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Project I worked on independently during my summer internship period for learning purposes

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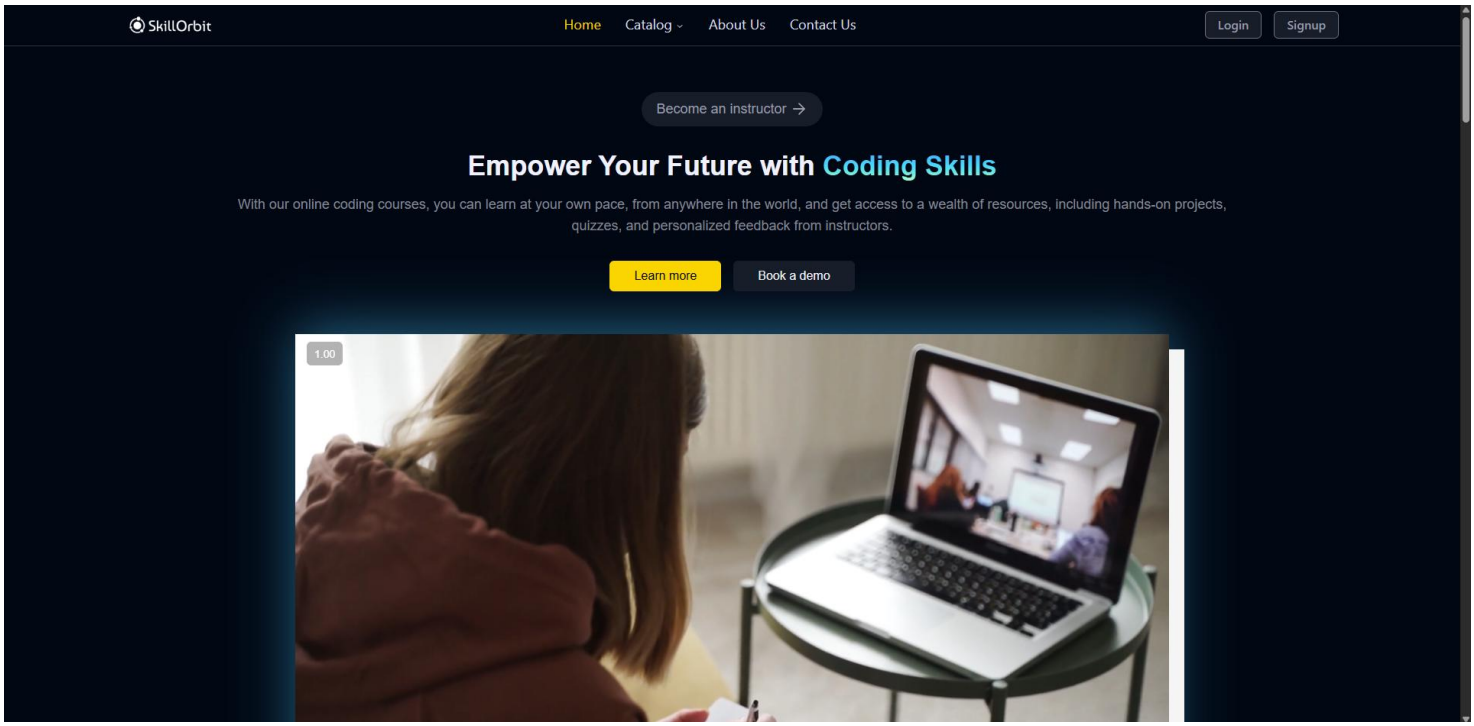
SkillOrbit : EdTech Platform

SkillOrbit is a fully functional ed-tech platform that enables users to create, consume, and rate educational content. It aims to provide a seamless and interactive learning experience for students, making education more accessible and engaging. Additionally, the platform serves as a space for instructors to showcase their expertise and connect with learners across the globe.

