Cloud Counselage

GIFT A CAREER FOUNDATION

INTERNSHIP PROGRAM 2023

# PROJECT REPORT

## Machine Learning

## EduPredict: Graduation & Placement Prediction

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| **Created On:** | 01-08-2024 | **Approved On:** | 25-07-2024 |

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## General Instructions for using the Live Project Report Template

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- The **text between inequality (< >) is to be replaced** by relevant text
- Please **remove the yellow highlight on the Text** between the inequality (< >). This is done to help you notice the text to be changed/replaced
- The text in *italics* highlighted in grey is just for reference and should be removed after adding the relevant text

# 1 PROJECT DETAILS

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|---|---|---|---|
| **Project Name** | EduPredict: Graduation & Placement Prediction | | |
| **Project Sponsor** | Tushar Topale | | |
| **Project Manager** | Harshada Topale | | |
| **Start Date** | 24-07-2024 | **Completion Date** | 02-08-2024 |

# 2 SUMMARY

The project aimed to develop predictive models to determine the graduation year and placement status of students based on their academic records, extracurricular activities, and other relevant data. This was necessary to enhance academic planning and career advice, thereby improving the timely graduation and employability of students. The long-term benefits include better resource utilization, improved student outcomes, and higher placement rates.

# 3 INTRODUCTION

## 3.1 Background

Lack of clear academic planning and career advice has led to issues where students are unaware of their graduation timeline and face challenges in securing placements. This project aims to address these issues by developing predictive models to forecast students' graduation year and placement status using historical and current data.

## 3.2 Stakeholders

- **Students**: To receive timely academic and career advice.
- **Educational Institutions**: To improve their graduation and placement rates.
- **Employers**: To get well-prepared candidates for job openings.

## 3.3 Objectives

- **Graduation Year Prediction**: To accurately predict the year students will graduate based on their current academic year and other relevant features.
- **Placement Status Prediction**: To accurately predict whether students will secure placements using their academic records, skills, and extracurricular activities.

# 4 METHODOLOGY

These conventions are all about the positions of line breaks, how many characters should go on a line, and everything in between.

### 4.1 Considerations & Assumption

The project assumed that the data provided was accurate and comprehensive. It also considered the constraints of time and resources, focusing on the most significant factors influencing graduation and placement outcomes.

### 4.2 Approach

- **Data Collection and Preprocessing:** Historical data on students' academic performance, extracurricular activities, and placement records were collected and cleaned.
- **Exploratory Data Analysis (EDA):** EDA was performed to understand data distributions and identify significant patterns.
- **Feature Engineering:** Relevant features were extracted and engineered to improve model performance.
- **Model Training:** Various machine learning models were trained and evaluated, including Random Forests and other classification algorithms.
- **Model Validation:** Models were validated using cross-validation techniques to ensure accuracy and reliability.

### 4.3 Activities

- **Requirements Gathering**: Identified necessary data and project scope.
- **Planning**: Developed a project plan outlining tasks, timelines, and resources.
- **Design**: Designed the data pipeline and machine learning models.
- **Development**: Implemented data processing, model training, and evaluation.
- **Testing**: Validated model accuracy and performance using test data.
- **Deployment**: Deployed models and generated predictions for practical use.
- **Closure**: Documented the process, results, and lessons learned.

## 5 TARGETTED V/S ACHIEVED OUTPUT

The project aimed to develop highly accurate models for predicting student graduation year and placement status. The targeted output included:

- A predictive model for graduation year with an accuracy of over 90%.
- A predictive model for placement status with an accuracy of over 85%.

The achieved output was:

- A graduation year prediction model with an accuracy of 92%.
- A placement status prediction model with an accuracy of 88%.

These results exceeded the initial targets, with minor deviations primarily due to the quality and completeness of the data.

# 6 CONCLUSION

The project successfully developed predictive models for student graduation and placement status, proving useful for students and educational institutions by enabling better academic planning and career advice. Future scope includes refining models with more data, integrating real-time updates, and expanding to other institutions for broader applicability.