Career Connect: Skill Based Job Discovery

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Abstract: The hiring process for new employees is being transformed by artificial intelligence (AI), which makes it quicker, more accurate, and less expensive. AI helps HR teams and job searchers save time and effort by matching the best candidates with the right jobs by analysing vast volumes of data. Instead of wasting time on repetitive administrative tasks, this technology enables job searchers concentrate more on crucial responsibilities. The goal of this project is to develop a platform for AI-driven job recommendations that streamlines the job search. A resume parser is used to extract essential abilities from resumes that users upload. These abilities are matched with job advertisements published by human resources professionals from various places and companies. After that, it shows locations and pertinent job openings. The platform increases productivity by automating the job-matching process, making it easier for job seekers to locate jobs that fit their skills.

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I. INTRODUCTION

In today's competitive employment market, a candidate's qualifications and talents may be difficult to evaluate.Keyword-based searches are frequently used by traditional job search sites however they might not necessarily produce the most pertinent results. Our project uses machine learning and generative AI to improve the accuracy of job matching. Job seekers can upload their resumes to the platform, and HR professionals can post job postings with pertinent information like location, eligibility, income, and job descriptions.Using the Nearest Neighbours technique, TF-IDF vectorisation, NLTK for stopword elimination, and generative artificial intelligence, our technology generates highly relevant job recommendations by intelligently analysing resumes and job descriptions. The recruiting process is streamlined by emphasising skill-based matching over basic keyword searches, which increases the effectiveness and efficiency of job discovery for both companies and job seekers.

II. LITERATURE SURVEY

- A machine learning-based job recommendation system that matches job applicants with appropriate openings based on their resumes is presented in this study. The writers draw attention to how graduates struggle to obtain suitable employment because they are unaware of the necessary abilities. The system uses natural language processing (NLP) methods including stemming and stopword removal to preprocess resumes and job descriptions. It creates a ranked list of job recommendations by comparing resumes with job descriptions using TF-IDF vectorisation and similarity metrics (Cosine, Jaccard, and Euclidean Similarity). To increase candidates' chances of landing a job, the algorithm also recommends skills they may be lacking. In order to provide tailored recommendations, the study stresses the use of content-based filtering rather than collaborative filtering. The dataset, which includes skills, resumes, and job descriptions, was sourced from Google and Kaggle. The suggested solution makes job seeking easier by doing away with the need for compensated employment suggestion services, especially for recent graduates and people living in remote areas. The ultimate goal of the document is to lower unemployment by directing applicants to positions that best suit their qualifications.

- The authors of this study investigate how artificial intelligence (AI) influences career development and job recommendations. They point out that public sector employment agencies, especially those in Europe, do not

yet have AIpowered job suggestion systems. The goal of the project is to enhance training suggestions and job matching by incorporating AI into citizencentered public service infrastructures. The study works with several stakeholders in Estonia, Latvia, and Finland to map the cutting-edge AI methods utilised in training and employment recommendation systems. Content-Based Filtering (CBR), Collaborative Filtering (CF), Hybrid, Knowledge-Based Recommendation (KBR), and AI-driven methods like Machine Learning (ML), Artificial Neural Networks (ANN), and Deep Neural Networks (DNN) are the categories into which the authors divide job recommendation models. They suggest a Virtual Competency Assistant driven by AI to help job searchers locate appropriate positions and possibilities for upskilling.The shift from ISCO08 to ESCO job categorisation, which combines job titles with necessary credentials and skills, is also examined in the study. The ultimate objective is to develop an AI-powered erecruitment system that helps EU job searchers.

- Through resume analysis, this study presents a deep learning-based job recommendation system that increases job applicants' chances of landing a job. The authors draw attention to the difficulties recent graduates have in crafting strong resumes that satisfy the requirements of applicant tracking systems (ATS). The system extracts and analyses resume information using Natural Language Processing (NLP) and Optical Character Recognition (OCR). Resumes and job descriptions are matched using Cosine Similarity, word embeddings, and TF-IDF vectorisation. CountVectorizer and KNearest Neighbours (KNN) also help in job match classification. In order to assist job seekers in enhancing their qualifications, the recommendation engine also recognises abilities that are lacking and recommends online courses. The suggested system helps students enhance their resumes by adding pertinent skills and formatting changes, optimises resumes for increased exposure in application tracking systems, and offers tailored job recommendations. Through increased efficiency and data-drivenness, this automated resume enhancing method enhances the jobseeking process.

