PERSONALITY PREDICTION WITH CV AND USING PSYCHOMETRIC ANALYSIS

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Abstract: ***Human personality has played an important role in a person's life also as within the development of a corporation. One of the ways to gauge human personality is by using standard questionnaires or by analyzing the CV. Traditionally, recruiters manually shortlist a candidate's CV as per their requirements. In this paper, we present a system that automates the eligibility check and personality evaluation of candidates during a recruitment process. To meet this an online application is developed for the analysis of personality test and candidate's CVs. The system analyses professional eligibility based on the uploaded CV. The output of our system gives a choice for candidate recommendations. Further, the resulting scores help in evaluating the qualities of the candidates by analyzing the scores obtained in different areas. Psychometric tests are an objective way to measure the potential ability of the candidate to perform well in a job role. A test was conducted to determine the personality traits of the candidate. Thus, the system provides a helping hand for the recruitment process that evaluates the top candidates.***

Keywords: ***Natural Language Processing, Big Five Personality, personality prediction, cv analysis, Psychometric test.***

I. INTRODUCTION

As far as employment is considered, selecting the right candidate for the recruitment process is a challenging task. There are so many traditional and technical ways like, conducting personality and various technical eligibility evaluation tests, interviews, group discussions, aptitude tests followed by the interview is traditional practices for the recruitment process. These traditional practices are considerably timeconsuming and should end in unfair choices of candidates. The selection of the right candidate is a huge workload on the human resource management department. As compared to the traditional recruitment process, if an online selection process is conducted, then a fair selection of the candidate is possible. Personality is that the most vital factor which reflects a private, which keeps on varying. Tackling them may be a tedious task that we've implemented an approach to spot the personality. The proposed system does a Psychometric analysis and AI- based method to check a candidate's personality and skills. [1] [2]

The proposed system is a web application, it is an organization-oriented one. The system will predict the personality of a candidate through CV analysis and psychometric analysis. Using tongue Processing (NLP) is often defined as a process that permits a machine to become more sort of a human, due to this deeply cutting the space between machines and humans. The proposed system will work like the admin will post the job title, job description and upload the candidate's CV/Resumes. After uploading the CV they will rate the candidate based on the keywords specified in the job description. The highest- ranked candidates only get a mail that contains a link to attend a psychometric test. Five categories of questions are added in the psychometric test which includes openness, consciousness, agreeableness, introversion, natural reaction type questions. When the candidates complete the test the rank will be updated based on their personality, skills, interests, professional certifications. This will eliminate all unsuitable candidates for a job role and create a list of the most suitable candidates for the same together with psychometric analysis and CV analysis the system will create a comprehensive picture of the candidate, that simplifying the HR department job.[3][4][5]

II. RELATED WORK

A. FIRST GENERATION HIRING SYSTEMS

In this System, the Hiring team would publish their vacancies and invite applicants. Methods of publishing were newspaper, television, and mouth. The interested candidates would then apply by sending their resumes. These resumes were then received and sorted by the hiring team and shortlisted candidates were involved in further rounds of interviews. the entire process would take plenty of your time and human efforts to hunt down the right candidate suitable for his or her job roles.

B. SECOND GENERATION HIRING SYSTEMS

As the industries have grown, their hiring needs have rapidly grown. To serve these hiring needs certain consultancy units have inherit existence. They offered an answer during which the candidate has got to upload their information during a particular format and submit it to the agency. Then these agencies would search the candidates supported certain keywords. These agencies were middle-level organizations between the candidate and company. A system wasn't flexible because the candidate has got to upload their resume during a particular format, and these formats changed from system to system.

C. THIRD GENERATION HIRING SYSTEMS

This is our proposed system, which permits the candidates to upload their resumes during a flexible format. These resumes are then analyzed by our system, indexed, and stored during a specific format. This makes our search process easy. The analyzing system works on the algorithm that uses tongue Processing, sub-domain of AI. It reads the resumes and understands the natural language/format created by the candidate and transforms it into a selected format. This acquired knowledge is stored within the knowledge domain. The system acquires more information a couple of candidate from his social profiles like Linkedin and Github and updates the knowledge domain will specify the main points of the task for shortlist the candidate for a particular job position and upload the candidate's resume/CV. within the resume rating and ranking module, here the uploaded documents are going to be parsed, filter, and rank the candidate. The last module is that the mental test module.

III. PROPOSED SYSTEM

The proposed methodology may be a web application for shortlisting the candidates supported the keywords the admin is anticipated to filter the candidate for a selected job. The proposed system will enable a more practical way to shortlist submitted candidate CV/Resumes and predict the personality of the candidate using CV analysis and mental testing. First, the admin will post the work title, verbal description and upload the CV /Resumes of the candidates to be shortlisted. The AI engine will parse the documents, filter, and rank the candidate supported keywords provided by the admin, and candidates get shortlisted. The system will rate the candidate's CV/Resume supported the task title and verbal description.The resume rating is implemented supported the work experience, skills, interest, academic required for a selected job position. supported the rating we rank the candidate then the admin will select the candidate and send links for attending the mental test for predicting the candidate's personality. The rank of every candidate acts as a score of how well the candidate's profile meets the specifications of the recruiters still because the cumulative score of the mental test. The recruiter could also analyze the personality of the candidate supported the results of the mental test. From the score of the test, we update the ranking and therefore the final selection is formed. this technique will help the HR department to easily shortlist the candidate supported by CV ranking policy.

