

# **Project Report**

**Title of the Project: AI Enhanced Career Guide Application**

**Course Code: CSE226**

**Course Title: Developing Android Apps**

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# **DECLARATION**

**I, Deepak Singla**, a student of Bachelor of Technology under CSE discipline at Lovely Professional University, Punjab, hereby declare that all the information furnished in this project report is based on my own work and is genuine

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## 1. Project Description

### Objective:

The primary objective of the **AI Enhanced Career Guidance App (CareerBot)** is to develop a comprehensive, modern, and highly personalized mobile platform that leverages **Generative AI** to assist users with their **career planning, educational choices, skill development, and interview preparation**. It aims to replace static, generalized career advice with dynamic, interactive, and context-aware guidance, all within a secure and intuitive Android application.

### Core Features:

#### AI-Powered Career Chatbot (Core Feature)

- **Technology:** Integrated with the **Gemini API** (via Google AI Studio/Firebase AI Logic).
- **Functionality:** Provides **real-time conversational guidance** in the chat section.
- **Scope:** The chatbot is strictly configured to answer prompts related to **study, career paths, and interview help** (e.g., “*What to do after 12th?*”, “*Career in Data Science*”). It provides a polite, automated response if a non-career-related question is asked.
- **Data Persistence:** All chat conversations and history are securely saved in **MongoDB** for continuity and analysis.

#### AI Quiz Generator

- **Functionality:** Allows users to **search any topic** (e.g., “*Basic Java*”, “*Digital Marketing Concepts*”).
- **Outcome:** The app generates a **basic quiz** dynamically on the requested topic, providing an immediate knowledge assessment

tool. This showcases a practical, on-demand use case of Generative AI beyond simple chat.

### Progress Tracker and Goal Setting

- **Functionality:** A dedicated section where users can **add, track, and monitor** their professional and educational **goals** (e.g., “*Complete Python Course*”, “*Practice 5 Mock Interviews*”).
- **Purpose:** Promotes user engagement and transforms the app into an actionable tool for personal development.

### Career Tips and Insights

- **Functionality:** Provides curated and potentially personalized **career tips** to aid the user's development, complementing the advice given by the chatbot.

### Secure User Authentication

- **System:** Includes dedicated **Login** and **Sign-up** pages.
- **Process:** Users create an account using their **email ID** and **password**.
- **Security:** All user data, including login credentials and profile information, is **saved securely in MongoDB**.

### Modular and User-Centric Interface

- **Navigation:** Features a clean dashboard with **multiple navigation buttons** for quick access, a **settings icon** on top, and an accessible **profile section**.
- **UX Features:** Includes a **Profile** page and a **Dark Mode** toggle in the **Settings** for enhanced user experience and accessibility.

### Challenges Addressed

- **Generalized Advice:** Moving from static, one-size-fits-all career books to personalized, **real-time advice** via Generative AI.
- **Lack of Practice:** Providing an **on-demand quiz tool** for immediate knowledge testing and skill validation.

- **Disorganized Planning:** Offering a **Progress Tracker** to help users formalize, organize, and monitor their career goals.
- **Technology Integration:** Successfully integrating complex technologies like the **Gemini API** and a **NoSQL database (MongoDB)** into a single, cohesive Android application.

#### End Users

- **Students:** Seeking guidance on educational paths (e.g., after 12th grade, college majors).
- **Job Seekers:** Needing interview preparation, resume advice, and job market insights.
- **Working Professionals:** Looking for upskilling tips, career change advice, and professional goal tracking.

## 2. Technology Used (Front End/Back End)

The **AI Enhanced Career Guidance App (CareerBot)** is architected using a modern and scalable stack, combining native Android development tools with powerful cloud-based and database services.

#### Front End: Android Studio (**Kotlin + XML**)

The client-side application is built natively to ensure high performance, device compatibility, and a premium user experience.

#### Technologies and Tools:

- **Kotlin:** The primary programming language. Chosen for its modern features, conciseness, safety, and official support by Google for Android development, which simplifies the integration of the Gemini API.

