

Predictive Human Resource Candidate Ranking System

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Abstract: Human Resource Department consists of the people who select expert workforce of an organization or business sector. Human Resources ought to play variety of roles so as to pick skilled candidate for specific designation. System can rank the expertise and key skills needed for specific job position. This system can rank the CV's supported the expertise and different key skills that square measure needed for specific job profile. This technique can facilitate the HR department to simply range the candidate supported the CV ranking policy. This technique can focus not solely in qualification and knowledge however conjointly focuses on different vital aspects that square measure needed for specific job position. This technique can facilitate the human resource department to pick right candidate for specific job profile that successively offer skilled force for the organization.

Keywords: Machine learning, Prediction, Artificial Intelligence, Classification, Data mining, Data extraction, Resumes, Keyword based search, Criteria, Sorting.

1. Introduction

The current global economic crisis that companies face of having far less capital to invest within their HR divisions, while needing to ensure they are selecting the most competent and qualified applicants suited for job vacancies. This might result in companies being forced to employ a reduced, more agile, productive and cost-effective workforce. Due to job market shrinking and higher volume of job seekers, it is necessary to effectively short-list and rank candidates for the particular job role. This is based on matching the applicant's profile and Curriculum Vitae (CV) against the requirements criteria (experience, skills, knowledge, qualifications, etc.) which the post holder needs in order to perform the duties of the job. This process is usually conducted by recruitment personal and it also involves experts from within the job area. Problems within many corporations are that there is no systematic and consistent process for specifying the jobs requirements criteria and the ranking policy. As there are now financial and legal considerations involved in the selection of new employees, the expense of recruiting the wrong candidate has made many companies become more concerned about conducting their selection process in a more cost-effective way. To provide an effective ranking policy for applicant CVs it is important to determine which key skill characteristics best suit each expert

ranking decisions. This process can be defined as, the one which needs to identify the most important skills for classifying these ranking decisions. This can have a significant impact on the classification of the ranking decisions to provide correct ranking of applicant CVs. We will present real world experiments in the care domain where our system handled the uncertainties and produced ranking decisions that are relatively highly consistent with those of the human experts. Our ranking technique is completely transparent and provides human interpretable reasons for all ranking decisions.

A. Problem Statement

When it comes to enrolling and employing resumes are still the coin of the realm While the Internet has lived up to its promise of opening access to new wellsprings of ability it has additionally made it much easier for job seekers to apply for jobs The result has been an abundance of resumes - normally employers receive hundreds or even thousands, every time they post an occupation. Recruitment experts require powerful apparatuses to help them take control of the resume flow capture relevant data naturally and transfer applicant information straightforwardly to their database or applicant tracking system as efficiently as possible.

B. Scope

HR System for Candidate Ranking is designed to enable automating the processes of job requirements specification for applicant ranking in HR systems. Neural networks were used to identify the key skill attributes and their weights, providing an automatic method for charactering the experts ranking decisions. The uncertainties arising due to the varying preferences of each expert in a selection panel is removed as the system Automatically Filters the Relevant Resumes, this work has made an extensive effort to provide a system through which the resumes can be ranked with maximum efficiency. By implementing this system, the task of obtaining the most relevant resumes can be achieved which will save the recruiter time to manually select appropriate resumes and also produces linguistic ranking decisions that are easy for a human end user to understand and the scoring method can be used to produce any legally required justification for all ranking decisions For

example when user of the website login with its credentials the system checks whether the user is valid member or not ,if not it gives an sign in page to which user has to fill and he/she becomes an valid user . The system then displays a personal profile to which the user can attach its CV or even update the existing one. The system will store it in the database and give an appropriate job ranking for the same.

