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Evaluating Student Academic Achievement: A Robust and Comprehensive Assessment System

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Abstract: This project aims to streamline the management of tutoring services through the development of a web application for Tutor Finder. In many educational institutions, inefficient management systems often result in wasted time and resources. This project offers an efficient solution by creating an online platform where tutors can be easily located and booked, simplifying communication with administrators. The system allows administrators to maintain an up-to-date list of available tutors, complete with their schedules, which is automatically updated. The primary objective is to connect parents with qualified tutors, providing a valuable resource for student education. The Online Tutor Finder project also offers insights into the availability and status of tutors for parents, displaying their qualifications for easy selection. This system provides distinct interfaces and logins for administrators, tutors, and parents, facilitating effective communication and fostering collaboration to enhance educational services. Additionally, the project emphasizes the importance of generating comprehensive reports to monitor tutor and parent details, further enhancing the overall management of the system.

Keywords: *Assessment, Student academic performance, Comprehensive system, Web application, Tutor Finder.*

1. Introduction

This project is dedicated to the creation of an innovative application, "Tutory," designed to streamline the process of connecting students and tutors. The primary objective is to establish a centralized platform where students can effortlessly discover and engage with a vast network of certified and professional tutors.

"Tutory" incorporates a sophisticated search engine, empowering students to pinpoint their ideal tutor with precision. Leveraging an array of filters, users can fine-tune their search criteria to align with their specific needs and preferences. As a result, the search engine retrieves the most pertinent tutor data and offers personalized recommendations to the user.

Furthermore, the application will feature a location-based search functionality, allowing users to identify tutors in their immediate vicinity. This feature enhances the convenience factor, catering to students seeking local tutoring services.

One notable aspect of "Tutory" is its interactive feedback system. Users have the opportunity to rate and provide reviews of their experiences with tutors. This feature enhances the application's utility by providing valuable insights to other users, enabling them to make informed decisions when selecting a tutor.

In summary, "Tutory" is poised to revolutionize the tutor-student connection process by offering a user-friendly interface, advanced search capabilities, location-based searching, and a robust feedback system. This comprehensive application seeks to enhance the educational journey for students and simplify the tutor discovery process for both students and educators alike.

1.1 Objectives

To realize the overarching goal outlined above, this project is guided by the following specific objectives:

1. Create a robust application capable of efficiently managing the entire process.

2. Design a versatile system enabling users to seamlessly connect with a diverse pool of certified professionals in one consolidated platform.
3. Establish a user-friendly platform that empowers individuals to locate tutors tailored to their specific requirements.
4. Conduct comprehensive testing to evaluate the efficacy of the developed application in meeting user demands.

1.2 Scope

1. Administrator: The administrator possesses full control over the Tutor Finder application. This includes overseeing tutor information and the comprehensive system reports.
2. User: Users have the ability to register and maintain their personal details. They can locate tutors tailored to their specific requirements, access tutor schedules, and make bookings within these schedules. Additionally, users can provide ratings and access reports.
3. Employee (Tutor): Tutors seeking to become part of the system must submit applications. Once accepted, tutors have the capability to manage their profiles, subjects of expertise, and schedules. Tutors can also approve booking requests from students and access relevant reports.

1.3 Existing System

The current system encounters several challenges that hinder its ability to provide effective customer service. It is burdened with numerous limitations, particularly in addressing management queries, which is a time-intensive process. Managing and recording daily changes in tutor information manually becomes increasingly cumbersome, especially in larger organizations.

Drawbacks:

- The most critical drawback of the system is its reliance on manual processes.
- Errors stemming from inadvertent mistakes or oversights can lead to data loss.
- The time and effort required to maintain accurate tutor information are substantial.

2. Proposed System

The Online Tutor Finder presents a web application that significantly reduces the manual effort required for record-keeping and report generation. In contrast to the complexity of managing parental details, agreements, royalties, and activities in a manual system, this application streamlines the process. These aspects can now be easily managed electronically, eliminating the need for physical ledgers or books. Moreover, the system offers the convenience of adding tutor details and booking tutors for students.

Advantages:

- Information is accessible at any time.
- User-friendly interface enhances usability.
- Drastically improves speed and accuracy.
- Offers complete automation of processes.
- Customers can select tutors from the comfort of their homes.

3. Requirements

Hardware Requirements:

- Processor: Intel Core i3 or a higher-performance processor.
- Main Memory: Minimum 4 GB of RAM.
- Hard Disk: At least 160 GB of storage capacity.
- Monitor: A standard computer monitor.
- Keyboard: A standard computer keyboard.
- Mouse: A scroll mouse.

Software Requirements:

- Operating System: Windows 7 or Windows 8.
- Integrated Development Environment (IDE): Visual Studio.
- Web Browser: Google Chrome.
- Backend Programming Languages: PHP, JavaScript.

- Frontend Technologies: HTML, CSS.
- Database Management System: MySQL.
- Web Server: XAMPP.

