and JQuery.

3.4 Testing

It includes detection of errors in the application. The testing process starts with a test plan that recognizes test-related activities, such as test case generation, testing criteria, and resource allocation for testing. The code is tested and mapped against the design document created in the design phase. The output of the testing phase is a test report containing errors that occurred while testing the application. Testing of the project has not been done on real hardware and also on the

emulator or software environment. Testing has been done for each of the individual activities of the project.

3.5 Maintenance

It includes implementation of changes that software might undergo over a period of time, or implementation of new requirements after the software is deployed at the customer location. The maintenance phase also includes handling the residual errors that may exist in the software even after the testing phase. The project maintenance is low cost and efficient as user will get this application at free of cost and also this application is shared over network, therefore maintenance is little bit difficult.

3.6 Design Approach

A design approach is a general philosophy that may or may not include a guide for specific methods. Some are to guide the overall goal of the design. Other approaches are to guide the tendencies of the designer. A combination of approaches may be used if they don't conflict.

3.6.1 Function Oriented Design Approach

Function Oriented Design Approach is partitioning of a design into subsystems and modules, with each one handling one or more functions. Contrast with object-oriented design, data-structure-oriented design.

This application project uses function oriented design approach. Every module and sub modules are made, based on their functionality. These modules are designed and implemented separately and then they are integrated together to form the desired application.

3.7 Detail Design

The detailed design of this application is as follow:

Registering a User: At first users of the system will be registered except guest user. User's registration will be available from android and web client also after that, all the information along with registration id is stored on Web Server and the user gets registered.

User Login: After registering, the user is allowed to log in. Username and password after validating at client side, is sent to server side to authentication. After authentication response is sent by the server to client, and then user gets logged in. Login for both android and web based system.

Viewing the Notices: At the first time, when you are using this application for the first time, it will fetch all the notices from server. In all the other case, all previous notices are fetched from application's own database stored inside client mobile. It then checks for new notices from the server. If there are new notices on the server, it will fetch all those notices.

Searching a Notice: The user is able to search the notice in list view depending on the title of the notice. It helps user to get the desired notice instantly.

Deleting a Notice: If the user does not want some notices, he/she can delete it from their phone. There will be no effect on server entry.

Posting a Notice: If a user is an admin, he is able to post the notice. In order to post the notices, he has three option. One option is that; he can post a simple text notice. Another option allows him to send some attachment image with the notice. In this, he has two options. Either he can pick the image from the gallery or he can click a picture on the spot by using camera. After that, press the post button to post the notice.

Reset Password: This application also has the facility to reset the password. If one user has forgot his password, he/she can reset the password by giving his username or email address. The user will be given a page in which he can set his new password. Forgotten password will be updated with

the new one on the server. Figure 4.1 show the Block Diagram of the System. Figure 4.2 show the Architecture for Digital Notice Board.

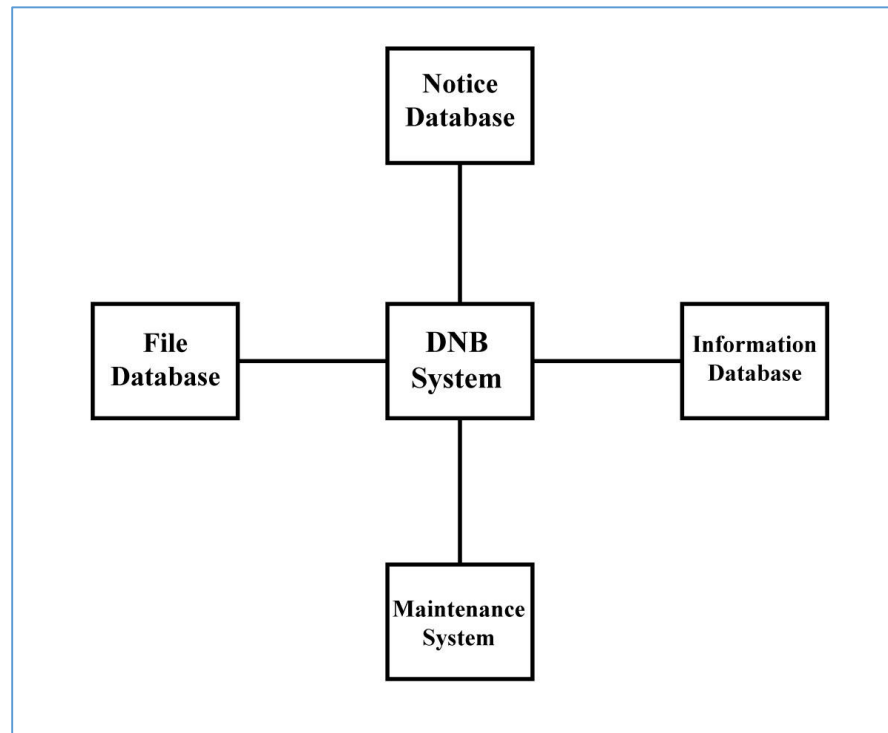


Figure 3.2: Block Diagram of the System

Find News: We can also find important news about our department in this site. There is a news section in this web site which provide news to us.

An architecture diagram is a graphical representation of a set of concepts that is part of an architecture, including their principles, elements and components. Figure 3.3 show Architecture for Digital Notice Board.

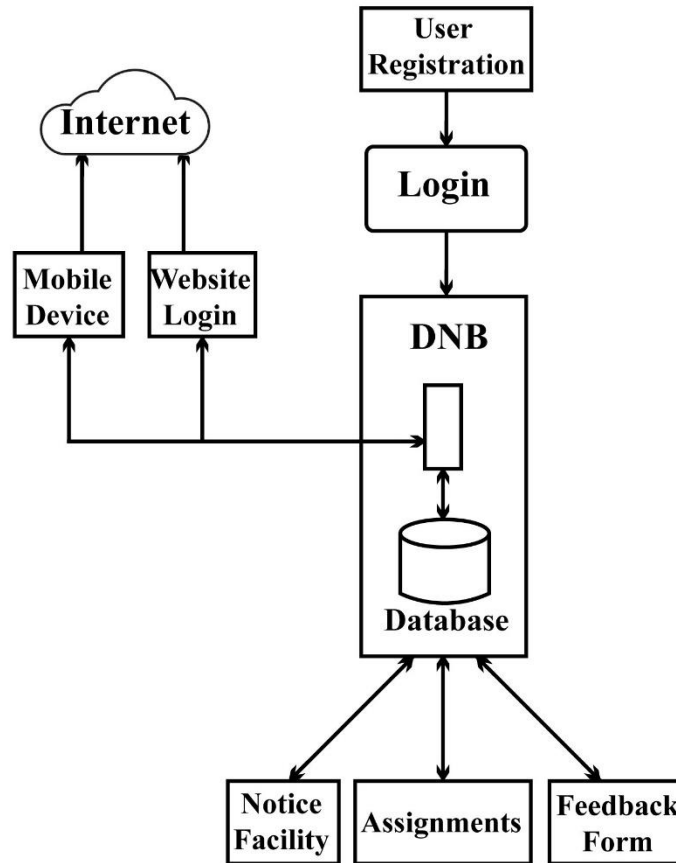


Figure 3.3: Architecture for Digital Notice Board

3.8 Use Case Diagram

The system design can be clearly explained from the following diagrams:

