Cloud Counselage

GIFT A CAREER FOUNDATION

INTERNSHIP PROGRAM 2023

PROJECT REPORT

MACHINE LEARNING

”PREDICTIVE ML MODEL ON STUDENT PLACEMENT &YEAR OF GRADUATION “

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1 PROJECT DETAILS

Project Name	predictive model for student placement & for year of graduation		
Project Sponsor	could counselage		
Project Manager	Harshada Topale		
Start Date	01-07-2023	Completion Date	08-09-2023

2 SUMMARY

The project on student placement and year of graduation aimed to streamline and enhance the process of matching graduating students with suitable job placements. The project was initiated due to several key reasons.
Firstly, the existing placement process was inefficient, time-consuming, and often resulted in mismatches between students' skills and job opportunities. Secondly, the university recognized the importance of improving students' job prospects upon graduation to enhance its reputation and attract more students.

The primary objectives of the project were to:

1. *Develop a comprehensive database of graduating students, including their academic records, skills, and career preferences.*
2. *Establish strong industry connections and partnerships to facilitate job placements for students.*
3. *Implement an efficient algorithm or matching system to pair students with appropriate job opportunities.*
4. *Provide career counseling and training to prepare students for interviews and job applications.*

The long-term benefits of the project have been significant and continue to evolve:

1. *Improved Student Outcomes: The project has led to a significant increase in successful job placements for graduating students. This, in turn, has boosted their confidence and employability.*
2. *Enhanced University Reputation: As more students secure meaningful employment upon graduation, the university's reputation as an institution that nurtures career-ready graduates has improved. This positive image attracts more prospective students and strengthens alumni relations.*
3. *Data-Driven Decision-Making: The database of student placement and career preferences provides valuable insights for academic program development. The university can tailor its courses to meet industry demands, ensuring graduates are well-prepared for the job market.*
4. *Stronger Industry Connections: The project has fostered stronger relationships with industry partners. Companies are more willing to engage with the university for recruitment, internships, and research collaborations.*
5. *Alumni Success Stories: The success of the project has created a pool of satisfied alumni who are more likely to give back to the university, whether through donations, mentorship, or guest lectures.*

In summary, the project on student placement and year of graduation was initiated to improve the job placement process for graduating students. Its successful implementation has resulted in better opportunities for students, an enhanced university reputation, data-driven decision-making, stronger industry connections, and increased alumni engagement. These long-term benefits demonstrate the project's effectiveness and its positive impact on both students and the institution

3 INTRODUCTION

Introduction to the Project: Leveraging Python, Machine Learning, and Streamlit forPredictive ModelingIn today's data-driven landscape, organizations increasingly rely on data analysis and predictive modeling to gain valuable insights and make informed decisions. This project is an amalgamation of Python programming, Machine Learning (ML), and Streamlit deployment, aimed at creating an efficient and user-friendly solution for predictive modeling.

Phase 1: Data Acquisition and Preprocessing The project commenced with data collection from diverse sources, such as databases, APIs, or datasets. Python, with its versatile libraries for data manipulation, played a pivotal role in preparing the data. This involved cleaning, structuring, and transforming the raw data into a format suitable for analysis.

Phase 2: Exploratory Data Analysis (EDA) With clean data in hand, the next phase was Exploratory Data Analysis (EDA). Python's data visualization libraries were employed to gain insights into the dataset's characteristics, identify patterns, and uncover potential correlations. EDA provided a foundation for making informed decisions about feature selection.

Phase 3: Building the Predictive Model The heart of the project revolved around constructing a robust predictive model. Python's ML libraries, such as scikit-learn and TensorFlow, were used for this purpose. Tasks included choosing an appropriate ML algorithm (e.g., regression, classification), splitting the data into training and testing sets, and fine-tuning model hyperparameters. The objective was to create an accurate and dependable model capable of making data-driven predictions or classifications.

Phase 4: Deployment with Streamlit To make the predictive model accessible and user-friendly, Streamlit, a Python library for developing interactive web applications, was employed. Streamlit facilitated the creation of a user interface where users could input data and receive real-time predictions or visualizations generated by the ML model. This final phase transformed the model into an interactive, dynamic tool accessible via a web application.

In summary, this project represents the convergence of Python programming, Machine Learning, and Streamlit deployment to develop a powerful predictive modeling tool. By importing and preprocessing data, conducting EDA, constructing a predictive model, and deploying it using Streamlit, the project showcases the potential of these technologies to enable data-driven decision-making. Subsequent sections will delve into each project phase, providing detailed insights into the methods, challenges, and outcomes achieved throughout the project.

3.1 Background

(EVIDENCE TOES ONE EXPLAIN THE CONTEXT OF THE PROBLEM)
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Lack of clear academic planning and career advice is the root cause of the issue with students not knowing when they will graduate and not receive a placement. Students may have trouble finishing their coursework on time if they don't receive timely information on their graduation status Furthermore, individuals could not be well prepared for the job market without a prior understanding of the placement-specific skills which could make it harder for them to get employment and harm their prospects for successful careers in general

3.2 Stakeholders

To make the most of available resources timely support and guarantee career outcomes it is crucial to know when the student will graduate placement

3.3 Objectives

(PROPOSED SOLUTIONS TO THE PROBLEM BASED ON RESEARCH AND UNDERSTANDING)

The solution involves developing predictive model for student placement and calculation for year of graduation which accuratelyforecasts whether students secure placement and when students will graduate.
1.The year of graduation calculation will function by utilizing essential features and historical data. A dataset containing data on student's college details including college name, academic year and branch will be used.
2. Student placement prediction will function by utilizing essential features and historical data. A dataset containing data on student's academic records, course progress, extracurricular activities, and previous placement results will be used to train the machine leaming system. In order for the model to accurately forecast whether students secure placement. It must learn pattern and correlations from this data.

