AUTOMATED RECRUITMENT IN HR SYSTEM USING ARTIFICIAL INTELLIGENCE

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ABSTRACT-Artificial Intelligence for recruiting is an upcoming class of HR(Human resource) recruitment system planned to decrease or completely removes large time taking activities like screening the profiles or the resumes of the candidate by hand which can't be easily effective. Artificial Intelligence for recruiting is the application of Artificial Intelligence were the system is trained using several Machine Learning algorithms like SVC, KNN and decision tree algorithm so that suitable candidates are returned to the HR, without burdening the HR.

Keywords-Candidates, Human resource, Clusters, Classifier.

I INTRODUCTION

The field of AI has changed significantly in the past few years and will likely continue to do so. In the last ten years' artificial intelligence (Al) and machine learning (ML) systems have achieved superhuman performance in many fields that were previously thought to be unable to be achieved. Advances in the field were attained due to the increase in availability of the information, and major hardware improvements combined with new optimization algorithms, attribute these advancements to high-quality open-source libraries which allowed developers and researchers to quickly code and test models. Improvements in fields like speech recognition, image classification, object detection, classical (board) games, Texas Hol'em, and many more have led to increase in the real-world applications outside research labs, mostly in the area of supervised learning.

AI technology has a history which is long and active and is constantly changing. Its main focus is on intelligent agents, which contains devices that perceives the environment and based on which takes actions in order to increase the chances of the main goal. Considering new digitalized world, Artificial Intelligence (AI) is the property of machines, computer programs, and systems to perform particular functions of an individual, solutions to the problems, be able to make decisions or conclude a problem. Most artificial intelligence systems have the ability of learning, which allows system or individual to increase their performance with respect to the time. The recent research on AI tools like ML(machine learning), deep learning and predictive analysis intended toward increasing the planning, learning, reasoning, thinking and action taking ability. Based on which, research conducted to intended towards exploring how human intelligence different from artificial intelligence [1][,2][3].

Machine learning, can be defined as a field of computer science that evolved from studying pattern recognition and computational learning theory in AI(artificial intelligence). It is the learning so that we can build algorithm that can learn from data available and make predictions on available data. These procedures work on model construction from example inputs in order to make data driven predictions or choices rather than following firm static program instructions.

Machine learning is a repeated decorative design that may refer to learning from the previous experience to make better in future performance. The main center of interest or activity of this area is no direct human control learning methods. Learning here refers to change or upgrade of algorithm based on previous experiences automatically without any human intervention. While designing a system i.e. machine the programmer always has a specific aim or target in mind.

Machine learning automates the prediction process by the past experience. Although there will be a debate that machine learning has been around as long as subject statistics has, but it really separated from the statistics topic in the early 90's [4][5][6].

II LITERATURE SURVEY

In the existing system only it was the platform to post the job profiles based on some criteria the resumes of the applied candidates were sent to the employer. The previous system used psychometric analysis to match the candidates according to resumes, In this psychometric analysis, some online questionaries' are asked to candidates to solve, based on the results the selected candidates are called for the further interview process. Where it helps in increasing job satisfaction among the employees, the only demerit is here we cannot determine the behavior of the candidates [7].

In the other reference which we have consider it had effective processing of resumes and matching them to the relevant job postings, some of the methods used for matching jobs are Boolean retrieval, Relevance feedback, Natural language processing, major merit of this method are unstructured resumes were considered and processed, but the demerit was employer only gets to know the keywords in resume and no other criteria are considered [8].

In the previous system the candidates were selected based on psychometric analysis tests and based on keyword matching in uploaded resumes, but the behavioral analysis was missing in these systems so the selected candidates could not be considered as perfect candidates for a given job. Our proposed system which performs behavioral analysis using machine learning algorithms, it reduces the burden of HR(human resource).