4. Methodology

The methodology employed throughout the entirety of this project is depicted in Figure 1. It follows an iterative model consisting of several distinct phases, including:

1. Planning and Requirement Phase
2. Analysis and Design Phase
3. Implementation Phase
4. Testing Phase
5. Deployment Phase
6. Evaluation Phase

These phases collectively guide the project's progression from inception to completion.

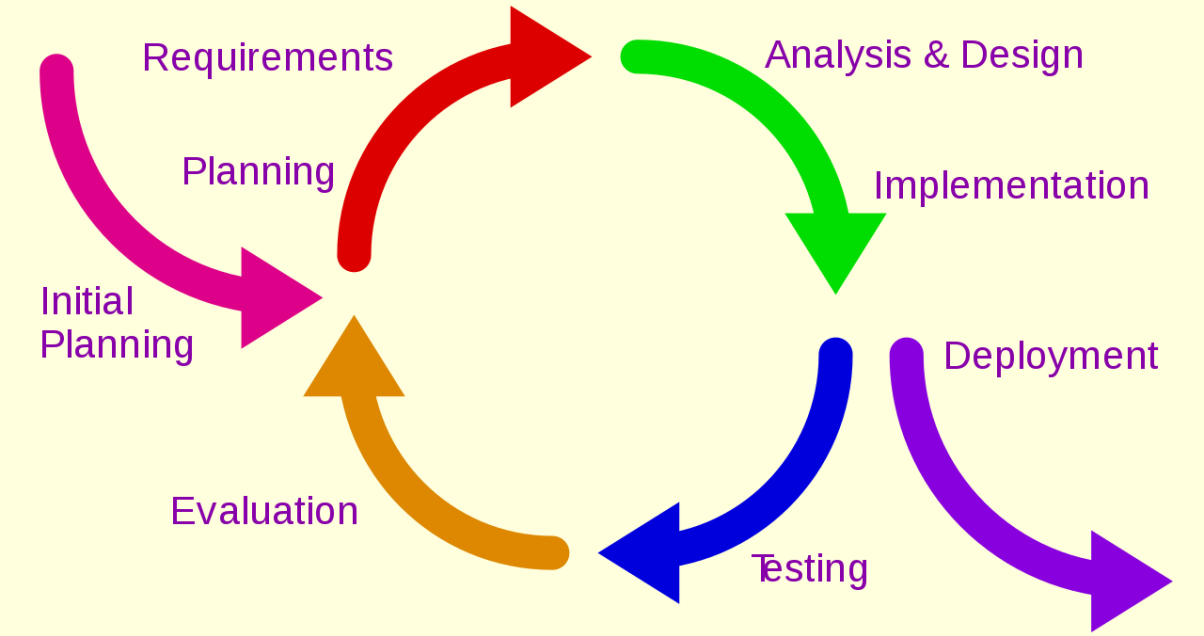

Figure.1 Iterative Model

Methodology Phases

4.1 Planning and Requirement Phase

In the initial stage, this methodology involves identifying the precise objectives of the project. During this phase, the project was designated as the "Private Tutor Finder Application." It encompassed a comprehensive examination of each objective, including the rationale behind its selection and the expected outcomes associated with the respective system components. Extensive research was conducted, drawing insights from articles and journals pertinent to the system and its methodologies. To ensure timely project completion, a systematic project schedule was devised. The system's objectives were delineated, and all requisite elements were gathered to lay the foundation for system development.

4.2 Analysis and Design Phase

The analysis phase delves into a thorough exploration of the project's requirements and a comprehensive understanding of its inherent challenges. Extensive research was conducted using diverse resources, including journals, articles, and websites, to inform the analysis. The culmination of this research led to the identification of the problem statement. Additionally, the value-addition aspect of the project was determined, with the adoption of the Content-Based Filtering method. Further research was conducted to deepen comprehension of

the theory and the application of this technique within the system. This phase also entailed the analysis of methodologies, techniques, and the assessment of hardware and software requirements to ensure alignment with the project's objectives.

4.3 Implementation Phase

The implementation phase marks the commencement of actual system development. All previously planned activities are put into action during this stage. The system is crafted using PHP and JavaScript, with diligent coding processes in motion. The system's progress is consistently monitored and reported throughout this phase.

4.4 Testing Phase

Once the system is fully developed, rigorous testing ensues to identify and rectify any anomalies. This phase aims to determine whether the system aligns with the specified requirements and to pinpoint any code-related errors before it becomes accessible to users. Two testing approaches are employed: black box testing, which evaluates the internal structure, design, and implementation, and white box testing, which scrutinizes the correctness of implementation coding. Areas such as user management, tutor management, scheduling, booking processes, rating mechanisms, and others are meticulously assessed for errors and bugs. Any identified issues undergo a comprehensive reevaluation and subsequent resolution.

4.5 Deployment and Evaluation Phase

During this phase, the system is prepared for user deployment. Users gain access to the system and provide feedback, highlighting areas that require improvement or modification. Based on user feedback, necessary adjustments are made to ensure that the system aligns seamlessly with the project's goals and requirements, as delineated in the project plan.

