A Minor Project Report

On

STUDENT MENTORING SYSTEM

Of

Master of Computer Application

Submitted by

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Under the Supervision of

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Certificate by the HOD

This is to certify that the Minor Project entitled "**Student Mentoring System**" is submitted by **Manjit Barman** bearing Roll no: **CSM21019** and **Nitish Rajbongshi** bearing Roll no: **CSM21033.** They have completed his project work successfully as needed for partial fulfillment of the requirements and the regulations for the MCA 3rd semester minor project in Computer Science & Engineering Dept. during the session 2021-2023 at Tezpur University. To the best of my knowledge, the matter embodied in the report has not been submitted to any other university/institute for the award of any Degree or Diploma.

Date:

Place: Tezpur

Head of the Department
Department of Computer Sc & Engineering
Tezpur University

Department of Computer Science and Engineering

Tezpur University

CERTIFICATE

This is to certify that the project report entitled Student Mentoring System, submitted to the Computer Science and Engineering Department, Tezpur University, in partial fulfillment for the award of the degree of Bachelor of Technology in Computer Science and Engineering, is a record of bona fide work carried out by Mr. Manjit Barman (Roll No. CSM21019) and Mr. Nitish Rajbongshi (CSM21033) under my supervision and guidance.

All help received by her from various sources have been duly acknowledged.

No part of this report has been submitted elsewhere for award of any other degree.

Prof. Sarat Saharia
Head of CSE Dept.
Supervisor

Date:
Place: Tezpur

Department of Computer Science and Engineering

Tezpur University

DECLARATION

we here by declare that the project work titled as "**Student Mentoring System**" submitted to the Department of Computer Science and Engineering, Tezpur University is prepared by me and was not submitted to any other institution for award of any other degree.

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Place: Tezpur

Acknowledgement

This satisfaction that accompanies that the successful completion of "**Student Mentoring System**" task would be incomplete without the mention of people whose ceaseless cooperation made it possible, whose constant guidance and encouragement crown all efforts with success. I am grateful to our project guide **Prof. Sarat Saharia** for the guidance, inspiration and constructive suggestions that helpful us in the preparation of this project. I also thank our colleagues who have helped in successful completion of the Project.

we extend our heartfelt thanks to all the faculty members of **Computer Science and Engineering Department, Tezpur University** for teaching us the required skills for completion the project work.

We cannot forget to express our thanks to the Entire staff of our Department and Colleagues for providing us a helping arm during the project work.

Manjit Barman
Nitish Rajbongshi

Contents

1. Abstract:

Mentoring is a conventional method of transferring knowledge and ideas from a confirmed professional in a society to an inexperienced member in the sector. Education sector has found mentoring as quite effective tool since long back and with the advent of new technologies, comes an idea of online mentoring, which is also referred to as e-mentoring. Student Mentoring uses computerized medium to transfer knowledge and skills from teacher to student. It basically focuses on student and faculty relationship. Student Mentoring System is a client Server model, which acts as an Interface between Teacher and Student. Student Mentoring is fundamentally developed to improve the performance of students by assisting mentors to understand the problems of students and administrator can manage the students and mentors more effectively and easily.

1.1 Keywords:
Admin login, Student login, Mentor Login, Plagiarism

Introduction:

Student Mentoring System (SMS) is a Web Application System for managing the relation /functions between students and mentors within a college or University. To Development and securing of excellence human resources under both the internal and external environmental changes are a key deciding factor of the national competitiveness. This system makes use of two tire architecture that acts as an interface between the teacher and the student. The following figure 3 gives the complete architecture of the system, which depicts all the three users i.e., admin, mentor as Teacher and student and also interrelationship between them It can be used in various academic institutes across the globe and simplifies working of institutes. It has different modules such as adding students and mentors, managing mentor- mentee, arrange meeting, monitor student performance. This Web Application software is helpful for students and Mentors as well as the authorities. In the current system all the activities are done manually. The proposed system is less time consuming and cost effective.

Overall, the system contains like one main admin under which many mentors and each mentor has set of students allocated by admin and at the same time the mentor is willingly taking the students for giving valuable encouraging for the improvement of the student in an academic institute. The architecture of student-Mentoring specified here is specific to the academic institution and if the mentoring is required in other institution or organization this architecture is not applied and has to be changed accordingly. The user admin is similar to administrator of the system who manages the mentors as well as students and Mentor also have facility to manage students. Admin only has the

option to create login credentials to both the users and monitor over the actions performed by them. Mentors also provided with the login credentials by admin to login and check the information of the students and do analysis of each and every student assigned to him for mentoring then give his valuable feedback. Student user has his login for viewing the feedback given by their mentors. All these credentials and feedback information is maintained in the database server.

There are many important processes that are used in developing this system. Here we are going to discuss about two processes out of them and going to understand how they really work 1) Creation of Student entities by the admin of the system 2) Adding remarks on the students by the mentor.

2.1 Project Title
The project work titled as **'STUDENT MENTORING SYSTEM"**

2.2. Features are:

➢ It is easier method for efficient interaction between student and mentor.

➢ Data can be entered one at a time or through an excel file.

➢ Assign a mentor per student with one click.

➢ The manual method is time consuming and often prove inefficient. Hence this system manages time more effectively.

➢ View and export mentor mentee list.

➢ Share data as a pdf file like mentee progress form.

➢ Admin can view and export mentor mentee list.

➢ Mentors are able to give assignments/remarks and meet-up notice for his assigned mentees.

➢ Student can give feedback only to those mentors which if he/she has enrolled

➢ Students will receive an email as an alert.