A Use Case diagram at its simplest is a representation of a user's interaction with the system and depicting the specifications of a use case. A use case diagram can portray the different types of users of a system and the various ways that they interact with the system. This type of diagram is typically used in conjunction with the textual use case and will often be accompanied by other types of diagrams as well. There are two types of user in this application, user and admin. Following Figure 3.4 depicts their use case diagram:

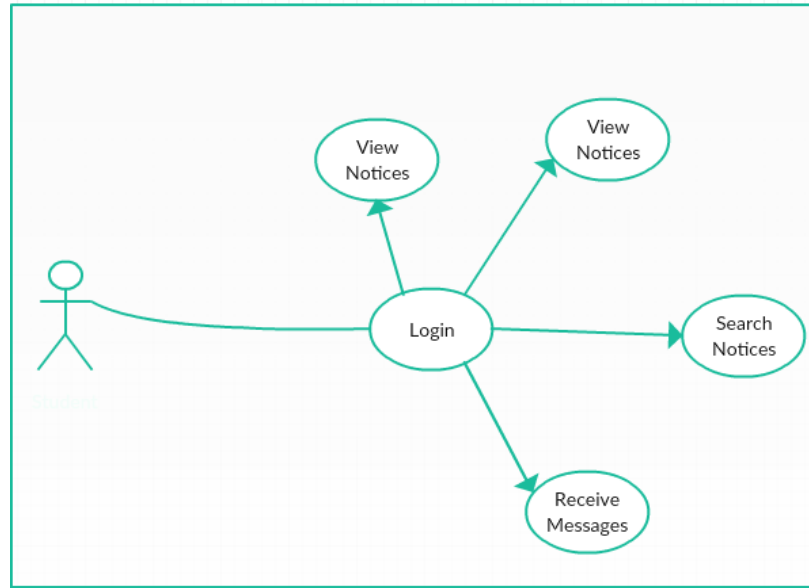


Figure 3.4: Use Case Diagram for student

This diagram is showing what a normal user can do with this application. The user can login, after that he can view the notices, delete the notices and can search for particular notices.

Figure 3.5

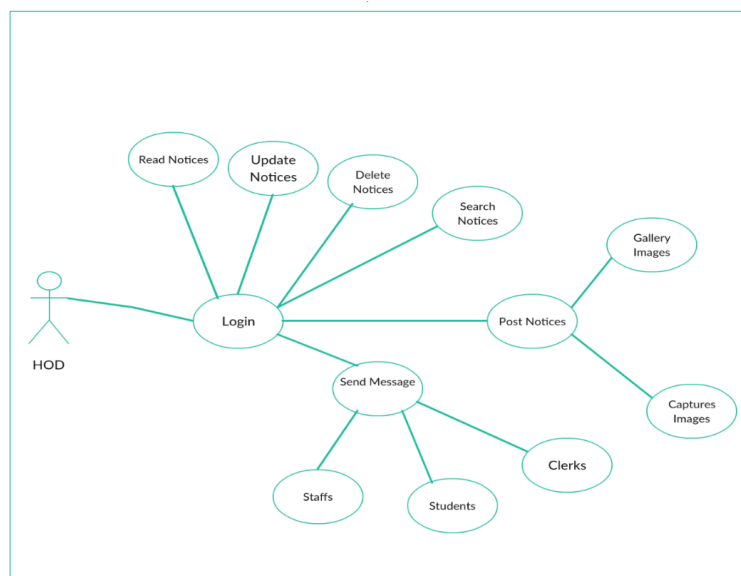
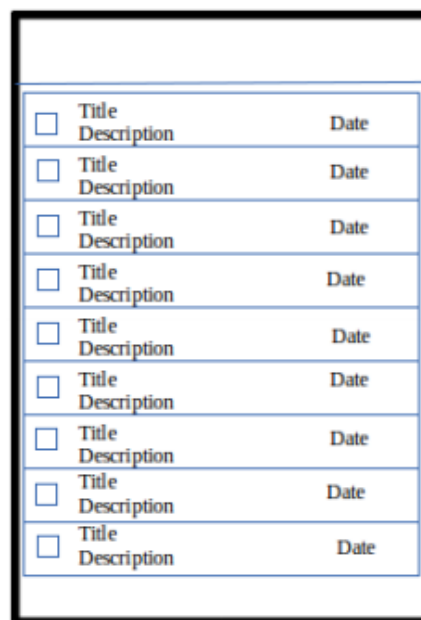


Figure 3.5: Use Case Diagram for Admin

This diagram shows the privileges of admin. An admin can post the notice in addition to viewing and deleting it. He can also post images as an attachment to the notices. Images can be chosen from the gallery or he can click the picture instantly using this application.

3.9 User Interface Design

User Interface Design means the design of application with which the user interacts. So it should be kept in mind that UI should be very simple and easy to use. It should be simple enough in look and feel also. Some of the android UI look like below. This is the main dashboard, which receives all the notices from the user. The user can click on any notice, to see its details. In addition to it, user can search and delete the notices. Dashboard of Notices seen in the Figure 3.6



☐	Title Description	Date
☐	Title Description	Date
☐	Title Description	Date
☐	Title Description	Date
☐	Title Description	Date
☐	Title Description	Date
☐	Title Description	Date
☐	Title Description	Date
☐	Title Description	Date

Figure 3.6: Dashboard of Notices

3.10 Database Design

Database design is the process of producing a detailed data model of a database. This logical data model contains all the needed logical and physical design choices and physical storage

parameters needed to generate a design in a data definition language, which can then be used to create a database. A fully attributed data model contains detailed attributes for each entity.

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 (DBMS).

The process of doing database design generally consists of a number of steps which will be carried out by the database designer. Usually, the designer must:

- Determine the relationships between the different data elements.
- Superimpose a logical structure upon the data on the basis of these relationships.

3.11 Design process

- a. Determine the purpose of the database - This helps prepare for the remaining steps
- b. Find and organize the information required - Gather all of the types of information to record in the database, such as product name and order number.
- c. Divide the information into tables - Divide information items into major entities or subjects, such as Products or Orders. Each subject then becomes a table.
- d. Turn information items into columns - Decide what information needs to be stored in each table. Each item becomes a field, and is displayed as a column in the table. For example, an Employees table might include fields such as Last Name and Hire Date.
- e. Specify primary keys - Choose each table's primary key. The primary key is a column, or a set of columns, that is used to uniquely identify each row. An example might be Product ID or Order ID.
- f. Set up the table relationships - Look at each table and decide how the data in one table is related to the data in other tables. Add fields to tables or create new tables to clarify the relationships, as necessary.

- g. Refine the design - Analyze the design for errors. Create tables and add a few records of sample data. Check if results come from the tables as expected. Make adjustments to the design, as needed.
- h. Apply the normalization rules - Apply the data normalization rules to see if tables are structured correctly. Make adjustments to the tables.

3.12 Normalization

Normalization is a systematic way of ensuring that a database structure is suitable for general-purpose querying and free of certain undesirable characteristics insertion, update, and deletion anomalies that could lead to a loss of data integrity.

A standard piece of database design guidance is that the designer should create a fully normalized design; selective demoralization can subsequently be performed, but only for performance reasons. However, some modeling disciplines, such as the dimensional modeling approach to data warehouse design, explicitly recommend non-normalized designs, i.e. designs that in large part do not adhere to 3NF. Normalization consists of normal forms that are 1NF, 2NF, 3NF, BOYCE-CODD NF (3.5NF).

