Project Report: Career Path Prediction and Guidance System

Project Overview

Project Title

Career Path Prediction and Guidance System

Project Duration

July 1, 2024 – August 21, 2024

Project Team

- **Project Manager: [Your Name]**
- **Data Scientist: [Data Scientist's Name]**
- **Software Engineer: [Software Engineer's Name]**
- **Tester: [Tester's Name]**
- **Technical Writer: [Technical Writer's Name]**

Intern Information

- **Intern Name: Ashish Kumar Samantaray**
- **Intern No: IP 4590**
- **Designation: ML Intern**

Problem Statement

To maximize available resources and provide timely support for academic and career outcomes, it is crucial to predict when students will graduate and whether they will secure placement. The lack of clear academic planning and career advice has led to students being unaware of their graduation status and unprepared for the job market.

Objectives

The main objectives of the project are:

1. **Develop a predictive model for student placement.**
2. **Calculate the expected year of graduation.**
3. **Provide personalized career guidance based on students' skills and interests.**

Methodology

Data Collection

Data was collected from various sources, including:

- **Academic records**
- **Course progress data**
- **Extracurricular activities**

- **Previous placement results**

Data Cleaning and Preparation

Data was cleaned to handle missing values and remove duplicates using Pandas. Feature engineering was performed to create new variables that enhance model performance.

Model Development

1. **Graduation Year Prediction: Developed using Linear Regression.**
2. **Placement Prediction: Developed using Decision Trees.**
3. **Deep Learning Exploration: Explored TensorFlow for potential enhancements.**

System Development

The application was designed using Streamlit to provide an interactive user interface for students and career advisors.

Testing and Validation

Unit and integration testing were conducted to ensure the system's reliability and performance.

Project Schedule

Task	Start Date	End Date	Status
Project Initiation	July 1, 2024	July 5, 2024	Completed
Data Collection	July 6, 2024	July 12, 2024	Completed
Data Exploration	July 13, 2024	July 19, 2024	Completed
Model Development	July 20, 2024	August 2, 2024	Completed
Testing Phase	August 3, 2024	August 17, 2024	Completed
Deployment Preparation	August 18, 2024	August 20, 2024	Completed
Documentation	August 21, 2024	August 21, 2024	Completed

Key Findings

- **High-quality data is crucial for accurate predictions.**
- **An iterative approach to model development leads to improved performance.**
- **Engaging stakeholders early helps clarify requirements and align expectations.**

Lessons Learned

1. **Data Quality is Paramount: Invest time in data cleaning and validation.**
2. **Iterative Development is Effective: Regular testing and adjustments improve outcomes.**
3. **Collaboration Enhances Outcomes: Foster a collaborative environment for problem-solving.**
4. **Stakeholder Involvement is Key: Maintain regular communication with stakeholders.**
5. **Testing is Essential: Implement a robust testing strategy to identify issues early.**
6. **Documentation Facilitates Knowledge Transfer: Maintain clear documentation for future reference.**
7. **User Feedback is Crucial for Frontend Development: Involve users early in the design phase.**

Conclusion

The Career Path Prediction and Guidance System successfully meets its objectives by providing a data-driven approach to predict graduation years and placement outcomes. The insights gained from this project will inform future initiatives, enhancing the support provided to students in their academic and career journeys.

Future Recommendations

- **Continuously update the model with new data to improve accuracy.**
- **Expand the system to include additional features, such as job market trends and skill assessments.**
- **Gather user feedback post-deployment for ongoing improvements.**

This project report summarizes the key aspects of the Career Path Prediction and Guidance System, detailing the objectives, methodology, findings, and lessons learned throughout the project.