Inspiration : Clone of Udemy (Udemy is an American massive open online course provider)

GitHub : https://github.com/Swapavan/SkillOrbit

Deployed website : https://skillorbit.vercel.app/



Installation:

1. Clone the repository
    a. https://github.com/Swapavan/SkillOrbit.git

2. Install dependencies
    a. cd SkillOrbit
    b. npm install
    c. cd server
    d. npm install
3. Run the application
    a. npm run dev

Tech Stack

1. Front end: ReactJs, Tailwind, Shadcn/UI, Redux-toolkit
2. Back end: NodeJs, ExpressJs
3. Database : MongoDB
4. Authentication : JWT
5. Password Hashing : Bcrypt
6. Media Management : Cloudinary
7. Payment Integration : Razorpay API (for making secure payments)

Functionalities :

1. **Student functionalities :**
    - **Homepage:** Offers a general introduction and navigation to course listings and user details
    - **Course List / Catalog**: Browse all available courses along with descriptions and ratings
    - **Wishlist**: Save courses that users want to revisit later
    - **Cart & Checkout**: Purchase courses through a checkout flow that integrates **Razorpay** for secure payments
    - **Course Content Viewer**: Access enrolled course materials such as videos and related resources

- **User Profile & Edit Details**: View and update personal information (e.g., name, email)
- **Course Rating & Reviews**: Submit ratings (1–5 stars) and possibly reviews for courses
- **Payment Success Handling**: Likely includes notifications of payment confirmation and enrollment acknowledgment (back-end endpoints handle sending payment success emails)

2. **Instructor functionalities :**

- **Instructor Dashboard**: Overview of courses they've created, including quick visibility of ratings and feedback
- **Insights / Analytics**: Detailed metrics like course views, clicks, and engagement stats to help instructors monitor performance
- **Course Management**: Full control to **create**, **update**, and **delete** courses; also manage course content, sections, pricing, etc.
- **Profile Management**: View and edit the instructor's own profile information.

Architecture :

The SkillOrbit EdTech platform consists of three main components: the front-end, the back-end, and the database. The platform follows a client-server architecture, with the front-end serving as the client and the back-end and database serving as the server.

Front-end

The front-end of the platform is built using ReactJS, which allows for the creation of dynamic and responsive user interfaces, crucial for providing an engaging learning experience to students. The front-end communicates with the back-end using RESTful API calls.

Front End Pages

For Students:

Homepage, Course List, Wishlist, Cart Checkout, Course Content, Course video players, User Details, User Edit details

For Instructors:

Dashboard, Insights, Course Management Pages, View and Edit Profile Details

Front-end Tools and Libraries

To build the front-end, used frameworks and libraries such as ReactJS, CSS, and Tailwind for styling, and Redux for state management.

Back-end

The back-end of the platform is built using NodeJS and ExpressJS, providing APIs for the front-end to consume. These APIs include functionalities such as user authentication, course creation, and course consumption. The back-end also handles the logic for processing and storing the course content and user data.

Back-end Features

User Authentication and Authorization: Students and instructors can sign up and log in to the platform using their email addresses and passwords. The platform also supports OTP (One-Time Password) verification and forgot password functionality for added security.

Course Management: Instructors can create, read, update, and delete courses, as well as manage course content and media. Students can view and rate courses.

Payment Integration: Students will purchase and enroll in courses by completing the checkout flow, followed by Razorpay integration for payment handling.

Cloud-based Media Management: SkillOrbit uses Cloudinary, a cloud-based media management service, to store and manage all media content, including images, videos, and documents.

Markdown Formatting: Course content in document format is stored in Markdown format, allowing for easier display and rendering on the front-end.

Back-end Frameworks, Libraries, and Tools

The back-end of SkillOrbit uses various frameworks, libraries, and tools to ensure its functionality and performance, including:

Node.js: Used as the primary framework for the back-end.

Express.js: Used as a web application framework, providing a range of features and tools for building web applications.

MongoDB: Used as the primary database, providing a flexible and scalable data storage solution.

JWT (JSON Web Tokens): Used for authentication and authorization, providing a secure and reliable way to manage user credentials.

Bcrypt: Used for password hashing, adding an extra layer of security to user data.

Mongoose: Used as an Object Data Modeling (ODM) library, providing a way to interact with MongoDB using JavaScript.

