A Project Report

On

“Online Private Tutor Finding System”

Department of Computer Science and Engineering

Bangladesh University of Business and Technology (BUBT)

Mirpur-2, Dhaka – 1216

25 March 2023

"Online Private Tutor Finding System"

This Project Report Submitted in Partial Fulfillment Of therequirements For the Course of "Software Development III".(CSE Regular Intake-44, Section-03)

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Approval

This is to Certify that the project entitled “Online Private Tutor Finding System” has been submitted to the Department of Computer Science and Engineering, Bangladesh University of Business and Technology, Mirpur-2, Dhaka - 1216, for the fulfillment of the requirement for the course of “Software Development III”.

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Declaration

We, hereby declare that the discussion entitled “Online Private Tutor Finding System” being submitted by us towards the partialfulfillment of the requirement for the course of “Software Development III”, Department of Computer Science andEngineering is a project work carried by us under the supervision of T. M. Amir - Ul - Haque Bhuiyan sir and have not been submitted anywhere else.

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Acknowledgement

We like to share our sincere gratitude to all those who help us in completion of this project. During the work we faced many challenges due to our lack of knowledge and experience, but these people help us to get over from all the difficulties and in final compilation of our idea to a shaped sculpture.

We would like to thank T. M. Amir - Ul - Haque Bhuiyan sir for her governance and guidance, because of which our whole team was able to learn the minute aspects of a project work.

We are also thankful to our whole class and most of all to our parents who have inspired us to face all the challenges and winall the hurdles life.

Dedication

We would like to express our deepest appreciation to all who provided us the possibility to complete this report. A special gratitude goes to our supervisor T. M. Amir - Ul - Haque Bhuiyan sir for guiding us in the development of this project. Our warmest gratitude for this semester Project for aiding our system and giving the feedback and valuable guidance.

We take this opportunity to thank our parents and our family for giving moral support and encouragement. Special thanks to all lectures under Faculty of Computer Science and Engineering (CSE) for their attentions, guidance, and advice in developing this project. We, sincere thanks to our fellow friends for their help in finishing this project.

Abstract

In this busy world searching of tutors for any subject is a very difficult. To makeit simple here with we proposed an idea to find a subject expert tutor through website. The proposed work has the common platform where the tutor and the student can access on their respective available views. In this website student can register and view the availability of the subject expert based on rating of the tutor. This system will be helpful for students to find their tutor. The methodology used to build this system uses the Rational Unified Process (RUP). The technology platform in implementing this system programming environment with Java using MySQL for SQL database HTML for web development.

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CHAPTER 1
INTRODUCTION

1.1 Background

This project aims at developing an application with the aim of making it easier for tutors and students to instantly find and connect with thousands of professional and certified tutors at one place. We provide the search engine which will help the students to search their specific tutor with different filters. Based on applied filters, the search engine will find the most relevant data and will recommend it to the user. This application will also integrate Search by Location feature to help the users to search the tutors in their surrounding locations. Finally, the users will allow to rate and give their review about any tutor on their services which will make this application more useful to the other users.

1.2 Problem Statement

Several problems have been discovered during proposing the system. The problem statement includes, the users find it difficult to find a tutor that suits their need. Each tutor has its own advantages and disadvantages, which makes it difficult for some user to adapt to the tutor that cause the teaching process will become ineffective. Also, the user who lives outside the urban area will find it difficult to find tutor nearby. Usually, tutor services are only concentrated in urban areas, which means that users who are outside of the urban area cannot access these services. Therefore, the user that need these services they will have to find and contact a tutor that located far away from the rural areas which will result in increased service costs. Next, User need to contact the tutor to ask for the availability of tutor, every time to use a tutor service, students or tutors need to connect with each other before moving on to the next step. Sometimes due to the time constraints of the tutors, it makes it difficult for students to connect with each other.

1.3 Objectives

In order to achieve the above-mentioned aim, the objectives of this project are as follows:

- ❑ To develop an application that can manage the process.
- ❑ To design a system that can allow users to connect any tutor with thousands of professional and certification at one place.
- ❑ To develop a platform for users to find the tutors based on their specification need
- ❑ To test the effectiveness of the developed application to meet the user requirement.

1.4 Scopes

1.4.1 Admin

Admin can handle the management of the tutor finder application. Manage the information of the tutor and manage all the report of the system.

1.4.2 User

User can register and manage personal information. Find the tutor based on their own need. View tutor schedule and manage booking on the schedule. Also, student can manage rating and view report.

1.4.3 Private Tutor

The tutor needs to apply to become tutor in the system. Tutor also can manage profile, manage subject and schedule. Then, tutor can approve booking from student and view the report.

1.5 Activities and Milestones

Gantt Chart that describes the activities and milestones that involves in implementing this project as shown in Table 1.5

ONLINE PRIVATE TUTORS FINDER SYSTEM

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
Project Title Proposal								
Proposal Writing								
Discussion and Correction of the Proposal								
Proposed Solution – Methodology								
Proof of Concept								
Seminar Preparation – Project Poster and Slide								
Seminar Presentation and Evaluation								
Finalizing Report of the Proposal								
Final Report Submission and Evaluation								

CHAPTER 2
LITERATURE REVIEW

2.1 Introduction

Basically, this chapter discuss the techniques, methods, and approach that have been used to develop the system. The related journal and article about the various technique and approach was analyzed to find the best implementation technique that can use in this tutor finder recommendation system. The comparison between the different technique is done to get better understanding for each technique effectiveness. Then, the related system that have the same functionality as the Online Tutor Finder Application is reviewed to help in understanding and gain knowledge about how to implement the system in real application.

2.2 Tutoring system

2.2.1 What is private tutor system.

Private tutor services provide the extra scaffolding to students and can also encourage gifted student by introducing them to more advanced topics that not covered in a school curriculum/university etc. By working one-on-one, tutors can go over content at a pace that is right for every student.

2.2.2 Benefits of private tutoring system

Private tutor can assist with student assignments and help enforce good study habits, including setting smart targets which are specific, measurable, achievable, and relevant in each time period. Tutoring can boost confidence and give previously underperforming children a track record of success. This creates a momentum of its own. For pupils who are already doing well, tutoring can offer scope for fine-tuning exam and revision technique.

2.2.3 Why to use private tutor service.

Private tutoring is a widespread phenomenon in many developing countries. Using the Vietnam Living Standards Surveys 1997–1998 and 1992–1993 for analysis, this paper finds evidence that private tutoring in Vietnam is a necessity in the household budget for both primary students and lower secondary students, and the trend to attend private tutoring is stronger at higher education levels [6]. This service is found to have significant impact on a student academic performance.

2.2.4 Why Content-Based Filtering used in Tutor Finder System.

Content-Based Filtering technique is one popular technique of recommendation/recommender systems. Content in tutor private finder system refers to the content or attributes of the tutor. So, the idea in content-based filtering is to tag tutor using rating or certain keywords and understand what the user likes, look up those rating/keywords in the database and recommend different tutor with the same attributes. Content-based approach requires a good amount of information of tutor's own features, rather than using users' interactions and feedbacks. For example, it can be tutor attributes such as rating, attitude, effectiveness of teaching etc., or textual content of comment that can extracted by applying Natural Language Processing.

