



# Placement Prediction System using Decision Tree Algorithm

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**ABSTRACT:** The Institutions today face a challenge of placements. It is a complicated process to predict the placement of students manually. Educational institutions today strive to improvise the procedures and strategies that support decision making capabilities that improvise the students' placements. This can be addressed by making use of machine learning technique to predict the placement of the students. By make use of the previous data of the past students, this data is considered as the training data set and is used to train the model. The methodology used in this work is object-oriented approach as the project is built using python and Django. Decision tree algorithm is applied on Company's previous year student data and current requirement to generate results and data mining is used to compare the student data. The system will be mainly used by college placement departments and college students. The limitation of this system is that the system can't consider the overall placements of all the branches of the university and try to compile it with data of other universities; it can consider the data of one branch at a time. The system will predict the placement status of the student to one of the two categories or statuses, viz. Eligible and Not eligible in Placements. This will help in improvising the procedures and strategies that support decision making capabilities that improvise the students' placements. This also helps the placement cell of the organization to identify the weaker students and provide extra care towards them so that they improve their performance. Students in the final as well as pre-final years of B. E or B. Tech course can also make use of this system to know their placement status that they are likely to achieve.

**KEYWORDS:** Placement prediction, Decision Tree Algorithm

## I. INTRODUCTION

Placement competition is increasing in today's society. Particularly, more in the specialized field to contend and satisfy the objectives of the understudies in each foundation. Also, all the understudies in this general public are demonstrating enthusiasm to receive the different specialized fields. So every single institution should exercise at the underlying phase of understudy. Each organization ought to assess the understudy execution continually, recognizing the interests of understudies, that the organization so near arrive at their objective, to decide if they are in the correct way to arrive at their objectives and to reinforce the powerless zones to be fruitful. To know all these there ought to be a pre assessment before beginning their profession objective by means of understudy will go to organization position.

While in selecting process, the recruiters doesn't concentrate on just a single specific space information on the grounds that there are many kind of jobs like programming engineer, Technical help, Network Engineer, Business Analyst, Web Developer, Software Tester, Data Scientist, Database Administrator, etc. Along these lines, a recruiter breaks down and assesses each understudy in all zones, interests specifically space and afterward place the understudy in right job advantageous for students. Any recruiters doesn't take choice that this job is most appropriate for students.

## II. RELATED WORK

Ashok M, et.al [1] the authors suggest, information mining method is useful in forecast of the understudy's position. For the expectation, information has partitioned into the two sections; first fragment is the preparation portion which is notable information of passed out understudies. Another fragment comprises of current information of understudies, in view of the noteworthy information creator has planned the calculation for ascertaining the position possibilities. Creator has utilized the different information mining calculations. for example choice tree, Naive Bayes, neural system and the prosed calculation were applied, and choice are made with the assistance of disarray network.

According to Senthil Kumar et. al [2], by using machine learning the complex problem of prediction can be easily solved. Academic record of student is taken into consideration, various classification and data making algorithms are used such as Naïve Bayes, Decision Tree, SVM and Regressions. After the prediction of the students can be placed in of the given category that is Core Company, Dream Company or Support Services.



Animesh Giri et. al [3], the authors suggest, the position forecast framework predicts the likelihood of understudies getting set in different organizations by applying K-Nearest Neighbors grouping. The outcome acquired is likewise contrasted and the outcomes got from other AI models like Logistic Regression and SVM. The scholastic history of understudy alongside their ranges of abilities like programming aptitudes, relational abilities, investigative abilities and cooperation is viewed as which is tried by organizations during enlistment process. Information of past two clumps are taken for this framework.

### III. METHODOLOGY USED

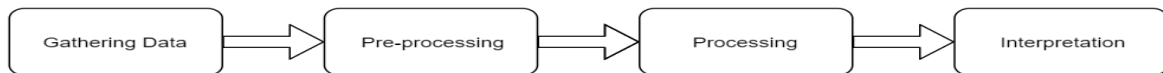


Figure 1: Basic Flow of the work

- **Data Gathering**

The sample data has been collected from college placement department which consists of all the records of previous year's students.

- **Pre Processing**

Information pre-processing is a procedure that is utilized to change over crude information into a clean dataset. The information is assembled from various sources is in crude configuration which isn't possible for the investigation.

In pre-handling stage there are 4 successful steps to be followed.

**1. Attribute selection** :Some of the attributes in the initial dataset that was not pertinent (relevant) to the experiment goal were ignored. The main attributes used for the system are credit , backlogs , whether placed or not, percentage of marks.

**2. Cleaning missing values:** The dataset contain missing characteristics .The ordinary plan to manage the issue is to require a mean of the extensive number of estimations of a comparative segment and have it to supersede the missing data. The library used for the task is called Scikit Learn pre-taking care of. It contains a class called Imputer which will help us with managing the missing data.

**3. Training and Test data:** Parting the Dataset into Training set and Test Set .Now the following stage is to part the dataset into two, Preparing set and a Test set. Machine Learning models will attempt to see any connections in preparing set and afterward test the models set to analyze how precisely it will foresee.

