FULLSTACK ENGINEERING

Project Report
Semester-VI (Batch-2022)

Ed4u (An online Learning platform)

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ABSTRACT

1. **Abstract:** *Ed4U* is a fully functional ed-tech platform that enables users to create, consume, and rate educational content. The platform delivers a smooth and interactive learning experience that makes education more engaging and accessible for students. It offers a platform where instructors can highlight their expertise and connect with learners worldwide

2. **Keywords**: MongoDB, React, Node.js ,Express.js .

3. Introduction to the project

3.1 Background: The rapid growth of the sharing economy has significantly impacted the travel and accommodation sectors. Platforms have transformed how people book stays, offering travelers access to private homes, apartments, and rooms, often providing a more personalized and budgetfriendly alternative to traditional hotels. However, while such platforms have flourished, there remains a need for a unified system that not only caters to diverse rental preferences but also gives property owners or managers complete control over their listings. Explore Ease seeks to bridge this gap by offering a centralized marketplace for hotel and room bookings, ensuring both guests and property owners have a seamless, user-friendly experience while maintaining flexibility and control.

3.2 Problem Statement: With As the demand for hotel bookings and short-term stays continues to rise, users often face difficulties in finding accommodations that align with their specific needs, such as location, budget, and amenities. Property owners or managers, on the other hand, encounter challenges in efficiently managing their listings, updating information, and removing outdated properties from the platform. These inefficiencies lead to a disjointed booking experience, causing frustration for both guests and property owners, as they struggle to find the right fit and maintain accurate listings.

4. Software and Hardware Requirement Specification

4.1 Methods

Key methods for development will include:

- **Frontend Development:** React.js will be used for the creation of a dynamic, responsive, and user-friendly interface. This ensures that users can easily search, filter, and book rooms based on their preferences.
- **Backend Development:** Node.js with Express.js will handle the server-side logic and APIs. These technologies will ensure fast data processing, secure communication, and efficient handling of user requests.
- **Database Management:** MongoDB, a NoSQL database, will be used to store user data, rental listings, and other system information. Its flexible structure will allow easy scalability as the platform grows.
- **Authentication and Security:** User authentication will be implemented using JWT (JSON Web Tokens) for secure login sessions. Admin and user roles will be distinct, with access permissions tailored to each role.

4.2 Programming/Working Environment:

Front-End:

- React.js: A JavaScript library for building user interfaces, enabling the creation of dynamic and responsive components.
- HTML5/CSS3: For structuring and styling the web pages, ensuring a visually appealing design.
- **React Router:** For navigation between different pages in the platform.

Back-End:

- Node.js: A JavaScript runtime for building scalable server-side applications.
- MongoDB: A NoSQL database for storing user data, Course information, and transaction records.
- **Express.js:** Framework to build the backend server and handle routing.
- **Mongoose:** ODM (Object Data Modelling) library for MongoDB to define schemas and manage data more easily.

Development Tools:

- Visual Studio Code: A code editor with support for various programming languages and extensions.
- GitHub: For version control and collaboration among team members.

4.3 Requirements to Run the Application

To successfully run the Kicks Hive application, the following software and hardware requirements must be met:

Software Requirements:

- **Node.js**: Version 14.x or higher
- **MongoDB**: Version 4.x or higher (can be run locally or through a cloud service like MongoDB Atlas)
- **React.js**: Latest stable version
- **NPM (Node Package Manager)**: Comes bundled with Node.js for managing dependencies
- **Web Browser**: Latest versions of Chrome, Firefox, Safari, or Edge for optimal user experience

Hardware Requirements:

- **RAM**: Minimum 4 GB (8 GB recommended for smoother performance)
- **Storage**: At least 30 GB of free disk space for development tools, databases, and project files
- **Operating System**: Windows 10 or higher, macOS Mojave or higher, or a modern Linux distribution.