2.3. Problem Definition:
To develop an application for the mentors of Tezpur University to assist them in the mentoring process. The Mentor's App shall enable maintenance and ready access to the records of the mentees (including hobbies/ special talents) with their contact details (including parents/ guardian), participation in extracurricular activities, their academic progress records, records of meetings and noting on the mentees, initiatives taken for the group and on the individuals.

2.4. Existing System:

➢ The Existing system for SMS System is a physical process in most of the region. All the process is done in manual way on paper and so it makes this thing tedious and no records can be made for this present system.

- It is too time consuming and difficult assigning mentors manually against large number of students for administrator.
- There are basically on paper system no any system is there which is efficient.
- All students are called in cabin in personal and mentoring process in made possible
- If any students have any problem, they have to first find his/her mentor meet him/ her personally to take appointment and after that they can discuss problem
- As there is no online system it become very tedious for mentor as there will be 20 students under one mentor so he/she need to visit ever student personally and ask them if they have any problem or need any help for a mentor regarding process.
- Even there is no record of any problem discus in past a suggestion given by the mentor all things are done in the paper which is not reliable for anybody to keep track of it.
- And another main problem is that not every time students have time to visit the mentor so if there will be online system then it can be possible that any student can directly send message to the mentor and can discuss then easily.
- For progress form upload some mentors use google form but which is not efficient to store every data item in an organized manner for longer time.

2.5. Scope of the proposed system:

In today's world the scope for mentoring system is quite high in demand. This system makes the life easy of the students, teachers and the institution. Getting into a platform where everything become online as the current situation letting all the users to connect through every step of technology. This system lets the students and mentors to interact with each other and do all the activities and extra- curricular inside a single application. By the help of this system the mentor can track the academic performance of the students like the marks of the students in the exams and on which project is the student is working on through this information the mentor can assists his student by all the needed skills through this platform. Online mentoring system can also provide distance mentoring to the students living in a long distance, he/she can access the application to use it at their own comfort and can clear their doubts from anywhere they want to. There is no need for physical presence of the user everything can be done virtually with ease.

Chapter 3

3. <u>Feasibility Analysis:</u>
3.1 Feasibility Study:

It is necessary and prudent to evaluate the feasibility of a project at the earliest possible time. There may be different ways of checking whether a system is feasible or not. The following feasibility studies were performed to gauge the feasibility of the system.

3.2 Behavioral Feasibility:

In this test, the operational scope of the system is checked. The system under consideration should have enough operational reach. It is observed that the proposed system is very user friendly and since the system is built with enough help, even persons with little knowledge of websites can find the system very easy.

3.3 Technical Feasibility:

This test includes a study of function, performance and constraints that may affect the ability to achieve an acceptable system. This test begins with an assessment of the technical viability of the proposed system.

The project SMS is a complete web application. The main technologies and tools that are associated are – HTML 5, CSS 3, MySQL 5.1.5.2, JS, PHP 5.3.3, VS code.

Each of the technologies are freely available and the technical skills required are manageable. Time limitations of the project development and the case of implementing using these technologies are synchronized.

Later the project will be hosted with sufficient bandwidth. Bandwidth required in this application is very low, since it doesn't incorporate any multimedia aspect. From there it's clear that the project is technically feasible.

3.4 Economic Feasibility:

The development cost of the system is evaluated weighing it against the ultimate benefit derived from the new system. It is found that the benefit from the new system would be more than the cost and time involved in its development. Intangible cost and benefits: -

- Easy to use, simple and user friendly.
- Less usage of papers.

3.5 Conclusion:

From the following observation made in the feasibility study described above, it is clear that the proposed system is feasible and now SRS can be prepared.

Chapter 4

4. <u>Software Requirement Specification (SRS):</u>

A software requirements specification (SRS) is a comprehensive description of the intended purpose and environment for software under development. The SRS fully describes what the software will do and how it will be expected to perform.

4.1 Environmental Characteristics:

  i. **Hardware Requirements:**
   The minimum hardware required for the proposed system
   - Processor: Pentium Dual Core and above
   - RAM: 1GB
   - Input device: Keyboard, Mouse
   - Memory: 30GB and above

  ii. **Software Requirements:**
   - OS: Windows 2007
   - Front End: HTML, CSS, JS, Bootstrap, jQuery
   - Back End: PHP
   - Database: MySQL
   - IDE: VS Code, Notepad
   - Server: XAMPPSERVER2.0

4.2 Objective:

By developing the system, we can attain the following features objectives-
   - Easy to handle and feasible
   - The system uses to provide a bast way to interact with the student and monitor directly online.
   - The new system will cut down the cost such as paper and stationary cost.
   - Fast and convenient
   - All data is stored in database

4.3 Functional Requirement:

These are the requirements that the end user specifically demands as basic facilities that the system should offer. All these functionalities need to be necessarily incorporated into the system as a part of the contract. These are represented or stated in the form of input to be given to the system, the operation performed and the output expected.

Actors: Admin, student, Faculty

R1: Admin Dashboard
   R1.1: Add students/ mentors' detail
   Input: upload XLS sheet or add one by one
   Output: Add successfully pop-up will come

   R1.2: Assign mentors for students
   Input: select dept. name and number of students to be assigned for one mentor.
   Output: Mentor assigned successfully pop-up will come

   R1.2: View mentor-mentee list/student details/mentor details

Input: Click on view button.
Output: Details/list displayed

R2: Student Dashboard

Statement**:** After login system show alert to update password

R2.1: Reset login password
Input: Click update password
Output: New pop-up will come for reset password. After enter new password, redirect into student login page.

