



Preparation:

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Research phase:

Prior to commencing the website development, I conducted extensive research to understand the significance of establishing such a platform, the potential benefits it could bring upon launch, and the challenges students typically face during their academic journey. The objective was to address some of these challenges and provide a solution.

During the research phase, I also explored numerous educational websites, both in the Arab region and internationally, that shared similarities with my concept. The aim was to assess their offerings, evaluate the benefits they provided to students, and identify the unique value that my website could offer. The ultimate goal was to save students' time and effort in searching for educational resources or methods to comprehend complex information. The focus was on creating a platform where users could easily find the desired content efficiently and effectively.

Upon examining the educational landscape in Jordan, I discovered a lack of similar websites specifically catering to university students. This further motivated me to target this audience, allowing them to become both learners and teachers by showcasing their skills in explaining and summarizing subjects. Users would have the option to provide summaries for a fee or offer them for free based on their preference, creating a collaborative and supportive learning environment.

Problem:

During their university studies, students often encounter difficulties in finding reliable sources to aid their learning and understanding of various academic materials, especially in the initial stages. The vast array of references and extensive textbooks can overwhelm students, causing them to feel lost and distracted. Consequently, they seek effective ways to comprehend these topics thoroughly.

Many students resort to creating summaries of university materials and compiling essential notes to enhance their knowledge and achieve higher grades. Additionally, some students offer courses or lectures, either in rented halls or by recording video clips. However, these methods consume significant time, effort, and financial resources.

Typically, students upload their summaries to libraries, requiring other students to search for and purchase them. Alternatively, they may record video explanations, which can sometimes lack clarity in certain topics. Recognizing this problem, I have decided to address it by creating a centralized platform where students can interact and communicate directly during the explanation process, facilitating easier access to the summaries they desire.

Solution:

I have developed a solution in the form of a website that aims to connect students from both public and private universities. The website allows students to share their summaries and offer various courses related to university subjects or other relevant topics to their fellow students. In return for their contributions, students can charge a fee, which can help cover their expenses and motivate them to provide high-quality content.

The process of finding reliable sources to understand university subjects can be challenging, with numerous references available. This complexity often poses difficulties and comprehension issues for many students. By providing simplified explanations in a user-friendly manner, presented by fellow students who have encountered similar challenges, the website enables users to access information more quickly and effectively.

List of technical framework skills acquired during the boot camp:

Throughout the boot camp, I gained proficiency in various technical frameworks that were utilized in the development of the educational university website project. Here is a breakdown of the frameworks and their respective roles:

1. Integrated Development Environment (IDE): Visual Studio Code (VS Code) was chosen as the IDE due to its powerful and extensible platform for coding, debugging, and deploying applications.
2. HTML (Hypertext Markup Language): HTML was used to create the structure of the website, defining the elements and layout of it.
3. CSS (Cascading Style Sheets): CSS was employed to style and format the website, ensuring an aesthetically pleasing and customizable visual presentation, as well as enabling responsive design.
4. JavaScript: JavaScript was utilized to add interactivity and dynamic functionality to the website. It facilitated client-side scripting, event handling, DOM manipulation, and asynchronous server requests.

5. React JS: React JS, a popular JavaScript library, was used for building the user interface. It allowed for the creation of reusable UI components, enhancing the development process with modularity and efficiency “Front-end Development”.
6. Bootstrap: a CSS framework, was employed to design and present the website in a visually appealing and responsive manner. Its pre-built components and styles streamlined the development process.
7. Node.js: Node.js, a runtime environment for executing JavaScript on the server-side, handled server-side logic and API endpoints “Back-end development”.
8. Express: The Express framework, built on top of Node.js, was used as a fast and minimalist web application framework. It provided robust features for building web applications and APIs.
9. MySQL: MySQL, a widely used relational database management system (RDBMS), was employed for creating and managing the database that stored the website's data.
10. Git and GitHub: Git, a distributed version control system, and GitHub, a web-based hosting service for Git repositories, were used for version control and code management.

