AI-Powered Job Recommendation and Notification System (Job-Genie)

Project Summary:
This project aims to create an AI-powered job recommendation system that automatically notifies users when a job matching their skills and preferences becomes available. By leveraging machine learning and NLP techniques, the system analyzes user resumes, extracts key qualifications and preferences, and matches them with job descriptions from multiple sources. The platform will provide personalized job recommendations based on resume content, ensuring that users receive opportunities tailored to their qualifications and interests. It will also automate job notifications, sending alerts via email whenever a suitable job is found. In addition to automated recommendations, the system will offer search and filtering options, allowing users to manually explore job postings based on keywords, location, and salary range. To source job postings, the system will integrate public job APIs and curated datasets, ensuring real-time access to relevant job opportunities. By eliminating the need for constant job board monitoring, the platform will streamline the job-seeking process, saving users time and effort.

Problem Statement/ Description:
Finding relevant job postings can be time-consuming and overwhelming. Many job seekers spend hours filtering through job boards, often missing opportunities that match their qualifications. This project automates this process by analyzing user resumes, matching them with relevant job postings using advanced NLP models, and notifying users when a high-match job becomes available. These processes can help users connect with jobs more easily that match their skill sets and qualifications and ensure that users don't miss a relevant job opportunity. This way, job seekers can focus on applying instead of searching.

Proposed Solution:
We propose a web-based platform where users upload their resumes, and the system processes them using AI to extract key details like skills, experience, and preferences. The platform then fetches job postings from various sources, matches them with the user's profile, and sends automated notifications when the system finds a strong match. This approach aims to save time, increase job search efficiency, and provide users with real-time job updates. By handling the searching and matching automatically, this platform makes the job hunt more efficient and helps users find opportunities that fit their skills without the hassle of endless searching.

Creative Component:
To improve functionality and user experience, the project will implement:
AI-based Resume Analysis: Using NLP models to extract skills and experience from resumes.
Job Matching Algorithm: A similarity scoring system using TF-IDF or BERT embeddings to rank job relevance.
Automated Notifications: Email or messaging bot integration (Discord/Email/etc) for real-time alerts.

Dashboard with Visual Insights: A user dashboard displaying job match history, resume insights, and application trends.

Usefulness:
Basic Capabilities**:**
Users can upload their resumes and get matched with jobs that match their skillset.
The system analyzes resumes and stores structured data.
Job postings are fetched from external sources (API, RSS, or curated datasets).
Matching jobs are recommended, and notifications are sent to users via Discord, etc.
Advanced Functions:
Users can adjust their job preferences (location, salary range, etc.).
A feedback mechanism allows users to improve recommendations.
Resume optimization tips based on industry standards in order to help expedite the job searching process.

Existing Solutions and Differentiation:
Platforms like LinkedIn and Indeed offer job recommendations but often lack personalized automation and instant notifications. Our system enhances user experience by providing an AI-driven resume parsing for accurate job matching that has proactive notifications instead of passive job browsing and provides multi-platform notifications (email, messaging apps).

Realness - Data Sources:
We will use the following datasets:

1. **Resume Dataset (Kaggle) https://www.kaggle.com/datasets/saugataroyarghya/resume-dataset**

Format: CSV
Size: ~1000 resumes
Captures: Skills, experience, education, and job roles.

2. **Resume-Job Description Matching Dataset (Kaggle) https://www.kaggle.com/datasets/shreya2k3/resume-job-description-matching**

Format: CSV
Size: ~50,000 job-resume pairs
Captures: Resume text, job descriptions, and match scores.
Additional real-time job postings will be sourced via APIs (e.g., Jooble, Indeed, or Google Jobs API).