The design phase followed, building upon the insights gained during the analysis phase. To gain a deeper understanding of the system, essential visualization tools such as Context Diagrams (CD), Data Flow Diagrams (DFD), and Entity Relationship Diagrams (ERD) were employed to delineate the system's process flow. The interface and database were meticulously designed in accordance with the requirements established during the analysis phase.

5. Implementation

This chapter provides an account of the implementation process for "A Assessment for Students' Academic Progress and Performance," a reliable and comprehensive system whose design and modeling were previously discussed. The implementation phase encompasses all procedures required to ensure the proper functioning of the system, with a detailed examination of each interface. Each project interface is described comprehensively, as if it were part of a user manual.

5.1 Modules

5.1.1 Admin Module

- Authentication
- Adding Tutors
- Viewing User Details
- Viewing Requests from Tutors
- Updating Status for Tutors
- Sending Responses to Users

5.1.2 Tutor Module

- Registration
- Adding E-Books
- Requesting Admin Assistance
- Viewing User Requests
- Sending Responses to Users (Demo Class)
- Checking Status

5.1.3 User Module

- Authentication
- Viewing Tutor Details

- Booking Tutors
- Checking Status
- Providing Feedback to Admin

6. Results

Administrator Module: The administrator module encompasses several key processes, including login, tutor management, employee management, and customer management.

6.1 Login Process

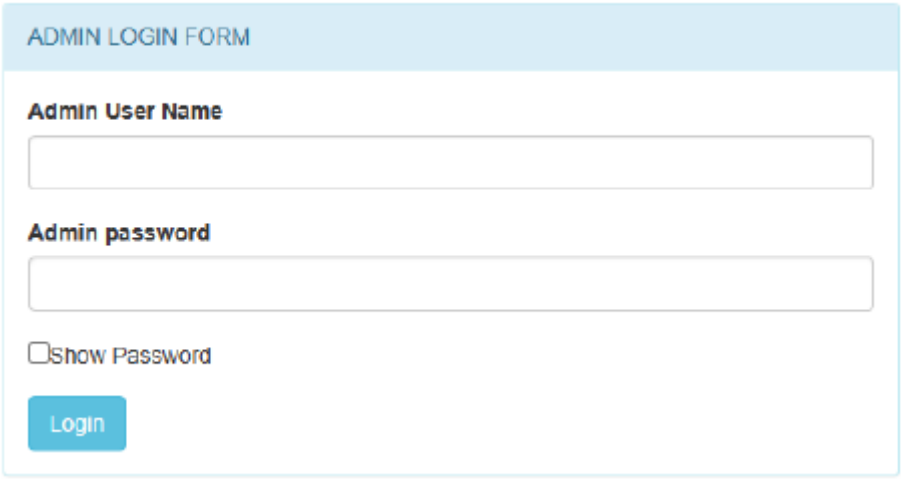

Fig.2 Shows a login interface for administrator.