R2.2: Give remarks to mentor for task
Input: select task and enter remarks
Output: Remarks sent successfully pop-up will come.

R2.3: Add semester result
Input: Click on add result and after that select semester and add result
Output: Result add successfully will come
Processing: Results stored in database

R3: Mentor Dashboard

R3.1: Add student for mentoring
Input: Select department, mentor id and student roll no
Output: Successful message will come.

R3.2: Assign task and create time schedule for meet-up.
Input: Select department, mentor id and student roll no
Output: Successful message will come and show the roll no under the mentor.

R3.3: Provide remarks to group of students or single students for corresponding meeting
Input: Select meeting and enter remarks in text area
Output: Successful message will come and invisible the remarks option

4.4. Non-functional Requirement:

➢ The system should be built in such a way that it is independent of the database used (eg: MySQL).

➢ Response should be fast.

➢ High throughput.

➢ Security should be high such that no intruder can tamper with data

Chapter- 5

5. <u>Structured Analysis and Design:</u>

Software design is a mechanism to transform user requirements into some suitable form, which helps the programmer in software coding and implementation. It deals with representing the client's requirement, as described in SRS (Software Requirement Specification) document, into a form, i.e., easily implementable using programming language.

5.1 ER diagram:
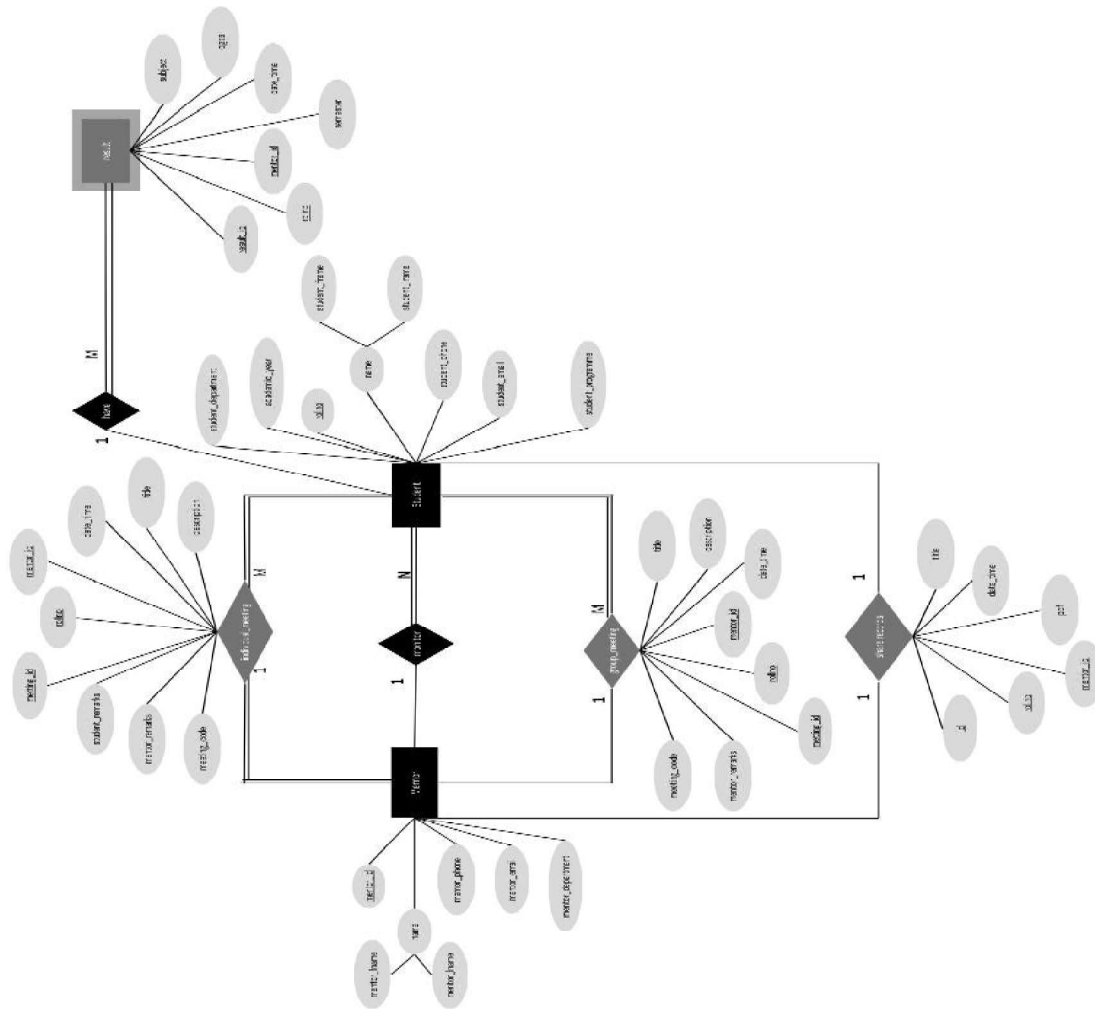
5.2 Relational model:

Relational Model (RM) represents the database as a collection of relations. A relation is nothing but a table of values. Every row in the table represents a collection of related data values. These rows in the table denote a real-world entity or relationship.

Relation Model

Mentor

Mentor_id	mentor_email	mentor_department	mentor_fname	mentor_lname

mentor_id	mentor_phone

student

rollno	student_email	student_program	student_department	academic_year	student_fname	student_lname	Assign_mentor

Rollno	Student_phone

Group meeting

Meeting_code	Rollno	Mentor_id	Title	Description	Mentor_remarks	Date_time

Individual meeting

Individual_meeting_code	Rollno	Mentor_id	Title	Description	Mentor_remarks	Student_remarks	Date_time

Records

id	rollno	mentor_id	Title	Pdf	Date_time

Results

id	rollno	Semester	Cgpa	Subject	Date_time

5.3 **Data Dictionary:**

A data dictionary contains metadata i.e., data about the database. The data dictionary is very important as it contains information such as what is in the database, who is allowed to access it, where is the database physically stored etc. The users of the database normally don't interact with the data dictionary, it is only handled by the database administrators.