- An AI-powered Automated Resume Scoring and Course Recommendation system that evaluates resumes and makes recommendations for improvement is put forth by the authors. By automating the resume screening process, the system makes sure applicants fulfil the requirements of applicant tracking systems (ATS) and industry standards. It assesses resume format, content, and fit with job descriptions by utilising machine learning, natural language processing (NLP), text mining, and sentiment analysis. In order to improve candidates' qualifications, the algorithm finds skill gaps and suggests online courses or certifications. It uses machine learning models to rank resumes according to job fit after processing resumes gathered from professional networking networks and job

portals and deleting private metadata. Through learning from past job application data, the algorithm continuously enhances its suggestions. Recruiters can shortlist applicants more quickly thanks to the automated scoring method, and job seekers can improve their career prospects and resume content by using the actionable feedback they receive. This method increases job seekers' employability in a cutthroat market and expedites the recruiting process.

A. Exsisting System

Under the current approach, job seekers must manually search for positions by inputting keywords and applying filters on traditional job portals like Indeed or LinkedIn. Because these platforms rely on simple keyword matching rather than actual talents, they frequently offer employment recommendations that are irrelevant.Furthermore, users must apply for positions individually, which slows down and inefficiently completes the procedure. Job seekers could find it difficult to locate the best possibilities fast because there is no AI-based matching.

B. Proposed System

An AI-powered job recommendation platform will streamline and expedite the job search process in the suggested system. After users log in and upload their resumes, the system will use resume parsing technologies to automatically extract their experience and talents. Job seekers will get tailored job recommendations based on their talents rather than having to conduct a manual search. The technology will match job openings with qualified applicants after HRs from various companies and locations publish them. This method guarantees that job seekers uncover pertinent prospects with ease, saves time, and increases accuracy.

III. METHODOLOGY

Text data from job descriptions and resumes can be analysed and comprehended using natural language processing, or NLP. It facilitates the extraction of important data, including experience, education, abilities, and job needs. The system can provide more accurate job recommendations by processing and organising this data according to pertinent keywords and context.By identifying the most comparable occupations based on location and job descriptions, K-Nearest Neighbours (KNN) is a straightforward method of job recommendation. It analyses keywords and skills in job descriptions using natural language processing (NLP) tools like TF-IDF or Word Embeddings, and then uses text similarity to identify occupations that are comparable. By first finding jobs based on skills and then filtering by distance, a hybrid strategy blends the two approaches. Users can choose to examine all job locations or focus on jobs that are close to them in your job suggestion system because all job locations are shown with a filter option.

IV. RESULT

Fig 1: Localhost URL Generated after Running the Flask Web Application

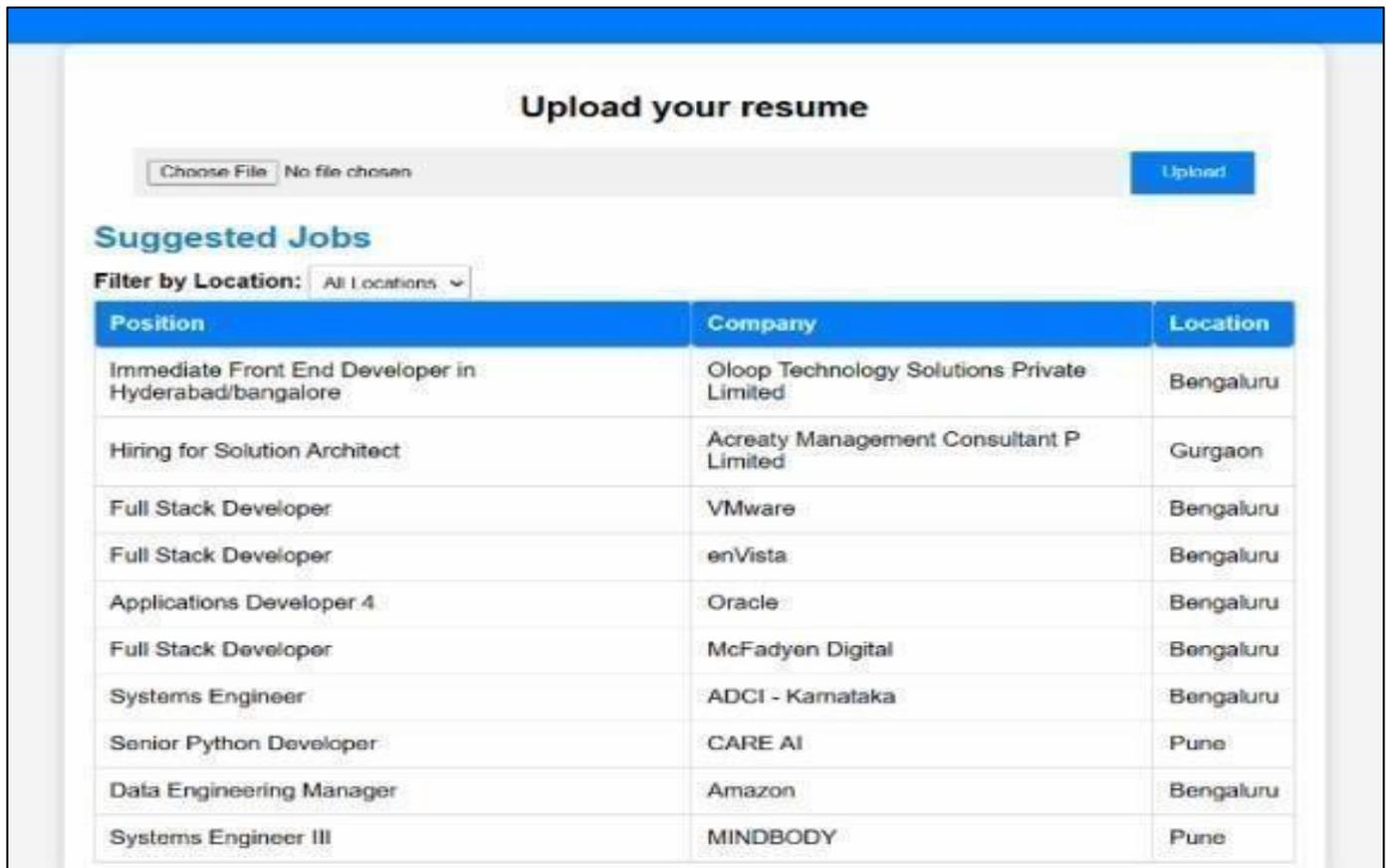Fig 2: User Interface for Uploading the Resume

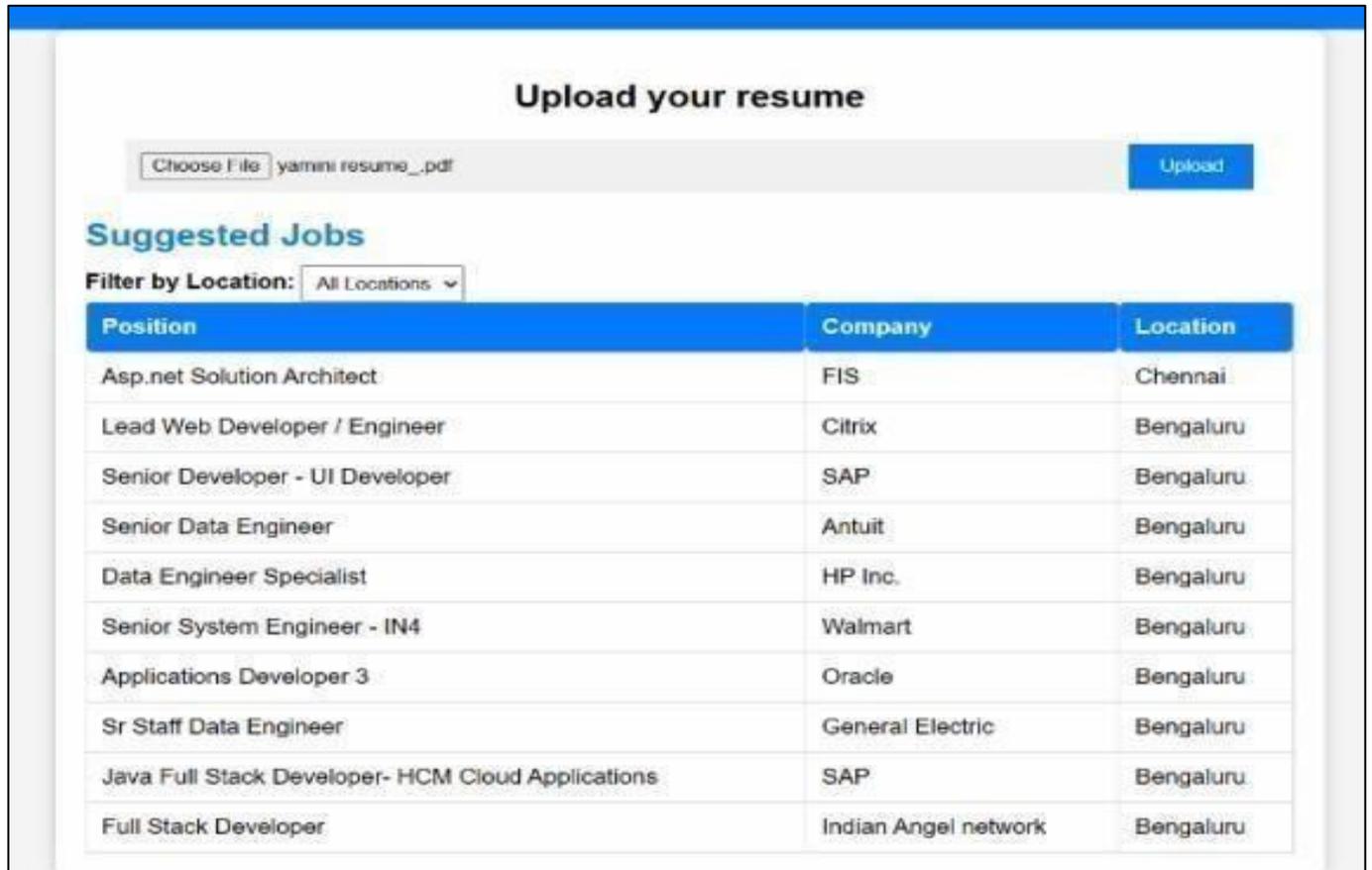Fig 3: Job Recommendations Displayed for all Locations

Fig 4: Job Recommendations Filtered by Selected Location

V. CONCLUSION

The job search process is being revolutionised by this generative AI-based job suggestion technology, which automatically evaluates resumes and matches candidates with appropriate employment openings. The solution speeds up the hiring process, improves matching accuracy, and decreases the human labour typically needed to identify relevant openings through skill-based job matching and AI-powered resume processing. Employers gain from tailored job recommendations, which greatly raise the likelihood that they will quickly land the ideal position. Additionally, the platform's backend automation simplifies recruitment operations by guaranteeing that resumes are sent straight to HR. All things considered, our platform improves accessibility, efficiency, and job discovery, giving candidates a more intelligent and successful job search experience.

FUTURE WORK

Future improvements will concentrate on making the platform more beneficial for HR professionals in talent acquisition in order to increase its impact purchase. AI-driven candidate ranking, automated interview scheduling, predictive recruiting analytics, and customised job descriptions produced by generative AI are some of the major advancements. The solution will help HR organisations find top talent, forecast applicant success, and automate recruitment procedures by combining deep learning and sophisticated Natural Language Processing (NLP). By putting these upcoming improvements into practice, the platform will become a potent recruitment tool that helps HR teams uncover, assess, and hire top talent more quickly in addition to helping job seekers find the right opportunities. These developments will shorten hiring times, automate tedious HR duties, and enhance the whole hiring process for companies and job candidates.

REFERENCES

[1]. Imahlakshmi A., Arun Kumar B., Senthlunayaki S., and Duraimurugan A. (2020). Skill-Based Job Recommendation System for Improved Recruitment Processes. International Journal of Creative Research Thoughts (IJCRT), 2(1), pp. 1–7.

[2]. Liutkeviäius P., and Ben Yahia S. (2022). Analyzing the Impact of Artificial Intelligence on Employment Opportunities and Skill Development. International Conference Proceedings, 56, pp. 128–136. DOI: 10.54941/ahfe1002260.

[3]. Drapes A., Land P., and Kulkarni R. (2024). Building an Advanced Resume Recommendation Platform with Deep Learning and NLP. International Journal of Recent Advances in Science and Engineering Technology (IJRASET), 12(II), pp. 1054–1057. DOI: 10.22214/ijraset.2024.58505.

[4]. Deshpande Y., Patil P., Hall A., Grünkohl A., and Mali M. (2024). Automated Resume Evaluation and Course Suggestion System. International Journal of Interdisciplinary Research (IJFMR), 6(6), Jan–Nov.

[5]. Sharaby I., Eladawy I., and Elhassaniens A.E. (2020). A Hybrid Machine Learning Approach for Job Recommendation Systems. International Journal of Advanced Computer Science and Applications (IJACSA), 11(5), pp. 35–42. DOI: 10.14569/IJACSA.2020.0110505.

[6]. Bakar P., and Ting L. (2010). Soft-Chop Based Job Recommendation Using Bayesian Network Modeling. Proceedings of the International Conference on Information Management and Engineering, pp. 80–84.

[7]. Mhamdi S., Saad M.H., and Benyettou A. (2020). Applying NLP Techniques to Job Suggestion Systems. Global Conference on Artificial Intelligence and Data Analysis, 2020. DOI: 10.1109/caida50418.2020.9117006.

[8]. Yang C., Liu X., and Wang Y. (2021). A Knowledge-Driven Approach to Personalized Work Recommendations Using Data Engineering. IEEE Transactions on Knowledge and Data Engineering, 16(1), pp. 1–12. DOI: 10.1109/TKDE.2021.3089350.

[9]. Gupta S., and Sharma R. (2019). Machine Learning-Based Resume Analysis for Job Matching. International Journal of Recent Technology and Engineering (IJRTE), 8(4), pp. 1250–1255.

[10]. Kumar A., and Verma S. (2021). Improving Hiring Processes through NLP and Deep Learning Techniques. International Journal of Innovative Technology and Exploring Engineering (IJITEE), 10(9), pp. 505–510.

[11]. Bansal R., and Singh A. (2022). Developing Intelligent Recruitment Systems Using Predictive Analytics and NLP. International Research Journal of Engineering and Technology (IRJET), 9(3), pp. 2072–2076.

[12]. Mehta S., and Patel V. (2020). AI-Based Resume Screening and Automated Matching System. International Journal of Advanced Research in Computer Science (IJARCS), 11(5), pp. 1–6.

[13]. Rahman M., and Islam T. (2018). Resume-Driven Job Matching Using Machine Learning Algorithms. Proceedings of the International Conference on Computer and Information Technology (ICCIT), pp. 253–258. DOI: 10.1109/ICCITECHN.2018.8632001.

[14]. Johnson P., and Lee S. (2020). The Contribution of Artificial Intelligence in Modernizing Human Resource Management. Human Resource Management Review, 30(4), pp. 100–112. DOI: 10.1016/j.hrmr.2020.100702.

[15]. Chopra P., and Rani S. (2023). Enhancing Candidate Selection through Skill Extraction and Machine Learning Recommendations. International Journal of Recent Advances in Computer Science and Communications, 11(2), pp. 142–150.