5. Program's Structure Analyzing

The Homestays Marketplace application follows a modular and organized structure, leveraging the MERN stack (MongoDB, Express.js, React, Node.js) to ensure scalability, maintainability, and a smooth user experience. Below is a breakdown of the program structure:

Front-end:

- **User Interface (UI)**: Built using React.js, this will include the visual elements of the application, such as the navigation bar, Course cards, and checkout process.
- **Client-side Logic**: This will handle user interactions, such as clicking on courses, adding to cart, and submitting orders.

Back-end:

- **Server**: Built using Node.js this will handle incoming requests from the front-end, interact with the database, and send responses back to the client.
- **Database**: MongoDB will be used to store Course information, user data, and order history.

API:

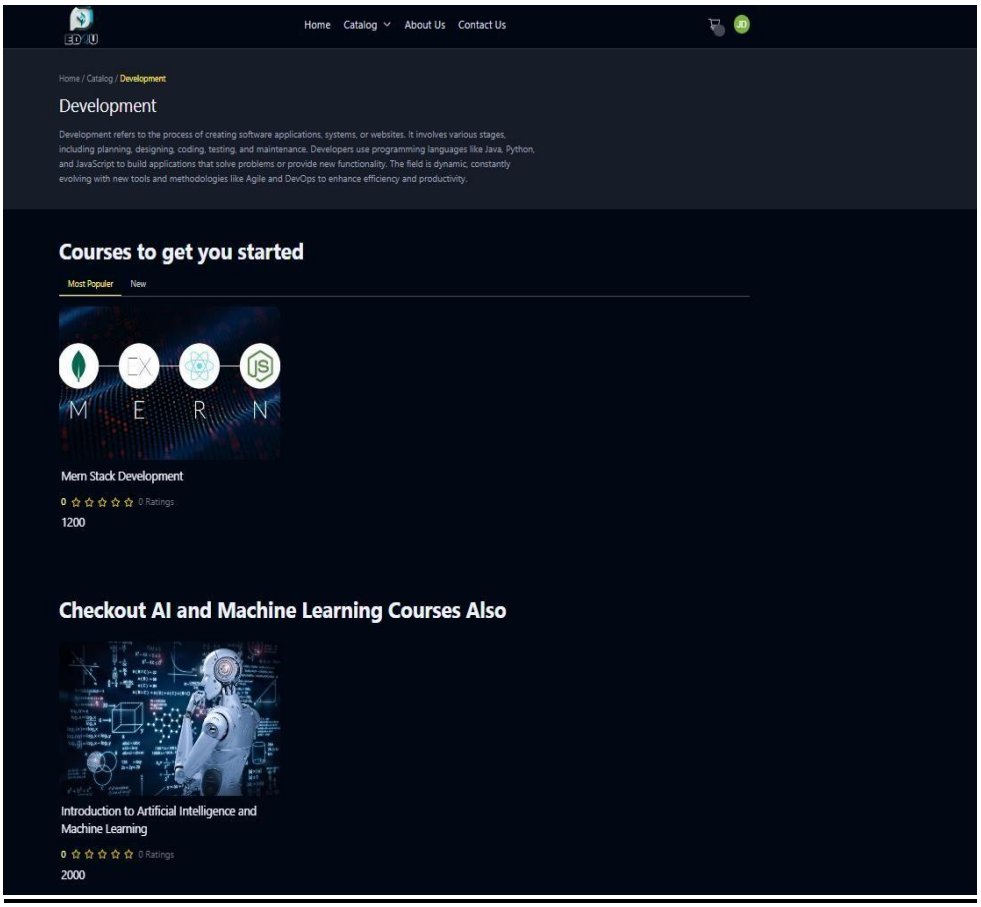
- **RESTful API**: This will provide a standardized interface for the front-end to interact with the back-end, allowing for data retrieval and manipulation.

GUI Constructing

The GUI for Kicks Hive will be constructed using the following components:

1. **Navigation Bar**:
   - **Logo**: A clickable logo that redirects to the homepage.
   - **Home:** Redirects to homepage.
   - **Catalog:** Includes the courses made by instructors.
   - **About:** About our platform
2. **Catalog/course Grid**:
   - **Course Cards**: A grid of cards that display Course information, such as name, price, and image.
   - **Course Details**: A modal window that displays detailed Course information, such as description, features, and reviews.
3. **Course Details Page**:
   - **Course Image**: A large image of the Course.
   - **Course Description**: A detailed description of the Course.
   - **Course Features**: A list of features and specifications of the Course.
4. **Account and Profile**:
   - **Account Dashboard**: A summary of the user's account information, including order history and profile details.
   - **Profile**: A form that allows users to edit their profile information, such as name, email, and password.