6.2 Admin Homepage

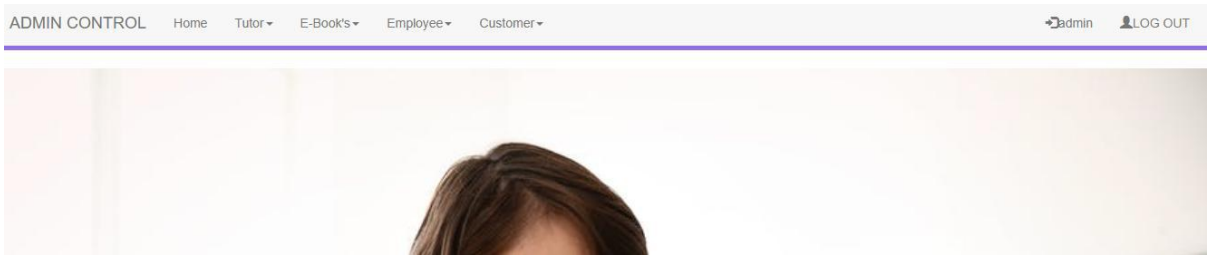

Fig.3 shows the main page of administrator

6.3 Tutors Registration

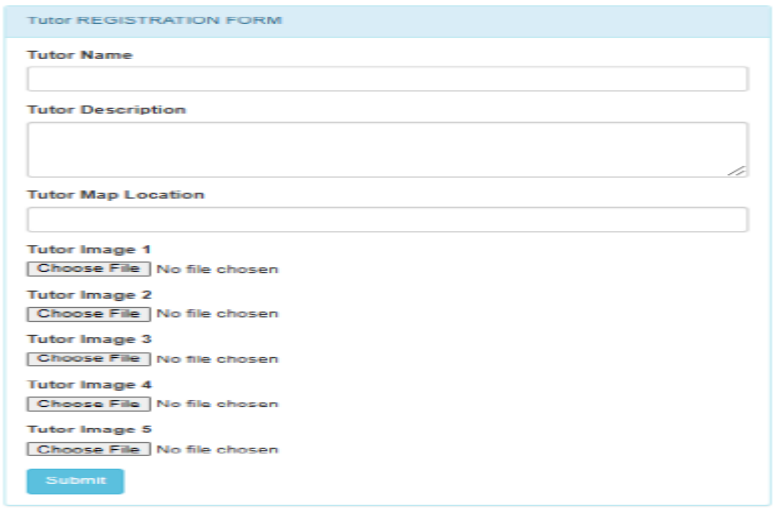

Fig.4 Tutors registration

6.4 Tutor's view

Tutor

Tutor	Tutor Image 1	Tutor Image 2	Tutor Image 3	Tutor Name	Tutor Description	Tutor Map	Tutor Time	View
1				Shilpa Marapareddy	Hii,Welcome to the Tutorr	Location	2023-03-25 13:52:15	Update
2				T. Murali Krishna	Machine Learning	Location	2023-03-25 09:12:13	Update
3				T. Haripriya	Artificial intelligence	Location	2023-03-25 09:16:11	Update
4				K.Rekha	Software Testing	Location	2023-03-25 09:18:52	Update
5				Anil kumar	Python	Location	2023-03-25 09:21:30	Update

Fig.5 Tutors view

6.5 E-book Registration

ADMIN CONTROL Home Tutor E-Book's Employee Customer

E-Book Registration Form

E-Book REGISTRATION FORM

Tutor

-none-

E-Book Name

E-Book Description

E-Book (PDF only)

Choose File No file chosen

Submit

Fig.6 E-book Registration

6.6 E-book View

E-Book's

#	E-Book Name	E-Book Description	E-Book File
1	shilpa	Tutorr	Download PDF Now
2	python	Text Book	Download PDF Now
3	FOUNDATIONS OF ARTIFICIAL INTELLIGENCE (2)	Basic information about artificial intelligence	Download PDF Now
4	Machine learning	Introduction to machine learning	Download PDF Now
5	Software Testing	Domain Testing	Download PDF Now
6	Software Testing	Domain Testing	Download PDF Now
7	java	oops	Download PDF Now
8	Software Testing	Domain Testing	Download PDF Now
9	Software Testing	Domain Testing	Download PDF Now

Fig.7 E-book View

6.7 Employee Registration

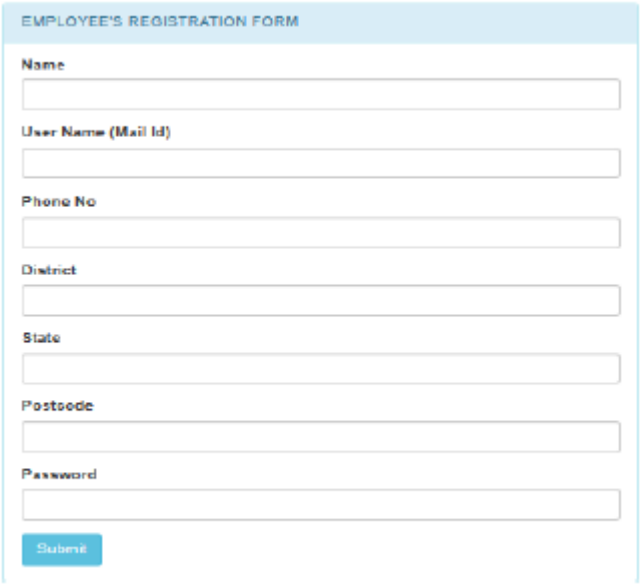

Fig.8 Employee View

Employee

#	Name	Mail Id	Phone NO	District	State	Postcode	Password
1	Shilpa Marapareddy	shilpa.marapareddy@gmail.com	8688564664	Anantapur	Andhra pradesh	515775	123
2	T. Murali Krishna	muralikrishna12@gmail.com	8897797148	Kurnool	Andhra Pradesh	518002	Krishna@123
3	T. Haripriya	haripriya123@gmail.com	9876543210	Kurnool	Andhra Pradesh	518002	haripriya@123
4	K.Rekha	Rekha123@gmail.com	9988776655	Nellore	Andhra Pradesh	518002	Rekha@123
5	Anil kumar	anilkumar123@gmail.com	8976454334	kadapa	Andhra pradesh	518223	Anilkumar@123

6.8 Customer View

Customers

#	UserName	MailId	PhoneNumber	State	City	Location	PostalCode	status	Update
1	Shilpa Marapareddy	shilpa.marapareddy@gmail.com	8688564664	Andhra Pradesh	Kurnool	Kurnool	518218	unblock	Update

Fig.9 Customer View

7. Tutor Module

Within the Tutor Module, various processes are involved, including registration, login, schedule management, booking management, and report viewing.