1.Admin_login

Name	Type	Atribute	null	Default	Extra
admin_id	char(6)		No	*None*	
admin_email	varchar(90)		No	*None*	
admin_name	char(10)		No	*None*	
admin_password	varchar(35)		No	*None*	

2.Mentor

Name	Type	Atribute	null	Default	Extra
mentor_id	char(6)		No	*None*	
mentor_email	varchar(90)		No	*None*	
mentor_phone	char(10)		No	*None*	
mentor_firstname	varchar(35)		No	*None*	
mentor_lastname	varchar(35)		No	*None*	
mentor_department	varchar(100)		No	*None*	
mentor_password	varchar(255)		No	*None*	

3.Student

Name	Type	Atribute	null	Default	Extra
Rollno	char(8)		No	*None*	
student_email	varchar(80)		No	*None*	
student_phone	char(10)		No	*None*	
student_firstname	varchar(35)		No	*None*	
student_lastname	varchar(35)		No	*None*	
academic_year	int(4)		No	*None*	
student_depertment	varchar(100)				
student_program	varchar(100)		No	*None*	
student_semester	varchar(20)		No	*None*	
student_password	varchar(255)		No	*None*	

Name	Type	Atribute	null	Default	Extra
assign_mentor	char(6)		No	*None*	

4.Indivisual meeting

Name	Type	Atribute	null	Default	Extra
mentor_id	char(6)		No	*None*	
rollno	char(8)		No	*None*	
individual_meeting_id	int(11)		No	*None*	AUTO_INCREMENT
title	varchar(100)		No	*None*	
description	varchar(200)		No	*None*	
date_time	timestamp		No	*None*	ON_UPDATE CURRENT_TIMESTAMP
student_remarks	varchar(100)		No	*None*	
mentor_remarks	varchar(100)		No	*None*	

5.Group_meeting:

Name	Type	Atribute	null	Default	Extra
meeting_code	varchar(8)		No	*None*	
mentor_id	char(6)		No	*None*	
rollno	char(8)		No	*None*	
meeting_id	int(11)		No	*None*	
title	varchar(50)		No	*None*	
description	varchar(200)		yes	*Null*	
date_time	timestamp	on update CURRENT_TIMESTAMP		CURRENT_TIMESTAMP	ON UPDATE CURRENT_TIMESTAMP
student_remarks	varchar(100)		No	*None*	
mentor_remarks	varchar(100)		No	*None*	
mark_read	tinyint(1)		No	*None*	

6.Records

Name	Type	Atribute	null	Default	Extra
id	int(11)		No	*None*	
rollno	char(8)		No	*None*	
mentor_id	char(6)		No	*None*	
title	char(200)		No	*None*	
pdf	varchar(300)		No	*None*	
date_time	timestamp	on update CURRENT_TIMESTAMP	No	CURRENT_TIMESTAMP	ON UPDATE CURRENT_TIMESTAMP
flag	int(2)		No	*None*	

