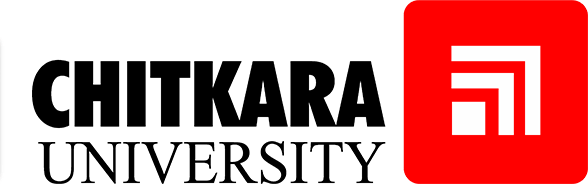
**Project Based Evaluation**

Project Report Semester-IV (Batch-2023)

MediTrack+



## Supervised By: Submitted By:

Dr. KiranDeep Singh Harshita, 2310990601 (24 B)

Moorvi Garg, 2310990659 (24 B)

# Department of Computer Science and Engineering Chitkara University Institute of Engineering & Technology,

**Chitkara University, Punjab**

**Abstract**

Choosing the right career is challenging due to a lack of clear guidance, scattered resources, and limited career insights. CareerPath Finder is an **AI-powered career guidance platform** that provides **personalized career recommendations, job listings, resume evaluation, and interview preparation** based on a user’s skills, interests, and education. The platform is built with **EJS (Embedded JavaScript) for dynamic frontend rendering** and **Node.js with Express.js** for a scalable and efficient backend. **MongoDB and Firebase/Supabase** are used for secure data storage, managing user profiles, career insights, and saved resources. The **OpenAI API** enhances the platform by offering **AI-driven career path suggestions, resume analysis, and interview assistance**, making career planning more effective. Security is reinforced with **JWT authentication**, ensuring safe and private user interactions. Additional features include a **career assessment quiz, mentorship booking system, resource-saving options, and an Appointment Booking System** for one-on-one career guidance. **Recharts.js** enables real-time **data visualization**, allowing users to track their career progress, while **daily motivational quotes and dark mode** enhance user engagement and experience. By integrating **AI-driven insights, real-time data, and interactive career tools**, CareerPath Finder bridges the gap between **talent and opportunities**, empowering individuals to make informed career decisions and achieve their professional goals efficiently.

**Table Of Content**

|  |  |  |
| --- | --- | --- |
| **S.NO.** | **SECTION** | **PAGE.NO** |
| 1 | Introduction | 1-2 |
| 2 | Problem Statement & Requirements | 3-4 |
| 3 | Methodology | 5-6 |
| 4 | Results | 7-8 |
| 5 | Reference | 9 |

1. **Introduction**
   1. **Background**

In today’s fast-changing job market, choosing the right career can be overwhelming. With so many options, people often struggle to find a profession that truly matches their skills, interests, and goals. Traditional career counseling is either outdated, hard to access, or too general, leaving students and professionals without the right guidance. On top of that, new technologies like AI and automation are constantly changing job opportunities, making career decisions even more uncertain.

Many rely on Google searches, generic advice, or suggestions from family and friends, but these aren’t always the best fit for their unique strengths. Plus, challenges like a lack of mentorship, weak resumes, and poor interview preparation make career growth even harder. That’s why there’s a real need for an **AI-powered career guidance platform** that offers **personalized recommendations, real-time insights, and structured career planning tools** to help individuals confidently navigate their career journey.

* 1. **Objective**

CareerPath Finder is designed to help people find the right career by using **AI and modern technology** to offer **personalized career guidance**. The platform’s main goal is to connect talent with the right opportunities and make career planning easier.

It provides **AI-driven career recommendations** based on a user’s skills, interests, and education, helping them discover the best career paths. Users can take **interactive career quizzes** to get insights into suitable job options. The platform also includes **job listings and resume evaluation tools**, using AI to analyze resumes and improve employability. To prepare for job interviews, users get **AI-generated mock interviews, common questions, and skill-based preparation tips**.

For additional career support, users can **book mentorship sessions with industry experts** for professional advice. The platform uses **Recharts.js to display real-time career trends, salary insights, and market demand**, helping users make informed decisions. All user data, including profiles and career progress, is securely stored using **MongoDB and Firebase/Supabase** for **scalability and security**.

The **user-friendly interface**, built with **EJS (Embedded JavaScript),** ensures smooth navigation. Extra features like **daily motivational quotes and dark mode** enhance the overall experience. By combining AI, data-driven insights, and interactive tools, CareerPath Finder makes career planning simpler, smarter, and more effective.

* 1. **Significance**

CareerPath Finder provides **AI-powered, personalized career guidance**, helping users make informed career decisions. Unlike generic counseling, it offers **real-time, customized recommendations** based on skills and interests. The platform **enhances employability** with **AI-driven resume analysis, interview prep, and mentorship sessions**, while also supporting **career transitions** through reskilling. **MongoDB, Firebase/Supabase, and Recharts.js** ensure **efficient data management and real-time industry insights**. With a **user-friendly design, dark mode, and motivational features**, it makes career planning **accessible, engaging, and effective**, empowering users to succeed in today’s job market.