- **XML (Extensible Markup Language):**  
Used exclusively for defining the **layout and structure of the User Interface (UI)**, including the dashboard, chat screen, profile, and navigation components.
- **Material Design Components:**  
Principles applied across the UI (buttons, navigation bars, cards) to ensure a **clean, consistent, and intuitive user experience** with features like the **Dark Mode** option in Settings.
- **Android Libraries:**  
Utilized components like **RecyclerView** (for displaying chat history and tips) and **Navigation Components** (for managing screen flow).

### **Back End: MongoDB + Google AI Studio (Gemini API)**

The backend employs a hybrid architecture, using MongoDB for robust data management and the Gemini API for intelligence.

#### **MongoDB**

The primary NoSQL database. Used for:

- User Account Data:** Secure storage of login/signup credentials (email/password).
- Chat History:** Storing the log of conversations with the AI chatbot.
- Progress Data:** Saving user-defined goals and progress status.
- Quiz History:** Storing records of completed AI quizzes.

**Advantage:** Its flexible document model is ideal for handling the diverse, unstructured nature of chat logs and dynamic quiz data.

#### **Gemini API**

The core Artificial Intelligence engine, accessed via Google AI Studio or its dedicated SDK. Used for:

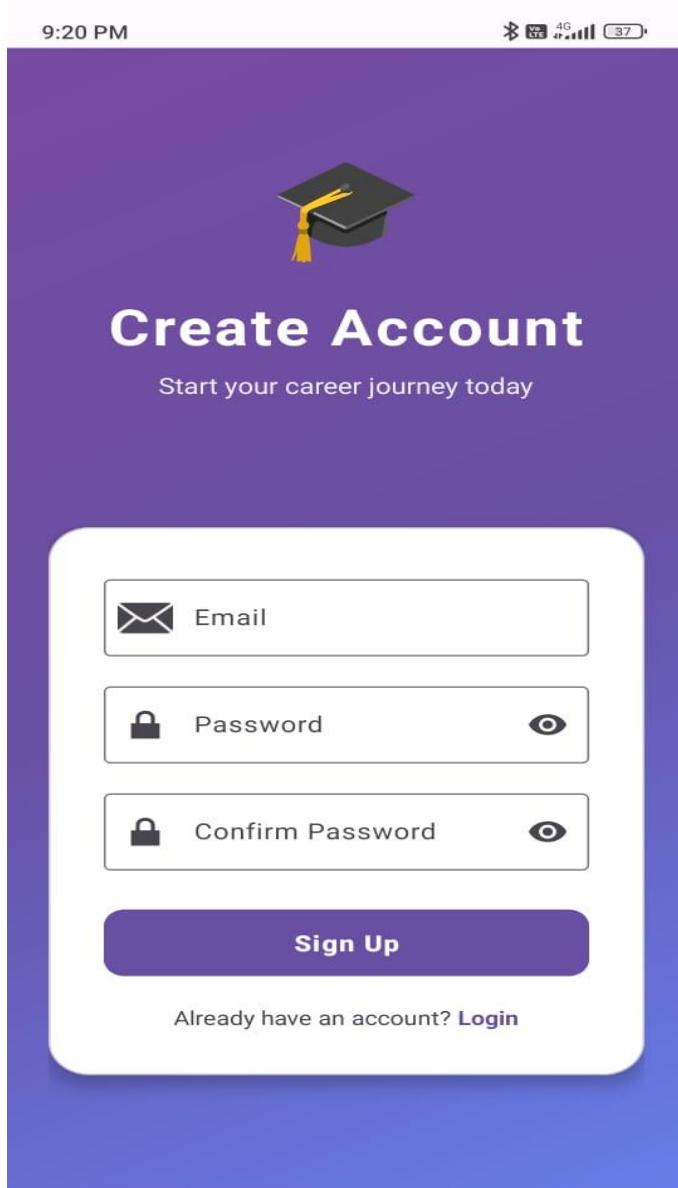
- Generative Chat:** Powering the real-time, contextual conversations for career and education advice.
- AI Quiz Generation:** Dynamically creating quiz content based on user-input topics.