2. Literature survey

In Faiyaz Doctor, Dewi Roberts and Victor Callaghan's "A Neuro-Fuzzy Based Agent for Group Decision Support in Applicant Ranking within Human Resources Systems", they presented a neuro-fuzzy based agent that enabled automating the processes of job requirements specification for applicant ranking in HR systems. The agent can capture the most important job requirements preferences from the panel of experts to generate a person specification that reflects the collective unbiased opinion of the experts in a consistent and objective way. Neural networks were used to identify the key skill attributes and their weights, providing an automatic method for charactering the experts ranking decisions. Fuzzy sets were used to model the uncertainties arising due to the varying preferences of each expert in an election panel. The consistency of each expert's decisions are determined and used to weight his or her contributions to the group decisions making process. A scoring method was used to score the applicant CVs based on how closely they match the requirements preferences of the experts. The scores are mapped to the fuzzy sets, which are weighted based on the calculated expert's consistencies, and aggregated to determine a linguistic ranking for the CVs. The paper has presented experiments in which the system has elicited requirement preferences from a selection panel of five recruitment experts within the residential care sector. Our system was able model their collective ranking decisions, which was evaluated on a set of forty applicant CVs. The system was able to show the strengths of its ranking decisions and which ranking decisions were borderline due to the diverging opinions of the experts. The system produces linguistic ranking decisions that are easy for a human end user to understand and the scoring method can be used to produce any legally required justification for all ranking decisions.

For our current and future work, we plan to integrate the developed system with information extraction and parsing systems to facilitate the capture of the applicants' skills from unstructured CVs. Our approach currently uses type-1 fuzzy sets and we plan to extend this to use adaptive type-2 fuzzy sets to model higher degrees of uncertainties associated with group decision making and consensus modelling.

Evanthia Faliagka, Konstantinos Ramantas, Athanasios Tsakalidis, Manolis Viennas Eleanna Kafeza, 's "An integrated e-recruitment system for CV ranking based on AHP" In this paper, they have proposed and implemented a company oriented e-recruitment system that assists the recruiter in his decision-making process. The applicants submit their CVs in a

structured way, which are represented in HR-XML format. Our system automatically filters the candidates that don't meet the minimum requirements of the offered position. Finally, the candidates are ranked based on the Analytic Hierarchy Process. A number of tests were performed for evaluating the developed system. We found that the system is able to effectively match candidates to offered positions based on their qualifications and competencies [2], [4].

Prarthita Das, Amala Deshpande, Automated Filtering of Relevant Resumes, This work has made an extensive effort to provide a system through which the resumes can be ranked with maximum efficiency. By implementing this system, the task of obtaining the most relevant resumes can be achieved which will save the recruiter time to manually select appropriate resumes, which even after processing may not be a complete fit for the profile. Since, there are multiple levels of screening involved in order to find the most relevant resumes; the accuracy of the system also improves. Thus, using this ranking technique, we can obtain the best results for obtaining the ideal resumes. This approach will automate as well as speedup the process of the HR recruiters [1].

3. Proposed system

A. Aim

The main aim of our project is to automate the task of recruiting suitable candidates for a given job profile by matching the candidate's qualities to the parameters mentioned by the recruiter which involves parsing the resume automatically which makes the task of recruiting more efficient and faster, and also eliminates the need to manually find the best suited applicants.

B. Objectives

1. To act as intermediary connecting jobseeker and provider.
2. To facilitate job search
3. To help candidate to fetch a right job
4. User can do online resume posting
5. User can do apply for job online
6. Provide better understanding between applicants and the organization.
7. Provide a user-friendly environment so that applicants can apply for job's easily and company can run their recruitment process smoothly
8. To maintain and store applicant details, vacancies details and employee's details that will help in overall processing.
9. It stores results and provide the status of the applicant in the recruitment process.
10. Recruiters can update their job requirement time to time.

4. Methodology

In the system which we are going to make the user will login

through its credentials the system checks whether the user is valid member or not with the help of the data stored in the database, if not it displays a sign in page to which user has to fill and he/she becomes a valid user. The system then displays a personal profile of the user which has all the details of a particular user to which the user can attach its CV or even update the existing one. The system will store it in the database and according to the criteria based on the keywords present in the CV will give an appropriate job suitable for the user.