3.13 System Design

The system design can be clearly explained by the following diagrams. A Use Case diagram at its simplest is a representation of a user's interaction with the system and depicting the specifications of a use case. A use case diagram can portray the different types of users of a system and the various ways that they interact with the system. This type of diagram is typically used in conjunction with the textual use case and will often be accompanied by other types of diagrams as well. There are three types of user in this application student, teacher and employee. The following depicts their use case diagram in the Figure 3.7 the Admin can control all the Notices and News in the notice board system. He can publish, update and delete notice.

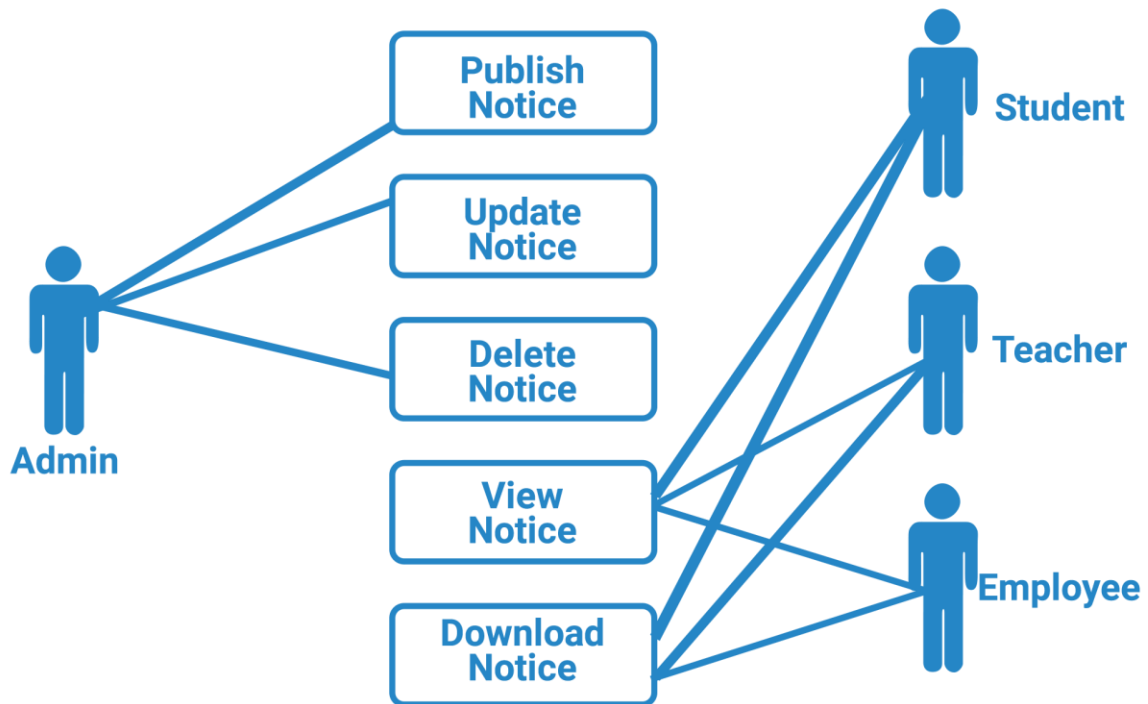


Figure 3.7: Use Case Diagram for Different Users

The diagram is showing what a normal user can do with this application. The user can log in, after that he can view the notices, archive and can search for particular notices. It also shows the privileges of admin. A teacher can see the notice in addition he can download it. Employee can also see images as an attachment to the notices. Images can be chosen from the gallery can click the picture instantly using this application.

3.14 ER Diagrams

An ER diagram is a diagram that helps to design databases in an efficient way. Attributes in ER diagrams are usually modelled as an oval with the name of the attribute, linked to the entity or relationship that contains the attribute. Within the relational model the final step can generally

be broken down into two further steps that of determining the grouping of information within the system, generally determining what are the basic objects about which information is being stored, and then determining the relationships between these groups of information, or objects. An Entity Relationship Diagram (ERD) is a visual representation of different data using conventions that describe how these data are related to each other. ER diagrams are most often associated with complex databases that are used in software engineering and IT networks. In particular, ER diagrams are frequently used during the design stage of a development process in order to identify different system elements and their relationships with each other. Figure 3.8 show the ER diagram for this site.

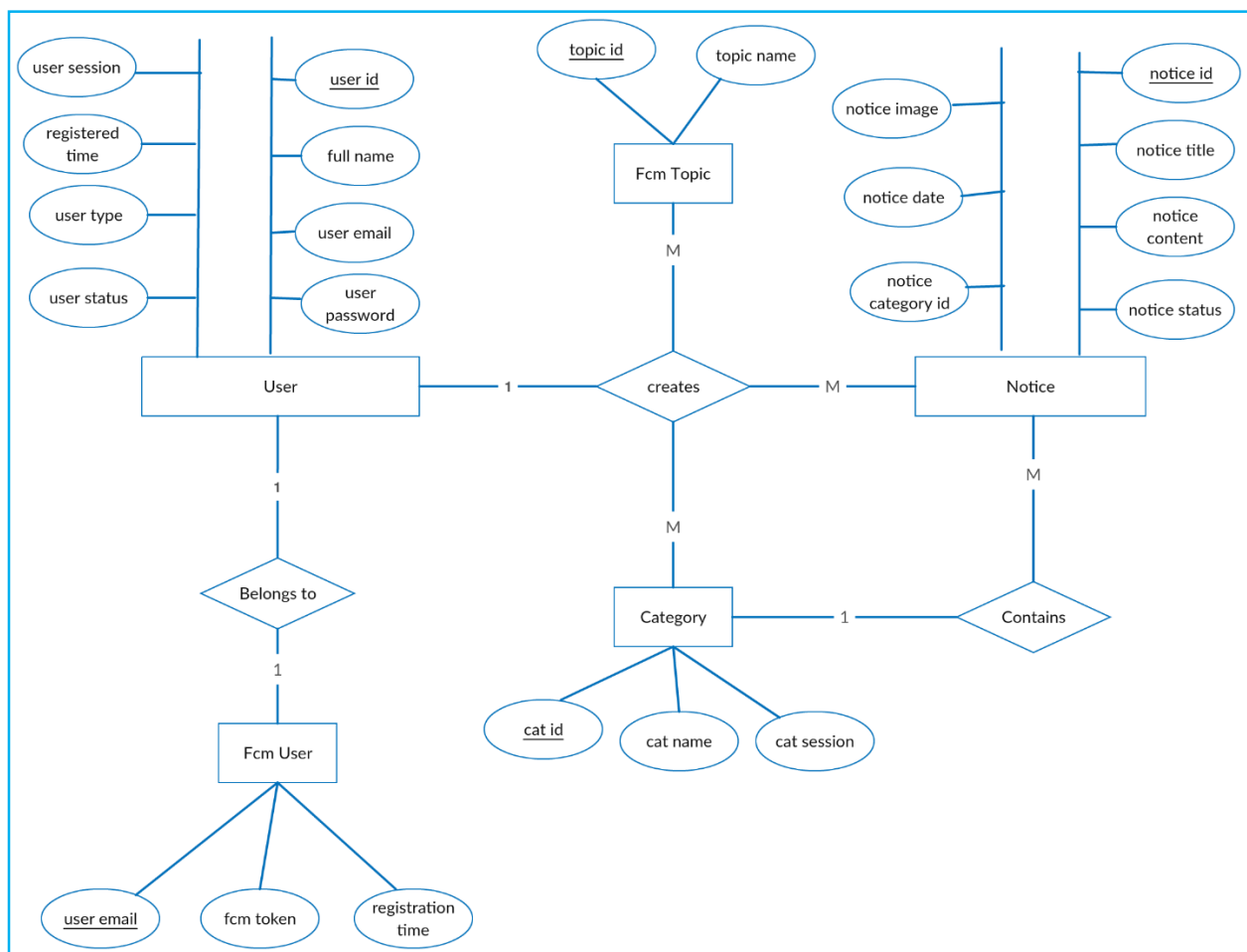


Figure 3.8: ER Diagram

This ER diagram show the relationship between User, Admin and Notice. Category for the Notice which admin post or upload in the site.