1. **Problem Statement & Requirements**

Finding the right career can be overwhelming due to **a lack of guidance, scattered resources, and outdated career counseling methods**. Many students and professionals struggle with **identifying suitable job opportunities, assessing their strengths, building strong resumes, and preparing for interviews**. The rapidly evolving job market, influenced by **technological advancements and shifting industry demands**, has made career transitions even more challenging. Traditional career counseling services are often **expensive, inaccessible, or too generic**, failing to provide the personalized support needed for career success.

To bridge this gap, an **AI-powered career guidance platform** is essential. By leveraging **real-time data, AI-driven career recommendations, and mentorship programs**, such a platform can provide **personalized career insights, job listings, resume evaluation, and interview preparation tools**. Additionally, it can assist professionals in **upskilling and career transitions** by analyzing industry trends and recommending relevant skills. The integration of **AI, data visualization, and real-time analytics** ensures that users receive **tailored career guidance** based on their strengths and interests.

With **interactive career assessments, AI-powered job matching, and mentorship booking**, the platform empowers individuals to **make informed career decisions, enhance their employability, and achieve long-term success**. By offering **structured career planning tools**, it serves as a **comprehensive solution for navigating the modern job market** efficiently.

* 1. **Software Requirements**

**2.1.1 Frontend Development:**

**Technology:** EJS (Embedded JavaScript)

**CSS Framework:** Tailwind CSS

**Features:** Responsive UI, user authentication, dark mode

**2.1.2 Backend Development:**

**Technology:** Node.js, Express.js

**Authentication:** JWT Authentication for security

**2.1.3 Database Management:**

**Primary Database:** MongoDB for structured data storage

**Additional Storage:** Firebase/Supabase for real-time data updates and authentication

**2.1.4 AI & Data Processing:**

**AI Models:** OpenAI API for analyzing user inputs and generating career suggestions

**Real-Time Data Analysis:** Recharts.js for career trends and market demand visualization

* 1. **Hardware Requirements**
     1. **For Users:**A device with an internet connection (PC, Laptop, Tablet, or Smartphone)

**2.2.2 For Hosting & Deployment:Server Requirements:** Cloud-based deployment using **AWS, DigitalOcean, or Firebase**

**Processing Power:** A server with at least **4 vCPUs and 8GB RAM** to handle AI computations and API calls efficiently

* 1. **Data Sets**

**2.3.1 User Data:** Profiles, academic background, skills, career interests

Resumes, saved jobs, and mentorship session history

**2.3.2 Job Market Data:** Industry trends, salary insights, skill demand analysis

Data sourced from APIs like LinkedIn, Indeed, or government labor statistics

**3.Methodology**

**3.1 The development follows an Agile methodology, allowing iterative improvements and flexibility. The key phases include:**

### ****3.1.1 Requirement Analysis****

* Identifying user needs and challenges in career selection.
* Defining functional and non-functional requirements.

### ****3.1.2 System Architecture & Design****

* Designing a **three-tier architecture** (Frontend, Backend, Database).
* Creating **flowcharts and UML diagrams** to define system interactions.

### ****3.1.3 Frontend Development****

* Using **EJS (Embedded JavaScript)** for dynamic UI rendering.
* Styling with **Tailwind CSS** for responsiveness.

### ****3.1.4 Backend Development****

* Setting up an **Express.js** server for API management.
* Implementing **JWT authentication** for secure user sessions.

### ****3.1.5 Database Management****

* Storing user profiles, job data, and mentorship details in **MongoDB and Firebase/Supabase**.
* Ensuring **fast retrieval and scalability** of data.

### ****3.1.6 AI Integration****

* Using **OpenAI API** to generate career recommendations and resume analysis.
* Implementing **AI-powered interview preparation** with mock questions.

### ****3.1.7 Feature Implementation****

* **Job Listings & Filtering:** Fetching real-time job openings.
* **Resume Analysis:** Providing AI-driven feedback.
* **Mentorship Booking:** Connecting users with professionals.
* **Data Visualization:** Using **Recharts.js** for industry trends.
* **Dark Mode & User Preferences:** Enhancing user experience.

### ****3.1.8 Security & Performance Optimization****

* **Encrypting sensitive data** to protect user privacy.
* **Optimizing API responses** for fast performance.
* **Implementing role-based access control (RBAC)**.

### ****3.1.9 Testing & Deployment****

* **Unit Testing & Integration Testing:** Ensuring all components work seamlessly.
* **User Testing:** Gathering feedback to improve UX/UI.
* **Deployment:** Hosting on **a cloud server (e.g., AWS, Vercel, or Heroku)**.

**3.2 Data Flow**

* **User Logs In:** Secure authentication using JWT.
* **User Inputs Career Interests:** Answers career quizzes or enters skill details.
* **AI Processes Data:** OpenAI API generates career recommendations.
* **Career & Job Data Retrieved:** Backend fetches relevant job opportunities.
* **Results Displayed to User:** EJS renders dynamic career suggestions, resume analysis, and job listings.
* **User Engages with Features:** Books mentorship, refines resume, prepares for interviews.
* **Data Stored & Updated:** MongoDB and Firebase/Supabase save user progress and preferences.

**4.Results**

**5.References**