By leveraging these technologies and tools, I successfully developed a functional and visually appealing web application for the educational university website. The combination of HTML, CSS, JavaScript, React, Bootstrap, Node.js, Express, MySQL, Git, and GitHub enabled the creation of a robust and scalable website tailored for an educational institution's needs.

Project Scope “Target audience”:

The target audience of the website will primarily be university students, both from public and private universities, who are seeking assistance in understanding and summarizing their study materials. This includes students who want to provide explanations and summaries, as well as those who are looking to access and benefit from such resources to excel in their university studies.

Business Model:

The business model is based on a third-party platform that connects university students seeking educational resources with students who provide summaries and courses. The platform acts as a facilitator, enabling transactions between these two user groups. The revenue generation is structured around a commission-based model.

When users make payments for course enrollments or purchases of summaries through the website, a commission of 15% is applied to each transaction. This commission is deducted from the payment, and the remaining amount is then transferred to the respective university or content provider. The website ensures secure and reliable payment processing, while also ensuring accurate commission calculations and deductions.

The primary source of revenue for the website is the commission retained from each transaction. As the number of user enrollments and purchases increases, the website's revenue grows accordingly. The success of the business model depends on attracting a large user base, fostering active participation from both students seeking educational resources and those providing them. Continuous improvement of the platform, user experience, and the quality of available content are key factors in driving user engagement and revenue growth.

Future Work:

I'm looking forward to launching this website and actually starting to use it. And there are several enhancements and additions planned for the website:

1. Expansion and Language Support:

- The website will be launched and promoted among university students.
- Efforts will be made to make the website more accessible to foreign students in Jordan by providing English language support.

2. Live Video Chat:

- A live video chat feature will be implemented within the website.
- This will allow teachers to conduct lectures directly from the website, eliminating the need for external applications like Zoom or Microsoft Teams.

3. Blog Functionality:

- A blog section will be added to the website.
- Students will be able to publish posts on various topics and engage in discussions with their peers.

4. Test Bank and Exams:

- A test bank will be created, consisting of questions and actual exams.
- Students will have the opportunity to test their knowledge and skills in various subjects.

These future enhancements aim to improve the functionality and user experience of the website, catering to the needs of university students and facilitating their learning and collaboration.

The website offers various functionalities that can be summarized as follows:

1. Registration and Login:

- Users can register on the website as either students or teachers.
- During registration, users provide necessary information and choose their role.
- The login page verifies the correctness of email addresses and passwords.
- Users can also log in using their Google accounts.
- Password reset functionality is available in case it is forgotten.
- Users can choose to stay permanently logged in or remove login information from the device by check on the remember me.
- After logging in, users access their personal accounts.

2. Personal Account “User profile”:

- In the personal account, users can view and edit their personal information.
- They can access purchased summaries in PDF format.
- Users can see the courses they have joined and their scheduled times.
- They can join online meetings associated with their courses.
- Purchase history for summaries and course enrollments, including prices, is displayed.
- A task list feature allows users to track their to-do items easily.

3. Summaries and Courses:

- The website provides access to summaries and courses from various universities.
- Users can browse and search for summaries and courses using filters and a search bar.
- Specific universities and majors can be selected for targeted results.
- Users can purchase summaries and join courses based on their preferences.
- Additionally, the website includes articles on scientific and educational topics for reading.

4. Admin Control:

- An admin dashboard enables the website administrator to manage content.
- The admin can view and delete user accounts if any abuse is detected.
- Articles, universities, and specializations can be added or modified by the admin.
- The admin has the authority to approve or reject summaries and courses, providing reasons.
 - Various statistics about the website can be accessed and modified.
 - The admin can also manage their personal information.

5. User Experience and Security:

- The website is designed responsively for seamless usage on mobile devices and web browsers.
- User information is securely protected and inaccessible to others.
- Passwords are encrypted to ensure high security.
- Payment data is not stored to safeguard user privacy.
- If users choose to provide bank card information for faster payments, it is encrypted for protection against hacking attempts.