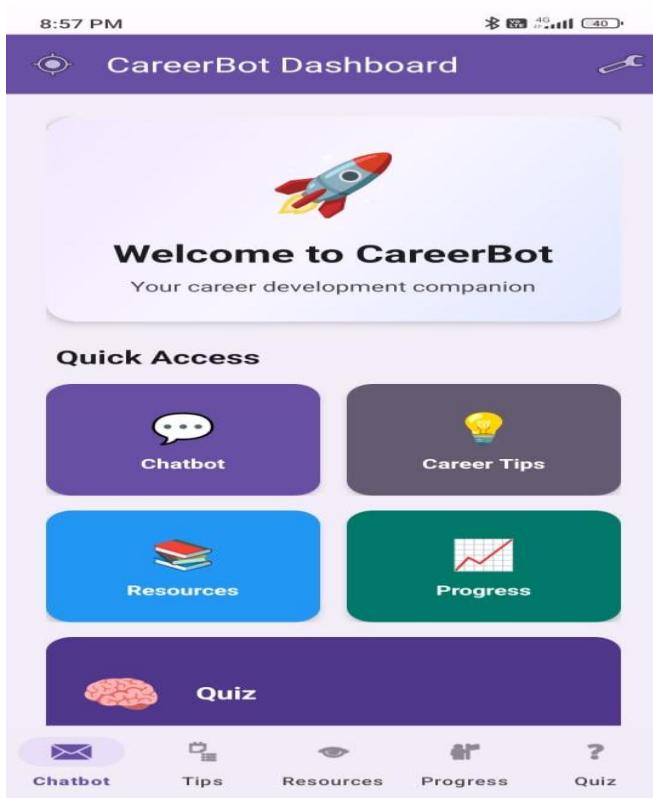
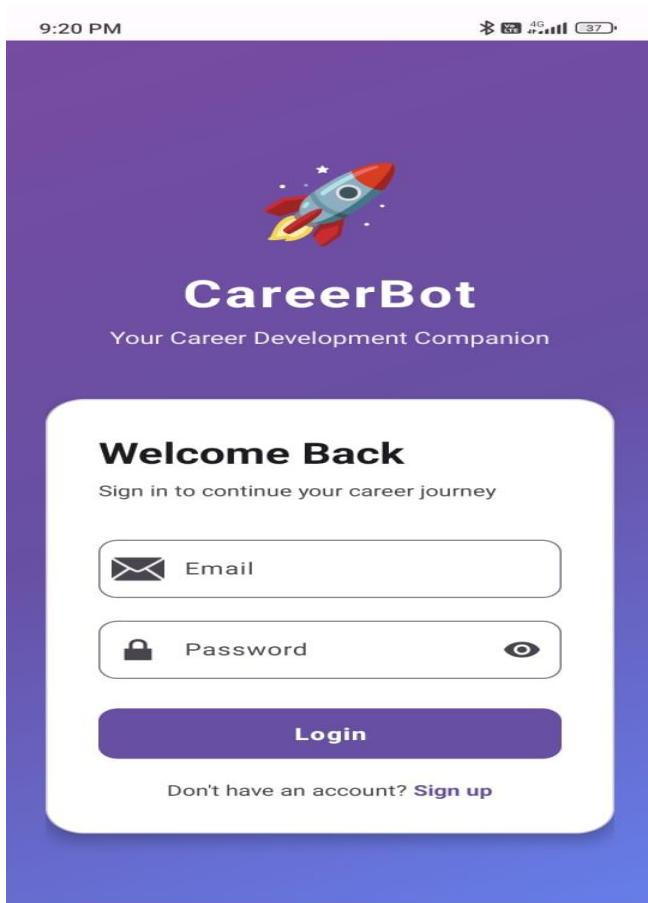
**Key Highlight:** The use of Gemini demonstrates integration of cutting-edge Generative AI technology.