7.1 Registration

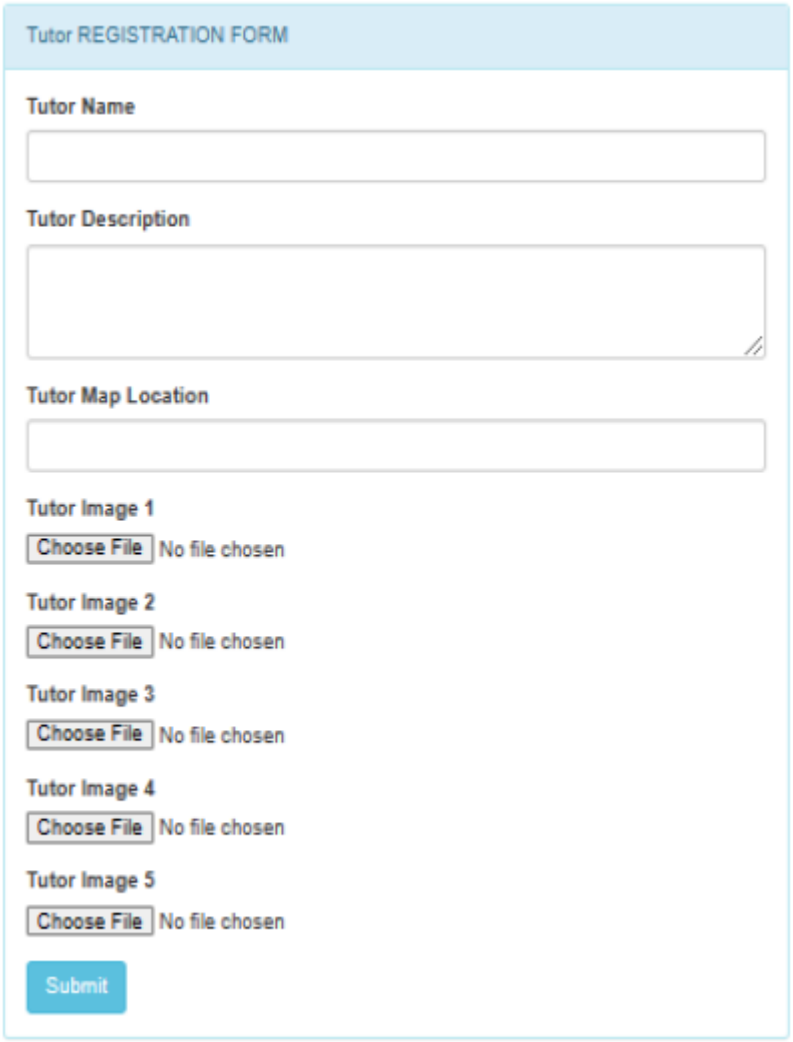

Fig.10 Tutor Registration

7.2 E-book registration

Fig. 11 E-Book Registration

7.3 E-book View

E-Book's

#	E-Book Name	E-Book Description	E-Book File
1	shilpa	Tutorr	Download PDF Now
2	python	Text Book	Download PDF Now
3	FOUNDATIONS OF ARTIFICIAL INTELLIGENCE (2)	Basic information about artificial intelligence	Download PDF Now
4	Machine learning	Introduction to machine learning	Download PDF Now
5	Software Testing	Domain Testing	Download PDF Now
6	Software Testing	Domain Testing	Download PDF Now
7	java	oops	Download PDF Now
8	Software Testing	Domain Testing	Download PDF Now
9	Software Testing	Domain Testing	Download PDF Now

Fig.12 E-book View

7.4 Employee Request

Tutor CONTROL Home Tutor E-Book's Request Shilpa Marapareddy LOG OUT

Developers

Demo Class Id	Demo Class User Name	Demo Class Date	Demo Class Phone No	Demo Class Description	Status	View
1	Hema	2023-03-24T09:00	1234567892	hii i need to learn from u	approved	More View
2	Shilpa Marapareddy	2023-03-30T03:00	08688564664	I need complete Introduction of Artificial Intelligence	approved	More View

Fig.13 Employee Request

8. User Module

In the User Module, the following processes are included: registration, login, subject search, tutor request, date booking, booking status, and specific tutor requests.

