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Student Placement Prediction System

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Abstract: The work is undertaken with an objective of making a student Placement prediction model using Machine Learning logistic regression algorithm. The student placement prediction system is an essential tool in placement process to assist students, counsellors, and employers. This study proposes a prediction model for student placement using logistic regression. The data used for this study comprises of students SSC, HSC, Degree percentage and also using work experience. This Machine learning tool is used to predict the student placed in the specific sector or not based on their performance of SSC, HSC, Degree and Test percentage. The Logistic regression model is used to train the dataset. The logistic regression algorithms predicts the placement of students more accurate than the other Machine Learning Algorithm like KNN, Random Forest, Decision Tree, etc. This research paper presents a comprehensive study on the application of the logistic regression algorithm for student placement prediction.

Key Words: Machine Learning, Logistic Regression, Prediction.

Introduction

The placement process for students is crucial for their career development and successful entry into the professional world. Colleges are always looking for ways to improve their placement systems and offer helpful advice to students. With the rise of machine learning algorithms, the field of student placement prediction has witnessed significant advancements. This research paper focuses on utilizing the logistic regression algorithm as a predictive tool to determine placements for students.

To Establish the Predictive Model the collected dataset will be trained using logistic regression algorithm. The model will learn the relationships between the input features and the binary outcome of student placed or student not placed.

Machine Learning is an area of research that allows computer systems to enhance their performance in particular tasks without requiring explicit programming. Instead, these systems are trained using datasets, allowing them to recognize patterns and relationships within the data. The knowledge gained from the training is then used to make predictions or take actions when presented with new information. It consists of various types.

The research paper will investigate how various factors influence student placement, such as academic performance (SSC, HSC, Degree, Test), and specific requirements of different industries related to the percentage. To assess the importance of each factor in determining successful student placements, the model's coefficients will be analysed, and statistical tests will be conducted. This analysis will provide insights into which factors have a greater impact on student's chances of securing placements.

Literature Review

Irene Treesa Jose et al, [1] This research paper focuses on the development of a placement predictor, which aims to evaluate the probability of a placed student based on the company's criteria. The prediction maker takes into account various parameters that assess the student's skill level, including some obtained from the university and others within the student placement prediction system. By integrating all the points, the predictor endeavors to accurate forecast whether a person will secure a placement in a company or not. The training of the predictor involves utilizing data from past students.

Shreyas Harinath et al, [2] The primary focus of this research paper is the application of machine learning methods for predicting the employment outcomes of students using textual data. The placement prediction is accomplished by employing the KNN, Algorithms, and Naive Bayes. These algorithms take into consideration various parameters, including the student's University Seat Number, USN, results from the Tenth grade and PUC/Diploma, CGPA, Cumulative Grade Point Average, as well as technical and aptitude skills.

Dr. Kajal Rai et al, [3] Weka, an open-source software used in data mining applications, implements a broad range of machine learning algorithms. For our experiments, we obtained the dataset from Kaggle, which was available in CSV format. The WEKA explorer was utilized to load this file. Through the classify panel, we employed classification and regression algorithms on the dataset, assessing the accuracy of the predictive model and visualizing any incorrect predictions or the model itself. The classification algorithms employed in this study were Naive Bayes, Decision Tree, and Random Forest. To evaluate the model's performance, we selected the 10-fold cross-validation approach under the "Test options" section. Since we lacked a separate evaluation dataset, this approach was necessary to obtain a reasonable estimation of the model's accuracy.

Mr. C K Srinivas et al, [4] The paper presents a designed model for predicting the likelihood of a student getting placed during a campus recruitment drive. This model functions as a valuable resource for both students and institutions, equipping them with the ability to proactively prepare for the recruitment process. Its main purpose is to evaluate students' abilities and forecast the likelihood of their successful placement. By utilizing this model, students and institutions can work towards improving the performance of potential candidates. The model considers multiple factors, including the student's academic history, such as percentage scores, as well as their proficiency in coding, verbal communication, technical skills, and aptitude. These factors are assessed by companies during their recruitment processes. Logistic regression algorithm is employed in this study, utilizing student data collected from the institution's previous year records. The model incorporates scores from secondary education, average scores from all technical education semesters, and additional parameters that contribute to kick-starting the students' career journeys.

Methodology

In this project various steps are involved to make the prediction system accurate and to implement the logistic regression model accurately.

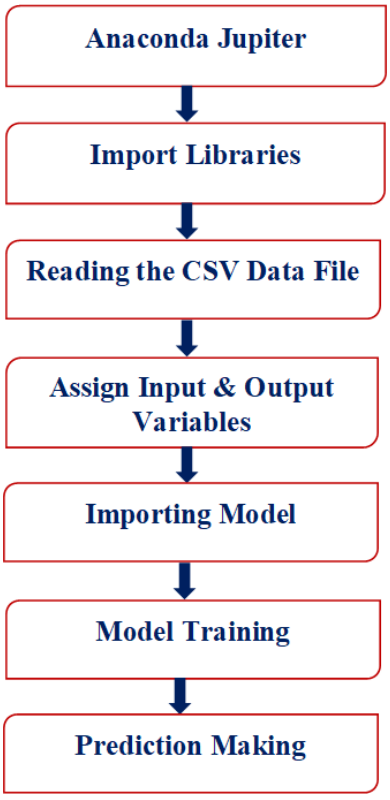
1. Data Collection: Gather relevant data that includes both the input features, independent variables, and the target variable, dependent variable, you want to predict. Ensure the dataset is properly labelled and covers a representative range of instances.

2. Data Pre-processing: Clean and pre-process the data to handle missing values, outliers, and inconsistencies. Perform tasks such as data normalization, feature scaling, and one-hot encoding for categorical variables.

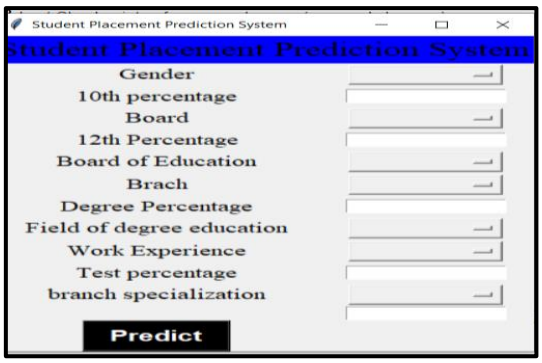
3. Splitting the Dataset: The dataset will be divided into separate training and testing sets. The training set will be utilized to train the logistic regression model, while the testing set will be employed to assess its performance.

4. Model Training: Fit the logistic regression model to the training data. The model will learn the relationships between the input features and the binary outcome of interest.

5. Model Deployment: Last stage of process where the model is ready and available for predictions



Results



Conclusion:

In this paper the presented system demonstrates the efficacy of logistic regression in enhancing the accuracy of student placement decisions. By considering multiple student attributes, the model provides a more comprehensive and data-driven approach to placement, resulting in better matches between students and academic programs. The system can assist educational institutions in optimizing their resources and ensuring students' academic success and satisfaction.

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