7.student_phone_number

Name	Type	Atribute	null	Default	Extra
rollno	char(6)		No	*None*	
Phone_number					

5.4. Data flow diagram:

5.4.1 Context Diagram:
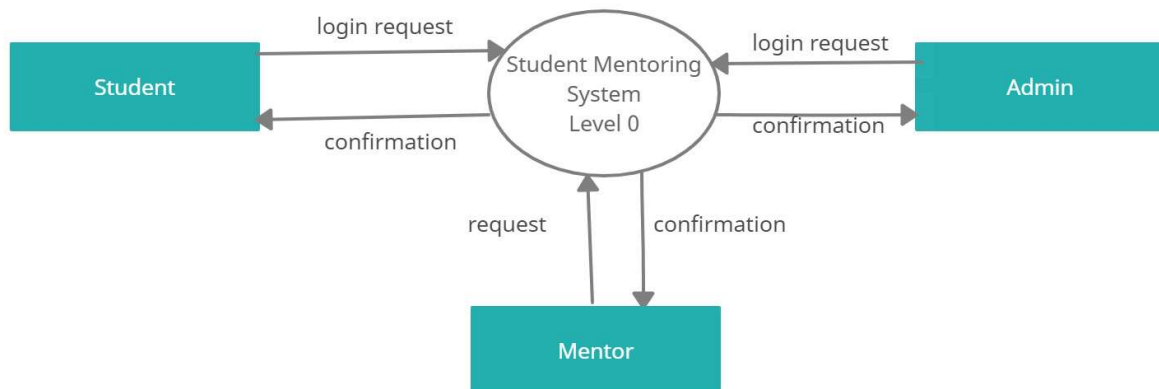
5.4.2 Level 1 DFD
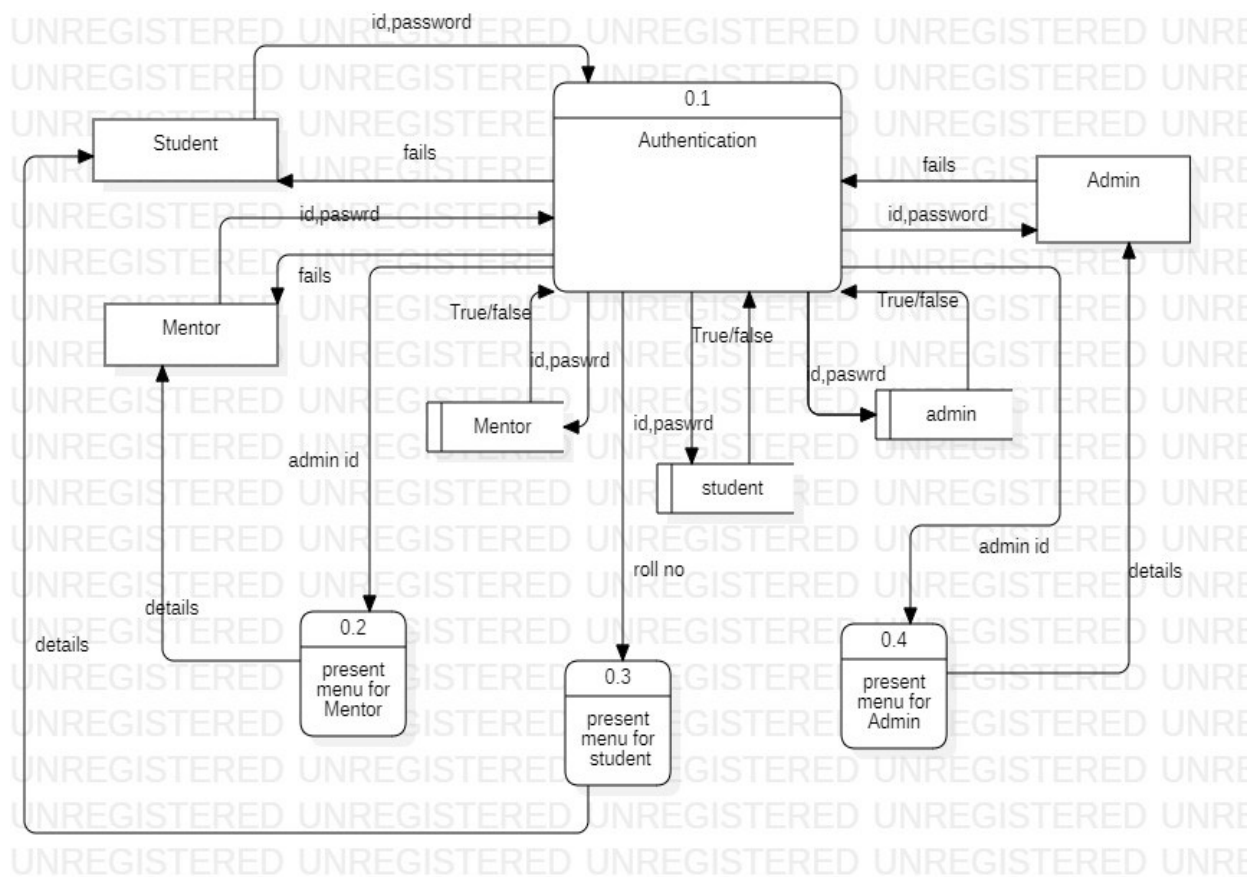
5.4.2 Level 2 DFD:

- **Level 2: Mentor**
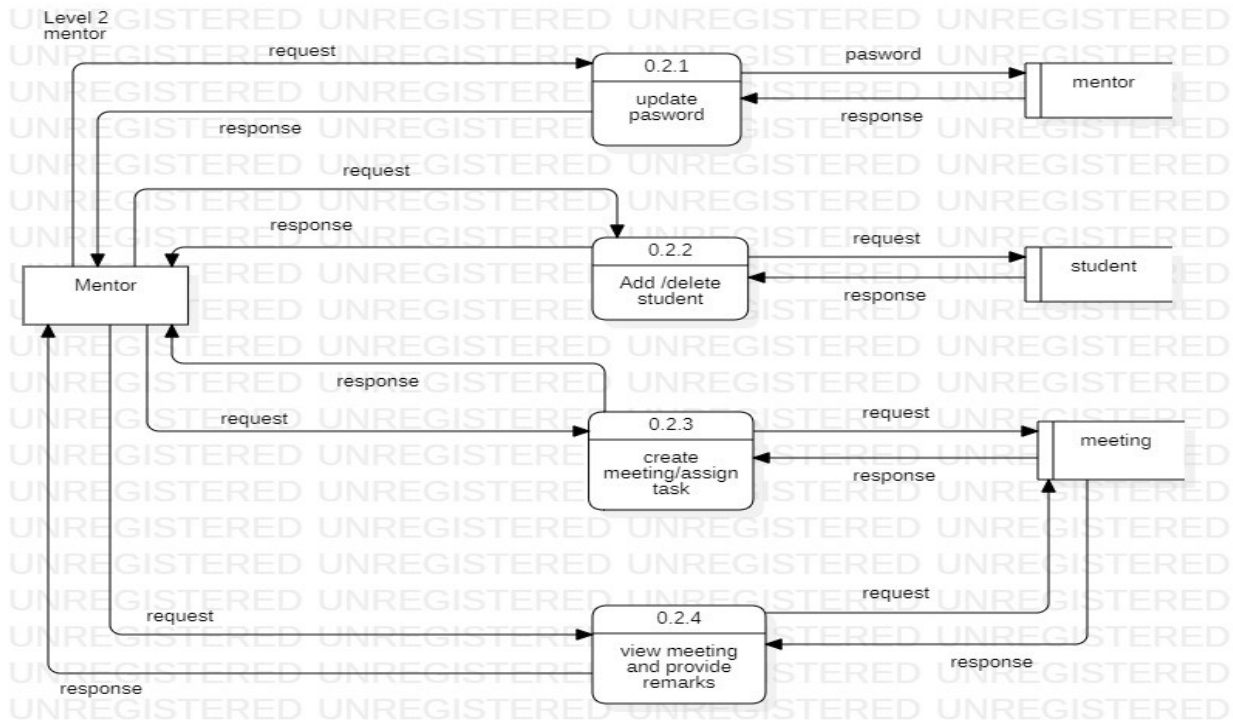
- **Level 2: student**