8.1 User Registration

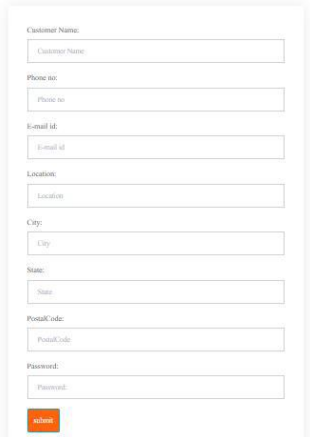

Fig.14 user Registration

8.2 User Login

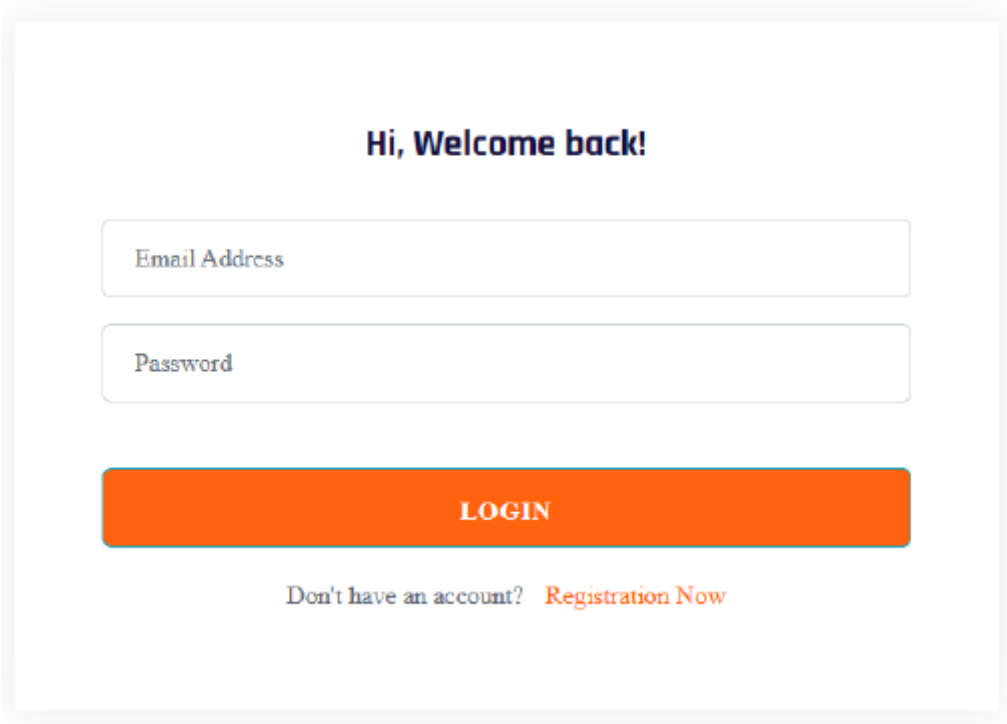

Fig.15 User Login

8.3 View Tutors Details

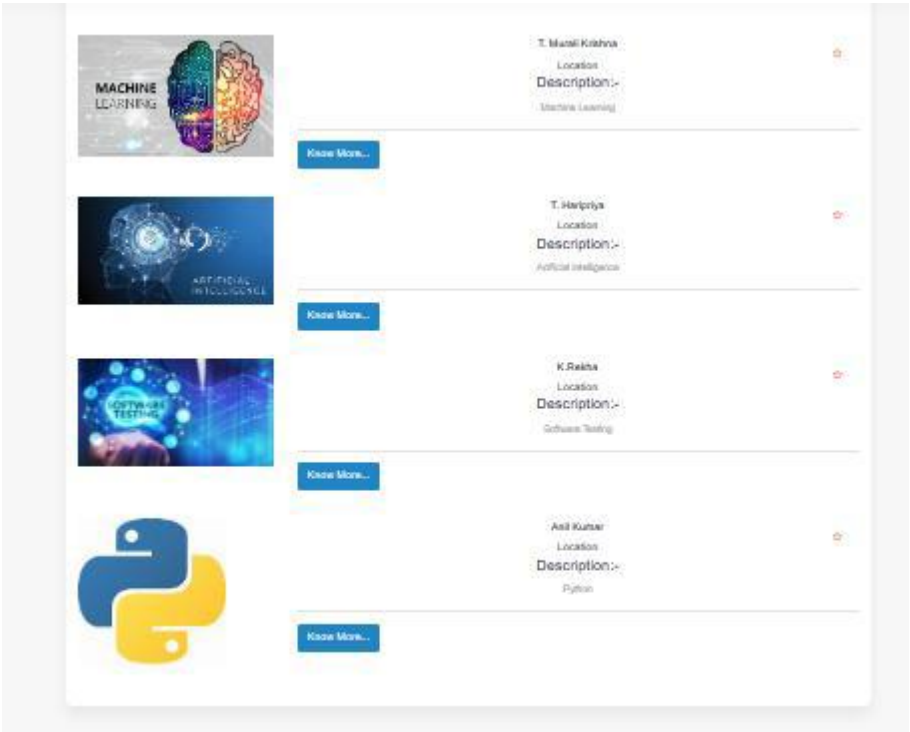

Fig.16 Tutor details

8.4 Booking Tutor

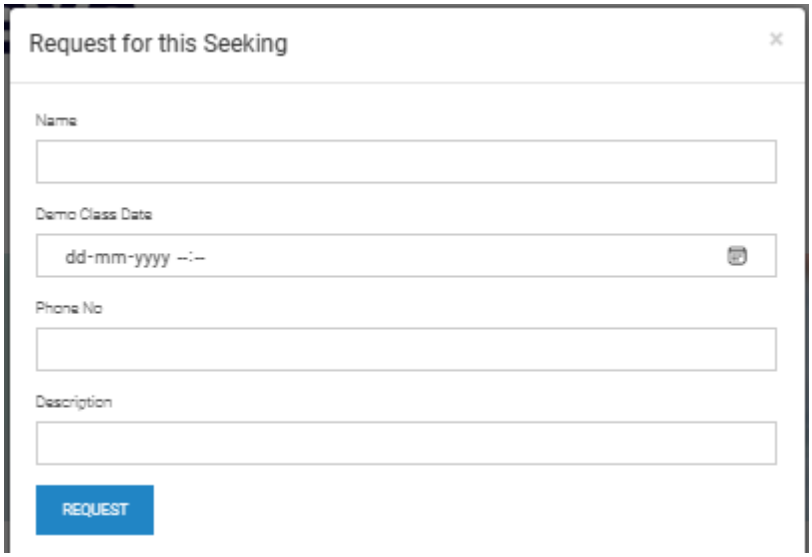

Fig.17 Booking Tutor

8.5 Request Demo

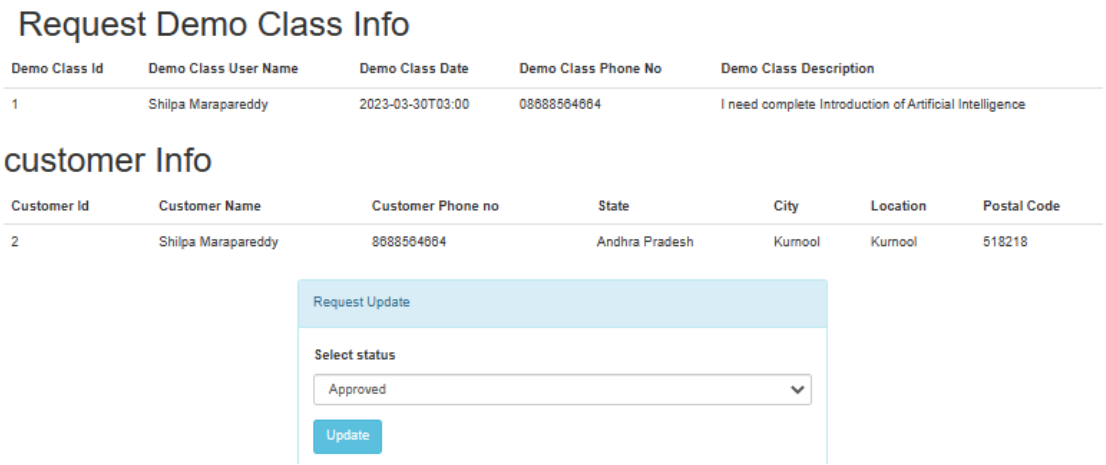

Fig.18 Request Demo

8.6 Check Booking Status

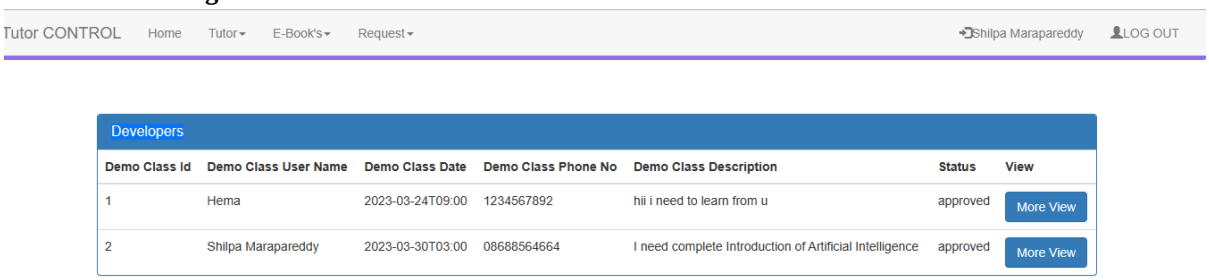

Fig.19 Check Booking Status

8.7 Database

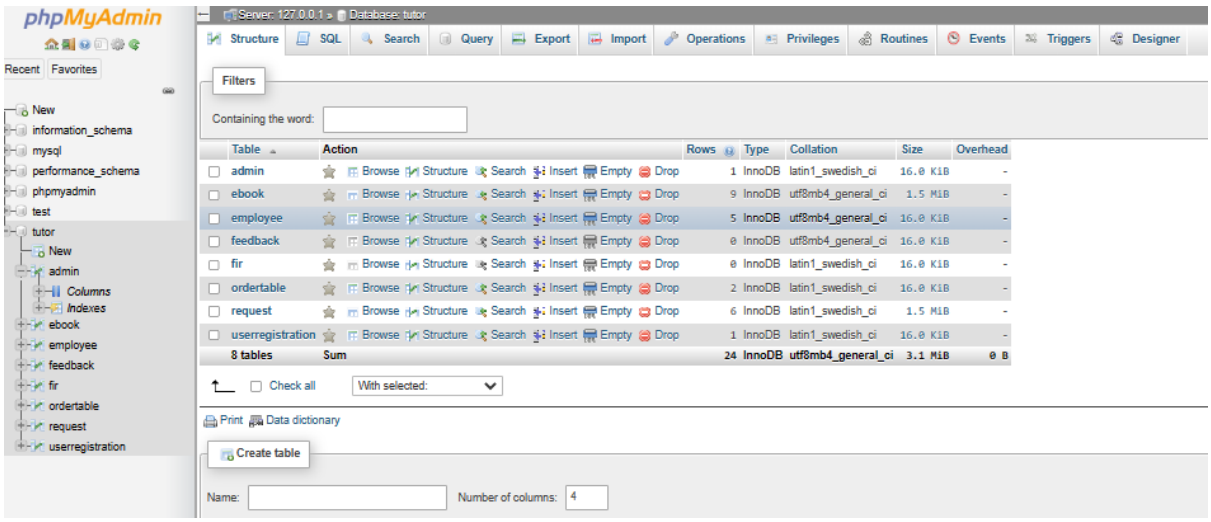

Fig.20 Database

9. Conclusion

This paper represents a significant milestone in enhancing the educational landscape. This project, driven by a systematic methodology, has successfully addressed the inefficiencies of the existing system, offering a streamlined solution for connecting students with qualified tutors. By transitioning from manual record-keeping to a web-based application, the project not only saves time but also provides real-time accessibility to vital information. The incorporation of user-friendly interfaces, coupled with the meticulous phases of planning, analysis, design, implementation, testing, deployment, and evaluation, has yielded a comprehensive system that aligns seamlessly with user requirements.

Furthermore, the project underscores the significance of feedback and continuous improvement, ensuring that the system adapts to evolving needs. In essence, the "A Assessment for Student Academic Performance and Progress" system offers a robust platform for enhancing academic performance and fostering educational excellence.