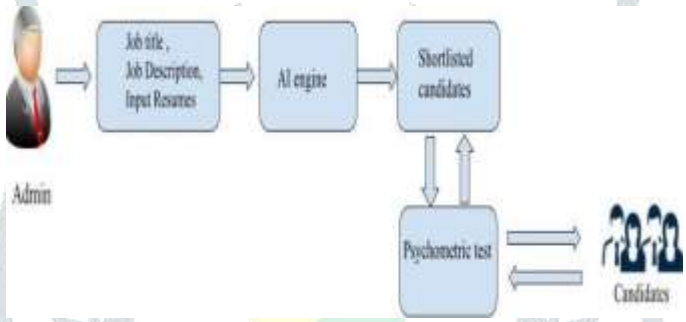

Figure 1: Data Flow Diagram

The proposed system is divided into three sub-modules. In the admin module, the admins will specify the details of the job for shortlisting the candidate for a particular job position and upload the candidate's resume/CV. In the resume rating and ranking module, here the uploaded documents will be parsed, filter, and rank the candidate. The last module is the psychometric test module.

Module 1 is the admin module. The admin will sign up to the website with an email id and a password. After sign up, it will be navigated to the page for posting the job title, job description and upload the CV/Resumes of the candidate. NLP algorithm that parses the whole resume and searches for the words mentioned by the admin. The data will be stored in the NoSQL database firebase is used. The admin is authenticated using Google Firebase authentication. The website frontend is designed using reactjs and the framework used is a popular react UI framework Material UI. The backend is using python and nodejs.

Module 2 is resume rating and ranking. The uploaded CV/Resumes are parsed using the NLP algorithm and filter the documents based on the keyword specified by the admin. To perform the ranking resume rating is implemented. Designed a resume rater that should be able to rate the applicant based on the contents of the resume. The unsupervised approaches were chosen as part of this project. This approach uses a keyword matching approach. The project also uses an information extraction component it. A pre-trained Named Entity Recognition model from the spacy library was used to perform entity detection. First the document matches with the keywords provided by the admin and then scans the document further to see whether the words are concise and not deviating much from each other. The model is trained in two way fixed and LDA model. The fixed model only needs to supply the keywords and rater rates based on the similarity of the document to the keywords. The Latent Dirichlet Allocation model assumes that each document d is a mixture of a small number of topics z and each word in the document is attributed to one of the document topics. With the keywords then use matching strategies to match the keywords to the document. Two matching strategies are used keyword match (KM) and within match(WM). The keyword match looks for the match in the keywords. For each keyword get the mean of the nth largest correlation values of the keyword vector to the words in the document. The probabilities of the keyword can be derived from the LDA model and can use them as a coefficient for each intercept in linear combination to get KM score. The within match look for the match within words matched by keywords. For each keyword get the mean of correlation among n'th largest correlated words concerning for to keyword vector less the keyword vector to itself. The probability of the keyword derived from the LDA model and use as weight coefficients for each intercept in a linear combination to get the WM score. The final score is obtained and rank the candidates based on this final score. The candidates will be shortlisted and the admin will select the ranked candidate to send a link to the test through email. For this created an API using flask.

The last module is a psychometric test. The personality of the candidates can be predicted by cv analysis and psychometric test. The test contains a set of questions to predict the personality. The Big Five Personality Traits model is used for measuring the personality. The Big Five Personality Traits Model measures five key dimensions of people's personalities Openness, Agreeableness, Extraversion/Introversion, Conscientiousness, Natural

IV. CONCLUSION

In this project, we have implemented an organization-oriented recruitment system that would assist the human resource department in shortlisting the right candidate for a specific job profile. This system also predicts the personality of the candidate. The system would be used in many business sectors that will require expert candidates, thus reducing the workload on the human resource department.

V. ACKNOWLEDGEMENT

We would wish to thank everyone who had contributed to the successful completion of this project. We would like to express our gratitude to our project guide Ms. Lekshmi Vikraman, Assistant Professor in the Computer science and Engineering Department who gave valuable suggestions and guidance for our project. We express our deep-felt gratitude to beloved HOD Dr. Ramani, Head of the Department for providing necessary information regarding the project and also her support in completing it. We also thank our project coordinator, Mr. Jithin Jacob, assistant professor who gave expert supervision, encouragement, and constructive criticism amidst his busy schedule throughout the project. We also grateful to all the authors of books and papers which have been referred to publish this paper.

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