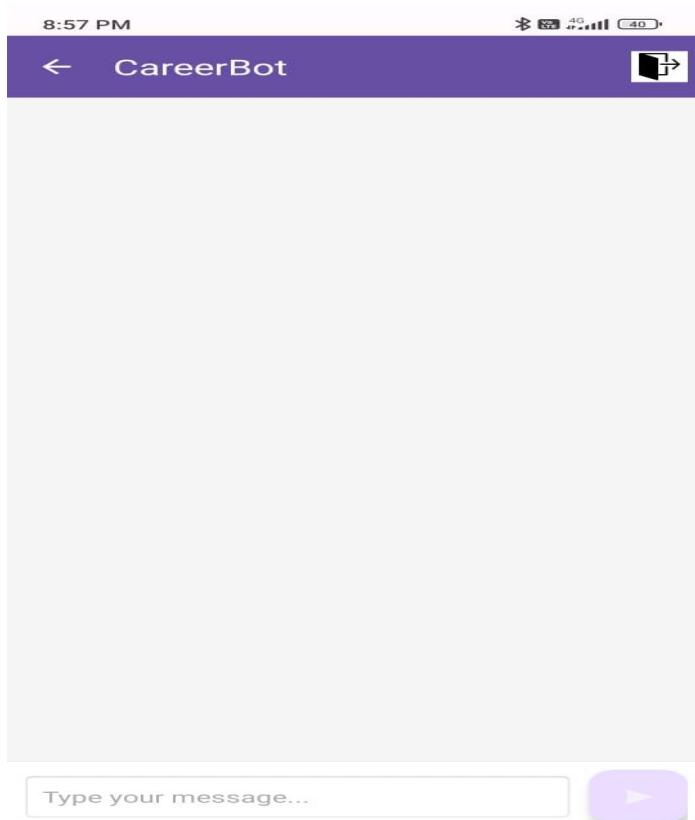
### Authentication System

The app's custom login/signup system is built around securing user accounts and validating credentials against the data stored in MongoDB.

### 3. Screenshots of the project







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## Career Tips

 **AI-Powered Career Insights**

Get personalized career tips and guidance powered by AI

**Select Topic**

Career Planning    Job Search

Interview Tips    Skills Development

Networking    Education

 **AI Generated**

Career Planning

Tap 'Generate New Tip' to get AI-powered career advice

 **Generate New Tip**

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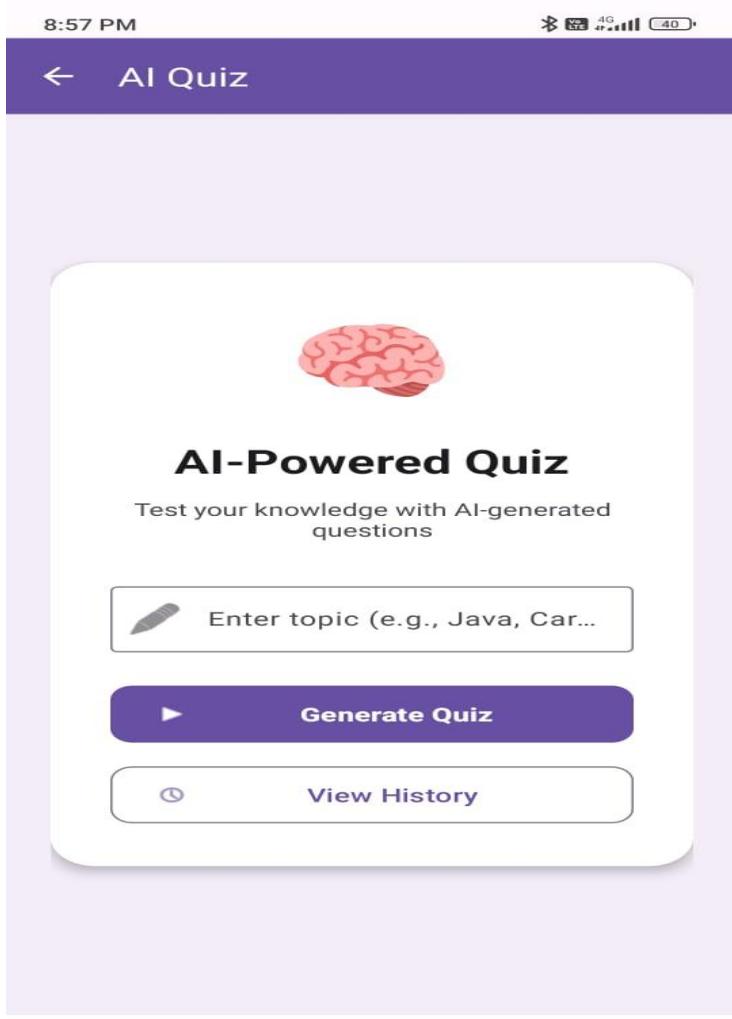
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## Progress Tracker

 **Add Goal**

 **Reset All**

 **Error: Job was cancelled**



## 4. Future Scope

The **AI Enhanced Career Guidance App (CareerBot)** has established a robust foundation by successfully integrating key features like a Gemini-powered chatbot, on-demand AI quizzing, a progress tracker, and MongoDB data management. The modular design of the Android application (Kotlin/XML) ensures high scalability.