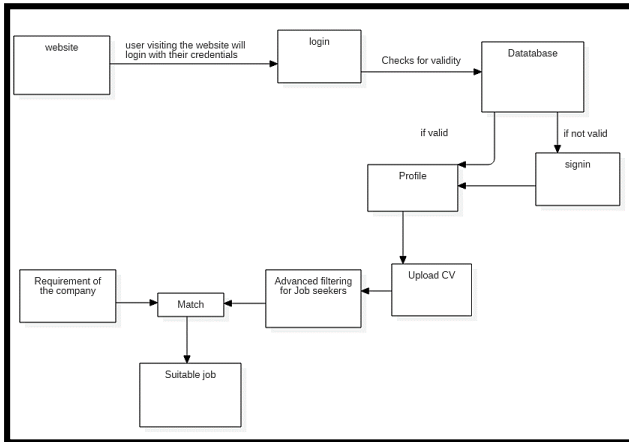


Fig. 1. Block diagram

The linear working of our project can be explained in the following manner (Refer figure 1 and 2):

- Step 1: Login in the web by using the credentials.
- Step 2: If not a member the website will give a sign up page, the user has to fill in their details.
- Step 3: User can edit their profile.
- Step 4: Apply for a suitable job option.
- Step 5: Upload your Resume.
- Step 6: The website will store the details in the database.
- Step 7: The recruitment committee will review applicant resumes from the database.
- Step 8: The recruitment committee will filter out applicants who don't match the key job requirements by sending them a rejection email (Indeed has a built-in rejection message you can send with the click of a button!). To determine which resumes should be added to your "yes" or "maybe" piles.
- Step 9: After reviewing resumes, communicate with your top candidates to learn more about their qualifications. This will help you create a short list of the best candidates and decide who should move forward in the hiring process. They can send emails to learn more about the candidates' experience, or start scheduling phone screens and interviews.
- Step 10: Display the result.

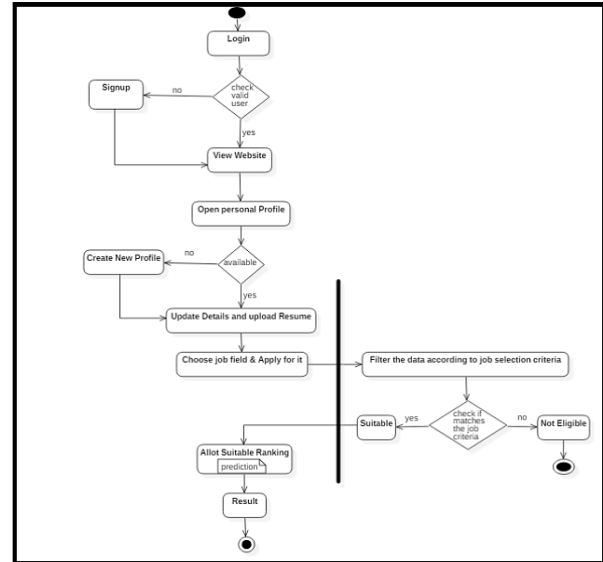


Fig. 2. Activity diagram

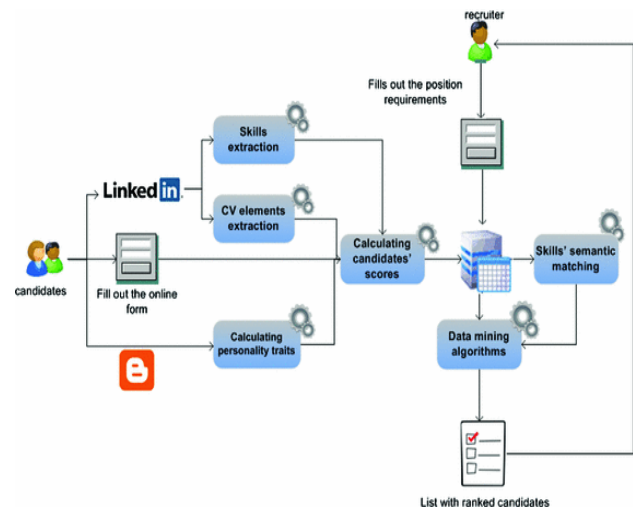


Fig. 3. Process structure

5. Conclusion

Thus by using our system, it helps in automating the task of recruiting suitable candidates for a given job profile by matching the candidate's qualities to the parameters mentioned by the recruiter which involves parsing the resume automatically, which makes the task of recruiting more efficient and faster, and also eliminates the need to manually find the best suited applicants. Also our system acts as an intermediary connecting jobseeker and provider which help candidate to fetch a right job and provide an user friendly environment so that applicants can apply for job's easily and company can run their recruitment process more efficiently, smoothly. The system can also maintain and store applicant details, vacancies details and employee's details that will help in overall processing and the recruiters can update their job requirement time to time.

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