SYRUS HACKATHON 2025

Category Code: C1 (Open Innovation)

Problem Statement Title: EduTrade - Swap Skills, Gain Expertise

Team Name: Caffeine Coder

Institute Name: Vivekanand Education Society's Institute of Technology

Idea / Approach details (& implemented features)

Problem Statement: Many individuals struggle with limited access to quality education, skills mismatching job market demands, financial constraints, and lack of professional networks, leading to unequal job opportunities.

Solution Overview: EduTrade is an AI-powered platform that bridges the gap between learning and employment. It provides personalized skill assessments, free learning resources, AI-driven job matching, a Skill Swap Marketplace, and instant resume generation to help users secure sustainable careers.

User Roles & Features:

- **Learner:** Skill swap, job applications, study groups, AI recommendations.
- **Mentor:** Skill validation, learning sessions, career guidance
- **Employer:** Job postings, candidate reviews, interviews.

Innovation (Showstopper)

1. **Skill Swap Marketplace**
   - Users exchange skills (e.g., coding for UI/UX) using a time-based token system.
   - AI or manual matching ensures fair and relevant learning exchanges.
2. **Job Market Integration**
   - AI-driven smart job matching connects users with relevant opportunities.
   - Includes resume building, interview prep, and direct recruitment.
3. **Instant AI Resume & Portfolio Generator**
   - AI creates professional resumes, cover letters, and project portfolios.
   - Real-time updates based on new certifications and work experience.
4. **Gamified Skill Challenges & Hackathons**
   - Daily challenges, leaderboards, and digital badges for skill mastery.
   - Community-driven hackathons to foster engagement and innovation.
5. **Personalized Study Groups & Accountability Buddies**
   - AI matches users with peers and mentors based on learning goals.
   - Virtual study groups with progress tracking for motivation.
6. **Instant Skill Endorsements from Mentors**
   - Industry experts validate skills based on projects and performance.
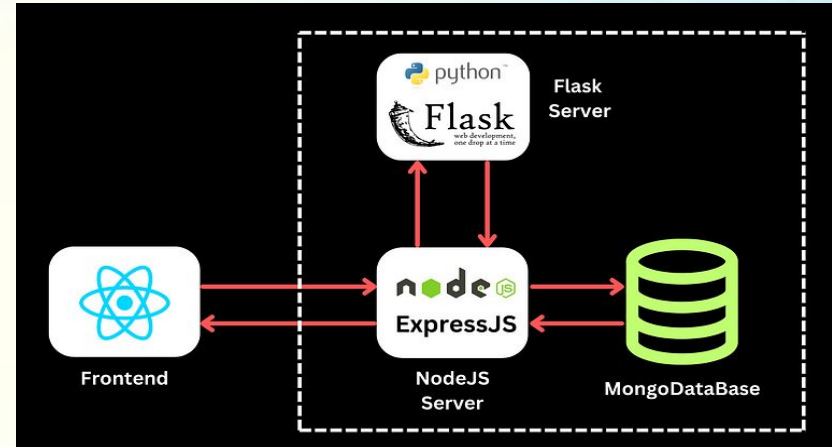   - Enhances credibility, boosting job and freelancing prospects.
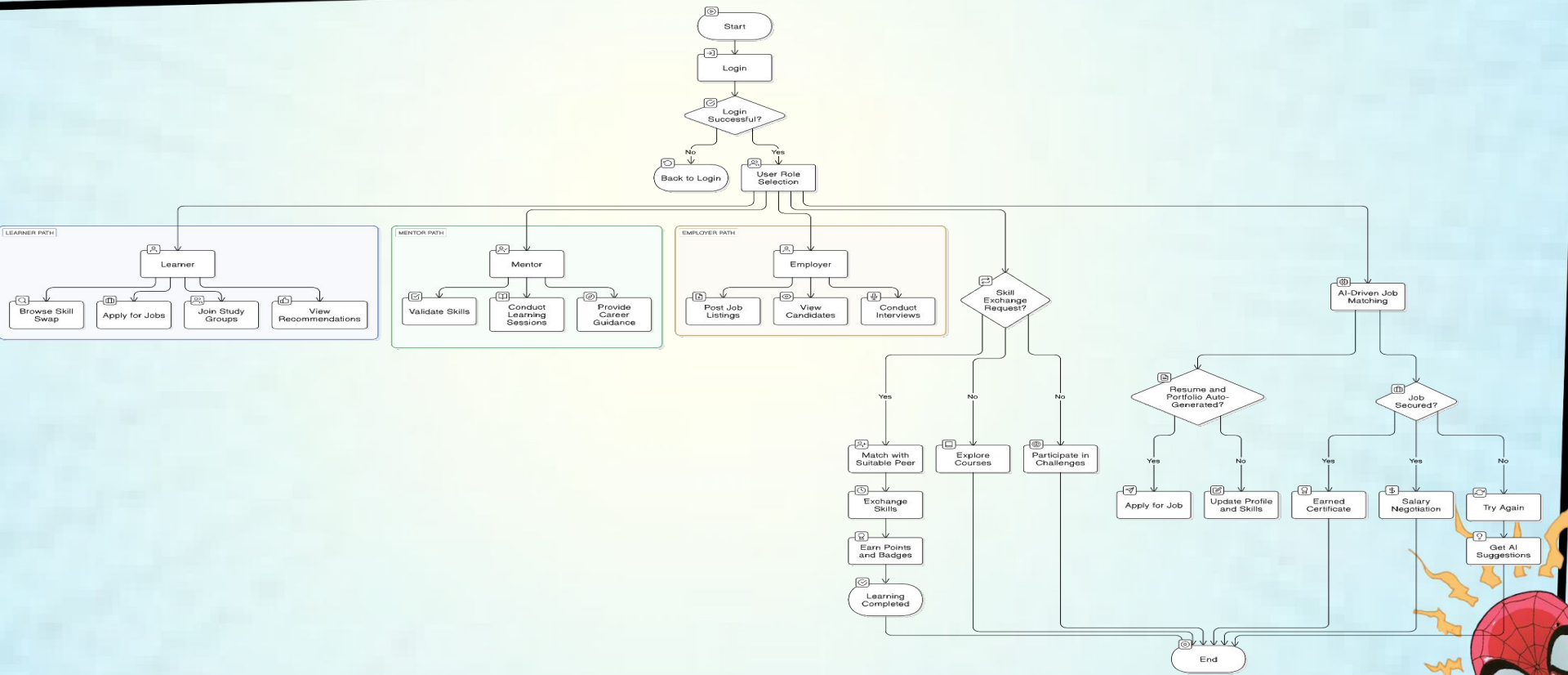
Tech Stack

