Recommendation system for student placement

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ABSTRACT: The prediction of placement is more difficult with limited entities. In Early years, the company has general aptitude cum technical coding along HR interview for recruitment.But now a day's company included new rounds named as gamified aptitude, Behavioural assessment in recruitmentprocess. One of the effective ways to address this challenge for improving the student's competency in recruitment process is to provide related information of the updatedrecruitmentprocesses along withsoft skill entities to the recommended system. The recommendation system recommends the students to develop enough knowledge in each section of aptitude, technical,core subject,gamified aptitudeand also behaviour to clear the recruitment process.The knowledge can be extracted from the available dataset of previous batch using machine learning techniques.These data are used for training the model for rule identification and for testing the model for recommendation. This model helps the placement cell within an institution to identify the potential students to improve their competency and focus towards getting recruited in their competency matched companies. Additionally, it also recommends the students about their individual competency that they are most likely to attain into their dream job.

I. INTRODUCTION

The ultimate goal of students who joins in reputed college is to get a well-paid job. Students become experts in state of the art academic as well as practical knowledge in various engineering branches. This model assist the placement cell inside an institution to distinguish the planned and focused students with others to work on their specialized as well as to put more hard work on non-feasible field to reach their destination.Moreover, the students in third and final year of their course can utilize this structure to know their own competency that they are probably going to accomplish their dream offer or not. With this they can invest all the more hard energy for getting offer in to the vision organizations. In this framework, vital information like their CGPA, individual'scompetency and their achievements are considered.

II. RELATED WORK

The recommendation system for suggesting the suitable company by predicting the performance of the students during placement trainings and assessment is needed. Machine Learning techniquesshall be employed with available data will result in the better prediction of individual's performance. Loads ofpeople across the world have carried out research in determining themethodologies for performance analysis and placement.Few of the related works in this field are listed out:

María Cora Urdaneta-Ponte Ibon Oleagordia-Ruíz [3] used to recommend a job profile based on their skill and also in addition to that it suggest professional skill which possessed for current job openings in LinkedIn.The recommender system works upon the structured data from university and employee profiles in LinkedIn endorsement.Technical Job Recommendation System Using APIs and Web Crawling2022 [1] uses to recommend appropriate jobs to job seekers, especially in the engineering domain. It gives detail about quality job than quantity job but fails on newly added company or job profile.Logistic regression [5] is a probabilistic view of classification functionalities which aims at maximizing the probability of its success in solving problems. A conjectural study on Machine Learning Algorithmsis used only for certain function to implement Artificial intelligence [7].Class Result Prediction using Machine Learningused difference methods for student's

placement prediction. The aspectused for predictions are academic records, achievements, etc.Based on their results institutions has offeredits students a bettereducation. In [8] authors used similarity recommendation in Twitter data using sentiment analysis. In the above mentioned paper they use RNN for handling language and content based recommendation was implemented.[10] uses TF –IDF vectorizer to give extractive reviews of customer in items to be purchased. In this paper they predict the sales with the help of past reviews given by the customer.

III.   EXISTING SYSTEM

In the existing system, students in final year during the placement drive through campus don't know exactly what criteria they have to follow for any particular company. At that time they search the process to be placed in company, with necessary skills, knowledge, or score of their academics they required to get through the interview. Here student's loose lot of time.It becomes too late for the students to understand the recruitment process of the company. But due to lack of knowledge they finally loose good opportunity.Even though eligible and good skilled students are confused regarding recruitment process.Student doesn't know that what kind of subject matters and managerial skills they have to possess for any particular company.Students face lot of difficulties in clearing the written test which includes aptitude, reasoning, verbal and technical, as well how to face the interviewer during the recruitment hence some students lag in required skills. Thestudents also don't get enough time to prepare for the company specific training cum placement. These is the drawback of existing system.

IV.   PROPOSED SYSTEM

The student dataset containing academic and placement training assessment are a potential source for predicting the future placement chances. The variables assumingfor students performance plays amajor role in predictions. They are mentioned as follows.

1) **Checking eligibility criteria-**CGPA, Number of Arrears, History of Arrears, and 10th&12th grade.
2) **SME/Aptitude-**Subject matter expertise (Core, Quantitative, Reasoning, Verbal)
3) **Soft skill-** Leadership quality, Team work (Given scenarios)
4) **Hackathons/Certifications-** National/International (Number of Participation/Won)
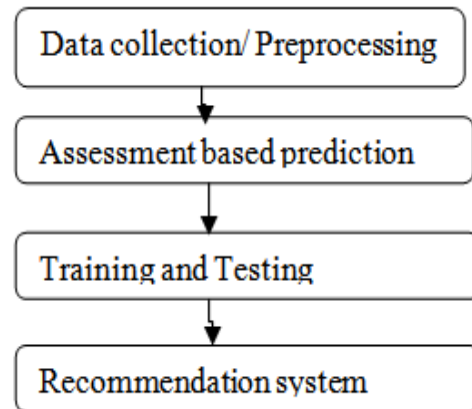