2.3 Related Research Techniques and Tools

A few research on different techniques system aim to compare which technique that suit with the complexity of the system depends on the problem statement stated. On this project, there is a few research with different algorithm have been reviewed.

2.3.1 Content-Based Filtering

Content based filtering algorithms are based on the description of an item and an offhand list of the user's preferences indicating a type of item the user likes. Thus, these algorithms suggest items that are similar to the items which are liked by the user in the past. This algorithm involves two tasks: information retrieval and information filtering. The information which includes the features of an item is extracted with the help of vector spacing representation. This information is developed into a user profile by considering the user's preference and the user's interaction with the recommender system. It creates a content-based profile of users based on the weighted vector of item features.

CHAPTER 3
METHODOLOGY

3.1 Introduction

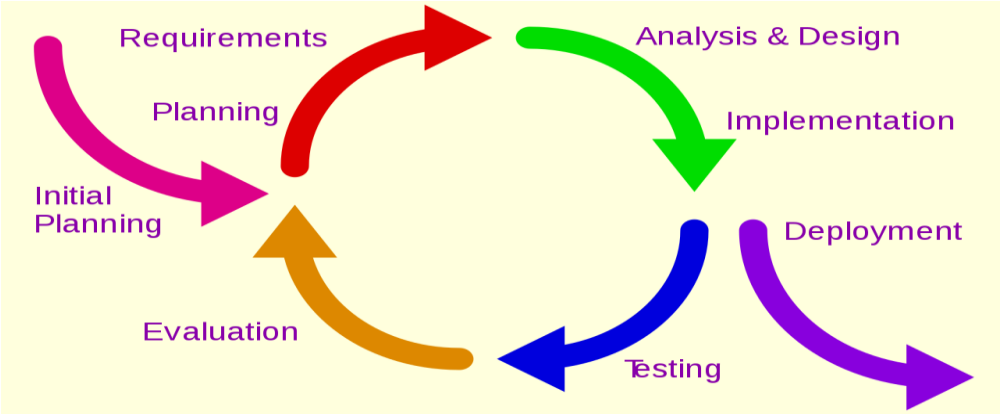
This chapter will be discussed about the project methodology that being used to build the system. The methodology is the set of the complete guideline that includes the models of tools to carry out activities in the Software Development Life Cycle (SDLC). The usage of methodology is to ensure all the processes, techniques, method, and approaches of the system are well defined. It is very important phase of development as it will guide the researchers through all the development periods.

3.2 Justification of Methodology

In this project, Iterative model have been used for development of Private Tutor Finder application. The iterative model is a vital part of System Development Life Cycle (SDLC), as it breaks down the development process of a large software application into smaller pieces. It is a particular implementation of a software development life cycle that focuses on an initial, simplified implementation, which then progressively gains more complexity and a broader feature set until the final system is complete. The requirement of the system is defined and understood clearly. The advantages of using Iterative model have let us to implemented during the earlier stages of software development process, which allows developers and testers to find functional or design related flaws as early as possible. In iterative model, any risk can be identified and resolved during iteration.

3.3 Methodology Figure

3.1 shows the methodology that had been used from the beginning until the end of this project. There are several phases involve in the iterative model which planning and requirement phase, analysis and design phase, implementation phase, testing phase, deployment, and evaluation phase.



3.4 Methodology Phases

3.4.1 Planning and requirement phase

At the first stage, this method needs to identify the specific goals of this project. During this phase, the title has agreed to proceed was Private Tutor Finder Application. It also involved a detailed overview of each goal, including the reason for its selection and the anticipated outcomes of goal-related system. Research for the system is made by reading articles and journals related to the system and the method used. In order to make sure the project can be done on time; system scheduling is being created to ensure that the system will develop systematically. The objectives of the system are identified, and all the requirements are gathered in order to develop the system.

3.4.2 Analysis and Design phase

During the analysis phase, the requirements of the project are being analyzed and fully understand the problem in this project. Some research that related to the system had been done through any resource such as journal, articles, or website. Based on the past research from information gathering the problem statement is determined. Then, the added value also already being decided which is Content Based Filtering method. More research works have been studied to further understand the theory and how the technique can be applied in the system. Methodology, techniques, hardware, and software requirement are also analyzed in this phase to ensure that every requirement and any related things need to be done are suitable with the system. Design phase of the system is done based on the output produced during the analysis phase. In order the discover more details of the system, Context Diagram (CD), Data Flow Diagram (DFD) and Entity Relationship Diagram (ERD) were built to translate the process flow of the system. Interface and database designed based on the requirement stated during analysis phase.

3.4.3 Implementation Phase

In this phase, the implementation has begun. All activities that have been planned during phase before are executed. The system is developed using PHP and JavaScript. The process of writing the coding is being done and the progress of the system are reported from time to time.

3.4.4 Testing Phase

When the system is fully developed, the system is tested, and bugs is corrected to determine whether the system meets the specified requirements and finds any errors present in the code before the system can be used by users. For this system, the black box testing which the internal structure/ design/ implementation of the system being tested, and white box testing is used to test the correctness of the implementation coding which are manage user, manage tutor, manage schedule, booking and rating process and search for any errors and bug. If there any errors, it must be rechecked and come out with the solution.

3.4.5 Deployment and Evaluation Phase

In this phase, the system is getting ready to release to be used by the user. The user uses the system and give their feedback whether it needs to be improved or modify. Then, the modification is being made based on the feedback from the user and to make sure the system meets all the goal and requirement are properly aligned based on the project plan.

3.5 Hardware and Software Requirement

In developing a system, hardware and software as a standard requirement which determines the accomplishment of the system. This requirement relates to each other to build a successful system.

3.5.1 Software Requirement

Operating system	Windows-10
Front- End	HTML & CSS
Back-End	MYSQL & PHP

3.5.2 Hardware Requirement

Processor	2.50GHz
Ram	8 GB
Hard Disk	500 GB
Monitor	Color monitor
Mouse	Mouse
Keyboard	Keyboard

3.6 Context Diagram

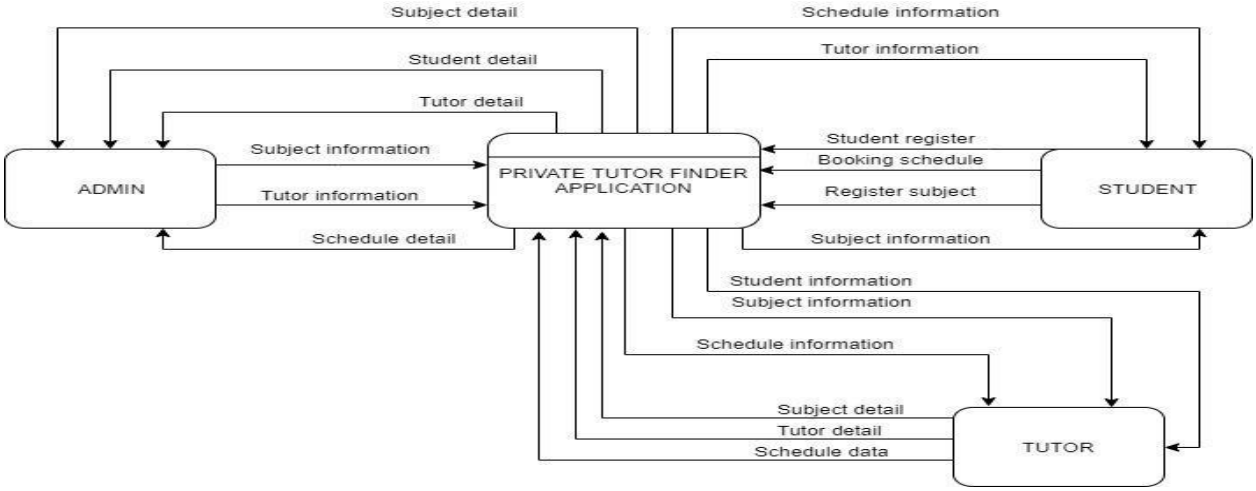


Figure 3.6 Shows Context Diagram

Figure 3.6 shows that context diagram for Private Tutor Finder application. There are three entities involves in the system which are Admin, Student and Tutor.

