Sprint Plan Document: AI Models for Predicting Academic Outcomes

Project Overview

This document outlines the sprint plan for the project aimed at implementing AI models to analyze student data and predict academic outcomes. The plan is divided into six sprints, each with specific goals and tasks to ensure a structured approach.

Sprint 1: Data Collection & Preparation

Goal: Collect and clean student data.

Timeline: [25/8] - [1/9]

Tasks:

1. 1. Identify Data Sources:

- Responsible: Mohamed Raafat
- Description: Identify and gather relevant student data sources, including grades, attendance records, demographic information, etc.

2. 2. Data Cleaning & Preprocessing:

- Responsible: Ahamed Serag
- Description: Clean the data by handling missing values, normalizing data, and preparing it for analysis.

3. 3. Create Data Schema:

- Responsible: Menna Abdelhade and Marim Omar
- Description: Design a data schema and structure to ensure efficient storage and retrieval.

4. 4. Exploratory Data Analysis:

- Responsible: Fatma Mohamed and Rahma Mohamed
- Description: Conduct an initial exploratory analysis to understand data distributions and correlations.

Sprint 2: Model Selection & Development

Goal: Develop and train the AI models.

Timeline: [1/9] - [7/9]

Tasks:

5. 1. Define Target Outcomes:

- Responsible: Mohamed Raafat
- Description: Specify the academic outcomes to predict, such as grades, graduation likelihood, or dropout risk.

6. 2. Select AI/ML Algorithms:

- Responsible: Ahmed Serag
- Description: Choose appropriate machine learning algorithms for the prediction tasks.

7. 3. Data Splitting:

- Responsible: Fatma Mohamed
- Description: Divide the dataset into training, validation, and test sets.

8. 4. Model Training:

- Responsible: Mariom Omar
- Description: Train the selected models using the training data.

9. 5. Model Evaluation:

- Responsible: Menna Abdelhade
- Description: Assess model performance using the validation data.

Sprint 3: Model Optimization & Validation

Goal: Optimize and validate the AI models.

Timeline: [7/8] - [14/9]

Tasks:

10. 1. Hyperparameter Tuning:

- Responsible: Ahamed Serag
- Description: Optimize model hyperparameters to enhance performance.

11. 2. Cross-Validation:

- Responsible: Fatma Mohamed
- Description: Perform cross-validation to ensure model robustness.

12. 3. Model Comparison:

- Responsible: Mohamed Raafat
- Description: Compare the performance of different models and select the best one.

13. 4. Address Overfitting/Underfitting:

- Responsible: Menna Abdelhade and mariam Omar
- Description: Identify and resolve any issues related to overfitting or underfitting.
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Conclusion

This sprint plan is designed to guide the project team through the implementation of AI models to analyze student data and predict academic outcomes. By following this structured approach, the team aims to achieve a successful deployment and integration of AI-driven predictive analytics in an educational setting.