



PROJECT REPORT

MACHINE LEARNING  
  
MACHINE LEARNING MODEL

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# **PROJECT DETAILS**

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| **Project Name** | MACHINE LEARNING MODEL | | |
| **Project Sponsor** | TUSHAR TOPALE | | |
| **Project Manager** | HARSHADA TOPALE | | |
| **Start Date** | 02-08-2023 | **Completion Date** | 29-09-2023 |

# **SUMMARY**

The project was expected to deliver a predictive model. This model aims to determine both whether students will secure a placement and when they will graduate. The model can assist students in planning their academic journey more effectively. It enhanced placement success rates. Educational institutions can allocate resources more efficiently based on the predicted placement outcomes. For example, they can focus career counseling efforts on students who may face challenges in securing placements. Knowing when students are likely to graduate and secure placements can facilitate stronger alumni engagement. The model's predictions can serve as a valuable tool for decision-makers within the institution. As more data becomes available over time, the model can be continuously refined and improved. This can lead to even more accurate predictions and a more effective support system for students.

# **INTRODUCTION**

## Background

Our institution, is dedicated to providing high-quality education and ensuring that students are equipped for success both academically and professionally. Students may have trouble finishing their coursework on time if they don't receive timely information on their graduation status. To address this challenge, we are embarking on a project to develop a predictive model that leverages advanced machine learning techniques

## Stakeholders

1. Academic Institutions

* These are the educational institutions where the students are enrolled. They have a direct interest in ensuring accurate graduation predictions and successful placements for their students.
* They expect a reliable system that can provide accurate predictions to assist in academic planning and career counseling.

1. Students

* The primary beneficiaries of this system are the students themselves. They are interested in knowing when they will graduate and if they will secure a placement upon completion of their studies.
* Students expect a system that provides them with accurate and timely information about their academic progression and future prospects.

1. Employers

* Description: Employers play a crucial role in the placement process. They are interested in recruiting qualified candidates and rely on accurate placement forecasts to plan their hiring processes.
* Employers expect a reliable system that provides them with insights into the availability of potential candidates with the required skills and qualifications.

1. Project Team and Developers

* The team responsible for developing and implementing the predictive model and calculation system.
* They aim to create a robust system that meets the requirements and expectations of all stakeholders. They also expect to receive clear and timely feedback from the stakeholders.

## Objectives

The objective of the problem statement is to develop a predictive model for students' placement and a calculation for their year of graduation.

* This model aims to accurately forecast whether students will secure placement and when they will graduate.
* To accurately predict the year of graduation for students within a certain margin of error.
* To forecast whether students will secure placement after completing their education.
* To utilize essential features and historical data for both the year of graduation calculation and placement prediction.
* To train the machine learning system using datasets containing relevant information, such as college details, academic records, course progress, extracurricular activities.

# **METHODOLOGY**

## Considerations & Assumption

* Students will be able to forecast their graduation status and students should be able to understand the placement specific skills.
* The Model should be train in such a way so false prediction should not happen.
* The Accuracy Rate should be high for the model.
* Privacy and Ethics should be taken into consideration.

## Approach

1. Problem Definition and Scope Clarification:

* Clearly defining the problem statement and understanding the specific objectives and requirements. This helps in setting clear goals and expectations for the project.

1. Data Collection and Preprocessing:

* Gathering relevant data related to students' academic records, extracurricular activities, college details, and previous placement results. Preprocessing involves cleaning, transforming, and organizing the data for effective analysis.

1. Feature Selection and Engineering:

* Identifying the most relevant features (variables) that contribute to the prediction of placement and graduation year.

1. Model Selection and Development:

* Choosing appropriate machine learning algorithms (e.g., regression, classification)

1. Validation and Evaluation:

* Assessing the model's performance using validation techniques (e.g., cross-validation) and appropriate evaluation metrics (e.g., accuracy, mean squared error) to ensure it generalizes well to new data. My Mean Accuracy: 0.9044699872286079

## Activities

1. Requirement Gathering

* It involves in gathering all the data going through the data frame.
* Creating SRS Document.
* Creating Project Charter.

1. Planning

* It involves how the model should be build, identifying the problem statement and accordingly planning to build the model.
* Creating project schedule, RAID Logs and WBS.

1. Execution

* It involves in loading the dataset, cleaning and preprocessing data, handling missing data etc.
* Defining the model features and target variables
* Initialising and train the model.
* Testing the model manually and checking the prediction results.

1. Closure

* Creating a project report.

# **TARGETTED V/S ACHIEVED OUTPUT**

* Placement Prediction Accuracy (Target: 90%):
* The goal was to achieve a placement prediction accuracy of 90% using the developed model.
* Achieved: 90.45% This is very close to my targeted accuracy of 90%, which is a commendable result. It indicates that my predictive model is performing exceptionally well.

# **CONCLUSION**

* It provides personalized career guidance based on their academic performance and interests.
* Helps students understand their likelihood of securing a placement, allowing them to plan their academic journey accordingly.
* Provides insights into the expected graduation year, helping students plan their course load.
* Allows institutions to align their course offerings with industry demands, improving students' employability.
* Enables counselors to provide more informed advice on course selection, internships, and skill-building activities.
* Can receive notifications about graduating students who are likely to be seeking employment, streamlining the recruitment process.
* Ensures a pool of candidates who are well-prepared for the job market.
* The model could be expanded to suggest specific courses, workshops, or extracurricular activities tailored to each student's career aspirations and strengths.
* Integrating a system for recognizing and validating additional certifications or skills acquired by students during their academic journey. This can be a future scope.

# **APPENDICES**

## Appendix A – Title

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| Component | Description |
| Year of Graduation Calculation | * Calculate the year in which a student will graduate. * Utilize essential features and historical data (college name, academic year, branch of study). |
|  | * Utilize a dataset containing details about the students' college-related information. |
| Student Placement Prediction | * Predict whether a student will secure a placement and when it will happen. * Utilize essential features and historical data (academic records, course progress, extracurricular activities, previous placement results). |
|  | * Train a machine learning system using a dataset containing relevant student information. * Model's accuracy depends on learning patterns and correlations within the data. |