3.7 Data Flow Diagram

3.7.1 Data Flow Diagram Level 0

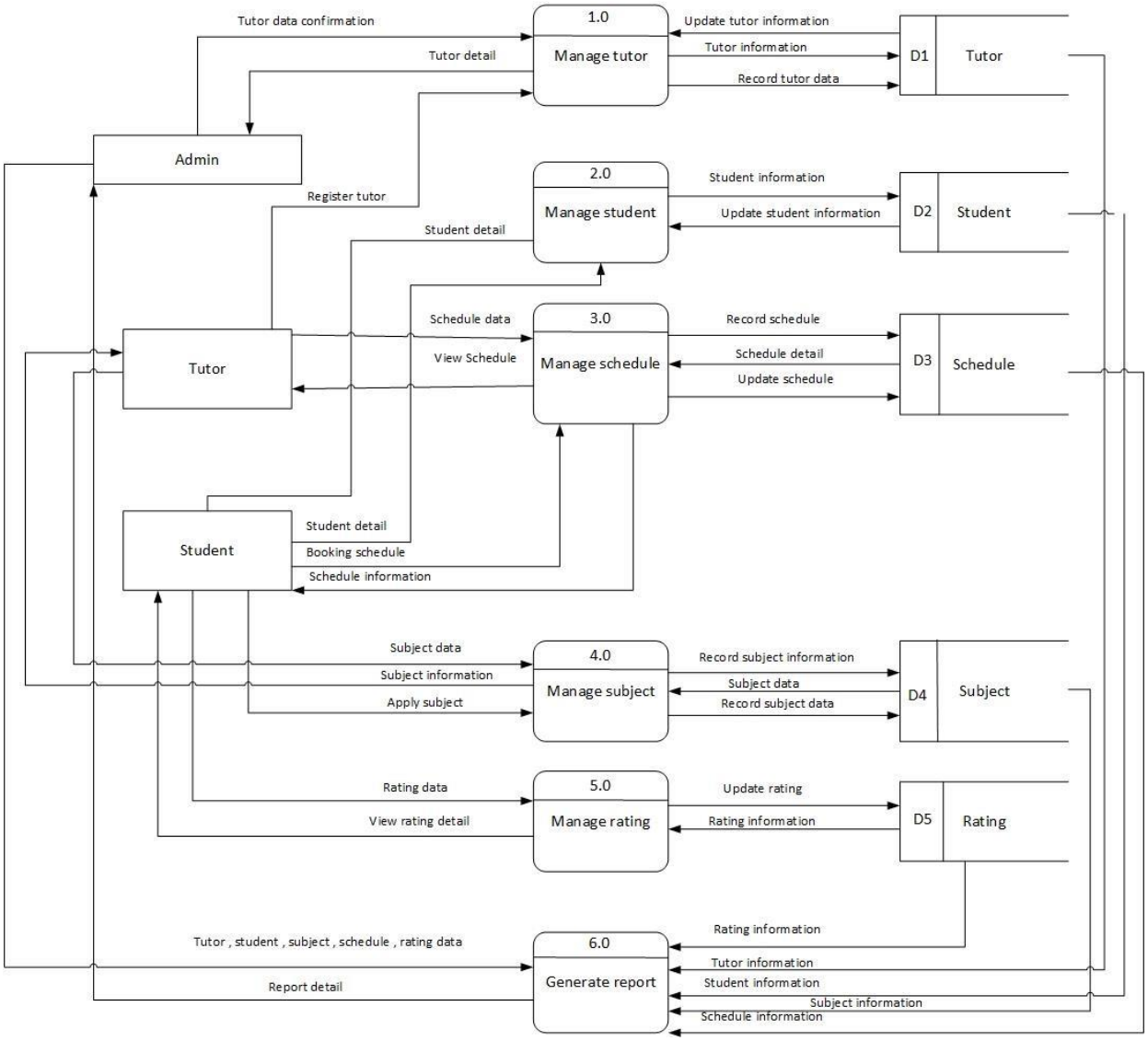


Figure 3.7.1: Data Flow Diagram Level 0

Figure 3.7.1 shows the Data Flow Diagram Level 1. There are three entities used in this system, Admin, Tutor and Student. This system requires five data stores, D1 for Tutor to store any data about tutor, D2 for Student that store student information, D3 for Schedule that store schedule details, D4 for Subject to store data about the subject and D5 for Rating, to store data about the rating. This system also involves six processes in these levels which are 1.0 Manage Tutor, 2.0 Manage Student, 3.0 Manage Schedule, 4.0 Manage subject, 5.0 Manage rating and 6.0 Generate Report.

