

Name: Ahmad Moneer Mzayek

Course Title: Graduation project

Course Code: Thesis_AI900

Lecturer: Dr.Ashraf Elsayed

Hand-in Method: Online Submission via E-Learning.

University: Midocean

Assignment Report: Intelligent Job Recommendation System for Job Seekers Using Artificial Intelligence.

Abstract :

It is a challenging task for job applicants to get a suitable job since the traditional job search websites are ineffective. The websites employ keyword-based search and manual filtering, which are likely to provide wrong job recommendations. This research suggests an AI-based job recommendation system that enhances the matching process between employers and job applicants.

The proposed system will utilize Natural Language Processing (NLP) and Machine Learning techniques to analyse job listings and resumes. The model will be created using a hybrid approach, combining content-based filtering (that compares job applicants based on their qualifications and experience) and collaborative filtering (that considers the interests and actions of similar users).

To implement this system, job datasets will be gathered from open-source job postings and synthetic resume datasets.

Data pre-processing methods will be used to sanitize and structure the data for training AI models. The system performance will be gauged with metrics such as Precision, Recall, and F1-score to ensure precise job suggestion.

The expected outcome of this research is an intelligent job recommendation system that increases job search efficiency, reduces time incurred in searching for jobs that match, and provides personalized job recommendations to users. Such a system can be implemented in job portals to enable better job matching and benefit both the recruiters and job seekers.

Background and Motivation

In today's competitive job market, finding the right career opportunities that align with our interests and skills can be challenging. However, with the advancement in AI/ML technologies, we can leverage data-driven systems to provide personalized job recommendations based on user preferences and historical job data. I have been diligently trying to find a job in Riyadh for the past 11 months, but I have failed to get a satisfactory opportunity that fits my area of expertise.

My experience in sales, maintenance & operations, and business development is not easily translatable to a formal job-matching process. In addition, most companies do not adequately define their employment needs, making it difficult to identify appropriate opportunities. This has motivated me to develop an AI-driven job recommendation system that can help job seekers identify the right jobs more efficiently.

Problem Statement

Traditional job search websites rely on keyword searches, which often provide irrelevant and misleading job recommendations.

It is difficult for the majority of job applicants to find a job that matches their level of qualifications, skills, and career objectives. The majority of job applicants still employ manual applications, which include visiting companies in person and submitting their resumes. The process has several drawbacks, including:

- Making sure the resume really finds the HR staff doing the hiring.
- Securing that the resume is duly considered rather than overlooked.
- Even if the HR personnel goes through the resume, will it be interesting enough to compel them to call the candidate?

These problems translate into wasted effort and time without any guaranteed results, which annoy job seekers.

Employers can also lose best fit candidates because manual screening fails.

Therefore, a job recommendation system powered by AI is essential that enhances the efficiency and precision of job matching to make job seeking easier for job seekers and ease employers' task of identifying the best-fitting candidates.

Research Objectives

Openings to job applicants depending on their experience, skill, and interest to enhance job satisfaction Implement Natural Language Processing (NLP) and Machine Learning techniques to match job postings and cvs with more precision.

Run a hybrid approach to recommendations wherein content-based filtering (matching candidates on resume) and collaborative filtering (learning trends from similar candidates) are employed. Save time spent on job hunting and improve the job hunting process by suggesting appropriate jobs.