To further solidify CareerBot's position as a leading digital career development tool, the following future enhancements are planned:

### 1. Advanced AI Personalization and Analytics

The core AI functionality can be deepened to offer a truly tailored experience:

- **Adaptive Guidance:** Utilize the stored user data from **MongoDB** (chat history, quiz results, and progress goals) to refine the Gemini chatbot's responses, providing **more personalized and context-aware advice**.
- **Skill Gap Analysis:** Implement AI logic that analyzes quiz performance and career goals to **identify specific skill gaps** and suggest relevant external courses or learning resources (APIs from MOOC providers like Coursera or edX).
- **Predictive Career Paths:** Based on current market trends and user profile, suggest highly probable and suitable future career transitions.

### 2. External API and Job Board Integration

Expand the app's utility by connecting to real-world career resources:

- **Job Listing Integration:** Integrate with popular job board APIs (e.g., Indeed, LinkedIn) to display **live, relevant job opportunities** matching the user's skills and goals directly within the app.
- **Resume Builder Tool:** Introduce an in-app feature that leverages the Gemini API to help users **draft, optimize, and format their resumes** and cover letters based on target job descriptions.
- **External Resource Linking:** Integrate links to reputable courses, training programs, and certification bodies that align with the user's desired career path.

### 3. Community and Expert Connection

Foster a more comprehensive and interactive user experience:

- **Peer Mentorship:** Introduce a feature for users to connect with peers for study groups or networking.
- **Expert Q&A Forums:** Implement a secure forum where users can pose questions to **verified industry experts or career counselors** (monetization potential).
- **Video Interview Simulator:** Use the Gemini API to generate complex, role-specific interview questions and record the user's response for self-review.



#### 4. Gamification and Progress Visualization

Enhance user engagement and goal achievement through design:

- **Interactive Dashboards:** Develop more detailed visualization tools (using graphs and charts) to show the user's progress on their goals, quiz mastery over time, and time spent on the app.
- **Achievement Badges:** Implement a system of badges or rewards for completing goals, passing quizzes, or reaching milestones to **gamify the learning process**.



#### 5. Monetization and Premium Features

Future development could introduce a premium tier:

- **Ad-free Experience.**
- **Access to Premium AI Models** for more detailed or lengthy consultations.
- **Unlimited Quiz Generation** and advanced analytics reports.

## 5. Conclusion

The **AI Enhanced Career Guidance App (CareerBot)** represents a successful endeavor in creating an intelligent, scalable, and user-focused tool for career development on the Android platform.

### Key Achievements:

- **Seamless AI Integration:** The project successfully implemented the **Gemini API** into the native Kotlin/XML environment,

delivering a **powerful, real-time conversational AI chatbot** and an innovative **on-demand AI quiz generator**.

- **Robust Data Management:** The use of **MongoDB** ensures secure and scalable storage for user accounts (login/signup), personalized goal tracking, and critical user data like chat and quiz history, enabling future personalization.
- **Holistic User Experience:** By combining the power of AI guidance with practical tools like the **Progress Tracker** and **Career Tips**, the application provides a comprehensive and actionable solution that addresses the modern challenges of career planning.
- **Technical Proficiency:** The project demonstrates strong proficiency in **native Android development (Kotlin/XML)** and the integration of modern cloud services and APIs, providing a stable, high-performance application.

In conclusion, **CareerBot** is more than just an app; it is a proof-of-concept for how **Generative AI can revolutionize the way individuals approach education and career development**. It provides a solid, expandable platform that is well-positioned for future integration with job boards, mentorship programs, and advanced predictive analytics. The successful deployment of this project showcases the ability to design, develop, and deploy an impactful, feature-rich mobile application using cutting-edge technology.