

# TECHCRUIT – A Technical Recruitment & Selection System

Siddhi Kadam<sup>1</sup>, Grishma Gupta<sup>2</sup>, Pratiksha Ingavale<sup>3</sup>, Karuna Borhade<sup>4</sup>

<sup>1-3</sup>B.E. Student, Department of Computer Engineering, Shah and Anchor Kutchhi Engineering College, Chembur, Mumbai, Maharashtra 400088, India.

<sup>4</sup>Asst. Professor, Department of Computer Engineering, Shah and Anchor Kutchhi Engineering College, Chembur, Mumbai, Maharashtra 400088, India.

\*\*\*

**Abstract** - Recruitment is a crucial HR activity. Finding productive source of recruitment is becoming increasingly difficult for recruiters. Recruiters spend a lot of time, effort, and money to find out where the best candidates can be and how to join them. This paper describes a system that is capable of extracting several key information fields from the registration form & skills known using Selenium, resume skill extraction using NLP, resume screening, KNN classification for finding the suitable coding languages preferred by the companies, and the retrieved data is stored in the database. The overall aim of the proposed system is to create a real bank of profiles, out of which the most probable profile is filtered out for the designated position in an organization to enhance the selection process of candidates.

**Key Words:** Profiles, Recruitment and Selection Process, resume skill extraction, resume screening, NLP, KNN classification, Selenium

## 1. INTRODUCTION

In the traditional recruitment model, most of the companies focused on hard skills like technical expertise, industry knowledge and education, but paid less attention to other factors that determine success that are harder to quantify. HR Specialists and recruiters need to select the right candidates that not only “fit” the role but are able to “fit” with the organization. It will help the new and existing employees to adapt and react accordingly in the critical situations [1].

The literature suggests several online recruitment systems. but most of these systems focus on the candidate’s selection and evaluation stages, ignoring the candidate’s search stage. To overcome the drawback of these existing systems, we propose a system for automatic information extraction to support rapid profile search and management reducing the manual labor of the recruitment and selection process and thereby finding the best candidate for a designated position for an organization. The proposed system extracts some important information fields from the registration form (profile of the candidate) and the extracted data will

be stored in the database.

The purpose of the system is to create a set of profiles, out of which the maximum likely profile is filtered out for the distinct role in an enterprise. Furthermore, the system incorporates Meaning and Definition of Recruitment and Selection, Need and Purpose of Recruitment, Evaluation of Recruitment process, Sources of Recruitment through which an organization gets appropriate application [2]. Also, the system focuses on an innovative approach of quantifying emotional intelligence as well as technical skills.

## 1.1 Problem Definition

To develop a system that provides the organization with a pool of potentially qualified job candidates from which the judicious selection can be made to fill vacancies they are looking for, and to ease out the recruitment and selection process by replacing the manual operation of recruitment that is time-consuming.

## 2. METHODOLOGY USED

The methodologies we have used to develop the user interface of the project are as follows:

- i) Bootstrap: It is an open-source toolkit for building responsive front-end user interface with HTML, CSS, and JavaScript.
- ii) HTML5: This is today’s model of Hyper Text Markup Language (HTML) with new elements, attributes and behaviors, and a huge set of technology that permits the construction of greater numerous and effective websites and applications.
- iii) CSS3: This is the latest standard of Cascading Style Sheets (CSS) which is basically used for styling web pages to make them look attractive. The CSS3 includes more features like rounded corners, text shadows, background gradients, opacity.
- iv) JavaScript: It comprises HTML and web. It is a prototype-based, dynamic language that supports object-oriented and imperative styles.

- v) PostgreSQL & PgAdmin: PostgreSQL provides the backend of the project. PgAdmin is the development platform for PostgreSQL, the most advanced database in the world.

### 3. BACKGROUND

The main drawback of the recruitment and selection base system is that it is difficult for the HR department to handle recruitment for top management positions.

All organizations have to do is tell them about the qualifications and professional requirements they are looking for in the candidate for the available job vacancy and the teams take it forward for them. As recruitment is a lengthy process, and the recruitment agency might take a lot of time to find the correct candidate, thus the process is time-consuming. There can be times where the team does not understand what exactly the organization wants and finds a wrong candidate because of the communication gap.

To overcome these demerits of the existing system we have come up with an idea of developing the system which will automatically weed out the undesired candidates at an early stage of the hiring process by applying some filtration so that organization would get only the best talent without consuming time and wasting money and efforts.