PROJECT SNAPSHOTS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Development
Development refers to the process of creating software applications, systems, or websites. It involves various stages, including planning, designing, coding, testing, and maintenance. Developers use programming languages like Java, Python, and JavaScript to build applications that solve problems or provide new functionality. The field is dynamic, constantly evolving with new tools and methodologies like Agile and DevOps to enhance efficiency and productivity.
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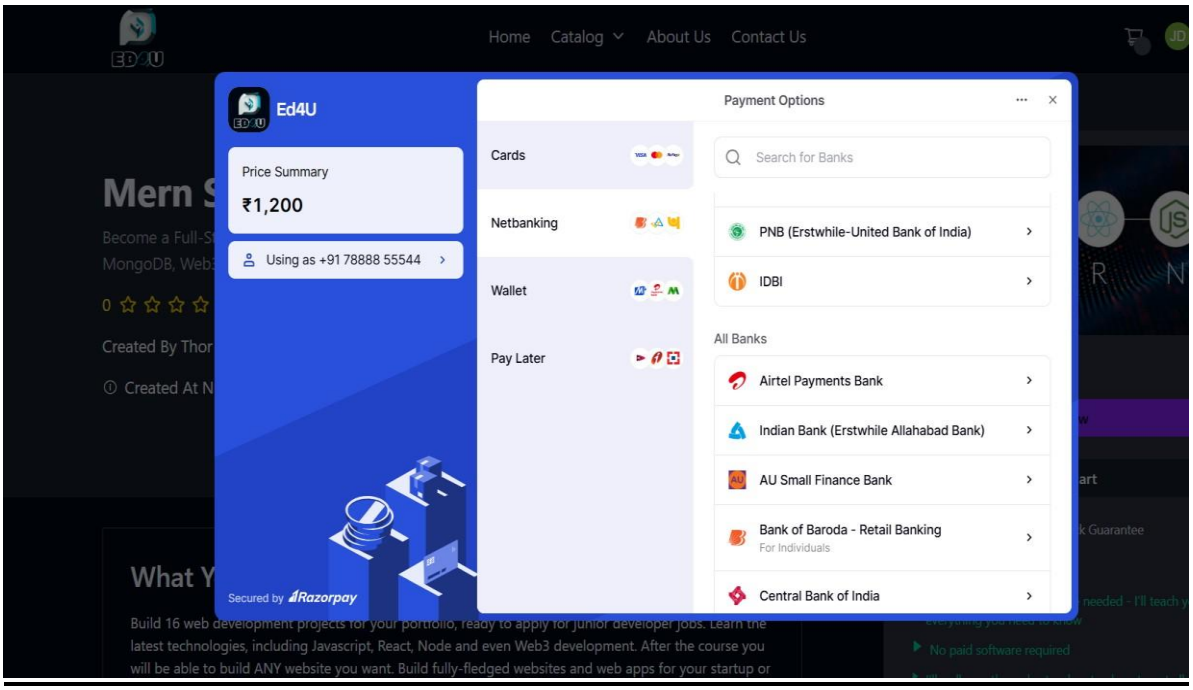
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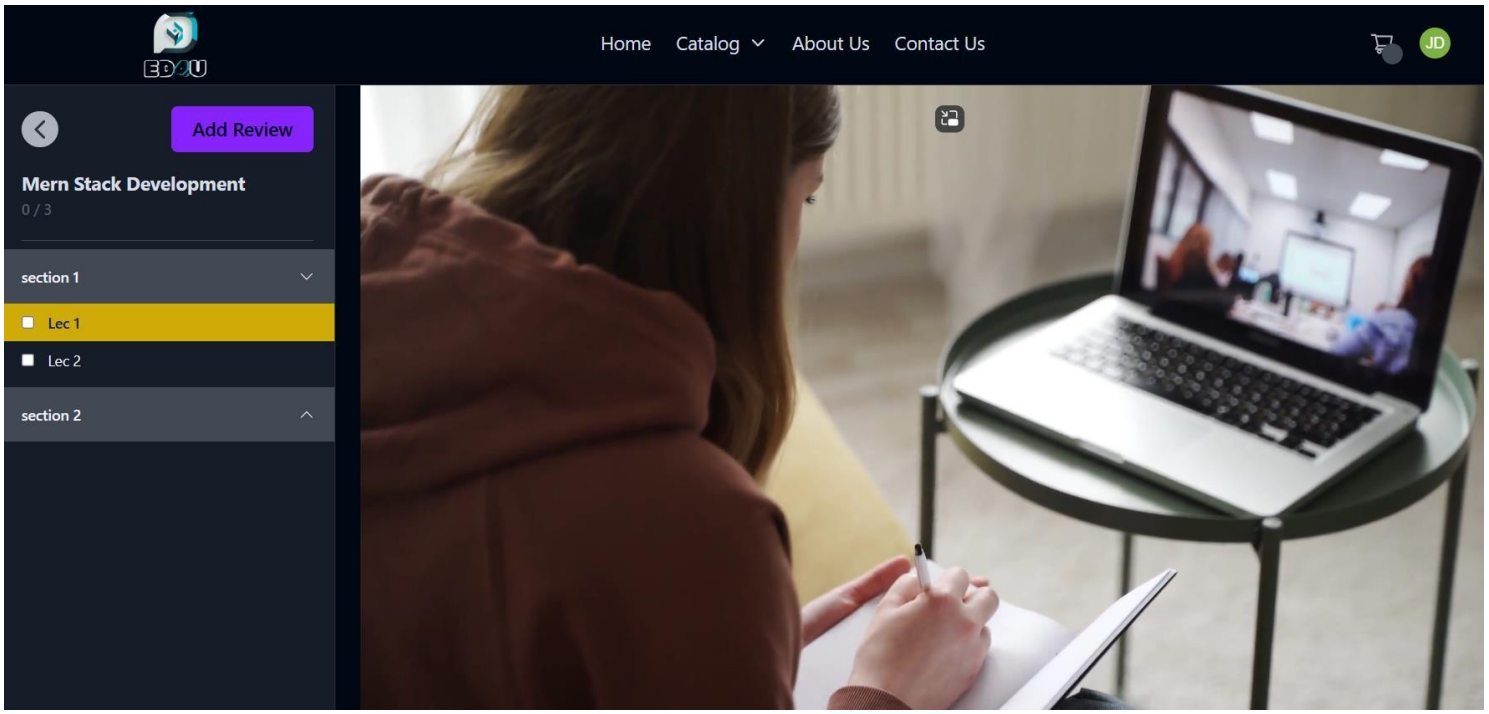