3.7.2 Data Flow Diagram Level 1 Process 1.0

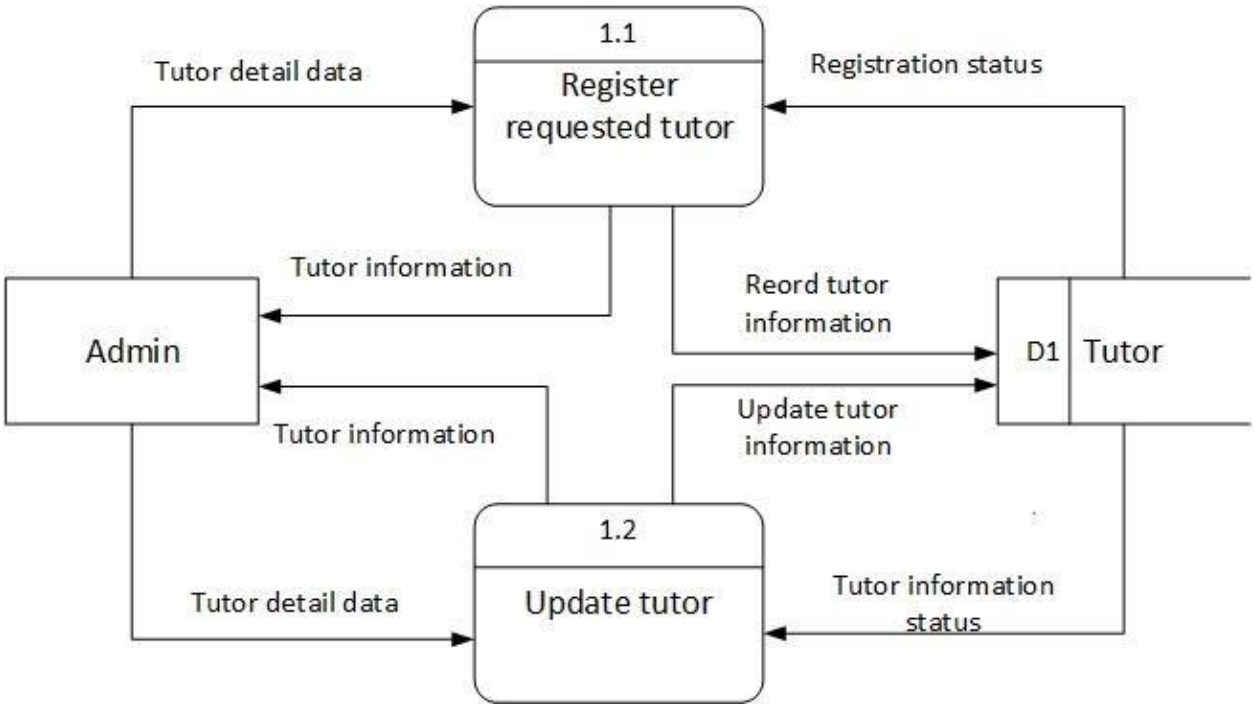


Figure 3.7.2: Data Flow Diagram Level 1 Process 1.0

Figure 3.7.2 shows Data Flow Diagram Level 1 Process 1.0, this process only involves by Admin, one data store and two process. In this process, only Admin can register requested tutor and update the information of the tutor. Admin also can view the tutor data information.

3.7.3 Data Flow Diagram Level 1 Process 2.0

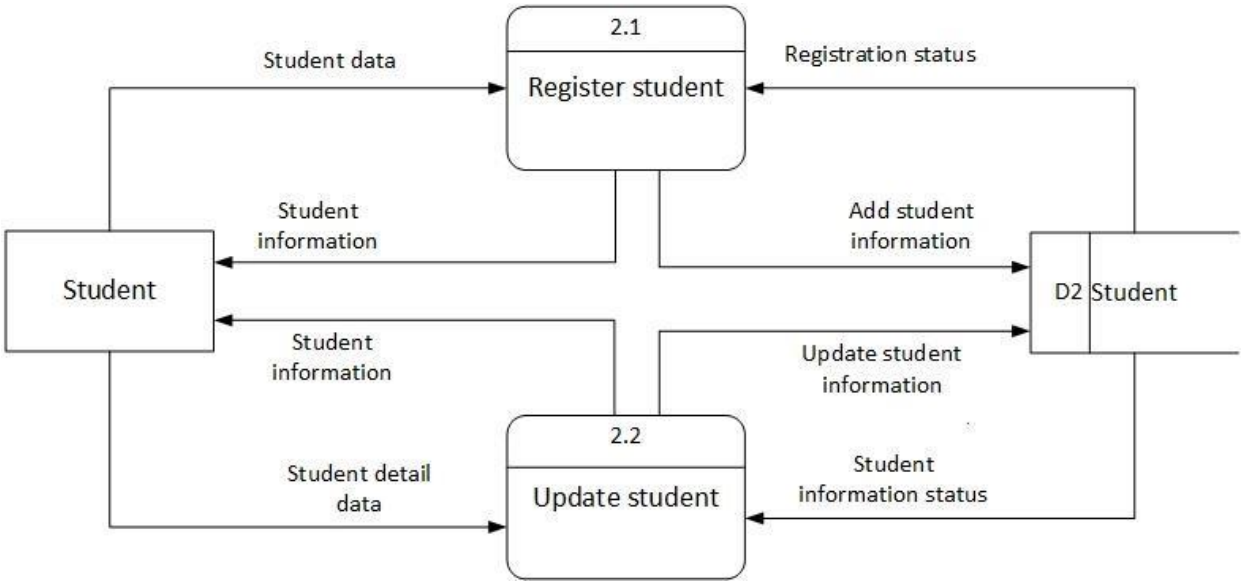


Figure 3.7.3: Data Flow Diagram Level 1 Process 2.0

Figure 3.7.3 shows the DFD Level 1 for process 2.0 which is Manage Student in the system. This process involves Student, two process and Student data store. Student will register themselves to provide information in the system. Student also can view and update at their own details.