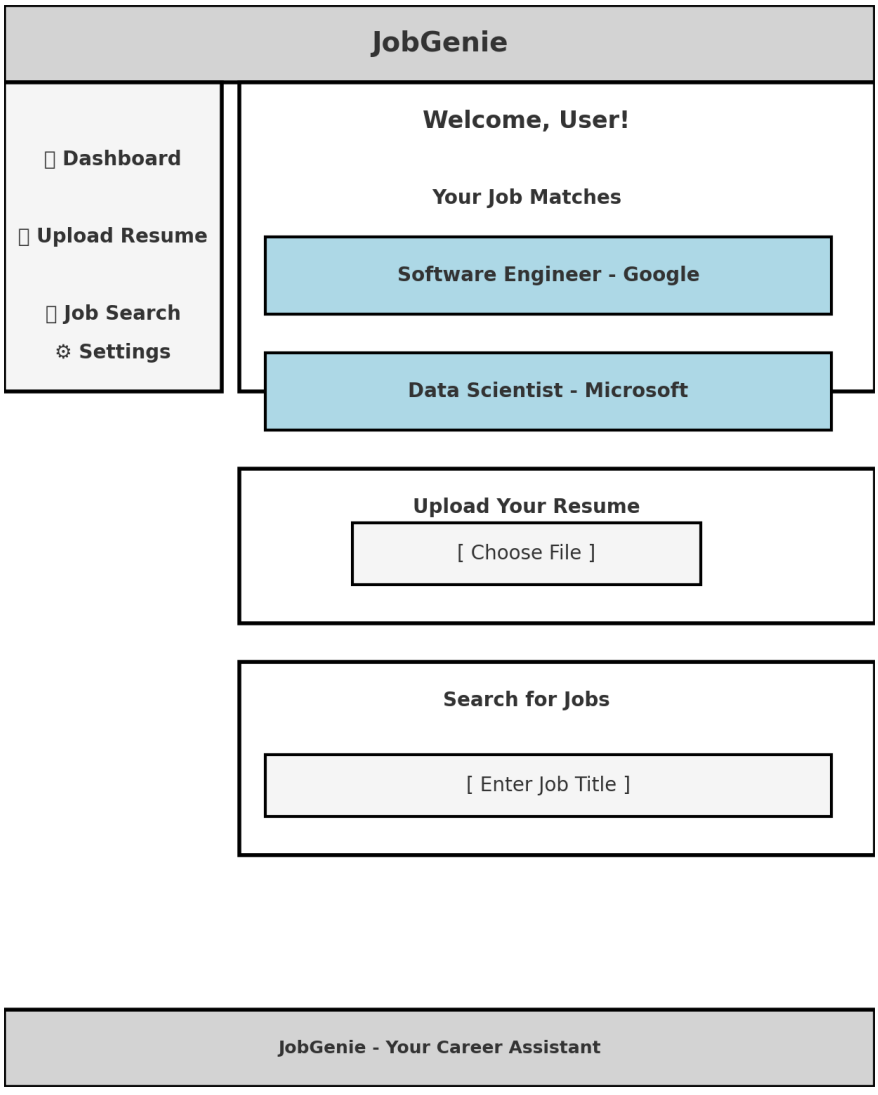
Functionality & User Interaction:
Core Features (CRUD & Search Implementation)
Create: Users can upload resumes and set job preferences.
Read: They can view matched job recommendations and application insights.
Update: Users can update resumes and preferences.
Delete: Users can remove stored resumes or delete their accounts.
Search: Users can search job postings by title, location, or keywords.
User Interaction Flow:

User signs up and uploads a resume.
The system extracts key details using NLP.
Job listings are fetched and matched using a ranking algorithm.
Users receive notifications for high-match jobs.
Users apply and track applications via the dashboard.

Low-Fidelity UI Mockup:

We envision a simple web interface with:

Home Page: Overview of the service and login/signup.
Dashboard: Job match history, recommended jobs, and notifications.
Resume Upload Page: Form to upload and analyze resumes.
Job Search Page: Users can manually browse jobs.
Below is a rough sketch —



Project Work Distribution:
Backend Development:
Resume Processing & NLP Matching: [Nakul/Devansh]
Job Data Integration & Scraping/API Fetching: [Nakul/Aryan]
Notification System (Email, Discord/Telegram bot): [Aaryan/Devansh]
Database Design & CRUD Operations: [All]
Frontend Development:
UI Design & Dashboard Development: [Nakul/Devansh]
Search & Filtering Features: [Devansh/Aaryan]
User Authentication & Profile Management: [Devansh/Nakul]
Project Management & Documentation:
Project Proposal & Reports: [All]
Testing & Debugging: All members