10. Future Enhancements

Several suggestions can be considered to enhance the system's efficiency in the future:

1. Integration of Online Payment: Implementing an online payment functionality within the system can streamline the transaction process, offering users greater convenience and flexibility in managing payments for tutoring services.

2. Expansion of Tutor Information: Expanding the scope of tutor information by incorporating additional details and employing advanced techniques can improve the accuracy of tutor recommendations, enhancing the overall quality of the service provided.

References

[1] Yang, Fan, and Frederick WB Li. "Study on student performance estimation, student progress analysis, and student potential prediction based on data mining." Computers & Education 123 (2018): 97-108.

[2] Tucker, Pamela D., and James H. Stronge. Linking teacher evaluation and student learning. ASCD, 2005.

[3] Linn, Robert L. "Conflicting demands of No Child Left Behind and state systems: Mixed messages about school performance." Education policy analysis archives 13 (2005): 33-33.

[4] Macfadyen, Leah P., and Shane Dawson. "Mining LMS data to develop an “early warning system” for educators: A proof of concept." Computers & education 54, no. 2 (2010): 588-599.

[5] Setiawan, Roy, Keshav Nath, Luigi Pio Leanardo Cavaliere, Klinge Orlando Villalba-Condori, Dennis Arias-Chavez, Kartikey Koti, Girish Bagale, and S. Suman Rajest. "The impact of teaching innovative strategy on academic performance in high schools." PhD diss., Petra Christian University, 2021.