- **Level 2: Admin**

request
0.4.1
update
pasword
pasword
admin
response
response

request
0.4.2
add/delete/fetch
mentor details
request
mentor
response
response

admin

response
0.4.3
add/delete/fetch
student details
request
student
response

no. of student
0.4.4
assign mentor
and fetch
details
request
student
response
response

request
0.4.5
upload file
request
records
response
response
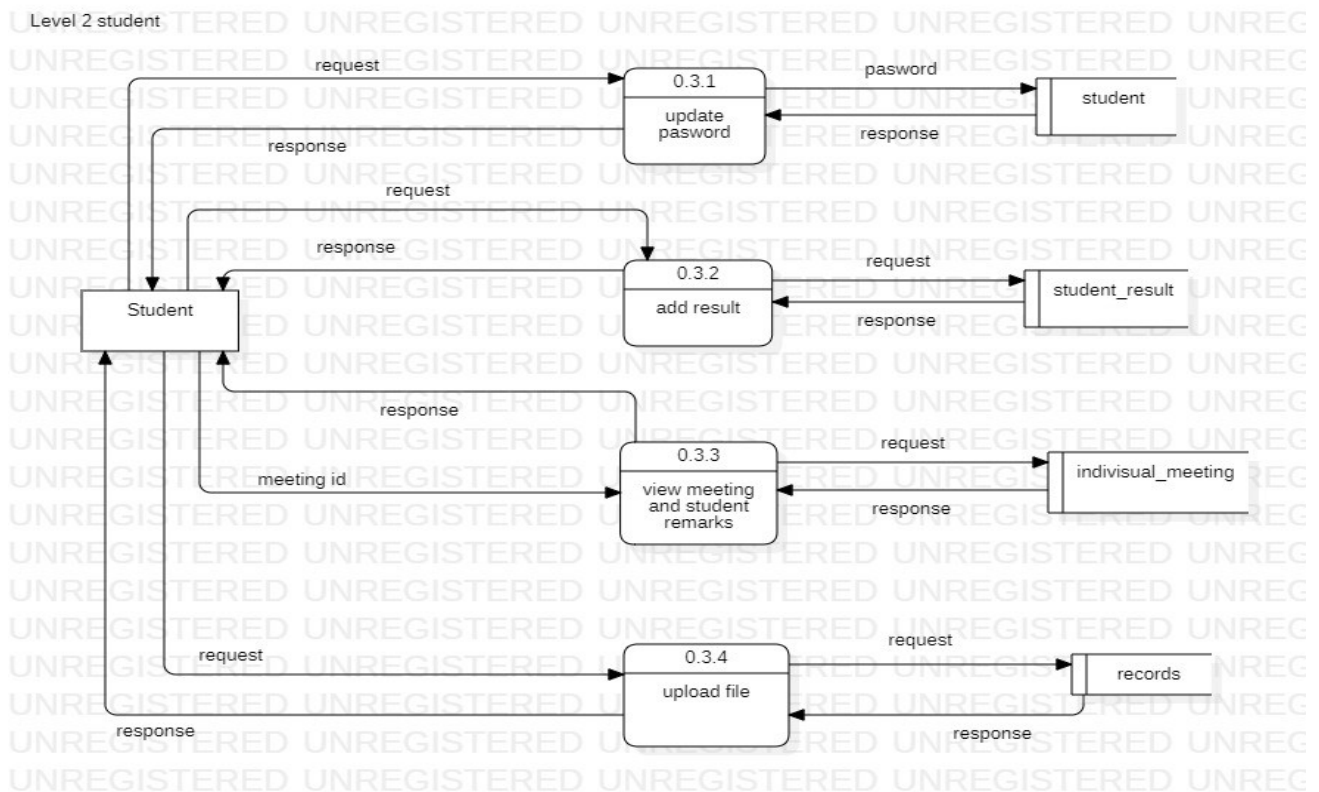
5.5 <u>Object Oriented Design or UML Design:</u>

UML stands for Unified Modeling Language. A UML diagram is a diagram based on the UML (Unified Modeling Language) with the purpose of visually representing a system along with its main actors, roles, actions, artifacts or classes, in order to better understand, alter, maintain, or document information about the system