Frontend: React.js

Backend: Node.js, Flask
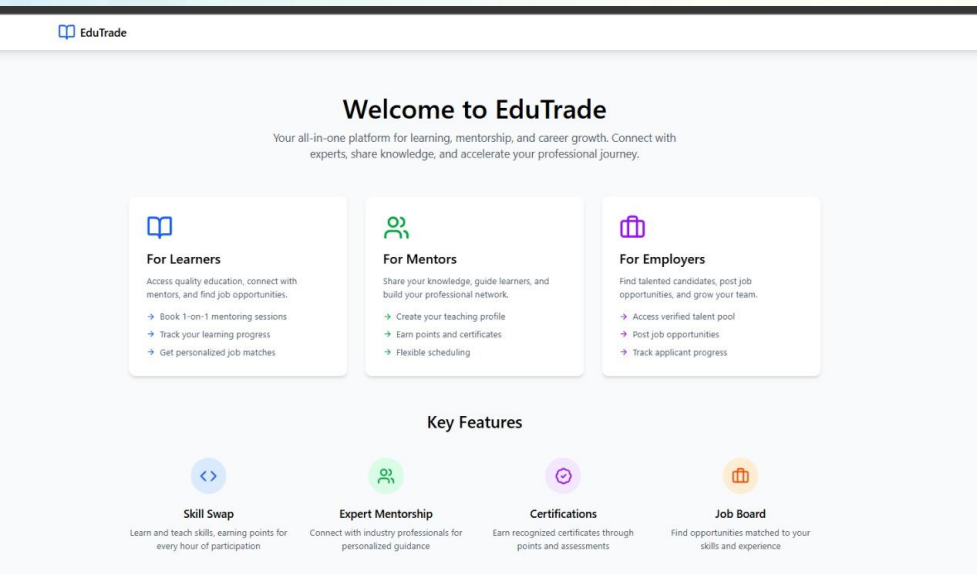
Database: MongoDB