III ARCHITECTURE

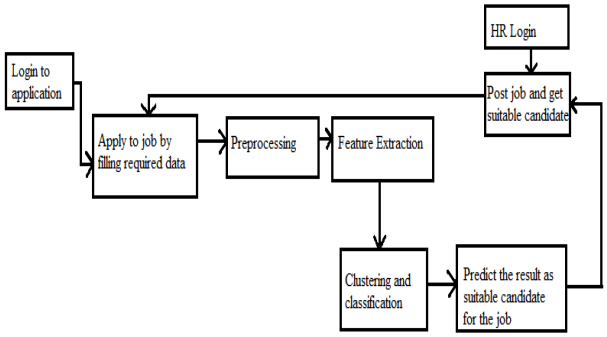

Figure 1: System Architecture of HR

Employees can Login into the application and applying the job by entering the answers of questions posted by the HR. preprocessing is performed that unstructured data is structured by converting into file by using various steps of data collection, data transformation, data integration and data cleaning. Now, feature extraction is done from the students data were extracted and clustered and classified.

Further the prediction is performed by which the suitable candidates are selected for next procedures, and then HR is notified with the selected candidates, where interview procedures are carried out. Thus most eligible candidates are chose by HR based on their skills.

IV IMPLEMENTATION

The implementation of the project are classified into three modules like,

1. User Interface Module

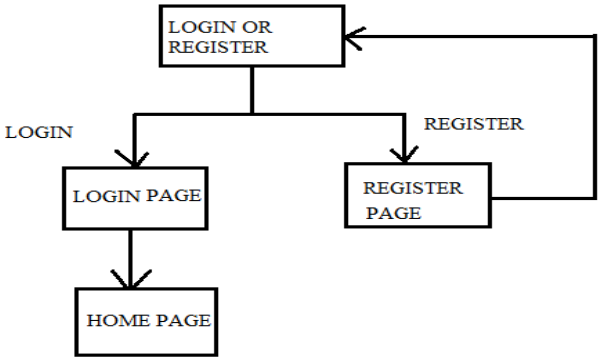

Figure 2: User Interface Module

In user interface module, the user needs to register if user is new to platform, then making use of the username and password , user can login into the platform, if the login

details are valid, user enters the home page, where job profiles can be applied which are posted by the HR.

2. Classifying and Clustering the Data Using Machine Learning Algorithm

In the second module the data which is collected from the user are classified and clustered by making use of the machine learning algorithms like SVC, KNN and decision tree algorithms.

3. HR Notification and Interface Module

In the third module, HR will get the predicted result as a notification, and where HR can login into the page using his own login details, where he also can post the job profiles of different job positions, and there job profiles are applied by the users, and users applied to the jobs are made to answer the questions.