5.5.1. Activity Diagram:
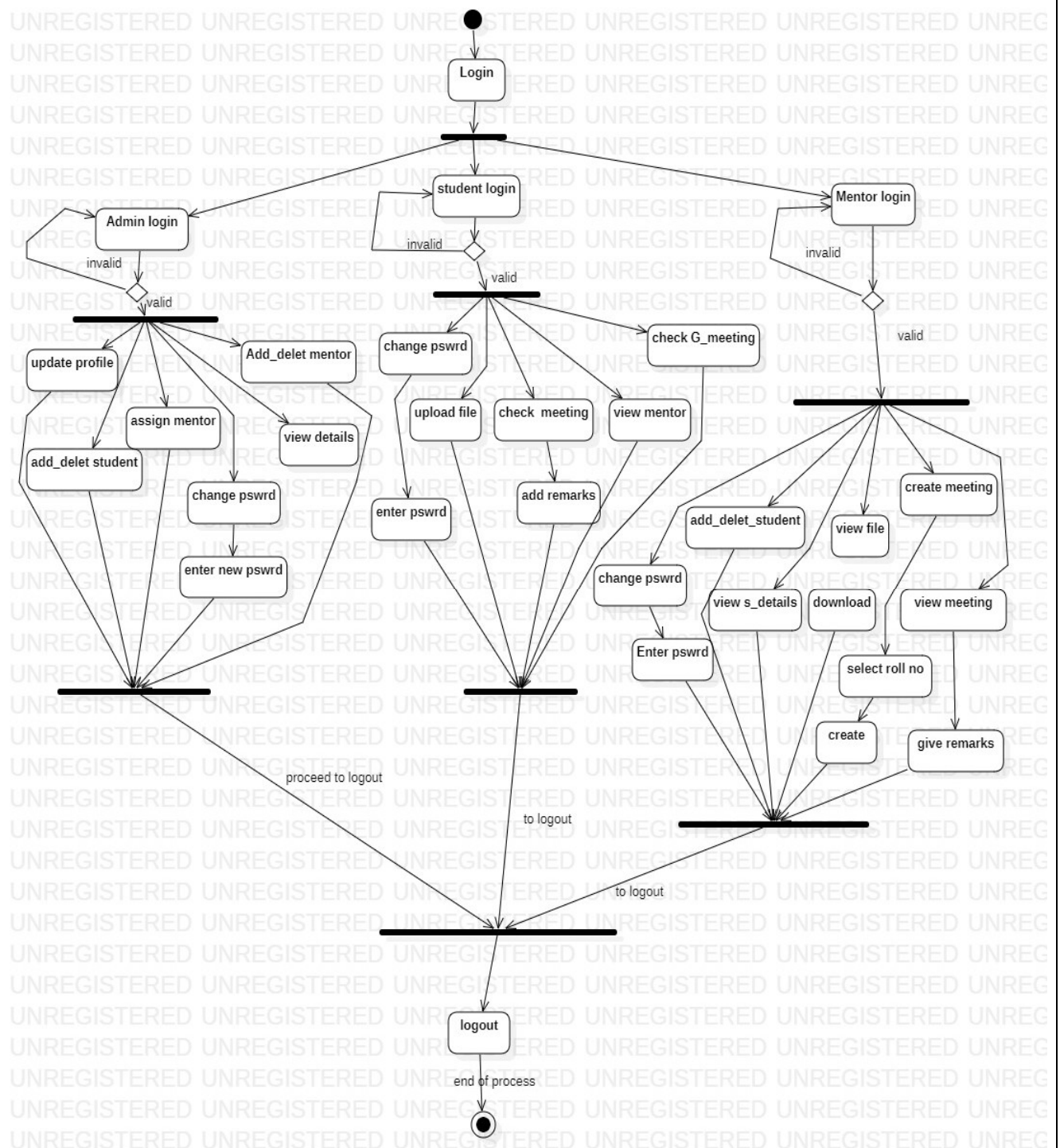
6. Coding & Implementation

6.1. System Implementation:

6.1.1 Software Development Platform

HTML and **CSS** are used in frontend and PHP and MySQL are used in Backend for developing this project.

HTML provides the basic structure of websites, which is enhanced and modified by other technologies like CSS and JavaScript.

CSS is used to control presentation, formatting, and layout.

MySQL is a relational database management system based on SQL – Structured Query Language. The application is used for a wide range of purposes, including data warehousing, e-commerce, and logging applications. The most common use for MySQL however, is for the purpose of a web database.

JavaScript is used to create dynamic and interactive web content like applications and browsers. It is used as a client-side programming language.

PHP (Hypertext Preprocessor) is known as a general-purpose scripting language that can be used to develop dynamic and interactive websites.

XAMPP server is used here it consists of **Apache HTTP Server, MariaDB, and interpreter** for the different programming languages like PHP and Perl. XAMPP helps a local host or server to test its website and clients via computers and laptops before releasing it to the main server.

Git is a DevOps tool used for source code management. It is a free and open-source version control system used to handle small to very large projects efficiently. Git is used to tracking changes in the source code, enabling multiple developers to work together on non-linear development.

6.1.2 System Modules:

Admin Module
➢ Update profile and password
➢ Add student and mentor
➢ Allocate mentor to student
➢ Can edit and delete or update details

Each task is thoroughly coded and tested after completion of code

Student Module
➢ Authenticate login and update password
➢ Get remarks
➢ Send remarks about task
➢ Upload file

Each task is thoroughly coded and tested after completion of code.

Mentor Module
- ➢ Update password
- ➢ Provide remarks
- ➢ Get remarks
- ➢ Create meeting and send mail
- ➢ Get uploaded file

Each task is thoroughly coded and tested after completion of code.

7.<u>System Testing:</u>

7.1 Unit Testing: We have tested some module individually and corrected them as requirement raised. For the purpose of unit testing, we created some random test data on our own and tested the system by using those test data. We have inserted erroneous as well as correct data and checked the behavior of the system. Some of the test cases used in unit test are listed below. We executed the system and tested each test case and compared the expected result with actual result and did the rectification wherever required.

- **7.2 Integration Testing:** It is the second step of testing. It need not be the case, the software whose modules when run individually and showing perfect results, will also show perfect results when run as a whole. With the help of some test data were created at the time of testing individual modules but this may not sufficient for further testing of the system as a whole. So, in this testing phase we consider the single modules under this major module and tested again and verified the results from which after that we sure that the second step of system testing for our module is verified.