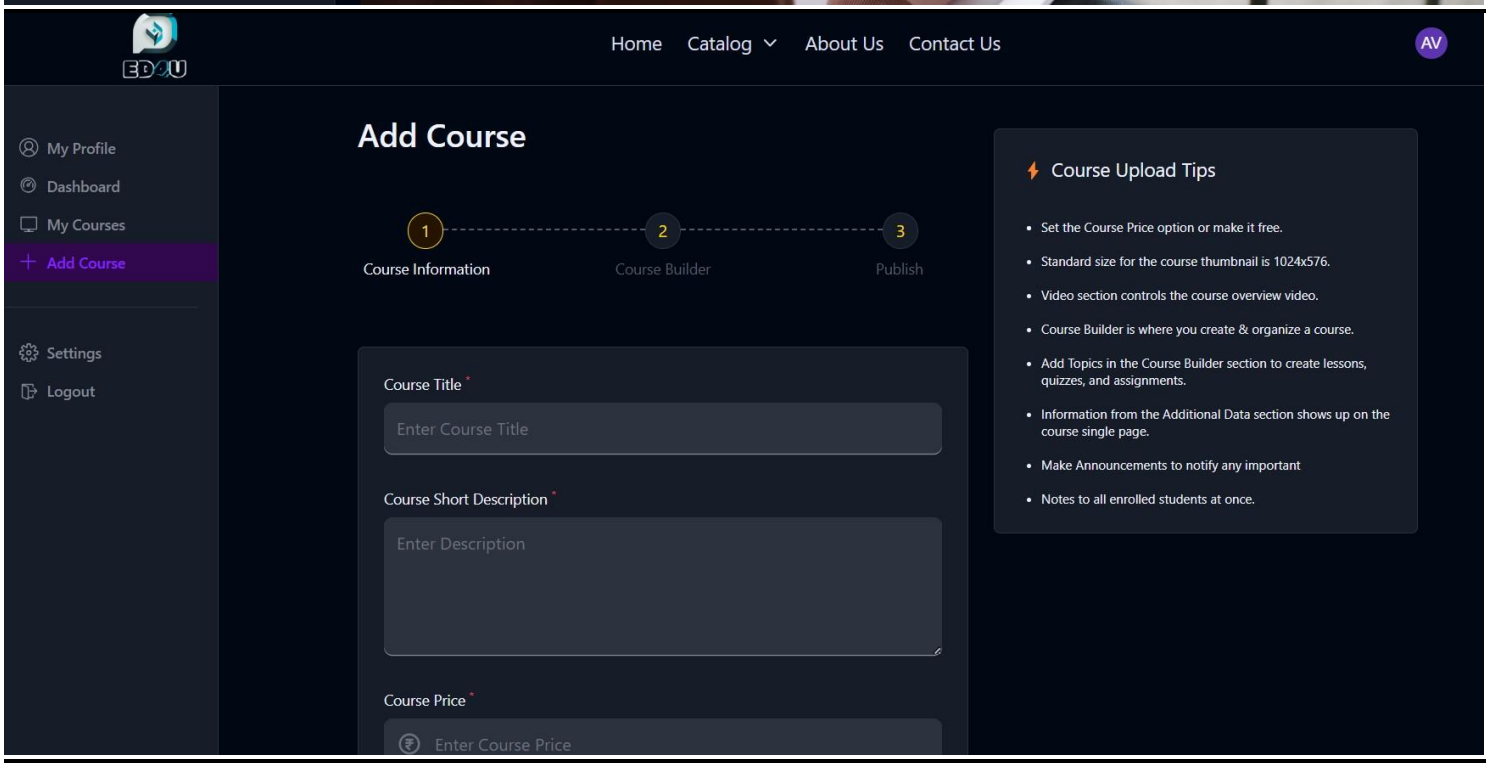

CONCLUSION

In conclusion, ***ED4U*** is a comprehensive and inclusive e-learning platform that empowers instructors to create and share courses easily, while providing students with a seamless, engaging learning experience. With features like razorpay integration, intuitive course creation tools, progress tracking, and global accessibility, ED4U fosters a dynamic, secure, and motivating environment for learners and educators alike, making quality education accessible to everyone, regardless of age or experience.

FUTURE SCOPE

1.Adding a Compiler:

- Integrate compilers for multiple languages (Python, Java, etc.).
- Enable interactive coding challenges with instant feedback.
- Support real-time collaboration for coding projects.
- Implement cloud-based compiling and version control (Git).
- Offer error feedback, debugging tools, and code suggestions.

2. Making a Distraction-Free Environment:

- Create a "focus mode" to minimize distractions and simplify the interface.
- Allow customizable layouts and interfaces for a quieter workspace.
- Integrate productivity techniques like the Pomodoro timer.
- Enable "Do Not Disturb" notifications for uninterrupted study time.
- Offer mindfulness tools to reduce stress and aid concentration.

3. Tailored Recommendations:

- Use AI to provide personalized learning paths based on progress and preferences.
- Suggest courses, exercises, and resources based on learner behavior.
- Adapt content difficulty and pacing for individualized learning.

REFRENCES

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