Machine Learning: Python
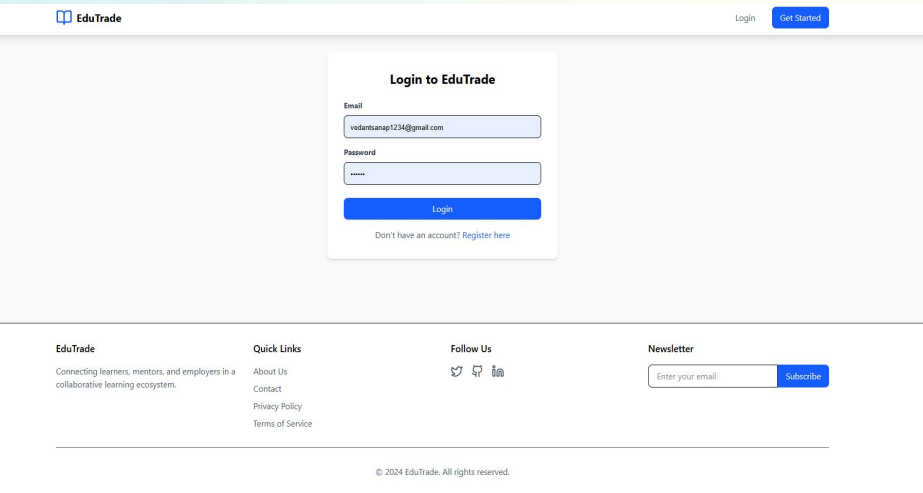
Use Case Diagram

Implementation

Landing Page

- **Welcome Section** – Introduces EduTrade as a platform for learning, mentorship, and career growth.
- **User Categories** – Sections for **Learners, Mentors, and Employers** with their respective benefits.
- **Key Features** – Highlights **Skill Swap, Expert Mentorship, Certifications, and Job Board**.
- **User Engagement** – Encourages **skill-sharing, learning progress tracking, and job matching**.
- **Modern UI/UX** – Clean, **responsive design using React.js and Tailwind CSS** for easy navigation.
- **Call to Action** – Directs users to sign up and explore the platform's services.

Implementation

Role Based Login

- **Role-Based Authentication** – Users log in with unique credentials and access features based on their role (Learner, Mentor, or Employer).
- **Secure Access Control** – Ensures restricted access to role-specific functionalities using authentication keys or tokens.
- **Learner Dashboard** – Provides access to courses, progress tracking, and feedback submission.
- **Mentor Dashboard** – Enables content creation, feedback management, and interaction with learners.
- **Employer Dashboard** – Allows job postings, candidate searches, and engagement with potential hires.
- **Session Management** – Uses JWT or OAuth for secure login sessions and role verification

