Course Project Proposal

Semester: Spring 2025

Course: Artificial Intelligence (AI) - Lab

Instructor: Sir. Qamber Ali

AI-Based Job Recommendation System

1. Group Information

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2. Project Title

> **AI-Based Job Recommendation System**

3. Project Type

- [✓] **Application-Based**

4. Project Description

> Our proposed project aims to develop an **AI-Based Job Recommendation System** that suggests personalized job opportunities to users based on their skills, past experiences, and preferences.

Inspired by platforms like LinkedIn and Indeed, the system will collect user inputs such as technical skills, industries, preferred job type. This system will then intelligently recommend the most relevant job listings.

The objective is to enhance job discovery by reducing the time spent searching and increasing the quality of matches. The project involves processing job datasets, implementing recommendation algorithms, and developing an interactive web interface.

The scope includes basic to moderate AI techniques such as similarity matching, content-based filtering for better recommendations .

5. Tools & Technologies to be Used

1) **Programming Language:** Python

2) Frameworks/Libraries:

- Scikit-learn (for using machine learning models)
- Streamlit/Flask (UI Development)
- NLTK (for Text Preprocessing)
- Pandas, NumPy (data handling)

6. Project Scope

- **User Input Collection:** Users will provide information such as skills, industry preference, and desired job roles through an interactive interface.
- **Data Processing:** Job listings and user data will be cleaned and preprocessed using NLP techniques to extract meaningful features.
- **Job Dataset Integration:** The system will integrate sample job listing datasets for model training and testing.
- **Recommendation Engine:** The core functionality will rely on machine learning algorithms (e.g., similarity matching and content-based filtering) to generate job recommendations tailored to user preference.
- **Web Interface Development:** A responsive and intuitive UI will be developed using Streamlit or Flask to enable user interaction with the system.
- **Scalability Consideration:** The architecture could be designed to accommodate future enhancements like real-time updates.