Data Models and Database Schema

The back-end of SkillOrbit uses several data models and database schemas to manage data, including:

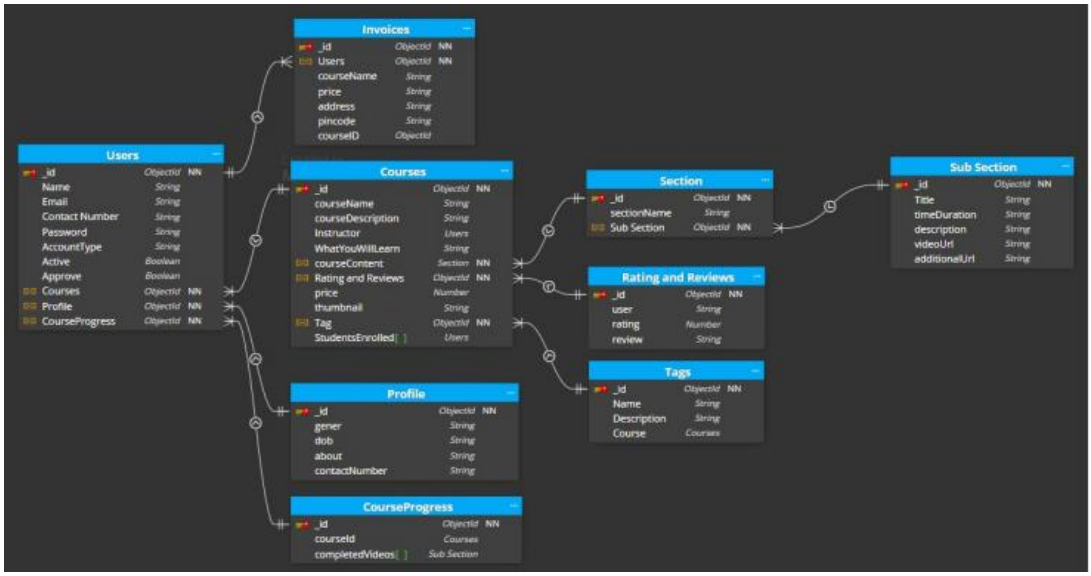
Student Schema: Includes fields such as name, email, password, and course details for each student.

Instructor Schema: Includes fields such as name, email, password, and course details for each instructor.

Course Schema: Includes fields such as course name, description, instructor details, and media content.

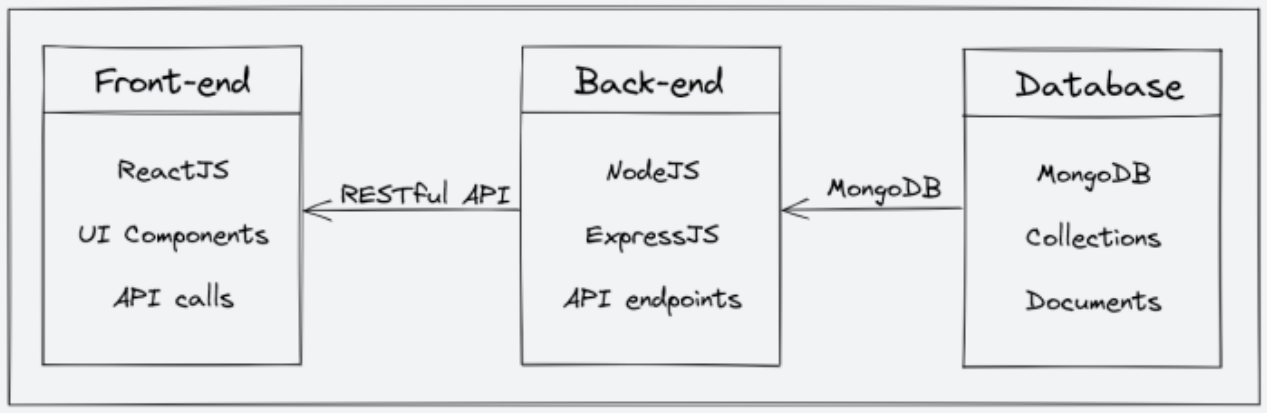
Database

The database for the platform is built using MongoDB, a NoSQL database that provides a flexible and scalable data storage solution. MongoDB allows for the storage of unstructured and semi-structured data. The database stores the course content, user data, and other relevant information related to the platform.



Architecture Diagram

Below is a high-level diagram that illustrates the architecture of the SkillOrbit EdTech platform:



API Design

The SkillOrbit platform's API is designed following the REST architectural style. The API is implemented using Node.js and Express.js. It uses JSON for data exchange and follows standard HTTP request methods such as GET, POST, PUT, and DELETE.

Thankyou