3.15 Context Diagram

A system context diagram (SCD) in engineering is a diagram that defines the boundary between the system, or part of a system, and its environment, showing the entities that interact with it. This diagrams a high level view of a system. It is similar to a block diagram. Context Diagram in Figure 3.9 show how the system work with student, teacher and guest.

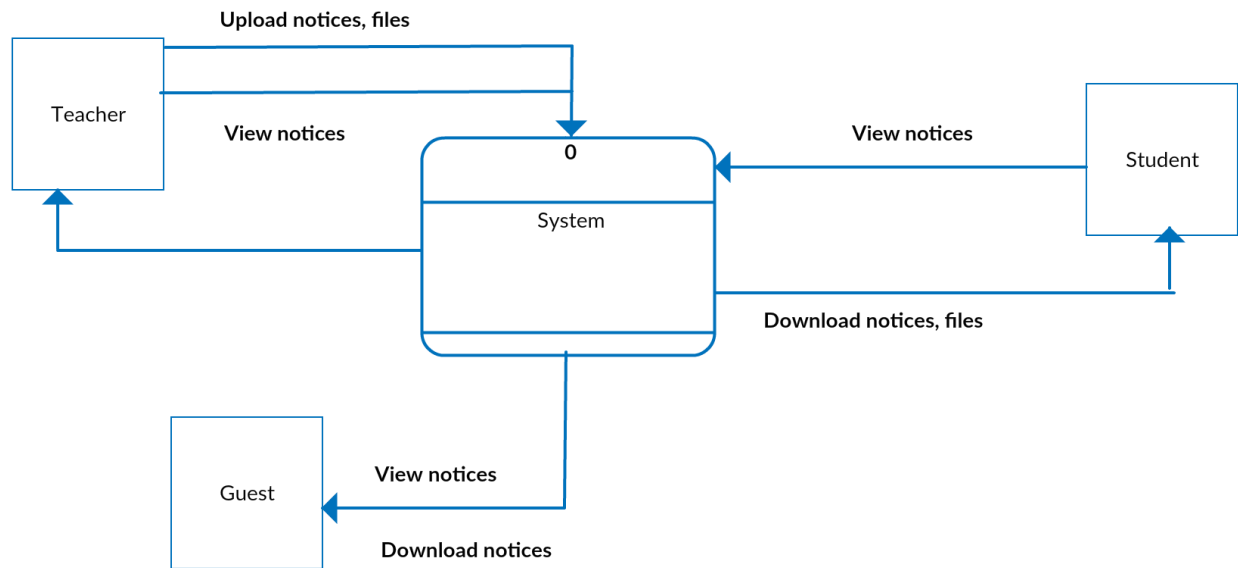


Figure 3.9: Context Diagram

3.16 Class Diagram

In software engineering, a class diagram in the Unified Modeling Language (UML) is a type of static structure diagram that describes the structure of a system by showing the system's classes, their attributes, operations (or methods), and the relationships among objects. The class diagram is the main building block of object-oriented modeling. It is used for general conceptual modeling of the systematic of the application, and for detailed modeling translating the models into programming code. Class diagrams can also be used for data modeling. The classes in a class diagram represent both the main elements, interactions in the application, and the classes to be programmed. In Figure 3.10 class diagram are shown for this project.

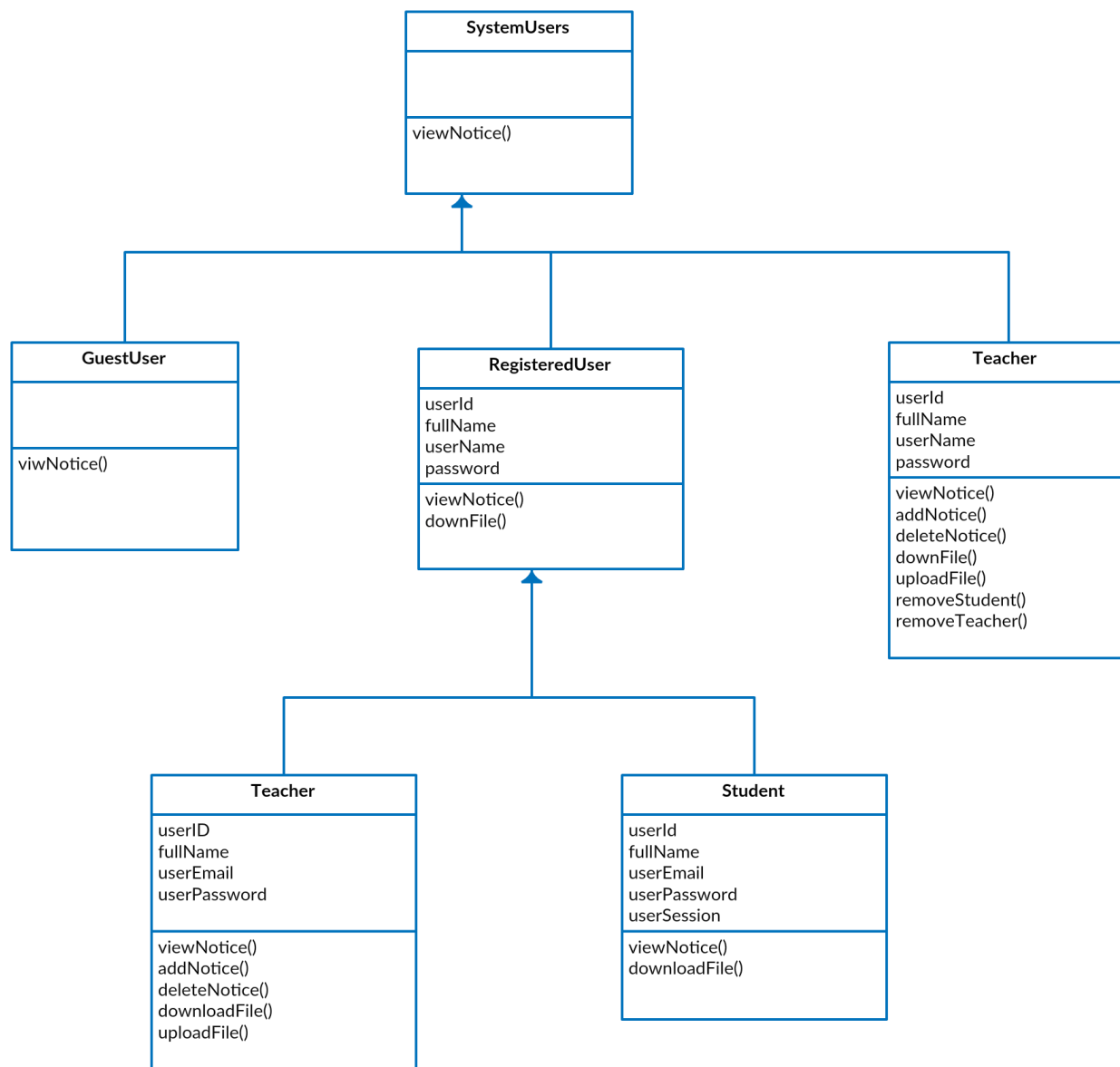


Figure 3.10: Class Diagram

In the diagram, classes are represented with boxes that contain three compartments: The top compartment contains the name of the class. It is printed in bold and centered, and the first letter is capitalized. The middle compartment contains the attributes of the class. They are left-aligned and the first letter is lowercase. The bottom compartment contains the operations the class can execute. They are also left-aligned and the first letter is lowercase.