- **7.3 User Acceptance Testing:** The process of evaluating software during the development process or at the end of the development process to determine whether it satisfies specified business requirements. Validation Testing ensures that the product actually meets the client's needs. It can also be defined as to demonstrate that the product fulfils its intended use when deployed on appropriate environment. In "Student Mentoring System" whenever the students try to login with any blank fields into   the system and incorrect data entered and mismatch the name, email format, date of birth, an alert message is displayed by the system.

8.Conclusion and future work:

8.1. Limitation of Our Project:

➢ The SMS system is developed to overcome the short comings of the manual system, but still there are many limitations to this new system.

➢ The limitations are as follows:
  1. This application is developed for an Online Mentoring.
  2. It doesn't have the features like to View Attendance in database, etc.
  3. Many features can be made more dynamic.

8.2 Futures Scope of System:

➢ Add services (like view attendance, point to point message passing.)

➢ Improve visiting experience of attendances.

➢ Generate monthly wise performance report automatically.

➢ Actual virtual meeting like video calling.

8.3 Conclusion:

The implement of the project has been near to completion to what was planned and designed earlier. However, there may be some shortcomings according to one's perception. The system was designed in the client/server model. After being lapsed, the system may be revived under certain condition, which is not covered in the system. As the necessity precipitates and further enhancement of the system becomes inevitable, the current system will serve as a building block for that system.

➢ At the time submitting the report we have successfully designed the Application to handle Student Online Mentoring System.

➢ We have also designed our data dictionary to store most the data but when we will modify the system later, it may be possible that data dictionary may change,

➢ We have tried our best to make our website user friendly and useful to company.

9. <u>Screenshot:</u>
Homepage:

Admin dashboard:
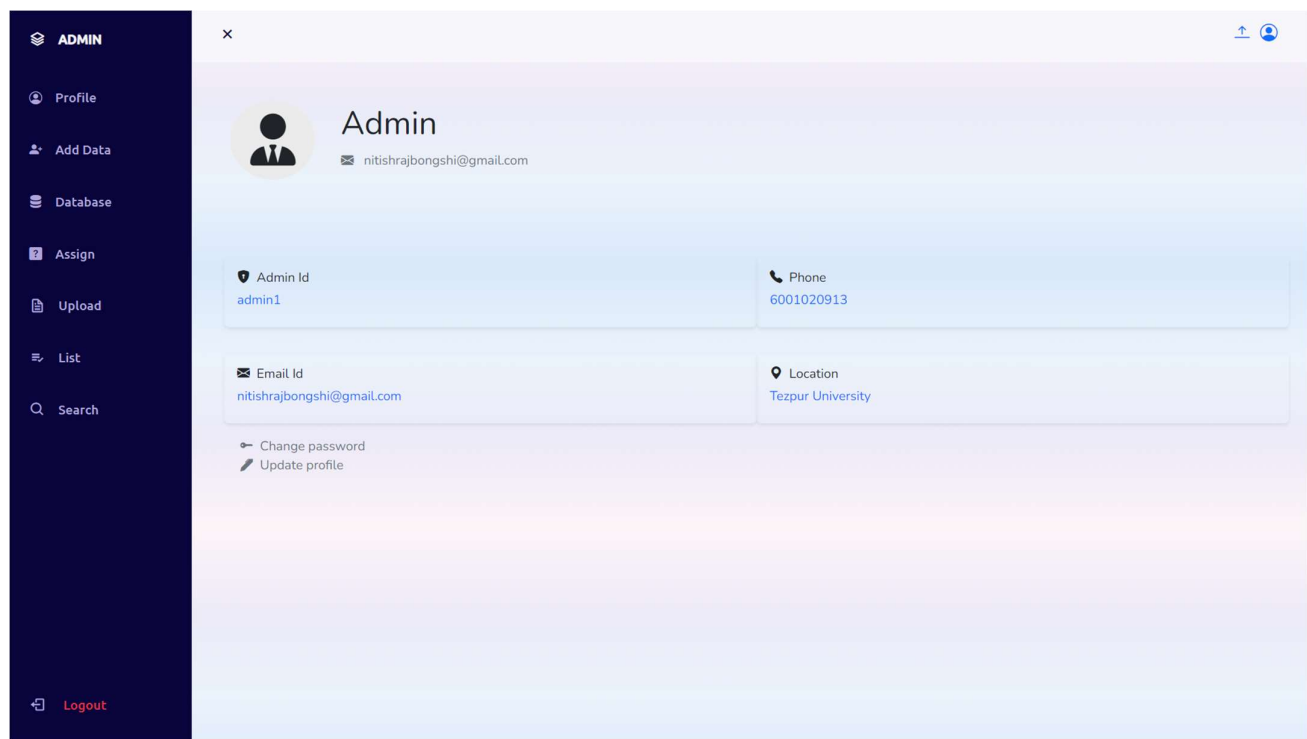
Admin can see all details

Admin can add details using excel sheet

Student dashboard:

Student can view meeting:

Mentor dashboard:

Mentor can create meeting:

All user can upload file:

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Chapter-10

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<div align="center">

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ER-Diag.

Entities and attributes:

Mentor
- mentor_id
- Name
  - mentor_lname
  - mentor_fname
- mentor_phone
- mentor_email

Individual meeting
- description
- meeting_code
- title
- student_remarks
- mentor_remarks

Monitor (1 — M)

Group meeting
- title
- meeting_code
- mentor_remarks
- description

Share Records (1 — 1)
- id
- pdf
- title

Student
- academic_year
- rollno
- Name
  - student_fname
  - student_lname
- student_department
- student_email
- student_phone
- student_program

have (1 — M)

result
- result_id
- Semester
- Subject
- grade