Implementation
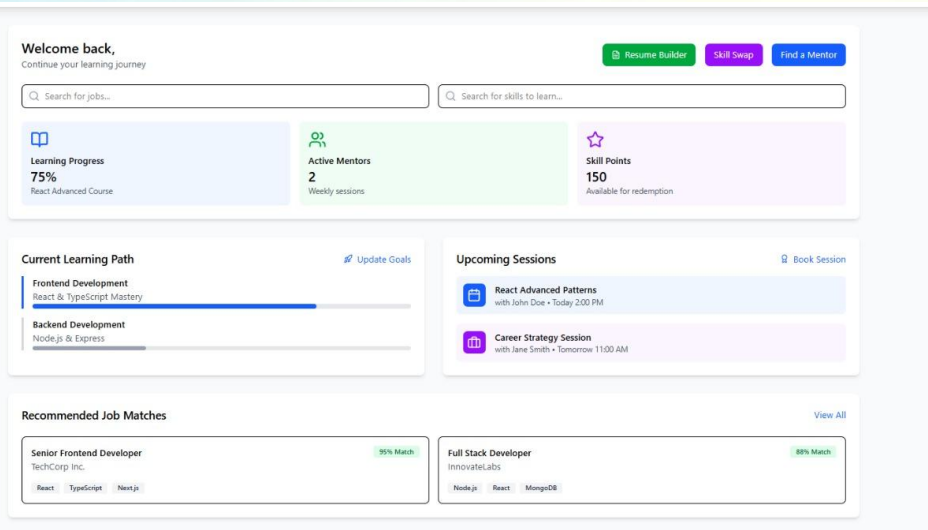
Learner Dashboard

- **Personalized Dashboard** – Displays learning progress, mentors, and available skill points.
- **Search & Navigation** – Users can search for jobs or skills to learn efficiently.
- **Current Learning Path** – Tracks progress in frontend and backend development courses.
- **Upcoming Sessions** – Scheduled mentoring sessions with topics and mentors.
- **Job Recommendations** – AI-driven job matches based on skills and progress.
- **Quick Actions** – Buttons for **Resume Builder, Skill Swap, and Find a Mentor** for career growth.

Implementation
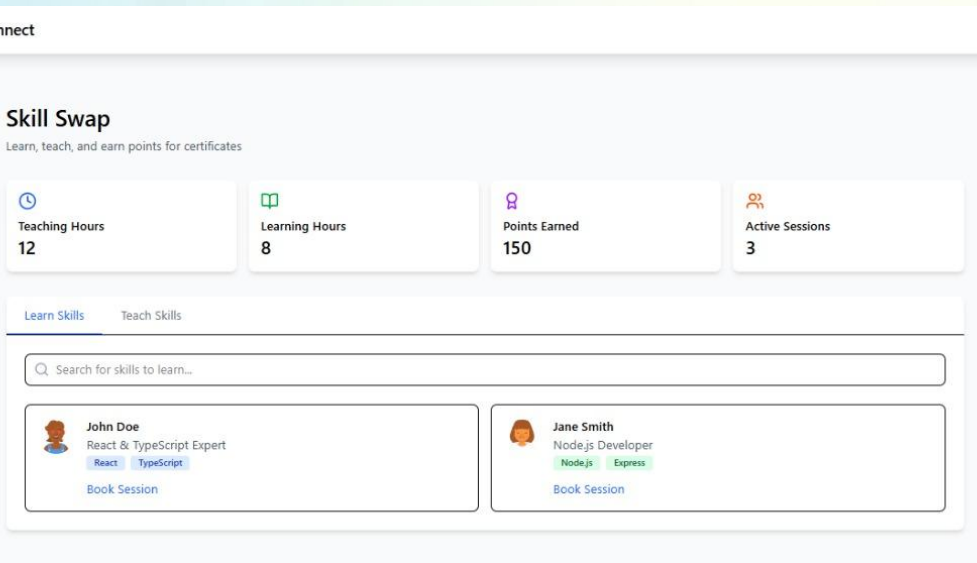
Skill Swap

- **Learn & Teach Skills** – Users can exchange skills to earn points and certificates.
- **Performance Tracking** – Displays **Teaching Hours, Learning Hours, Points Earned, and Active Sessions**.
- **Search & Discover** – Users can find experts based on skills like **React, TypeScript, Node.js, etc.**
- **Book Sessions** – Allows easy scheduling of skill exchange sessions with mentors.
- **Dual Mode** – Users can **Learn Skills** or **Teach Skills** to contribute to the community.
- **Gamification** – Encourages participation by rewarding points for teaching and learning.