CHAPTER 4

TESTING and MAINTENANCE

4.1 Languages, Tools and Technologies

Here we introduce the Language, Tools and Technologies that we use in our project- HTML is the standard markup language for creating Web pages.

- HTML stands for Hyper Text Markup Language;
- HTML describes the structure of Web pages using markup;
- HTML elements are the building blocks of HTML pages;
- HTML elements are represented by tags;
- HTML tags label pieces of content such as "heading", "paragraph", "table", and so on;
- Browsers do not display the HTML tags, but use them to render the content of the page [6].

CSS stands for Cascading Style Sheets;

- CSS describes how HTML elements are to be displayed on screen, paper, or in other media;
- CSS saves a lot of work. It can control the layout of multiple web pages all at once;
- External stylesheets are stored in CSS files [7].

Java Script is a cross-platform, object-oriented scripting language used to make webpages interactive (e.x. having complex animations, clickable buttons, popup menus, etc.). There are also more advanced server side versions of JavaScript such as Node.js which allow you to add more functionality to a website than simply downloading files (such as real-time collaboration between

multiple computers). Inside a host environment (for example, a web browser), JavaScript can be connected to the objects of its environment to provide programmatic control over them [8].

PHP is a server scripting language, and a powerful tool for making dynamic and interactive Web pages. PHP is a widely-used, free, and efficient alternative to competitors such as Microsoft's ASP [9]. Originally created by Rasmus Lerdorf in 1994, the PHP reference implementation is now produced by The PHP Group.

SQL is a standard language for accessing and manipulating databases. It stands for Structured Query Language. SQL lets you access and manipulate databases. SQL became a standard of the American National Standards Institute (ANSI) in 1986, and of the International Organization for Standardization (ISO) in 1987 [10].

4.2 Coding Standards of Language Used

Coding Standards of Java are used in the whole project. This standard includes the following:

- No wildcard imports.
- Overloads appear sequentially
- Braces are used even when the body is empty or contains a single statement.
- Two space indentation
- Column limit can be 80 or 100 characters.
- No C-style array declarations.
- Default statements required in switch statements.
- Constants use CONSTANT CASE. Note that every constant is a static final field, but not all static final fields are constants.
- Class name should start with uppercase letter.
- Function name should start with lowercase letter.

4.3 Test Plan and Test Activities

Test Plan: A test plan can be defined as a document describing the scope, approach, resources, and schedule of intended testing activities. It identifies test items, the features to be tested, the testing tasks, who will do each task, and any risks requiring contingency planning. In software testing, a test plan gives detailed testing information regarding an upcoming testing effort, including:

- Scope of testing
- Schedule
- Test Deliverables
- Release Criteria

It is also being described as a detail of how the testing will proceed, who will do the testing, what will be tested, in how much time the test will take place, and to what quality level the test will be performed.

The process of defining a test project so that it can be properly measured and controlled. The test planning process generates a high level test plan document that identifies the software items to be tested, the degree of tester independence, the test environment, the test case design and test measurement techniques to be used, and the rationale for their choice.

Test Activities: Various Testing Activities are as follow:

- Black box testing** internal system design is not considered in this type of testing. Tests are based on requirements and functionality.
- White box testing** this testing is based on knowledge of the internal logic of an applications code. Also known as Glass Box Testing. Internal software and code working should be known for this type of testing. Tests are based on coverage of code statements, branches, paths, conditions.
- Unit testing** of individual software components or modules. Typically done by the programmer and not by testers, as it requires detailed knowledge of the internal program design and code may require developing test driver modules or test harnesses.

- iv. **Incremental integration testing** Bottom up approach for testing i.e. continuous testing of an application as new functionality is added; Application functionality and modules should be independent enough to test separately done by programmers or by testers.
- v. **Integration testing** of integrated modules to verify combined functionality after integration. Modules are typically code modules, individual applications, client and server applications on a network, etc. This type of testing is especially relevant to client/server and distributed systems.
- vi. **Functional testing** this type of testing ignores the internal parts and focus on the output is as per requirement or not. Black-box type testing geared to functional requirements of an application.
- vii. **System testing** Entire system is tested as per the requirements. Black-box type testing that is based on overall requirements specifications, covers all combined parts of a system.
- viii. **End-to-end testing** Similar to system testing, involves testing of a complete application environment in a situation that mimics real-world use, such as interacting with a database, using network communications, or interacting with other hardware, applications, or systems if appropriate.
- ix. **Acceptance testing** normally this type of testing is done to verify if system meets the customer specified requirements. User or customer do this testing to determine whether to accept application.
- x. **Usability testing** User-friendliness check. Application flow is tested, can new user understand the application easily, Proper help documented whenever user stuck at any point. Basically system navigation is checked in this testing.

Project Scheduling

Project scheduling is concerned with the techniques that can be employed to manage the activities that need to be undertaken during the development of a project. Scheduling is carried out in advance of the project commencing and involves:

- Identifying the tasks that need to be carried out.
- Estimating how long they will take.
- Allocating resources (mainly personnel).
- Scheduling when the tasks will occur.

CHAPTER 5

EXPERIMENTS and RESULTS

5.1 Result

The deployment of our DNB software brings an advanced means of passing notices around in the University. It has the capability to disseminate notices in a simple and well organized manner compared to the existing paper-based notice board system. With the use of the DNB, human traffic will be reduced at notice board locations since information on notice boards can be accessed digitally on any DNB-installed computer. In addition, people will be able to print out multiple copies of any posted notices through website.

User Interface Representation

In order to make a user interface, many controls are used. Some of which are as follow:

Text View:

Text View displays text to the user and optionally allows them to edit it. A Text View is a complete text editor, however, the basic class is configured to not allow editing.

Edit Text:

Edit Text is a thin veneer over Text View that configures itself to be editable.

Button:

A button consists of text or an icon (or both text and an icon) that communicates what action occurs when the user touches it

Recycler View:

Recycler View is a view group that displays a list of scrollable items. The list items are automatically inserted to the list using an Adapter that pulls content from a source such as an array or database query and converts each item result into a view that's placed into the list.

Check Boxes:

The checkbox is a control or widget that can be activated with a finger touch and can be polled in the application's code for a checked and unchecked state.