[6] Crawford, James. "No Child Left Behind: Misguided approach to school accountability for English language learners." In Forum on ideas to improve the NCLB accountability provisions for students with disabilities and English Language Learners, vol. 10. Washington, DC: Center on Education Policy, 2004.

[7] Maba, Wayan, and Ida Bagus Nyoman Mantra. "An analysis of assessment models employed by the Indonesian elementary school teachers." International Journal of Social Sciences and Humanities (IJSSH) 1, no. 1 (2017): 39-45.

[8] Te Wierik, Mark LJ, Jos Beishuizen, and Willem Van Os. "Career guidance and student success in Dutch higher vocational education." Studies in Higher Education 40, no. 10 (2015): 1947-1961.

[9] Srihith, IV Dwaraka, L. Rajitha, K. Thriveni, A. David Donald, and P. Blessy. "Precision in Practice: The Importance of Math in Computer Science Applications."

[10] Roberts, Lily, Mark Wilson, and Karen Draney. "The SEPUP assessment system: An overview." University of California, Berkeley: BEAR Report Series, SA-97-1 (1997).

[11] Wilson, Deborah, Bronwyn Croxson, and Adele Atkinson. "'What gets measured gets done' Headteachers' responses to the English secondary school performance management system." Policy Studies 27, no. 2 (2006): 153-171.

[12] Mahalaxmi, G., and T. Aditya Sai Srinivas. "Data Analysis with Blockchain Technology: A Review." IUP Journal of Information Technology 18, no. 2 (2022): 7-23.

[13] Srihith, IV Dwaraka, L. Rajitha, P. Blessy, K. Thriveni, and A. David Donald. "Navigating the Forest: A Comprehensive Look at Tree Traversal Techniques."