Implementation
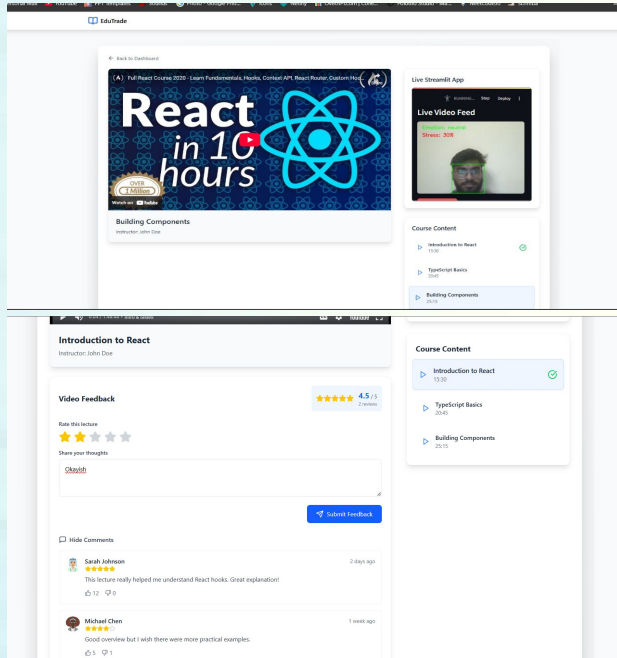
View Courses

- **Embedded Video Lectures** – Users can **watch courses directly** via an embedded YouTube player.
- **Live Emotion Analysis** – Integrated **AI-based emotion detection** shows real-time stress levels and emotions.
- **Course Progress Tracking** – Users can see **completed and pending lessons** in the course content list.
- **Instructor Information** – Displays **instructor name** and course details for better user engagement.
- **Structured Course Content** – Lessons are **categorized** with duration (e.g., **15:30 mins** for "Introduction to React").
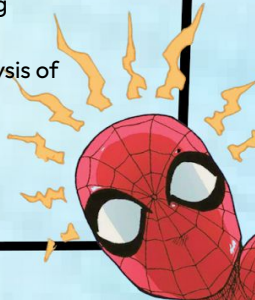- **Feedback System** – Enables users to rate and review course content.

Implementation
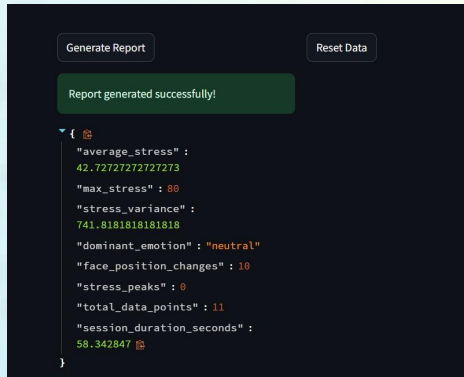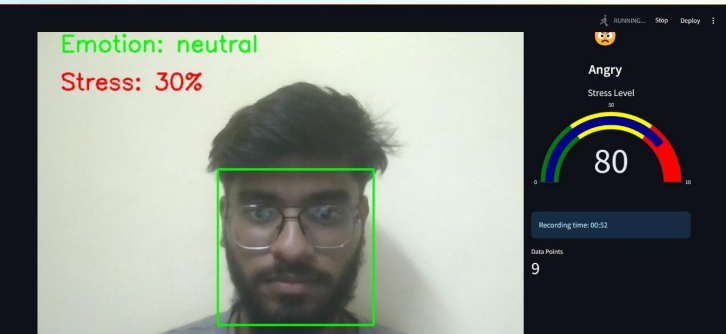
Key Features of the Emotion and Stress Tracking System:

- **Real-Time Emotion & Stress Detection**: Captures emotions (neutral, angry, happy, sad) and stress levels on a 0-80% scale, with the dominant emotion recorded as neutral in this session.
- **Stress & Emotion Visualization**: Includes a stress timeline graph, an emotion distribution pie chart, and a heatmap linking facial positions to stress intensity.
- **Detailed Session Analytics**: Provides average stress (46%), maximum stress (80%), stress variance (693.3), and total recording duration (~58 seconds) with 11 data points.
- **Facial Tracking & Movement Analysis**: Tracks face position, detects subtle movements (10 recorded position changes), and uses a green bounding box for face detection.
- **Correlation Between Emotion & Movement**: Analyzes how emotional states relate to physical movement, measuring movement in pixels and linking different emotions to varying activity levels.
- **Comprehensive Behavioral Insights**: Offers a multi-dimensional analysis of stress, emotions, and physical movement for better understanding of psychological responses.
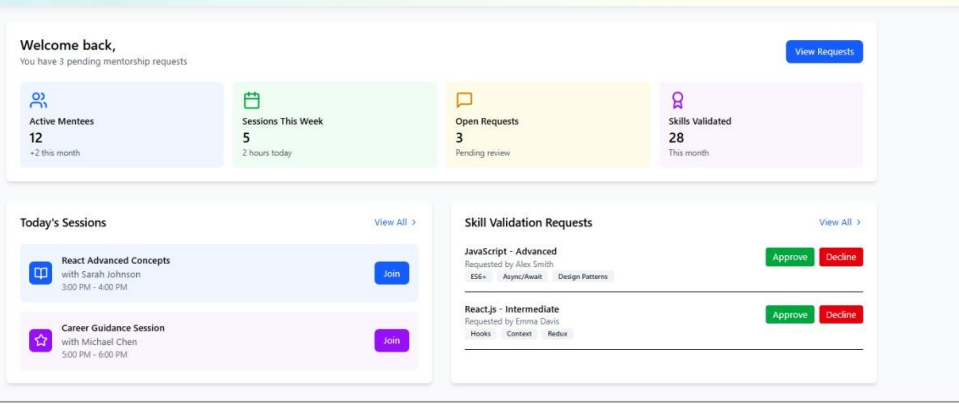
# Implementation