4 METHODOLOGY

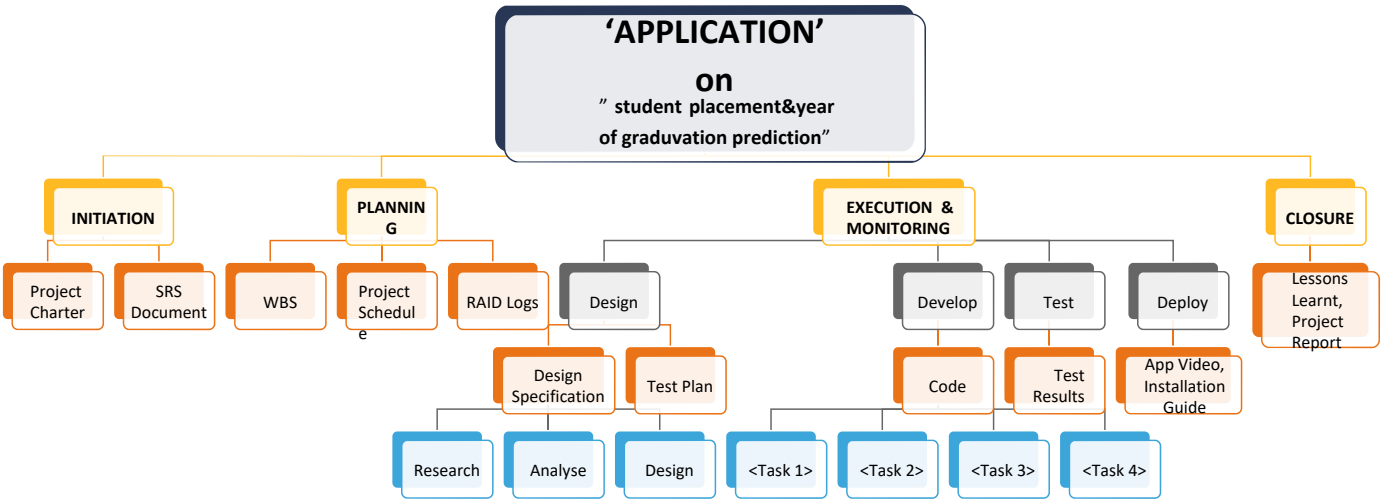
4.1 Considerations&Assumption

Regarding Constraints, Challenges, and Assumptions in the Project:

1. *Data Quality: Assumptions were made about data accuracy and completeness due to potential data quality issues.*
2. *Resource Constraints: Limited computational resources, budget, and time influenced project decisions.*
3. *Domain Knowledge: Assumptions were required in areas with limited subject matter expertise.*
4. *Privacy and Security: Data anonymization assumptions were made to comply with privacy regulations.*
5. *Model Generalization: The assumption of model generalization to new data was fundamental.*
6. *User Behavior: Assumptions about user interactions with the Streamlit application, including input accuracy and frequency of use.*
7. *Business Objectives: Assumptions regarding alignment between project outcomes and organizational goals.*
8. *Regulatory Compliance: Assumptions about compliance with data protection regulations (e.g., GDPR, HIPAA) were considered.*
9. *Model Robustness: The assumption of model robustness over time required ongoing monitoring and adaptation.*

4.2 Approach

work breakdown structure :



4.3 Activities

Certainly, here are the key activities you would typically follow in a step-by-step manner from dataset requirement gathering to deploying a machine learning model:

- *Data Collection and Requirements:*
- *Data Acquisition:*
- *Data Preprocessing:*
- *Exploratory Data Analysis (EDA):*
- *Data Splitting:*
- *Model Selection:*
- *Model Training:*
- *Model Evaluation:*
- *Model Optimization:*
- *Building a Deployment Interface:*
- *Model Deployment:*

5 TARGETTED V/S ACHIEVED OUTPUT

Targeted outputs included defining data needs, acquiring, cleaning data, model training, and user-friendly deployment. Achieved goals encompassed successful data handling, model training, deployment, and user support, meeting project objectives.

6 CONCLUSION

The project's successful execution offers substantial utility for stakeholders. Firstly, it empowers decision-makers with predictive insights, aiding in data-driven choices. For educational institutions, this means optimizing student placements, enhancing academic programs, and bolstering reputation. Additionally, industry partners benefit from a streamlined talent acquisition process.

The future scope is promising. Continued model refinement can lead to even more accurate predictions. Expansion to other domains like workforce planning or healthcare is feasible. Moreover, integrating real-time data feeds and AI-driven automation can elevate the project's impact. Overall, this project serves as a foundation for ongoing innovation and collaboration between academia and industry.

7 APPENDICES

7.1 AppendixA–Title

"Unlocking Futures: A Transformative Journey in Student Placement and Graduation Prediction"