Model Development Phase Template

Date	24 April 2024
Team ID	739855
Project Title	RESERVATION CANCELLATION PREDICTION
Maximum Marks	5 Marks

Model Selection Report

In the model selection report for future deep learning and computer vision projects, various architectures, such as CNNs or RNNs, will be evaluated. Factors such as performance, complexity, and computational requirements will be considered to determine the most suitable model for the task at hand.

A model selection report outlines the process of evaluating and choosing the most suitable machine learning model for a specific task, detailing criteria such as performance metrics, computational efficiency, interpretability, and suitability for the dataset's characteristics to justify the final model choice.

Model Selection Report:

Model	Description
Random Forest Classifier	A RandomForest classifier can be used for reservation cancellation prediction by leveraging its ability to handle large datasets and complex relationships between features. RandomForest is an ensemble learning method that constructs multiple decision trees during training and outputs the mode of the classes for classification tasks.It can handle numerical and categorical features, making it suitable for diverse datasets often found in reservation systems (e.g., booking date, lead time, room type, customer demographics). It can manage missing values effectively and is robust against overfitting, especially with a large number of trees.Provides insights into feature importance, helping to identify which factors most influence cancellations (e.g., lead time, booking changes, customer type).
Decision TreeClassifier	Decision Tree is a supervised learning algorithm used for both classification and regression tasks. It creates a model that predicts the value of a target variable by learning simple decision rules inferred from the data features. Decision Tree splits the dataset into subsets based on the most significant attribute at each node, optimizing for purity (e.g., Gini impurity or entropy). Each internal node represents a "decision" based on a feature, and each leaf node represents the outcome (class label) after following the decision path from the root.