3.7.4 Data Flow Diagram Level 1 Process 3.0

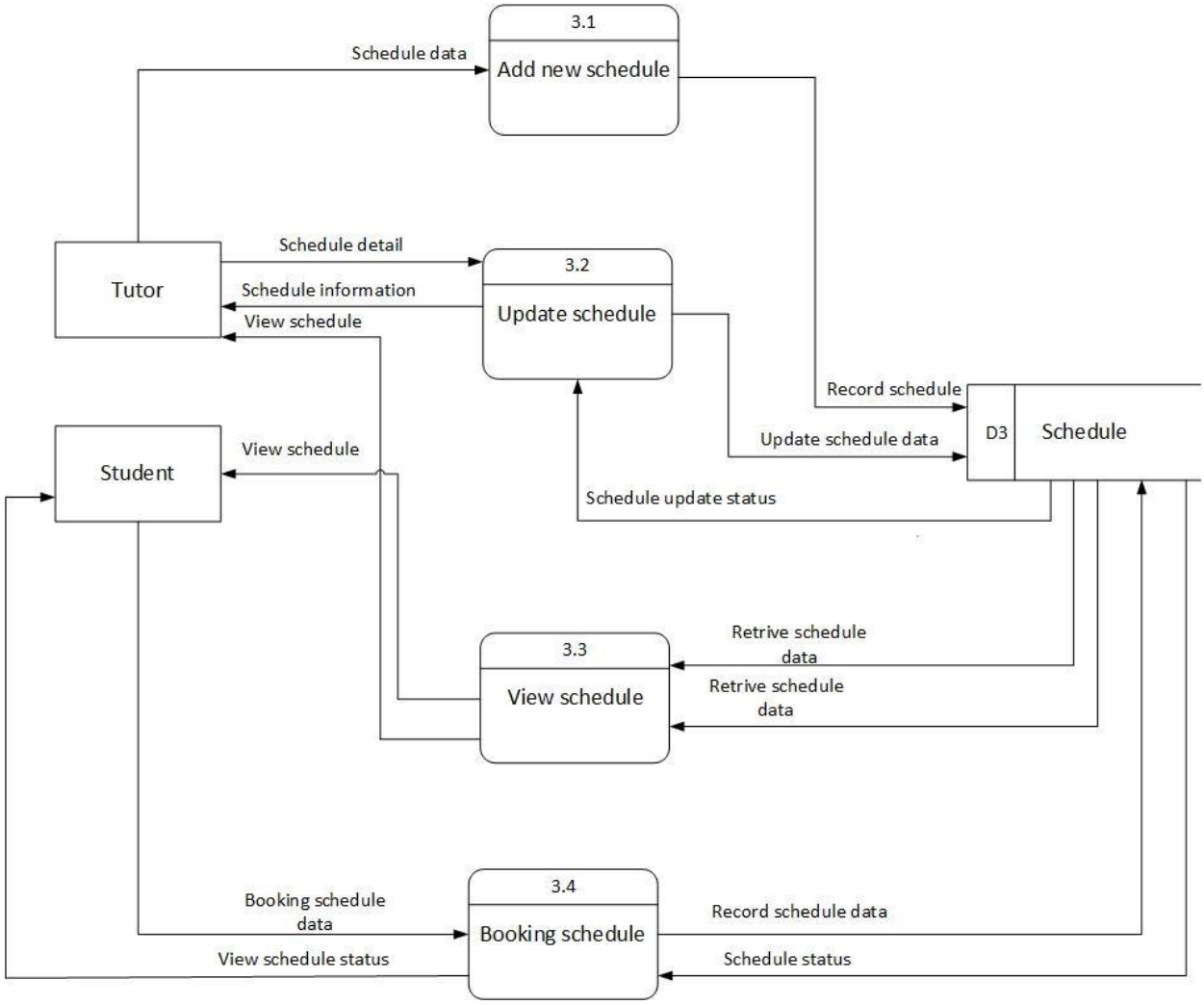


Figure 3.7.4: Data Flow Diagram Level 1 Process 3.0

Figure 3.7.4 shows Data Flow Diagram Level 1 for Process 3.0. This process involved Tutor and Student, Schedule data store and four process which are Add new schedule, Update schedule, View schedule and Booking schedule. Tutor will add new schedule based on their availabilities and can update the schedule if there are any changes happen. Student can book the schedule based on the schedule that has been added by tutor. Also tutor and student can view the schedule details.

3.7.7 Data Flow Diagram Level 1 Process 6.0

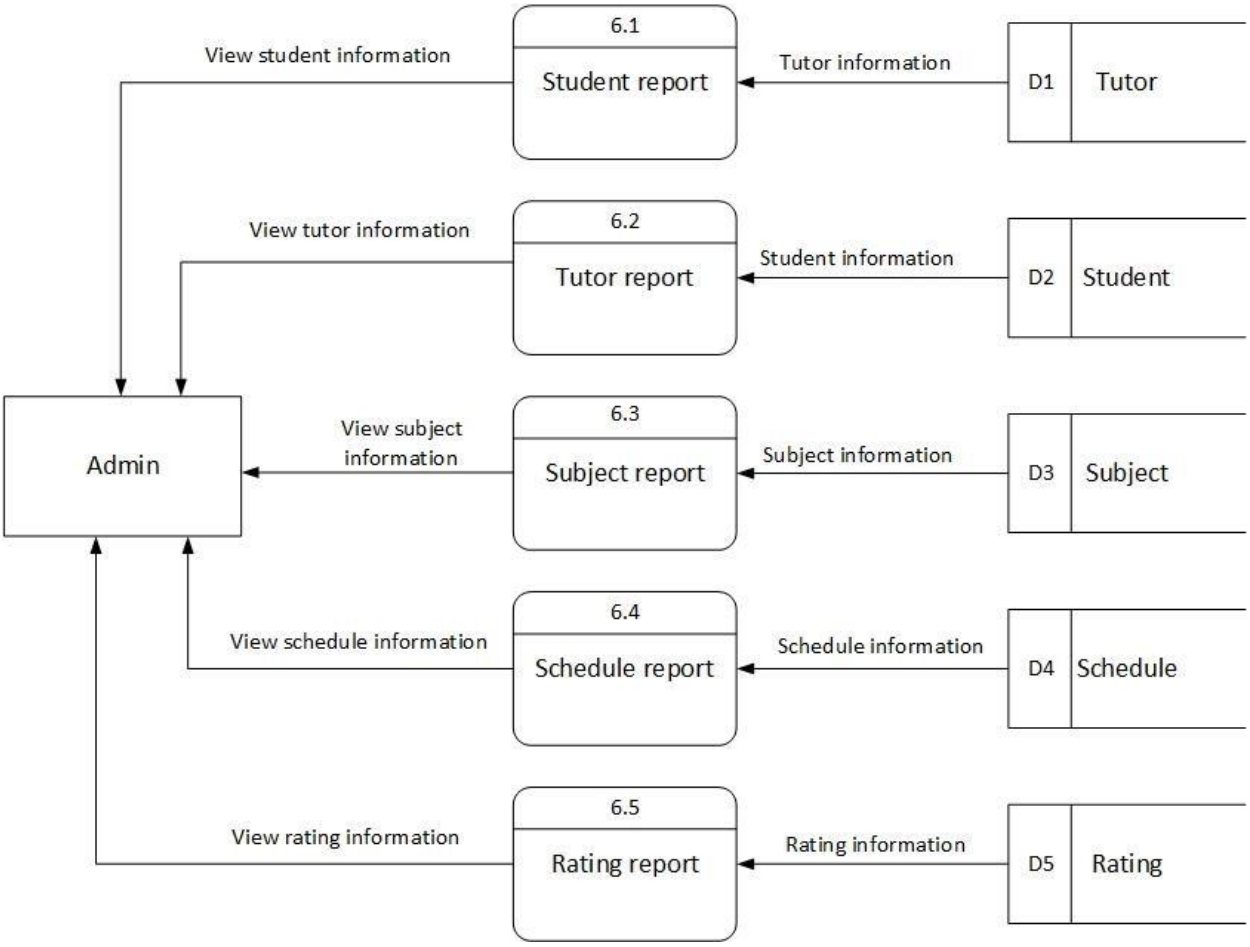


Figure 3.7.7: Data Flow Diagram Level 1 Process 6.0

Figure 3.7.7 shows Data Flow Diagram Level 1 Process 6.0, this process only involved by Admin, six process and five data stores. Admin can view all the system detail information report.

