**Hiring and Recruitment Process Using Machine Learning**

**Abstract:**

In today’s competitive world, it is a very complicated process to hire candidates with manual verification of resumes. This work is an experimental method for ranking of hiring resumes because manually ranking is quite a complicated job for the hiring team, as it takes more time to go through each of the candidates resumes. If the resumes are high in number then man power will also increase for the same task. To rectify these problems a new solution has been proposed. In order to make this whole hiring process more effective, an application for processing the resumes using machine learning is proposed. This work uses methods such as optimizing the candidates’ performance in the preferred skill mentioned in the resume and also ranking method to display the selected candidates based on their overall performance according to the skill requirement of the company’s required job position. In order to verify whether the information given by the user it will check the course completion certificate for the preferred skills given by the user. To check the details in resume, optimizing the user skills and ranking the candidates, machine learning algorithm is used. The whole idea is implemented using python language and the results are sure to make the recruitment process efficient.

**SYSTEM SPECIFICATIONS:**

**EXISTING SYSTEM:**

The existing hiring and recruitment process typically relies on manual screening of resumes, interviews, and subjective evaluation by human recruiters. While some organizations may leverage Applicant Tracking Systems (ATS) for initial resume parsing, the decision-making process is largely human-driven. This traditional approach can be time-consuming, prone to biases, and challenging to scale, especially when dealing with a large number of applicants. The lack of automated and data-driven methodologies in the existing system may result in inefficiencies, making it challenging for companies to quickly identify the most suitable candidates based on their skills and qualifications. The need for a more streamlined and technologically advanced system has led to the exploration of machine learning solutions to enhance and optimize the hiring process.

DISADVANTAGES OF EXISTING SYSTEM:

* The traditional system is often time-consuming, as recruiters must manually review numerous resumes, schedule interviews, and assess candidates. This can lead to delays in the hiring process, especially when dealing with a high volume of applications.
* The manual recruitment process can incur high costs related to advertising job openings, conducting interviews, and the time spent by recruiters. Adopting more automated and data-driven solutions could lead to cost savings in the long run.
* Traditional methods may not holistically assess a candidate's skills and potential fit for a role. Machine learning algorithms can analyze a broader range of data points, providing a more comprehensive understanding of a candidate's capabilities.
* The manual system may struggle to identify "hidden talent" – candidates with unconventional backgrounds or experiences that might not stand out in a traditional resume review but could bring unique skills to the organization.

**PROPOSED SYSTEM:**

The proposed hiring and recruitment process leveraging machine learning involves the integration of advanced technologies to streamline and optimize candidate selection. Automated resume screening using machine learning algorithms will efficiently filter through a large pool of applicants, identifying relevant skills and experiences. Predictive analytics models will assess historical hiring data to predict candidate success, aiding recruiters in making informed decisions. Objective candidate ranking, facilitated by transparent algorithms, aims to eliminate biases and ensure fair evaluations. Natural Language Processing (NLP) will be employed for skill verification, enhancing accuracy in assessing candidate qualifications. The system will be scalable, handling large volumes of applications efficiently, and will continuously learn and adapt to improve decision-making over time. By offering a cost-effective, data-driven, and candidate-friendly approach, the proposed system seeks to revolutionize the traditional hiring process, making it more efficient, fair, and aligned with organizational goals.

ADVANTAGES OF PROPOSED SYSTEM:

* Automated resume screening and processing, powered by machine learning algorithms, significantly reduce the time and effort required for manual resume reviews. This leads to quicker identification of qualified candidates and a more streamlined recruitment process.
* The incorporation of machine learning ensures more objective and unbiased decision-making by eliminating human biases that may affect traditional hiring processes. Candidates are evaluated based on predefined criteria, enhancing fairness and equity.
* Machine learning algorithms provide transparency in the decision-making process. Recruiters can understand how candidates are ranked and selected, and the system can be audited for fairness and compliance. Machine learning algorithms provide transparency in the decision-making process. Recruiters can understand how candidates are ranked and selected, and the system can be audited for fairness and compliance.
* The system's ability to continuously learn and adapt based on feedback and outcomes from previous hiring decisions allows for ongoing improvement. This adaptability ensures that the system evolves to meet changing organizational needs and remains effective over time.

**SYSTEM SPECIFICATION:**

**HARDWARE REQUIREMENTS:**

* **System :** Intel i3
* **Hard Disk :** 1 TB.
* **Monitor** : 14’ Colour Monitor.
* **Mouse :** Optical Mouse.
* **Ram :** 4GB.

**SOFTWARE REQUIREMENTS:**

* **Operating system :** Windows 10.
* **Coding Language :** Python.
* **Front-End :** Html. CSS
* **Designing :** Html,css,javascript.
* **Data Base :** SQLite.

**REFERENCES:**

[1] Tim Zimmermann, Leo Kotschenreuther, Karsten Schmidt “Data – driven HR Resume Analysis based on Natural language processing and machine learning” in 2021 Available: https://arxiv.org/pdf/1606.05611.pdf

[2] Ebert and S. Counsel “Resume - Driven Development: A Definitionand Empirical Characterization” in 2021 Available: <https://arxiv.org/pdf/2209.05112.pdfcompany-switched-tohyped-technology/>

[3] Evanthia Faliagka, Kostas Ramantas, Athanasios Tsakalidis, Giannis Tzimas “Application of Machine Learning Algorithms to an online Recruitment System” The Seventh International Conference on Internet and Web Applications and services in 2012

[4] Shubham Shendage, Tushar Shinde, Ketki Govilkar “"Smart recruitment system using machine learning” JETIR June 2019, Volume 6, Issue 6

[5] Karolina RĄB-KETTLER, Bada LEHNERVP “Recruitment in the times of machine learning” Sciendo 2019, Volume 27, Issue 2, pp. 105-109.