5.2 Outlook of System

Following are the Outlook of working website which we developed. This is the first page; Figure 6.1 About page of Noticeboard the user is presented with at the first time when he want to know About the website. Figure 6.2: Sign Up page of Noticeboard this is the page where the user registers himself to Web Server. Figure 6.3 is the Contact Us page by which users can contact with the admin. Figure 6.4 is the Log In page for the users. Figure 6.5 is the Log In page for the Admin. Figure 6.6 is the Archive page where users can find all the Notice. Figure 6.6 in this page, all the notices are displayed. This is the main panel that is required by the normal user of the application. The user will tap on a particular notice in order to view details of notices. Admin has two options for attaching an image to notice. First is to pick up an image from gallery and second is to take an image from camera instantly and post with the notice. The contextual Action bar is implemented with the help of which, the admin is able to delete the notice. The database used at the Back-end is MySQL database. Server-side scripting language used is PHP.

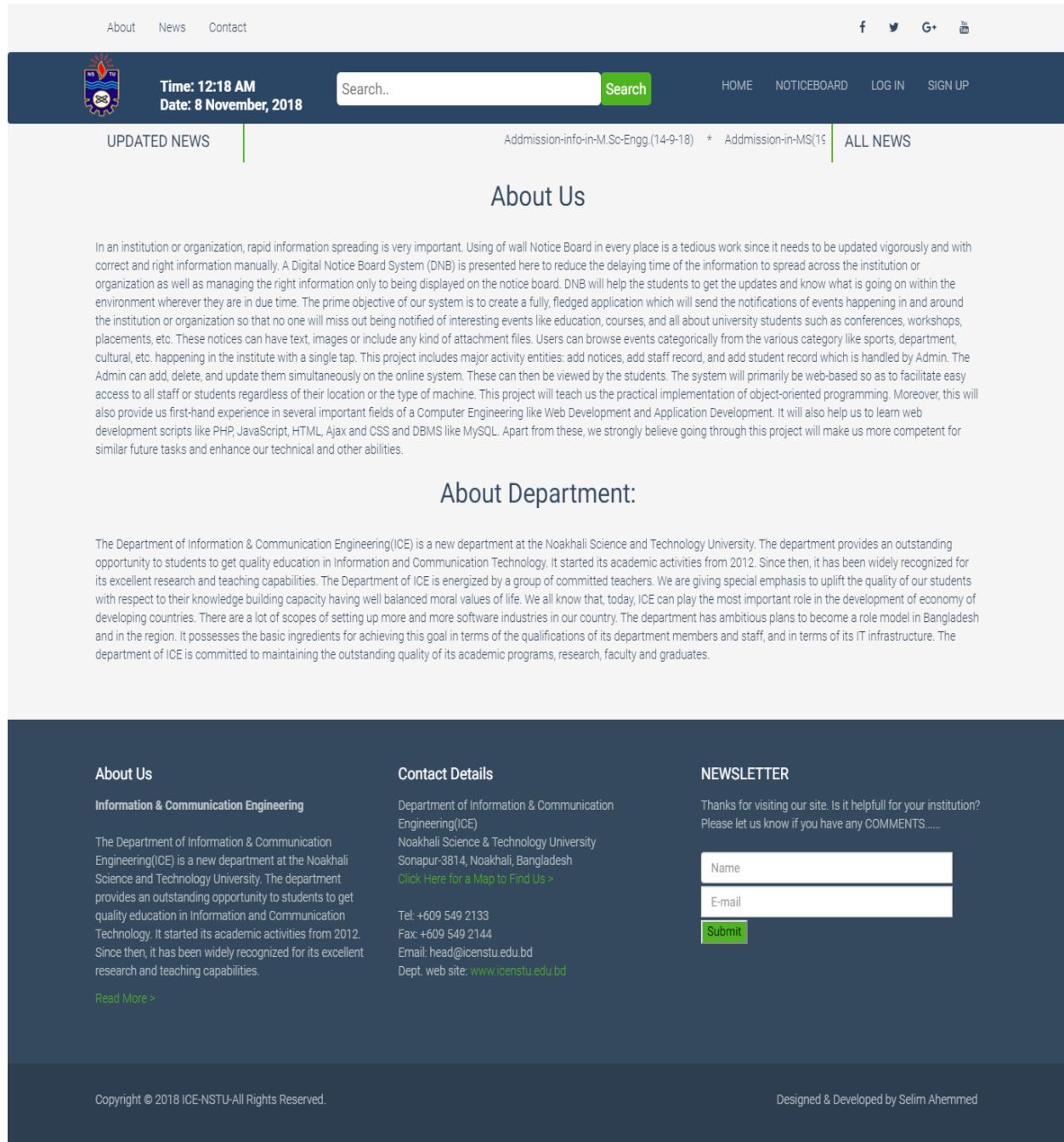


Figure 6.1: About page of Noticeboard

We can know about the website and about the department or organization from this page in Figure 6.1 from the newsletter user can send email to the admin of the website. In the Figure 6.2 we show the Sign up page for the users who want to log in this site.

[About](#)
[News](#)
[Contact](#)

[f](#)
[t](#)
[G+](#)
[v](#)



Time: 12:17 AM
Date: 8 November, 2018

[HOME](#)
[NOTICEBOARD](#)
[LOG IN](#)
[SIGN UP](#)

[UPDATED NEWS](#)
[318](#)
[* Course-Registration\(27-6-18\)](#)
[* CZM-Scholar-ship\(1-7-18\)](#)
[* Fee-for-Transkript\(24-7-18\)](#)
[* Final-Exam](#)
[ALL NEWS](#)

SIGN UP

Selim Ahemmed

ICE

NSTU

ASH1411068M

01716057136

4

2

Engineering

ASH

Student

1716057136

selimshohon@gmail.com

01716057136

SIGN UP

About Us

Information & Communication Engineering

The Department of Information & Communication Engineering(ICE) is a new department at the Noakhali Science and Technology University. The department provides an outstanding opportunity to students to get quality education in Information and Communication Technology. It started its academic activities from 2012. Since then, it has been widely recognized for its excellent research and teaching capabilities.

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 Dept. web site: www.icenstu.edu.bd

NEWSLETTER

Thanks for visiting our site. Is it helpfull for your institution?
 Please let us know if you have any COMMENTS.....

Copyright © 2018 ICE-NSTU-All Rights Reserved.

Designed & Developed by Selim Ahemmed

Figure 6.2: Sign Up page of Noticeboard

About News Contact

Time: 12:19 AM
Date: 8 November, 2018

Search.. Search

HOME NOTICEBOARD LOG IN SIGN UP

UPDATED NEWS Admission-info-in-M.Sc-Engg.(14-9-18) * Add ALL NEWS

Contact Us

Enter Name

Enter E-mail

SEND

Figure 6.3: Contact Us page of Noticeboard

About News Contact

Time: 12:16 AM
Date: 8 November, 2018

Search.. Search

HOME NOTICEBOARD LOG IN SIGN UP

UPDATED NEWS Admission-info-in-M.Sc-Engg.(14-9-18) * Admission-in-MS(19-9-18) * Book-return-(11-9-18) * Bus-Scdul ALL NEWS

LOG IN

selimshohon@gmail.com

01716057136

LOG IN

Figure 6.4: Log In page of Noticeboard

ICE NOTICEBOARD

Admin Login

Username

adminsays

Password

.....