### 4. LITERATURE SURVEY

Apps	Work Status	Identification of Jobs and Company requirements	Profile features	Interview Section	References or uploads	Upskills	Online Presence
Monster	Work experience details, Previous Projects	Recommended jobs, location, experience years, skills required	Name, email, password, Mobile no, current location, key skills, qualification, courses, certifications	Tracking jobs applied, Save applications of respected candidate, visit through candidate's social media network	Resume uploaded (doc, docx, rtf, pdf) format	Career skill, career advices, tips, recommended jobs notification including (location, experience, skills essential)	Social media accounts LinkedIn, Github, etc
LinkedIn & LinkedIn recruiter	Employers (HR) posting jobs for available vacancy, job seekers posting their CV's.	Recommended jobs, location, experience years, skills required	Email, mobile no, key skills, qualification, courses, certifications, job details, education, Location, titles	If Profile matches with the requirement of respected organization notifies the respected candidate via telephonic call or In mail messaging.	LinkedIn profiles	Network can become big, request, share company story, use of tags	Social media accounts Github, etc

Fig-1: Comparison of both systems

Apps	Developed for	Job Description	Profile Features	Resume Uploading	Additional Actions	Online Presence
Work India Recruiter	for Recruiters only	Candidates Minimum Qualification, Minimum Experience, Required Skills for the staff, Description of the Job Role for the staff, Work Time, Interview Details	type of candidate company, City company, Monthly salary range, No. of Staff Needed	No	Not Applicable	No
Indeed Job Search	for both Recruiters as well as Job Seekers	Job Type, Salary, About the Company, About the Job (selected candidate day to day responsibilities), No. of vacancy available, skills required	Work Experience, Qualification Details, Skills, Certification, Achievements, Job Preferences, Desired Job Type	Resume in Pdf & word Format.	<ol style="list-style-type: none"> <li>1. Search for a specific job.</li> <li>2. Go through company reviews</li> <li>3. achieve Resume Privacy</li> <li>4. compare salary for more than one company</li> </ol>	Yes

Fig-2: Comparison of both systems

### 5. DETAILED SYSTEM DESCRIPTION

In this system, the candidate is supposed to log in to the system and create his/her profile by filling in all the details which are asked such as SSC, HSC and graduation percentiles, dob, years of experience, etc. in order to make their profile.

Once the HR manager, or person/s in charge of hiring, comes to know that candidate has fulfilled the initial requirements for the position by reviewing their details, they will send the notification to the respective candidate with specific instructions to proceed with the online test that is conducted in two stages. The first stage consists of the Technical Aptitude test. The primary objective of this test is to identify at an early stage only all those job applicants who are unlikely to fill the requirements of the designated position and to weed out all those applicants further from the recruitment process. Once the candidate qualifies for the first stage online test, he/she will get a notification to proceed further with the stage two online test. The Second Stage consists of a Psychometric test. This system also identifies the need for Emotional Intelligence in the workplace and how that affects employee performance.

If the number of qualified candidates is more than the required candidates for interview then filtration is performed on the basis of the previous assessment's average score.

Later on, the filtration is performed on the basis of Hacker Rank/ Microsoft/ Coursera/ Udemy/ NPTEL certification. The test given by the candidate is statistically examined. This is done by using online standard methods of assessment so that everyone is presented with the randomized questions for completing them. A qualified



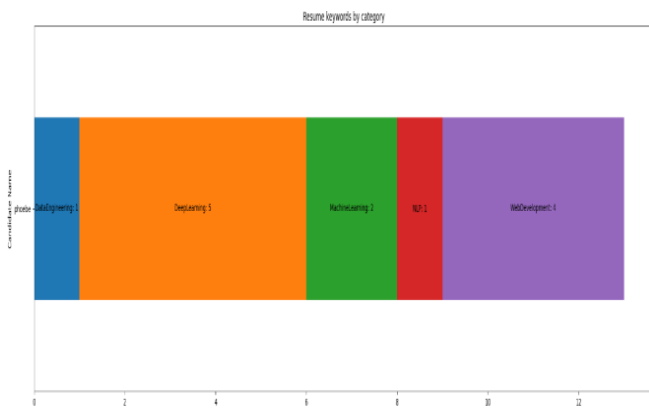


Fig-6: Resume Domain Prediction.