Project Technical Specifications (including security):

Security: The project implements user authentication using bcrypt for password hashing and JWT (JSON Web Tokens) for secure session management. Input validation and data sanitization techniques are applied to prevent common security vulnerabilities like SQL injection and cross-site scripting (XSS).

Mobile Web: The website is designed responsively, utilizing CSS media queries and adaptive layouts to ensure optimal user experience across different devices and screen sizes. The use of responsive frameworks like Bootstrap is considered for consistent styling and mobile-friendly UI.

Candidate's Work:

The candidate has contributed significant code excerpts to the project, including:

- Secure user authentication and authorization middleware implementation.
- Responsive UI components and layouts for seamless mobile web experience.
- Secure API endpoints for handling user data and portfolio management.

Here is a presentation of the test case, including input data, expected data, and the data obtained during testing:

Test Case: User Registration

Description:

This test case focuses on the user registration feature, which allows new users to create an account on the platform.

Input Data:

- Name: Razan Aboushi
- Email: razanalqaddoumi@gmail.com
- Birth date: 14-10-2000
- Gender: female
- Role: Student
- Password: Test123456789

Expected Data:

After successful registration, the user's account should be created in the system, and the user should be redirected to the Profile page.

Data Obtained:

1. The candidate entered the provided input data into the registration form.
2. Clicking the "Register" button triggered the registration process.
3. The system displayed a success message indicating that the registration was successful.
4. The candidate was automatically redirected to the login page.

Test Case: User Join Course and Complete Payment

Description:

This test case focuses on the user's ability to join a course published by another student who wants to explain it. The test includes the process of completing the payment for the course.

Input Data:

- User Email: razanalqaddoumi@gmail.com
- User Password: Test123456789
- Selected Course: "Introduction to React JS"

Expected Data:

After completing the payment for the selected course, the user should be enrolled in the course and gain access to the course materials and online meetings.

Data Obtained:

1. The candidate logged into their personal account using the provided email and password.
2. The candidate navigated to the course catalog and selected the "Introduction to React JS" course.
3. Clicking the "Join Course" button initiated the payment process.
4. The system redirected the candidate to the payment gateway “cards or orange money”, where they entered their payment details.
5. After successful payment, the system displayed a confirmation message and redirected the candidate back to their personal account.
6. In the personal account, the candidate could see the "Introduction to React JS” course listed in their enrolled courses.
7. The candidate accessed the course materials, including summaries and online meeting details in his profile.

Describe enrolling in a Course or Summary:

Preconditions:

The user has registered an account on the website.

Flow of Events:

The user visits the university website and logs in with their credentials. Upon successful login, the user is presented with a personalized dashboard. The user navigates to the course page or summary page to explore available options.

If the user wants to enroll in a course: The user selects a course from the page. The website displays detailed information about the course if he wants to see them, including the course title, description, duration, price, start date, end date, and other relevant details.

The user decides to enroll in the course and clicks on the "Enroll" button. The website prompts the user to review and confirm their enrollment. Once confirmed, the user is officially enrolled in the course after he completed the payment process. A new entry is created in the course enrollments table, linking the user, course, and enrollment details.

If the user wants to purchase a summary: The user explores the available summaries on the website. The website displays a list of summaries, including their titles, descriptions, prices, and images.

The user selects a summary they are interested in. The website provides additional information about the summary, such as its brief overview, status (for sale or free), and other details. The user decides to purchase the summary and proceeds to the checkout process.

The website asks the user to select a payment method from the available options. The user selects a payment method and provides the necessary details. After successful payment, the user gains access to the purchased summary in his account.

A new entry is created in the summary enrollments table.

Associating the user, summary, and enrollment details. The user can view their enrolled courses, purchased summaries, and related information in their dashboard.

Alternative Paths:

If the user encounters any issues during the enrollment or purchase process, they can contact customer support by visiting the "Contact Us" page or submitting a message through the website's contact form. If he wants to add courses or summaries to their cart before proceeding to check out, they can add items to the cart table and complete the purchase later.

Post conditions:

The user has successfully enrolled in a course or purchased a summary.

The ER Diagram of the website database:

