International Journal of Engineering Sciences & Emerging Technologies, May 2024.
ISSN: 22316604 Volume 11, Issue 3, pp: 667-671 ©IJESET

JOB PROFILE RECOMMENDER SYSTEM USING KNN ALGORITHM

Manish Gupta, Aman Vaish, Ankush Tyagi, Anshika Goel, Geetika Gupta

Department of Computer Science and Engineering, Moradabad Institute of Technology, Moradabad, India

manishymca2007@gmail.com, hiamanvaish@gmail.com, getankushtyagi@gmail.com, anshika.goel@gmail.com, guptageetika9207@gmail.com

ABSTRACT

A recommendation software is an approach that provides statistics to customers who're interested in it or have reached out in the past. Conventional strategies of advertising like content and collaborative filtering are used in numerous programmes like education, social media, advertising and marketing, enjoyment, and many others. Content-based filtering and sharing have many advantages and drawbacks, and they are useful for selected software. The main challenges in content and shared filtering are decreases and initial freezing troubles. Through combined filters, we can address content material and filter challenges collaboratively. This filtering technique combines elements of two advice programs, as well as content and collaboration. The variety accuracy is improved by using content-primarily based filtering, and the joined version without problems provides better predictive consequences than the hidden characteristic version. The Employment Advice Scheme is an incredibly vital software programme in which nominees are decided on the use of a web recruitment site primarily based on their profiles, their work records, and moral additives, helping tens of millions of students find meaningful and gratifying work. The site has yet to be fully explored, and current activity advertising applications have many limitations, including the use of CVs/profiles and job descriptions for evaluation, as well as the freezing of recent process vacancies and process profiles. The motives are inconsistent. Starting trouble. Sometimes a capacity candidate loses a process because of an incomplete job description and academic information in oncology. LinkedIn's active atmosphere also has some issues. In this paper, we present a comparative analysis of diverse performance schemes and their methods.

KEYWORDS

Collaborative technique (CF), Content-based filtering (CB), k-Nearest Neighbour, Machine Learning (ML)

1. INTRODUCTION

The modern social media platform is the most common platform for data sharing and sports nowadays. With the widespread use of various internet resources together with mobile telephones and smart gadgets, net users can find lots of records about buying, social networking, and online getting to know.

When there's a speedy increase in the extent and variability of statistics, every user is confronted with a special information problem, which creates trouble in making the right selections. This framework is known as "statistics overloading." To resolve the hassle of customers' statistics being overloaded, pictures come with a new recommendation gadget. The recommendation method can solve a ramification of issues by efficiently identifying the wishes of capability customers and selecting thrilling items from a huge quantity of applicant facts. Programs are extensively divided into three predominant types, particularly content-primarily based (CB), collaborative filtering (CF), and mixed recommendation devices. This combination includes filtration and is carried out in 3 ways: composite format (from a synthetic blending method, supplying dynamic output); monolithic format (integrated

composite set of rules); and blended design (the use of multiple mixing algorithms). Information-based total structures (KB) rely on knowledge of a particular domain to authorize their users. They map the houses of the object to the needs of the person and P to determine whether the object is beneficial to the user. endorsed Demographic packages (DGs), based on demographic profiles, help in advertising to promote numerous items. Because of the large length and shape of the growing study area, social networks produce large quantities of day-to-day information as well as conversation platforms.

This data fee is supported by any advice software, and the resulting consequences can help resolve thrilling troubles related to social obligation, hiring, and friend hints. advice gadget One of the most essential programmes of task recommendation is to recruit the right people for the task website. Each day, thousands of candidates are seeking out online job portfolios to find a successful, significant, and transparent job. These days, there are many online job portals available that use content-based or shared pointers. One of the process guidelines is Work4, which is a San Francisco- based total agency that uses a content-based concept and takes a few of your qualifications to provide recruitment answers on Facebook. This programme concludes with a few challenges, including a limited workload and customers, over-education, and limited content analysis. Unmatched process pairs/candidates not resolved; more than one low applicant qualification related to the quest method. The suitable balance among functions and candidate pairs relies upon the simplest of fundamental elements, which can be difficult to measure. Solving the problem of the modern-day appreciation gadget by way of mixing a giant thing of the content and filtering it together solves character issues.

This paper presents comprehensive information on the extent of accuracy, utility background, and assessment among diverse process promotion applications in the demanding situations of the existing job commendation gadget.

2. LITERATURE SURVEY

C. Slamet and others [1] stated an idea that recommender systems are differently classified, and they exist in present conditions in application domains such as research agencies, television, searching for a job, and different areas of research. It emphasized these systems on various social media platforms and summarized different issues in conjunction with the unusual issues that occur.

Kenthapadi and others [2] proposed web crawling for matching users' profiles to recommend jobs. The author submitted the statistical modelling system and a few challenges faced during design and implementation of the current existing system. It outlines the few modelling components as well as its main task of representing vigorous remuneration to users.

Uma Pavan Kumar Kethavarapu and Dr. S. Saraswathi [3] presented a solution to provide a resource to job recruiters that can help job seekers grab a golden chance for their career growth as per their areas of interest. The author also focused on previously used recommender systems that focused more on common attributes between job seekers and job providers.

V. Yadalam and other organizations [4] proposed a contentbased filtering method for recommending career opportunities to job seekers. He presented that content-based filtering suggests items to users whose properties resemble the item in which the user has not previously shown interest. The author expressed the shortcomings of his approach of suggesting extras to a user profile as they are dependent on an attribute of the previous item opted by a user.

Mishra R. & Rathi S. [5] proposed using collaborative filtering for an efficient career recommendation system for job seekers. The author classified the collaborative filtering method via two approaches. One is memory-based and the other one is model-based. The memory-based recommendation system advises users on previously saved data with the help of a database, while the other one uses statistical learning techniques to generate predictions while traversing users' profiles.

Vinay Desai [6] presented proofreading and analysis of job seekers' profiles and recommended career opportunities based on them. The writer described limitations such as preferences based on groups and focused more on relationships between job seekers and providers than included in the previous

approaches. The writer presents a framework for certain issues where more emphasis is put on two efficient characteristics presented.

Yang X, Liang C, and other group members [7] proposed various techniques for the recommendation system. Neural networks and the matrix factorization method, to name a few, are a common approach used in online voting systems as well. Further investigation of the social relationships of users and affiliation of information is also done by the author.

3. METHODOLOGY

The developed system is composed of five modules: feature extraction from the users' past experiences, feature extraction by user, collaborative filtering, content-based filtering, and a web application designed for the front end. In our system, students' profiles and companies' profiles are collected. Students' profiles will be generated by taking information from students through registration and a login portal. The company's profile will be generated by the admin from the information and requirements provided by the company to the admin. After that, profile matching is performed on the students' and company's profiles.

In the first module, i.e., feature extraction by users' past experiences, students have the provision to search for companies from various online recruitment sites. Students enter a keyword, such as Python, and a web crawler searches for companies looking for Python developers on various online recruitment sites such as Naukri.com.

In the second module, which is feature extraction by users' plans, students must enter the details of their plans and designations on which they need to work, and our recommender system will recommend to them those job openings that match their skills according to their future goals.

The third module, i.e., the website, has the provision of registration and login for students, and this student's data will be stored in the parse cloud. Whenever the admin posts any job requirement from the web portal, the profile matching is done, and it is recommended to the registered user as per his/her search.