3.8 Entity Relationship Diagram (ERD)

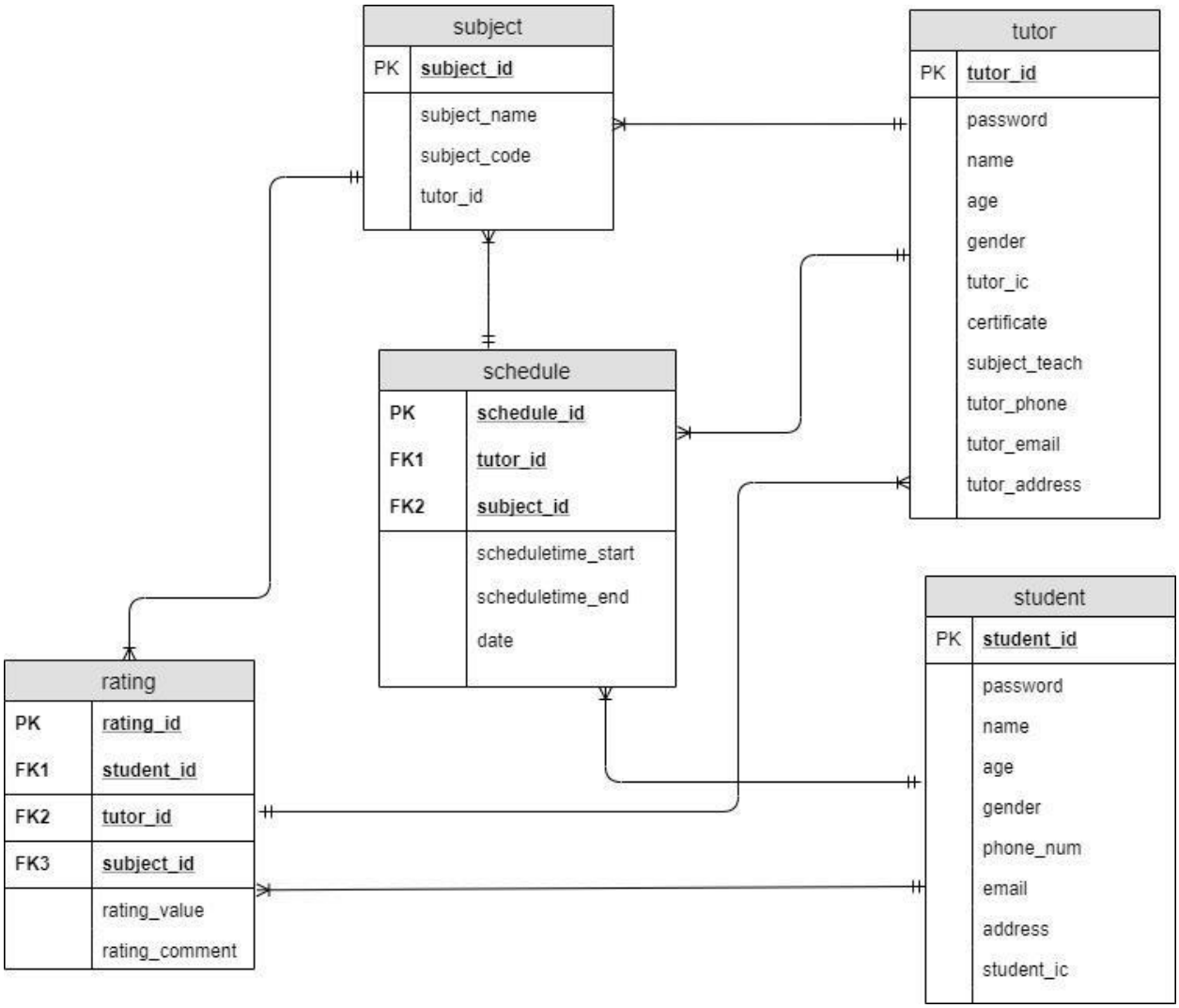


Figure 3.8 Entity Relationship Diagram (ERD)

Figure 3.8 shows the Entity Relationship Diagram (ERD) for Private Tutor Finder system. This ERD will show the relationship between entities. There are five of table that involved in this system which are Tutor, Student, Subject, Schedule, and Rating.

CHAPTER 4
IMPLEMENTATION

4.1 Introduction

This chapter narrates the implementation of Home Tutor Management System design and modeling the have been done previously. All the process in implementation include in getting the system to operate properly with detailed interfaces. Each interface of the project described in detail as if it is in user manual.

4.2 Implementation of the System

For developing Private Tutor Finder, several programming languages has been used. The XAMPP with Apache are used to run the localhost server. Adobe Dreamweaver is used for writing the code.
The interface design is using the bootstrap template. The server-side programming language is using the Hypertext Preprocessor (PHP). The PHP is a powerful tool for making dynamic and interactive Web Pages and widely used because it is general purpose scripting language which can be embedded into HTML. The validation used in this system is HTML, PHP, and JavaScript.
The validation is important to avoid the user from input malicious data and ensuring the input is clean, correct.

4.3 Programming Language

- PHP
- HTML5 – To design interfaces.
- JavaScript

4.4.0 Interface Design

The section shows the interaction between user and system through the system user interface. This ability showed that the system able to receive input and output from the user.

4.4.1 Administrator Module

There were several processes that involved in administrator module such as login, manage subject, manage tutor, manage student, manage schedule, and view report.

Figure 4.4.1: System main Interface

4.4.1.1 Login

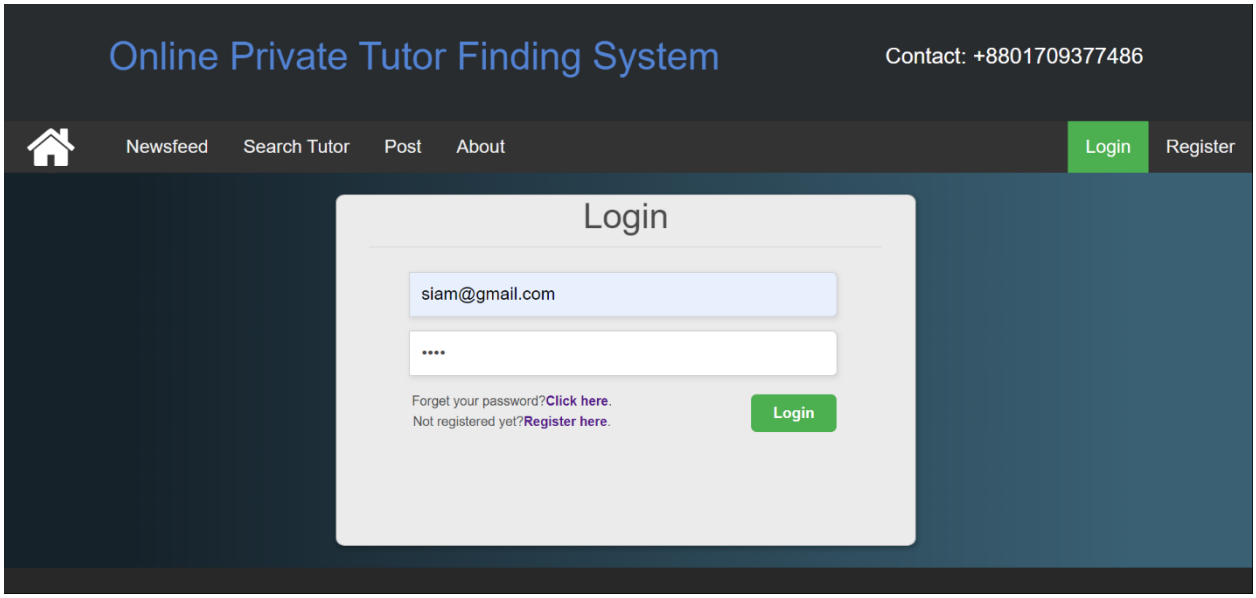


Figure 4.1. Shows a login interface for administrator.