Implementation

Mentors Dashboard

- **Mentee Management** – Track and manage **active mentees** and their progress.
- **Session Overview** – Displays **upcoming mentorship sessions** with mentees.
- **Skill Validation** – Approve or decline skill validation requests from learners.
- **Pending Requests** – View and manage **mentorship and skill validation requests**.
- **Performance Metrics** – Shows **sessions conducted, open requests, and skills validated**.
- **Quick Actions** – Easy access to **joining sessions, approving skills, and handling requests**.

Implementation
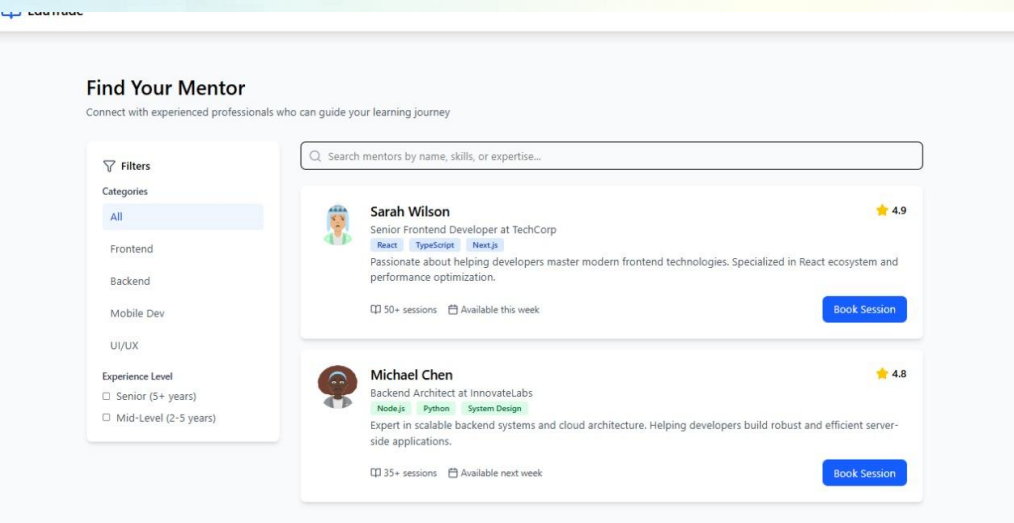
Finding Mentor

- **Mentor Discovery** – Users can search for **mentors based on skills, expertise, or name**.
- **Filtering Options** – Categories include **Frontend, Backend, Mobile Dev, and UI/UX** with experience levels.
- **Mentor Profiles** – Displays mentor details like **name, role, skills, rating, and availability**.
- **Session Booking** – Users can **book sessions** directly from the mentor's profile.
- **User Ratings & Experience** – Mentors are rated (⭐4.8, ⭐4.9) based on sessions conducted.
- **Session Availability** – Indicates **when a mentor is available** for booking.