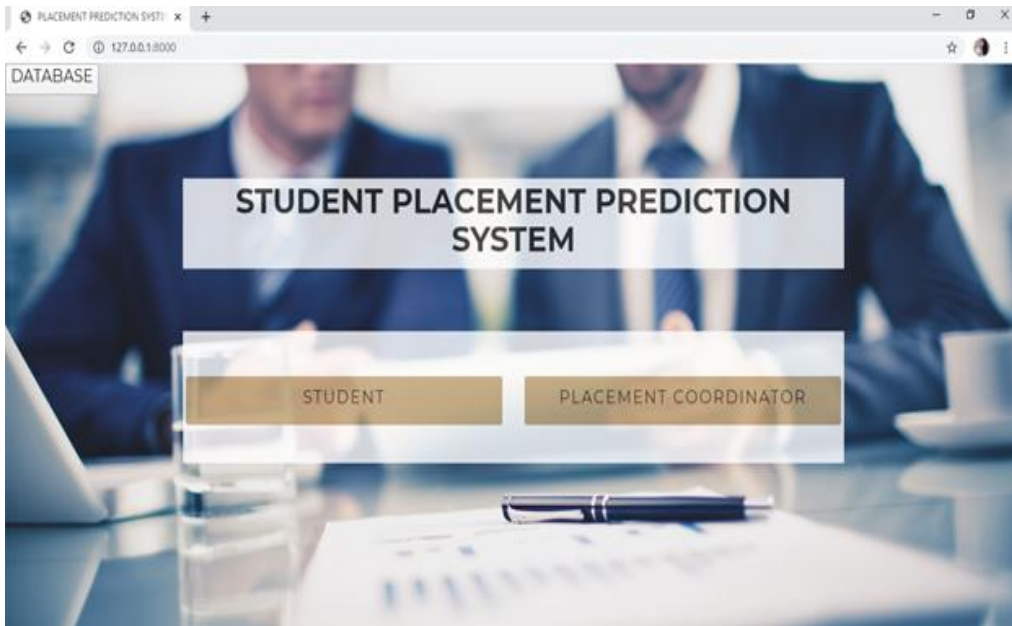
**4. Feature Scaling** The final step is feature scaling. It is a method used to standardize the range of independent variables or features of data.

- **Processing**

The Processing is applying different algorithms like decision tree to the data to find the best results.

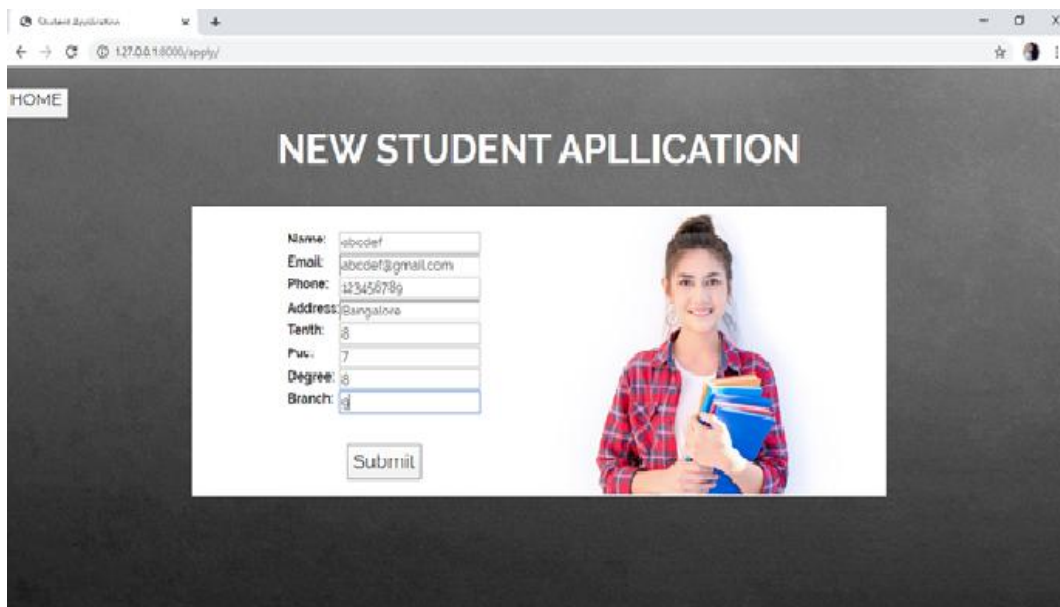


#### IV. EXPERIMENTAL RESULTS



**Figure 2: The Home page for Placement Prediction System**

The Figure 2 shows the home page of the system. There are two options called student and placement coordinator. By using the login credentials users can use the system. The student wants to do the registration then there is a option called student application.



**Figure 3: Student Application Page**

Figure 3 shows the student application form. This form contains the student name, email, phone no, address, branch and marks details. The user should enter all the required fields .After filling all the details the student can submit the application. If one field is empty the user cannot submit the application.

