# "AI Based Career Recommendation System"

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## Introduction :

Choosing the right career path is a major challenge for students and professionals due to the vast number of options available today. To solve this, our project, **AI-Based Career Recommendation System**, uses Artificial Intelligence and Machine Learning to provide personalized career guidance. It analyzes a user's education, skills, academic performance, and interests to suggest career paths that best align with their strengths. This smart system enables data-driven career decisions through an interactive web platform.

## Problem Statement :

Students often struggle to identify the most suitable career path that matches their skills, interests, and qualifications. Traditional career counseling is limited, time-consuming, and sometimes biased. Therefore, there is a strong need for an **AI-Based Career Recommendation System** that provides objective, personalized, and intelligent career suggestions based on user data.

## Objectives :

- To design a web-based AI system that recommends careers tailored to each user's profile.
- To integrate Flask and OpenAI API for intelligent, data-driven recommendations.
- To develop an interactive and responsive web interface for easy user interaction.

## Methodology :

The proposed system uses a client-server architecture consisting of a Flask backend and a **web-based frontend**. The user enters details such as name, education level, academic percentage, skills, and interests through a simple and interactive interface. This data is sent to the Flask server via REST API, where it is processed and analyzed. The backend utilizes the OpenAI GPT model to generate 3–4 personalized career recommendations based on the user's profile, along with detailed explanations highlighting how their skills and interests align with each suggested career.

To ensure reliability, a fallback JavaScript-based recommendation engine is also integrated into the frontend. If the AI API is unavailable, the system uses predefined datasets and a matching algorithm to calculate the best-suited career options locally. The results are displayed on a visually appealing web page showing the recommended careers, their descriptions, salary ranges, learning paths, and growth opportunities — helping users make informed and confident career decisions.

## Expected Outcome :

The project will produce an intelligent AI-based web application capable of recommending suitable career paths based on a user's education, skills, and interests. The system will generate personalized career suggestions with detailed explanations, salary insights, and growth opportunities. It will help students and professionals make data-driven and confident career choices, reducing dependence on traditional counseling. Overall, the project aims to enhance career guidance by offering a smart, automated, and user-friendly platform**.**

## Required tools :

**Software Requirements:**

Programming Language: Python

Framework: Flask (for backend web API)

Frontend: HTML, CSS, JavaScript

Libraries: Flask**,** flask-Cors**,** OpenAI API**,** python-dotenv

Editor/IDE: Visual Studio Code

Web Browser: Google Chrome / Mozilla Firefox

**Hardware Requirements:**

Standard PC/Laptop with at least 8GB RAM

Stable internet connection for API access

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