Job Recommendation System

Team Members -

Dhyey Pandya - dhyeyhp2@illinois.edu
Ojasvi Agarwal - ojasvia2@illinois.edu (CAPTAIN)
Smit Trailokya - srt6@illinois.edu
Maahi Patel - maahidp2@illinois.edu

The topic of our project is 'Job Recommendation System'. Being students ourselves, it's very difficult to find the right jobs based on our resumes. Currently, we end up going through most of the job descriptions and start manually checking if the job description has the skills mentioned that match with the skills that we have. Therefore, we are trying to solve this problem by providing job recommendations based on the resume that is uploaded by the user. This way, the manual process for keyword matching based on skills is not needed anymore. We have categorized our topic under the Free Topics theme and it is relevant to this course because it is based on the concept of content based filtering where we studied about recommender systems and we will be providing data to the user based on item-based similarity.

Initially, We plan to use some public datasets like Naukri.com and BestJobs2021 in our project for recommending jobs to the users based on their resume. We plan to enhance the usability of our project further by integrating real-time jobs data from various sources like LinkedIn, Indeed, Handshake, etc using either REST API or Web Scraping. We would implement standard document parsing or preprocessing techniques on the input resume file and leverage similarity measures as a key in extracting all jobs matched based on a given resume file.

We plan to create a web user interface where users have to upload their resume, and using that job - specific keywords will be selected. These keywords will be then used to search for domain specific jobs which require the same skills. We plan to web scrape the data of websites like Indeed, handshake, etc. We will then tokenize & extract keywords on the extracted data. We also extract keywords after tokenizing on the given resume. Then using various similarity models we will match the keywords and provide a suitable job list to the user with relevant links. Thus, we aim to provide a convenient platform for users to get relevant job links using just their resume.

We intend to use Python and JavaScript to implement our code. We would use React as our frontend and Flask as backend for building web user interface.

Our project will be divided into four stages:

- **Stage 1:** We will look for a dataset that perfectly fits the scope of our project and then pre-process it.
- **Stage 2:** Use a text extraction function to extract keywords from the resume and our dataset.
- **Stage 3:** Create a similarity function that matches the keywords extracted in the previous step and returns a similarity score. We will determine which jobs are relevant and which are not based on a minimum similarity score threshold.
- **Stage 4:** Create an interactive user interface for our project by designing the front end with React and Flask.

We intend to devote approximately 20 hours to each of the execution stages. The total workload of our project will be around 80 hours, which meets the required workload of 20*N hours, N being the total number of students in your team.