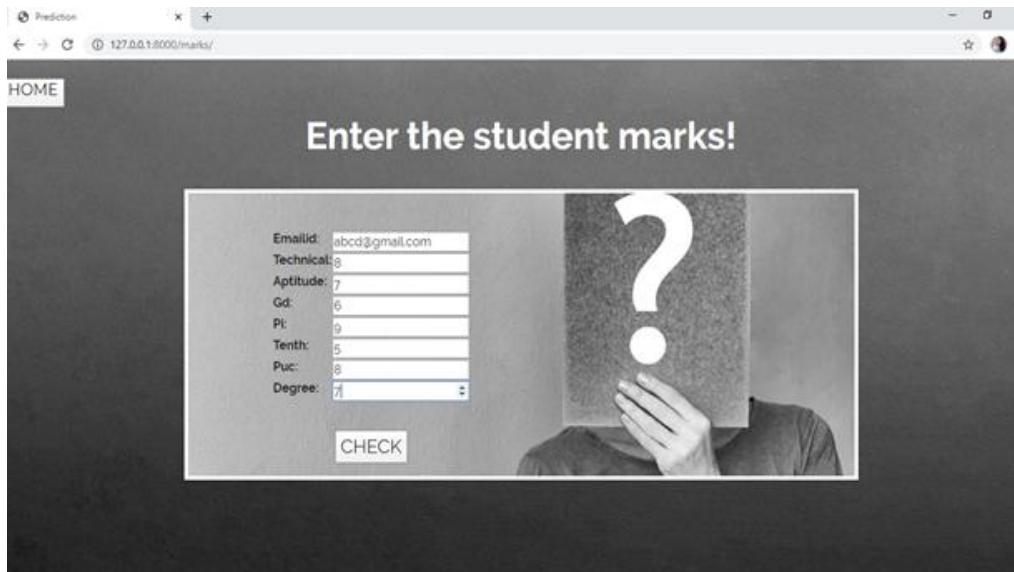


Figure 4 : Student marks details

Figure 4 shows the Student marks details form after the company test. Here admin will enter all the grades of the students which is obtained in placement process like Technical, Aptitude, Personal Interview, Group Discussion. After entering all the grades the system will predict the placement status of the student.

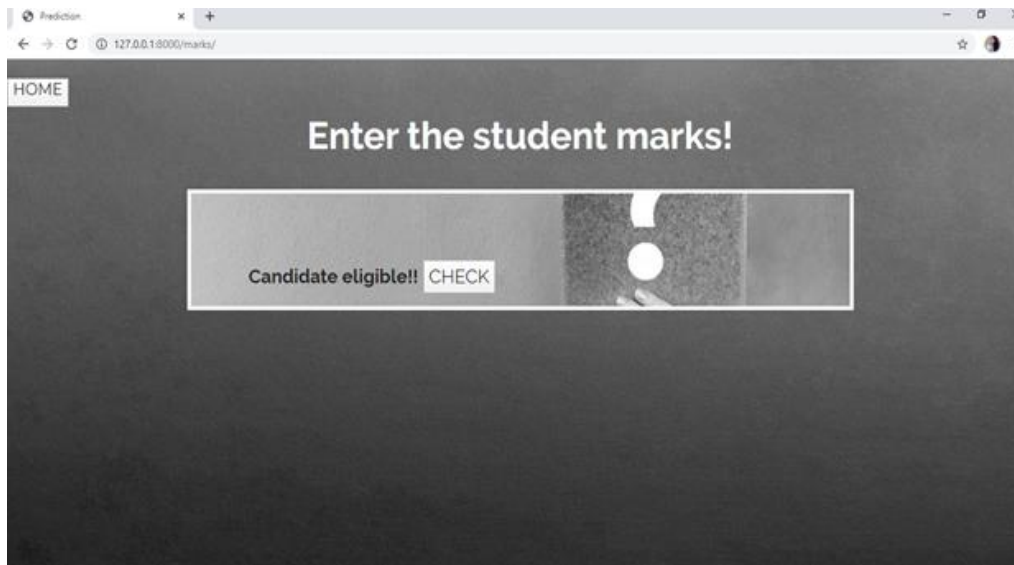


Figure 5 : Student placement prediction page

Figure 5 shows the prediction results after applying the decision tree algorithm. The previous year data will be compared with current student data and gives the placement chance for the company.

## V. CONCLUSION

The placement prediction system is helpful for institutions to predict student's campus placement. This framework would help decrease monotonous employment of manual arrangement framework. The situation official can take a shot at recognizing the shortcomings of every understudy and can propose enhancements with the goal that the understudies can defeat the shortcoming and perform as well as could be expected.



## VI. FUTURE ENHANCEMENT

In future, optimized algorithms can be used for better prediction and integrate online courses and services for students to improve their skill and knowledge. The system can also be used to predict the suitable courses for higher studies. The system can be improved by merging it with IOT (Internet of Things) through which the data will be collected by the IOT devices and the system can be automated instead of entering the data manually. The related work will have multiple possibilities if image processing is used in processing the images of the reports. This would also automate the process in one way. There are multiple ways in which the system can be upgraded and enhanced to support the automation.

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