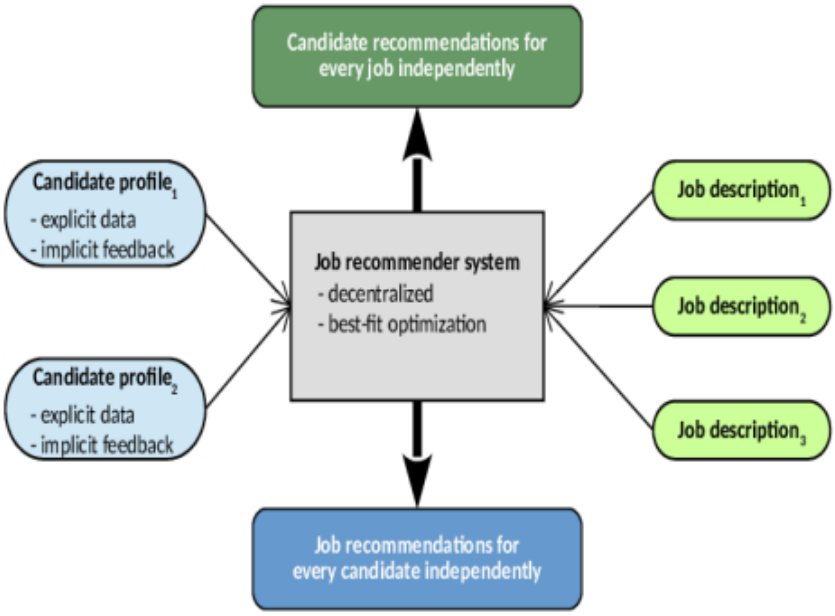

Figure 1. Framework of Job Recommendation System

4. CONCLUSIONS

To build the recommender system, we have compared the efficiency of different algorithms. Based on similarity among different datasets, the results of evaluation metrics in the actual dataset (jobs and

candidates) are satisfactory. Thousands of jobs and active resumes are served by it. For interested users, the jobs whose descriptions match are displayed. The three datasets used for comparison are: (1) Random Dataset: Using a random selection of users and jobs, databases manually annotate and use that data. For analysing, we have more than thousands of entries. (2) Feedback Dataset: takes responses from the users and stores them for testing datasets for evaluation; (3) Candidates Dataset: contains jobs that match the candidate's profile, for evaluation purposes, more than thousands of entries.

The outcome of the job recommendation system, which is implemented in Python, is presented. The user profile and the skills are entered in the system which returns the matching jobs presented in the datasets. The profile of the user contains all his personal details as well as his experiences till now, the skills he is interested in. The item's profile, on the other hand, contains information on the talents and job domains required for that job. We had established an aim for ourselves to complete the study, which made it easier for us to finish it. We had established an aim for ourselves to complete the study, which made it easier for us to finish it.

To build the recommendation system two datasets have been used. One dataset contains the information of users. First dataset is from stack overflow which contains the attributes regarding the fields and other dataset is used from Indian technology dataset. To execute data preprocessing on both the user dataset from Stack Overflow and the job listing dataset taken from the job board before we could start implementing this project. Since the attributes of both the datasets are different and datasets are different from different sources so no relation can be established between. Since there are not matching attributes in the datasets so implementation of collaborative filtering is tough due to non-connective attributes.

The final aim of study was to create a system which can recommend jobs from the datasets of new vacancies to the interested users based on the fields they are interested in; this information is used to compare the job profile vectors for similarity. This research in the hiring domain focuses on examining the abilities required for the job, which domain users fall into, and using this as a parameter to compute the similarity between the offered position and the user. In the domains of news and entertainment, the available recommendation systems rely on human engagement. When viewed from the perspective of a job domain or recruiter, interaction such as user ratings on a particular item can be used to make an item suggestion to a user, but this concept of ratings and forecasting the possibility of a user choosing an item is not accurate. Implementing a recommendation system based on ratings, views, and popularity of a job domain item would allow the user to apply for most of the jobs he sees online. However, due to the congestion of profiles at the recruiter's end, this would stymie the recruiting process. By assessing the user's preferences and utilizing content-based filtering, we recommend a job that matches the user's profile. Using this suggestion procedure, the user would be able to apply to only the jobs that he might be qualified for, rather than applying to most of the jobs that are available in the system. This recommendation system would help by decreasing the workload of a recruiter.

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