PROJECT SPECIFICATION

Machine Learning Capstone Project

Definition

CRITERIA	MEETS SPECIFICATIONS
Project Overview	Student provides a high-level overview of the project in layman's terms. Background information such as the problem domain, the project origin, and related data sets or input data is given.
Problem Statement	The problem which needs to be solved is clearly defined. A strategy for solving the problem, including discussion of the expected solution, has been made.
Metrics	Metrics used to measure the performance of a model or result are clearly defined. Metrics are justified based on the characteristics of the problem.

Analysis

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Data Exploration	If a dataset is present, features and calculated statistics relevant to the problem have been reported and discussed, along with a sampling of the data. In lieu of a dataset, a thorough description of the input space or input data has been made. Abnormalities or characteristics of the data or input that need to be addressed have been identified.
Exploratory Visualization	A visualization has been provided that summarizes or extracts a relevant characteristic or feature about the dataset or input data with thorough discussion. Visual cues are clearly defined.
Algorithms and Techniques	Algorithms and techniques used in the project are thoroughly discussed and properly justified based on the characteristics of the problem.
Benchmark	Student clearly defines a benchmark result or threshold for comparing performances of solutions obtained.

Methodology

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Data Preprocessing	All preprocessing steps have been clearly documented. Abnormalities or characteristics of the data or input that needed to be addressed have been corrected. If no data preprocessing is necessary, it has been clearly justified.

Implementation	The process for which metrics, algorithms, and techniques were implemented with the given datasets or input data has been thoroughly documented. Complications that occurred during the coding process are discussed.
Refinement	The process of improving upon the algorithms and techniques used is clearly documented. Both the initial and final solutions are reported, along with intermediate solutions, if necessary.

Results

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Model Evaluation and Validation	The final model's qualities—such as parameters—are evaluated in detail. Some type of analysis is used to validate the robustness of the model's solution.
Justification	The final results are compared to the benchmark result or threshold with some type of statistical analysis. Justification is made as to whether the final model and solution is significant enough to have adequately solved the problem.