4.4.1.2 Register Page

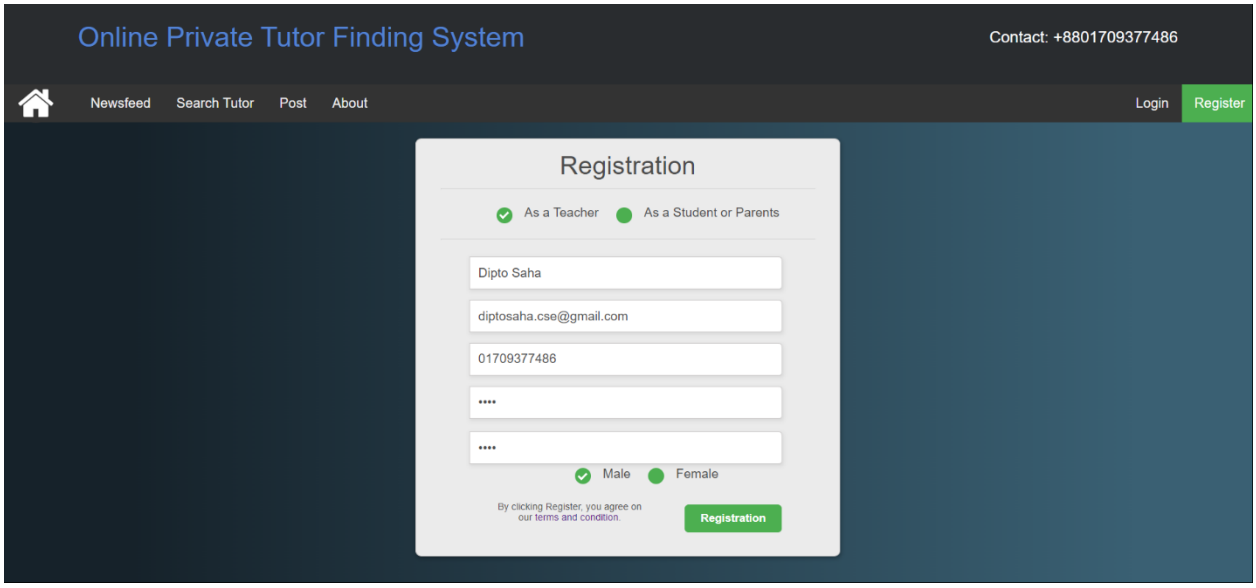


Figure 4.2 shows admin need to fill in email and password to login.

4.4.1.3 Dashboard Page

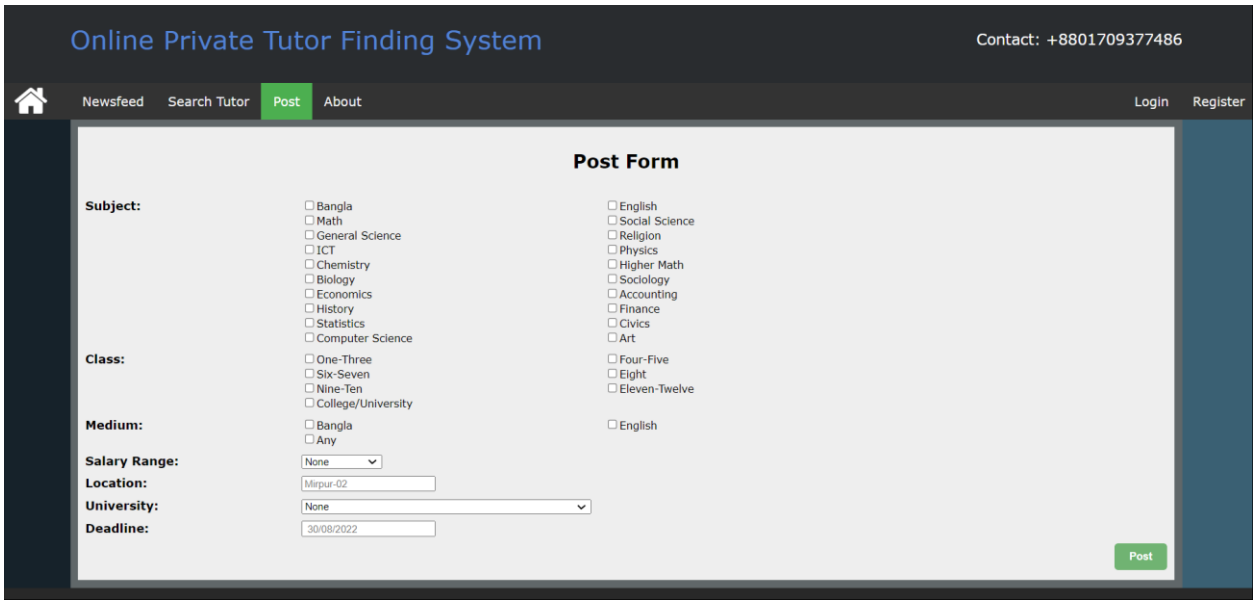


Figure 4.3: above shown the dashboard page

4.4.1.4 Search Tutor

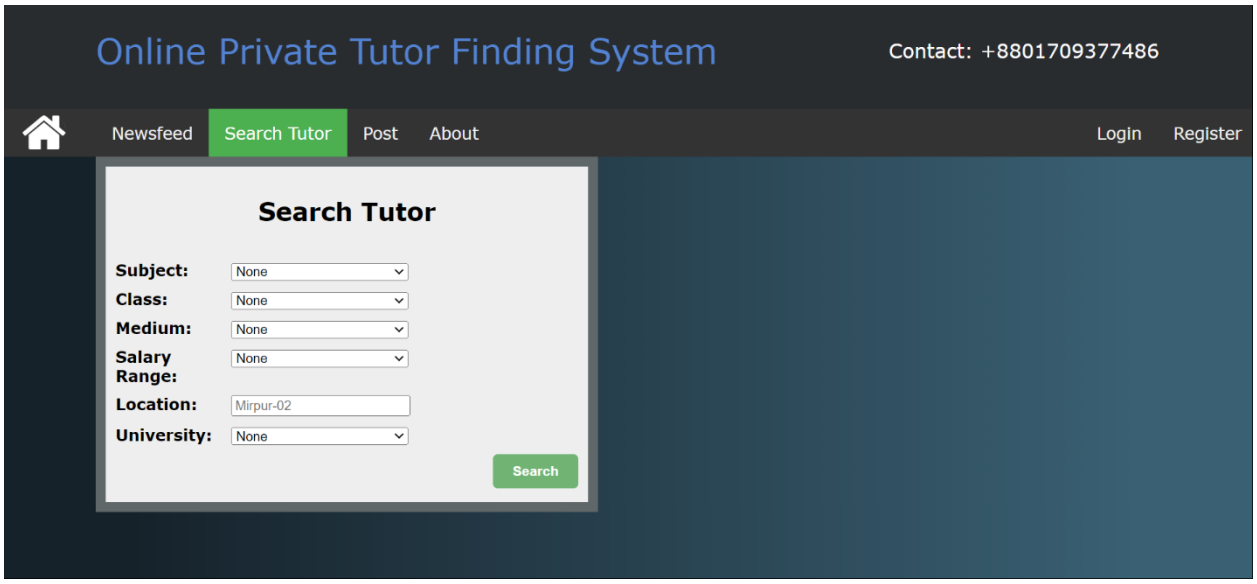
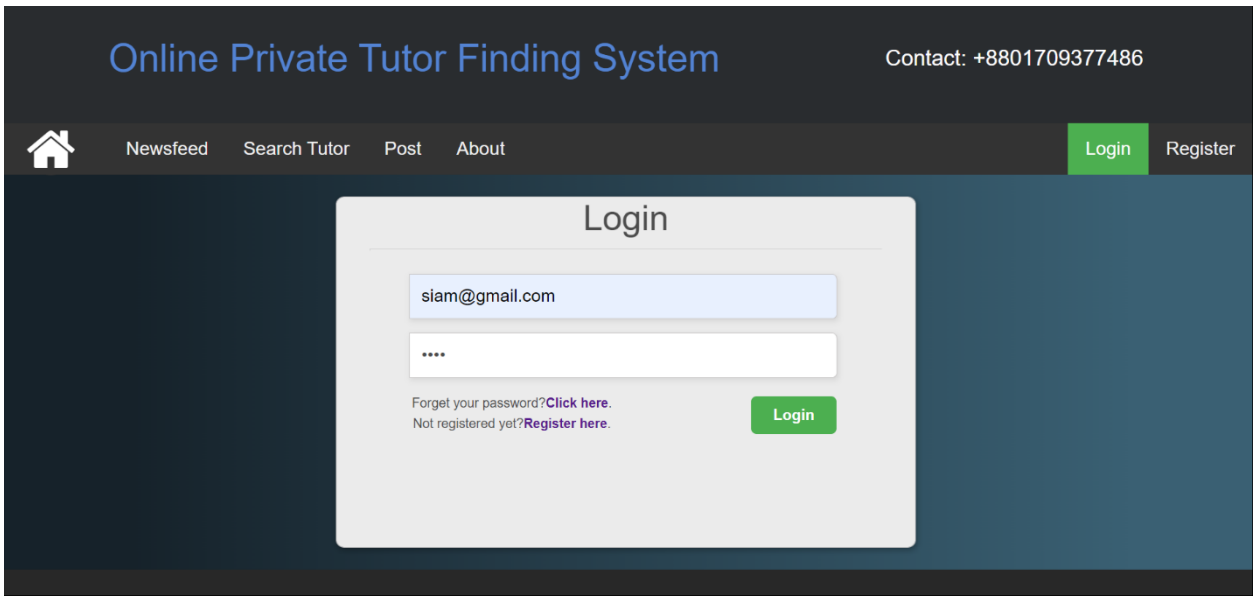