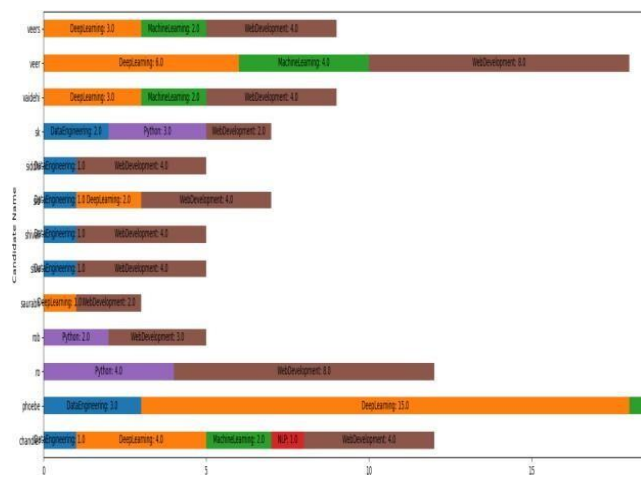


Fig-7: Resume domain analysis with score all candidates

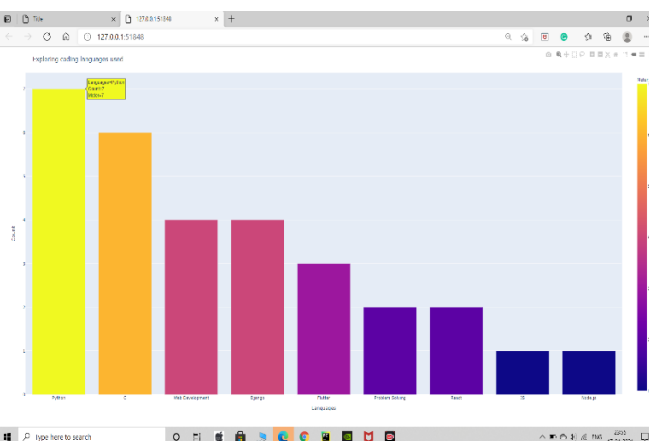


Fig-8: Coding language preferred by no of selected candidates

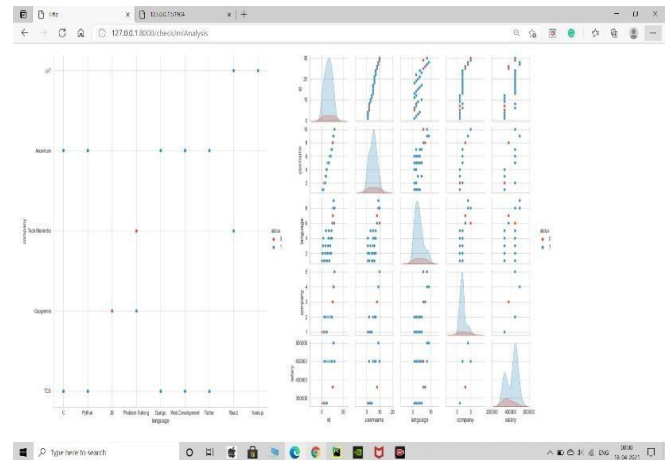


Fig-9: Company vs beneficiary coding languages on basis of selection & rejection of students

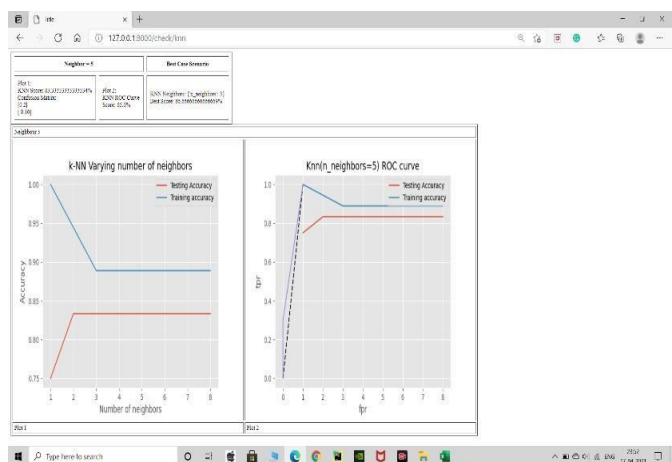


Fig-10: KNN classification on basis of company language status criteria

## 8. CONCLUSION

We propose a new recruitment support system in order to help organizations better identify the candidates who meet their requirements as well as their standards. The system will help the recruiters to recruit only the best talent without wasting time and money. The system will also be helpful for the candidates who are looking out for the jobs as per their skills set and academics in a most convenient manner also the system is going to identify the needs of the organization and then search for the desired candidate by applying those needs. Once the system filtered out the desired candidates, it will allow them to proceed with online assessments scheduled by the organization side for hiring the best talent. Hence the system will also be helpful to reduce the workload of the recruiters as well as job seekers by filtering out the best candidates via assessments.

**REFERENCES**

- [1] "A Resume Recommendation Model for Online Recruitment". 2015 11th International Conference on Semantics, Knowledge and Grids.
- [2] "Resume Parser with Natural Language Processing". International Journal Conference of Engineering Science and Computing, February 2017.
- [3] "E-recruitment support based on MOOC's", International Conference on Mathematics and Information Technology, December 2017.
- [4] [https://www.tutorialspoint.com/recruitment\\_and\\_selection/recruitment\\_process.html](https://www.tutorialspoint.com/recruitment_and_selection/recruitment_process.html)
- [5] "Career Mapper: An Automated Resume Evaluation Tool". 2016 IEEE International Conference on Big Data.