Implementation
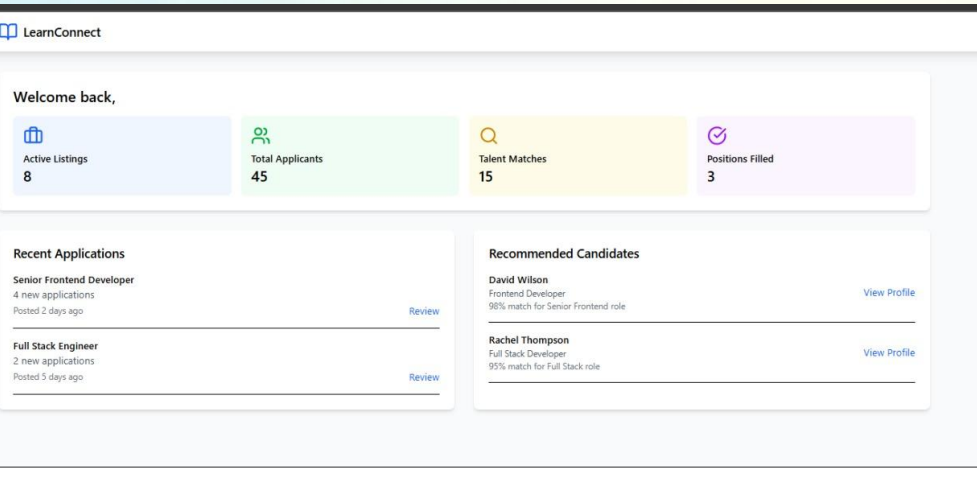
Employers Dashboard

- **Job Listings Overview** – Employers can track **active job postings** and **positions filled**.
- **Applicant Tracking** – Displays **total applicants** and **talent matches** based on job fit.
- **Recent Applications** – Lists newly received applications with **job titles, posting dates, and review options**.
- **Candidate Recommendations** – Suggests **top-matching candidates** with **match percentage** (e.g., **98% match**).
- **Profile Review & Shortlisting** – Employers can **view candidate profiles** and shortlist potential hires.
- **Hiring Efficiency Insights** – Tracks **hiring success** through key metrics like **positions filled and applicant trends**.

Implementation

AI Resume Optimizer

- **Resume Upload & Parsing** – Users can upload their resume in PDF, DOC, or DOCX format. The system extracts and analyzes the resume content.

- **Job Details Input** – Users enter job details like title, company name, and job description to tailor the resume accordingly.

- **Keyword Matching & Score** – The system compares the resume against the job description, highlighting matching and missing keywords, and provides a match score.

- **AI-Powered Improvement Suggestions** – The tool suggests enhancements such as emphasizing relevant skills, adding metrics, or highlighting project experiences.

- **Preview & Edit Option** – Users can review the AI-optimized resume content and make edits before finalizing it.

- **Download Optimized Resume** – Once satisfied, users can download the tailored resume, ensuring it aligns well with the job requirements and ATS (Applicant Tracking System) standards.
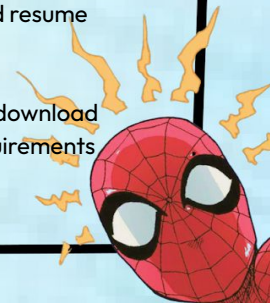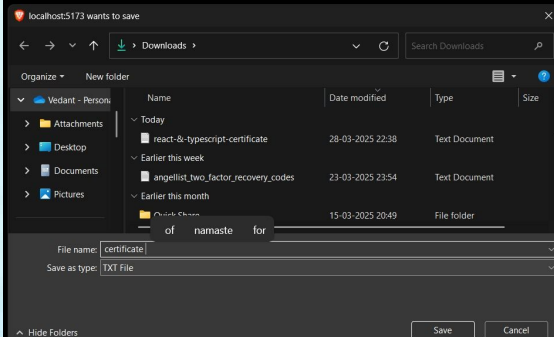
Implementation

Users should only be able to redeem a reward if they have enough points.

After redeeming, the available points should update in real-time.

The "Redeem" button should be disabled if the user lacks sufficient points.

Provide a confirmation prompt before deducting points.

Show a success message and allow users to download their certificate after redemption.

Consider implementing a history section where users can view past redemptions.

Redeem Points

Future Objective

1. **Peer-to-Peer Learning via Video Calls** – Enables live skill exchange sessions through secure video calls, fostering interactive learning and mentorship.

2. **Decentralized Learning & Skill Verification** – Blockchain-based certificates for verified skill endorsements and decentralized skill records to ensure credibility across platforms.

3. **Metaverse & VR-Based Learning Modules** – Immersive learning through VR-based training simulations and virtual skill swap rooms for hands-on experiences.

4. **Smart Contracts for Skill Exchange & Payments** – Secure and automated transactions using blockchain to ensure fair exchanges and fraud prevention in freelancing & mentorship.

5. **Automated AI Job & Internship Applications** – AI auto-applies to relevant jobs and internships based on user skills, with smart tracking of application status and interview scheduling.