Figure 4.4: above shown the search the tutor

4.4.1.3 Teacher Login



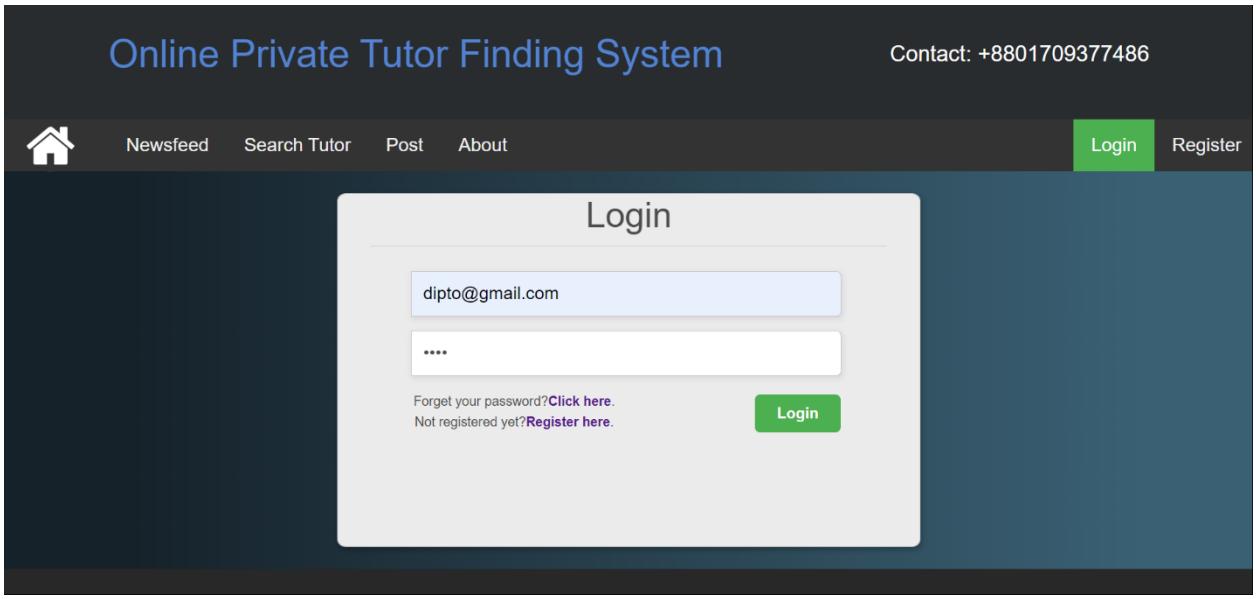


Figure 4.5: above shown the tutor login.

CHAPTER 5
TESTING AND RESULT

5.1 Introduction

In this chapter will discuss about testing that will be done after the implementation process. All the tests and results performed on a system that has been developed are being discussed in this chapter and proof of the accuracy of the results of the project included. Test case also included to determine whether each module that are developed in this system are working correctly and parallel with its specification. This chapter aims to prove that proposed technique which is Content Based Filtering is more reliable.

5.2 Testing Analysis

The system is tested using two techniques of software testing which arc a black box testing and white box testing after the complete implementation. The testing is must in order to get the respective input and output for each process involve in this system.

5.2.1 Black Box Testing The module involves in this testing are:

- Login
- Manage Profile
- Manage Schedule
- Manage Booking
- Manage Subject
- Rating Tutor

5.3 Test Cases

A test case is a set of conditions or variables under which a tester will determine whether a system under test satisfies requirements or works correctly. The process of developing test cases also helps find the problems in the requirement or design of an application. The table below shows the test cases for several processes of the Private Tutor Finder Using Content-Based Filtering Technique.

CHAPTER 6
RESULT AND DISCUSSION

6.1 Introduction

This chapter will be discussed on the achievement, contribution in develop the project, project constraints and conclusion of the project. The limitation faced throughout the system will be discuss in detail in project constraints. This chapter also aimed to summarize the whole project and discussed the direction of this research in the future.

6.2 Project Contribution

Private Tutor Finder Using Content-Based Technique is developed to help student to find tutor with their own need. Besides, it also helps student or user to make an online booking order. This system has been achieved the objectives and all scopes had been fulfilled. The achievement of this project is outline below:

- The systematic application that can manage to find the tutor.
- The system that can allow users to connect any tutor at one place.
- Users can find the tutors based on their specification need.

6.3 Result Discussion

This project has been carried out and follow the objectives that have been stated in Chapter 1. This project helps the student to find the tutor much easier. The system provides booking processes to make sure the student or user can meet a tutor more easily. Besides, the system also provides rating and review function to make the searching of the tutor more efficient. With the Content-Based Filtering Technique algorithm that implemented in the system, user can request a specific tutor based on behavior that they want. Thus, this system will give benefits to the user and tutor.

6.4 Project Constraints and Limitation

There are few problems and limitations that occur throughout the development of these project which are:

- The system does not include online payment.
- Content-Based Filtering technique not 100% accurate because the system only contains the least number of tutors.

6.5 Future Work

There are few suggestions that can be made to upgrade the system to be more efficient in future. The suggestions are:

- Add functionality of online payment in the system.
- Add more tutor information and use another technique for better accuracy.

CHAPTER 7
CONCLUSION

7.1 Conclusion

Online Private Tutor Finder Application with Content-Based Filtering Technique is a system that aim of making it easier for tutors and students to instantly find and connect with thousands of professional and certified tutors at one place. Based on the previous studies and discussion Content-Based Filtering Technique algorithm is implemented in this system. This system will help the students to search their specific tutor based on different behavior on their need and will recommend it to student. Hopefully, Private Tutor Finder Application will be an approach for people to overcome the problem more efficiently.

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