Login

Copyright © 2018 All rights reserved

Figure 6.5: Admin Log in page of Noticeboard

[About](#)
[News](#)
[Contact](#)

Time: 0 : 39 : 40 AM
Date: 8 November, 2018

[HOME](#)
[NOTICEBOARD](#)
[ARCHIVE](#)
[LOGOUT](#)

[UPDATED NEWS](#)
[Admission-info-in-M.Sc-Engg.\(14-9-18\)](#)
[* Admission-in-MS\(19-9-18\)](#)
[ALL NEWS](#)

ARCHIVE

Sl No.	Name	Posting Date	View
1	Admission-info-in-M.Sc-Engg.(14-9-18)	07 Nov, 2018	
2	Admission-in-MS(19-9-18)	07 Nov, 2018	
3	Book-return-(11-9-18)	07 Nov, 2018	
4	Bus-Schedule(1-9-18)	07 Nov, 2018	
5	Comette-Metting-in-Conference-Room(8-8-18)	07 Nov, 2018	
6	Convocation-16-9-2018	07 Nov, 2018	
7	Course-Registration(27-6-18)	07 Nov, 2018	
8	CZM-Scholar-ship(1-7-18)	07 Nov, 2018	
9	Fee-for-Transkript(24-7-18)	07 Nov, 2018	
10	Final-Exam-Routine-for--Session2013-2014(27-8-18)	07 Nov, 2018	
11	Football-Championship-(10-7-18)	07 Nov, 2018	
12	Karam-Competition(24-9-18)	07 Nov, 2018	
13	Library-card(4-9-18)	07 Nov, 2018	
14	Result-Scholar-ship-for--Session2013-2014(10-7-18)	07 Nov, 2018	
15	Scholar-ship-for--Session2013-2014(12-9-18)	07 Nov, 2018	
16	Special-for--Session2012-2013(12-9-18)	07 Nov, 2018	
17	Special-Term-Exam-for--Session2012-2013(29-8-18)	07 Nov, 2018	
18	Submission-of-final-report--Session2012-2013(16-9-18)	07 Nov, 2018	
19	Submission-of-final-report--Session2012-2013(26-9-18)	07 Nov, 2018	
20	Theses-Project-Submission-of-final-report--Session2012-2013(30-8-18)	07 Nov, 2018	
21	Year-3-Term-1-Result-Sheet-Session-2014-2015(18-7-18)	07 Nov, 2018	
22	Year-3-Term-2-cource-vaiva(18-7-18)	07 Nov, 2018	
23	Year-3-Term-2-Result-Sheet-Session-2014-2015(18-7-18)	07 Nov, 2018	
24	Year-4-Term-2-Theses-project-presentation(1-7-18)	07 Nov, 2018	

About Us

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Dept. web site: www.icenstu.edu.bd

NEWSLETTER

Thanks for visiting our site. Is it helpfull for your institution?
Please let us know if you have any COMMENTS.....

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Designed & Developed by Selim Ahemmed

Figure 6.6: Archive page of Noticeboard

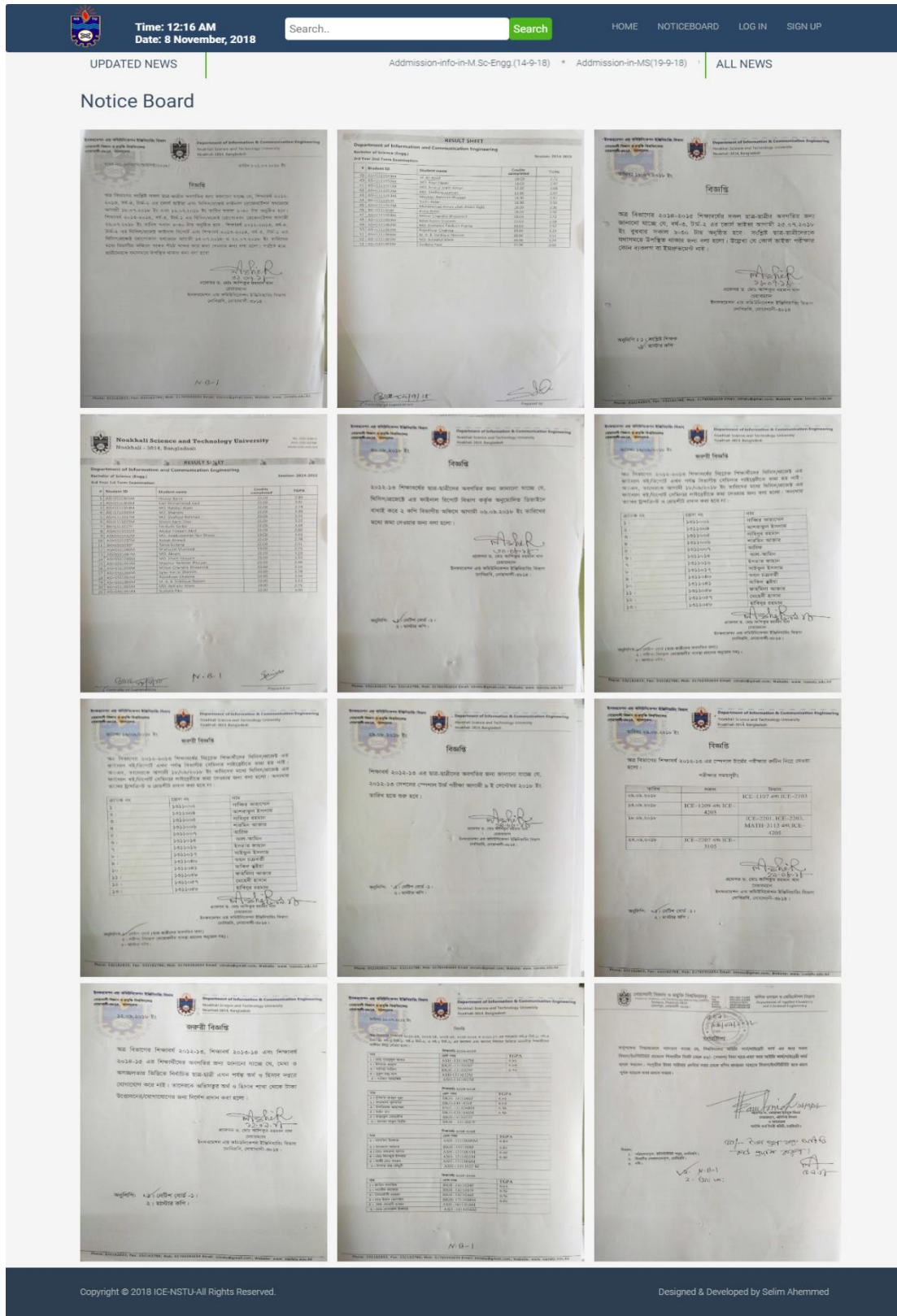


Figure 6.7: Notice page of Noticeboard

CHAPTER 7

CONCLUTION

The purpose of the website is to create a Notice Board that allows users to know and search a notice online based on category without any hassle. I hope this will satisfy the demand of the user and the user can find all available notice and details of the notice to download without any time and energy waste. This website is totally dynamic and extendable. If the website needs to extend then I must have to work little on the database. So, I have the demand to develop a website that considers all the issues. Keeping all these things in mind I have tried my best to build a website which is secure, dynamic, extendable and reusable. There still have the opportunity to add other features that are not mentioned here. Some minor functional problem may occur during operation, but it will not have any minimum effect on kernel part of the system.

I think I will learn a lot by doing this project.

- Operating system: Ubuntu, Windows
- Languages used: HTML,CSS, Ajax, JQuery, PHP for backend
- Servers Used: WAMP, XAMP Server,
- Database: MySQL.