Figure 1: Block Diagram

In fig 1, the block diagram of recommendation system is given. In which the previously available dataset of the students are collected and processed using Data preprocessing tools. The Support vector machine algorithm is applied on the dataset. The ultimate goal of the SVM algorithm is to create the best line or decision boundary that can segregate n-dimensional space into classes so that we can easily put the new data point in the correct category in the future.Regression used for predictive modelling in machine learning, in which an algorithm is used to predict continuous outcomes.The recommender system predicts as following for respective parameters:

1) **Checking eligibility criteria-** If the students doesn't meet an eligibility criteria of a particular company the recommender system will suggest the company list which doesn't has percentage as an eligible criteria.
2) **SME/Aptitude-** Based on Assessment marks scored by students in each section, the recommender system suggest in which particular section the students need to improve their own competency to clear the recruitment process along with suggesting the similar companies which may recruit if they meet the suggested competency.
3) **Soft skill-** Behavioral test in that Scenario based question to be answered by students to check their Leadership quality, Team work, etc., the recommender system would suggest relevant answer to improve their skills in future.
4) **Certifications-** The system can suggest taking certification on required knowledge (IT relevant / core domain) to get through the recruitment process.
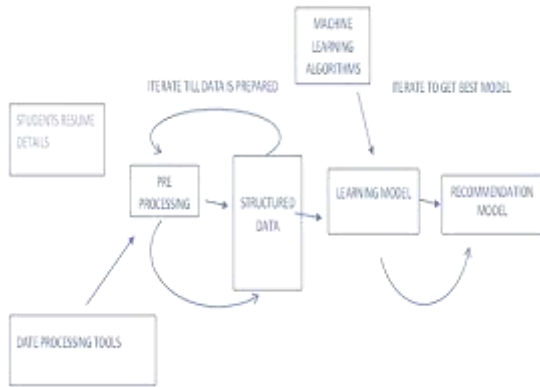
Figure 2: System Architecture

In fig 2, the recommendation system architecture was given. In that it takes previously available dataset as structured data by applying preprocessing tools. The structured data is given as a input to learning model. Machine learning algorithms are implemented in learning model to predict the competency of the students to get through their desired companies. This prediction can edify students to identify their capabilities and improve accordingly. It also helps in the academic planning of an institution to prepare proper strategies and improve the placement statistics for the future years.

V. IMPLEMENTATION

Figure 3: Admin login

The first module of the recommendation system is admin login to collect and store previously available students and company details in database. In fig 3, that was illustrated.

Figure 4: Assessment marks of students section wise

Followed by Admin login the Assessment marks as in fig 4, are entered section wise to predict in which the students need to improve their competency to enter into the desired companies.
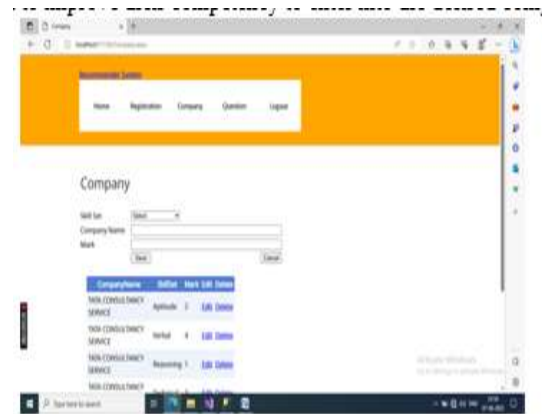

Figure 5: Skill set based on company

In our model we uses support vector machine algorithm for classification and regression the data's. It is used the recommendation system to learn mapping the pair of similar data's. Further implementations to be done for the recommendation system to recommend the students about their individual competency to match their profile with the desired companies.
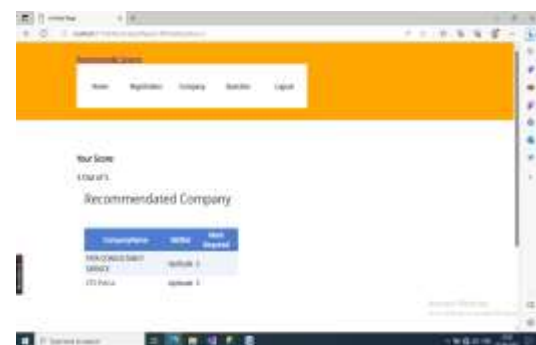

Figure 6: Recommended system recommends the students based on their result

VI.   CONCLUSION

The objective of the recommendation system is to predicts the students' performance in placement assessment with all perspective parameters. It can be tested using previous batch students placed details with existing parameters for successful prediction model. The system helps in improving the individuals' performance in respective field rather than of all fields by wasting more time. Hence it improves the placement result with high CTC placed students.From the analysis, it is understandable that methodology used in recommendation system is to improve the state of prediction technique in placement field.

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