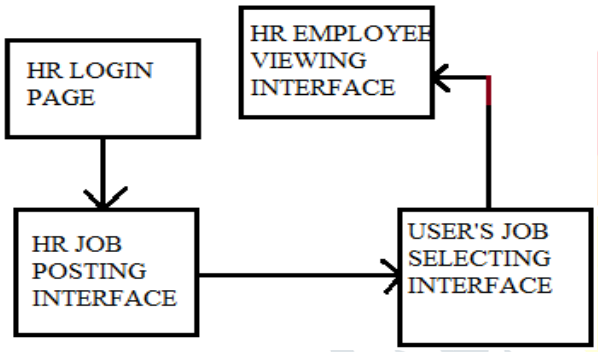

Figure 3: HR Notification and Interface Module

V RESULTS

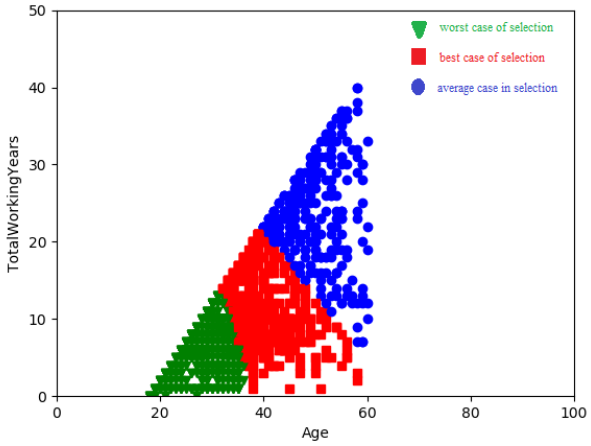

Figure 4: Age versus total working years of the candidate

The above plot describes the age versus Total working years of the candidate. The above plot gives the idea about the experience of the candidate based on the age of the candidate. The green color in the above plot gives the representation of the candidates with age within the range from 20 to 40, who will have the experience of maximum 15 years of experience. The red color in the above plot represents the candidates of age ranging from 30 to 60will have the experience of maximum 20 years of experience and the blue color represents the candidates whose age ranging from 40 to 60 will have a maximum of 40 years of experience. So it clearly depicts that blue colored set of candidates belong to the major part of the plot with highest experience.

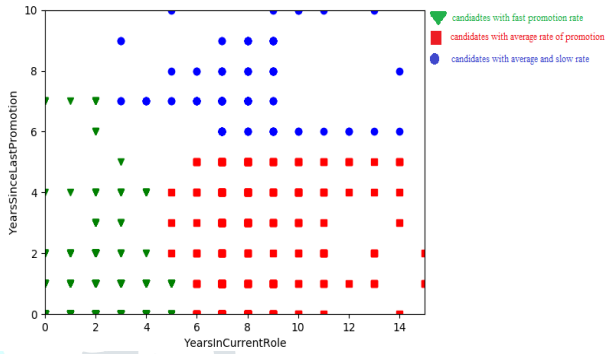

Figure 5: Current role versus years since last promotion

The above plot represents the years in current role versus years since last promotion. The green color set in the plot represents that candidates with maximum 4 years in current role has a maximum of 7 years since last permission. The red color depicts that candidate who fall under the range of 6 to 14 years of current role experience has got the previous promotion of maximum 5 years. The blue color in the above plot represents that the candidates who are in current role in the range of 3 to 14 years has 6 to 10 years of previous promotion. So, the effective candidates are the ones who fall under the green set.

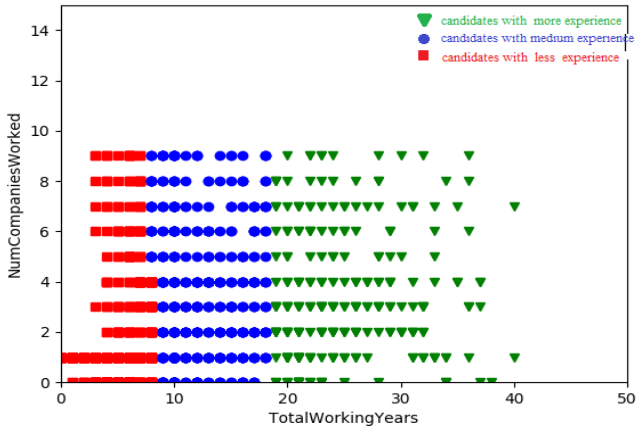

Figure 6: The total working years versus number of companies worked

The above plot represents the total working years versus number of companies worked. The red color set of candidates depicts the candidates who have total working years in the range of 0 to 10 worked for maximum of 9 companies. The blue color set in the plot depicts that the candidates who has total working years in the range of 10 to 20 years have worked for maximum of 9 companies. The green color set in the above plot depicts the candidates who have total working years in the range of 20 to 40 years has worked for 9 companies. So clearly, the green set of candidates needs to be selected.

CONCLUSION

AI for recruitment comes as one of the applications of artificial intelligence to the process of recruitment. It is designed to automate certain parts of the recruitment process such as high volume repetitive tasks. AI for recruiting saves the time of the recruiters' by automating the major part of the recruitment without the intervention of humans which in turn improves the hiring quality. The future scope of the project is to implement the chat box feature where the candidate can interact with support people of the company for any queries with the recruitment process and to implement face to face interview within the interface.

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