So, during this project I will learn all the above things. If I talk about the project, Digital Notice Board website has reduced lot of manual work. It has made notifying each and every user very easy and that too with no time and place restrictions. In general, the DNB will result as an improvement over the existing notice boards used in for University Administration.

Future Scope

The future scope of the project is that it can be used as any news giving application or it can be used to advertise your products, telling the customers about new schemes and products coming to your shop. This application of Digital Notice Board can be further extended to include the following features: Categorization of Notice, PDF files and Documents.

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APPENDICES

A. Coding

Database Connection

Below code is used to connect with the remote database server. This coding snippet is written in object oriented programming language.

```
<?php
Class Database{
    public $host      = DB_HOST;
    public $user       = DB_USER;
    public $pass       = DB_PASS;
    public $dbname     = DB_NAME;
    public $link;
    public $error;
    public function __construct(){
        $this->connectDB();
    }
    private function connectDB(){
        $this->link = new mysqli($this->host, $this->user, $this->pass, $this->
>dbname);
        if(!$this->link){
            $this->error = "Connection fail".$this->link->connect_error;
            return false;
        }
    }
    public function select($query){
        $result = $this->link->query($query) or die($this->link->
>error.__LINE__);
        if($result->num_rows > 0){
            return $result;
        } else {
            return false;
        }
    }
    public function insert($query){
        $insert_row = $this->link->query($query) or die($this->link->
>error.__LINE__);
        if($insert_row){
            return $insert_row;
        } else {
            return false;
        }
    }
    public function update($query){
        $update_row = $this->link->query($query) or die($this->link->
>error.__LINE__);
        if($update_row){
            return $update_row;
        } else {
            return false;
        }
    }
    public function delete($query){
```

```

        $delete_row = $this->link->query($query) or die($this->link->error.__LINE__);
        if($delete_row){
            return $delete_row;
        } else {
            return false;
        }
    }
}

```

Sign up Function

The given code is used to authenticate the users of DNB system. When user tries to sign up this piece of code becomes functional.

<?php

```

        if ($_SERVER['REQUEST_METHOD']=='POST') {
$name = $fm->validation($_POST['name']);
        $name = mysqli_real_escape_string($db->link,$name);
$department = $fm->validation($_POST['department']);
        $department = mysqli_real_escape_string($db->link,$department);
$institution = $fm->validation($_POST['institution']);
        $institution = mysqli_real_escape_string($db->link,$institution);
$roll = $fm->validation($_POST['roll']);
        $roll = mysqli_real_escape_string($db->link,$roll);
$session = $fm->validation($_POST['session']);
        $session = mysqli_real_escape_string($db->link,$session);
$year = $fm->validation($_POST['year']);
        $year = mysqli_real_escape_string($db->link,$year);
$term = $fm->validation($_POST['term']);
        $term = mysqli_real_escape_string($db->link,$term);
$faculty = $fm->validation($_POST['faculty']);
        $faculty = mysqli_real_escape_string($db->link,$faculty);
$hall = $fm->validation($_POST['hall']);
        $hall = mysqli_real_escape_string($db->link,$hall);
$who_am_i = $fm->validation($_POST['who_am_i']);
        $who_am_i = mysqli_real_escape_string($db->link,$who_am_i);
$mobile_no = $fm->validation($_POST['mobile_no']);
        $mobile_no = mysqli_real_escape_string($db->link,$mobile_no);
$email = $fm->validation($_POST['email']);
        $email = mysqli_real_escape_string($db->link,$email);
$password = $fm->validation($_POST['password']);
        $password = mysqli_real_escape_string($db->link,$password);
        $password = password_hash($password, PASSWORD_BCRYPT);

$mailquery = "SELECT * FROM tbl_users where email = '$email' limit 1";
        $mailcheck = $db->select($mailquery);
        if ($mailcheck != false) {
Session::set("message","E-mail Already exists !!!");
        Session::set("color","danger");

```

```

    }else{
$query = "INSERT INTO
tbl_users(name,department,institution,roll,session,year,term,faculty,hall,who
_am_i,mobile_no,email,password) VALUES
('$name','$department','$institution','$roll','$session','$year','$term','$fa
culty','$hall','$who_am_i','$mobile_no','$email','$password)";
    $dept_insert = $db->insert($query);
    if($dept_insert){
        Session::set("message","Registration Successfull !!!");
        Session::set("color","success");
        echo "<script>window.location='login.php'</script>";
        exit();
    }
}}?>

```

Login Function

The given code is used to authenticate the users of DNB system. When user tries to login this piece of code becomes functional.

```

<?php
if ($_SERVER['REQUEST_METHOD']=='POST' && !isset($_POST['name'])) {
    $email = $fm->validation($_POST['email']);
    $email = mysqli_real_escape_string($db->link,$email);
$password = $fm->validation($_POST['password']);
    $password = mysqli_real_escape_string($db-
>link,$password); $query = "SELECT * FROM tbl_users WHERE email = '$email'";
    $result = $db->select($query);
    if($result!= false){
        $value = $result->fetch_assoc();
        $dbpassword = $value['password'];
        if(password_verify($password, $dbpassword)){
            Session::set("login",true);
            Session::set("email",$value['email']);
            Session::set("userId",$value['id']);
            echo "<script>window.location='archive.php'</script>";
        }else{
            Session::set("message","Username and Password do not matched
!!!");
            Session::set("color","danger");
        }
    }else{
        Session::set("message","Username and Password do not matched
!!!");
        Session::set("color","danger");
    }
}?>

```


Search Function

The following code is used to search the notice. It's applied for all types of letter and number. It faces the data from the database and shows for the users.

```
<?php
    $query = "SELECT * FROM tbl_sliders WHERE name LIKE '%$search%'
order by id desc";
    $departments = $db->select($query);
    if($departments){ ?>
<?php $i=0;
    while ($result = $departments->fetch_assoc()) { $i++;?>
        <tr>
            <td><?php echo $i; ?></td>
            <td><?php echo $result['name']; ?></td>
            <td><?php echo date( "d M, Y", strtotime($result['date']));
?></td> <td>
                <a target="_blank" href="upload/<?php echo $result['image'];
?>"><i class="fa fa-file"></i></a>
            </td>
        </tr>
<?php } }else{
$ok = 1;} ?> </tbody></table> </div>
    <?php if(isset($ok)){ ?>
        <center style="color:red">Not result Found</center><br>
    <?php } ?>
```

Map Function

The following code is used to show the map of the organization from internet.

```
<?php include 'inc/header.php';?>
<section id="main-slider" class="no-margin">
    <center><h2>Map</h2></center><hr>
<div class="container">
    <div class="row">
        <div class="col-md-3"></div>
        <div class="col-md-6">
            <div class="mapouter"><div class="gmap_canvas"><iframe width="600"
height="500" id="gmap_canvas"
src="//maps.google.com/maps?q=noakhali%20scien&t=&z=13&ie=UTF8&iwloc=&output=
embed" frameborder="0" scrolling="no" marginheight="0"
marginwidth="0"></iframe><a
href="www.pureblack.de"></a></div><style>.mapouter{text-
align:right;height:500px;width:600px;}.gmap_canvas
{overflow:hidden;background:none!important;height:500px;width:600px;}</style>
</div>
            </div>
        <div class="col-md-3"></div>
    </div>
</div>
</section><!--/#main-slider--><BR><BR><BR>
<?php include 'inc/footer.php';?>
```