Model Development Phase Template

Date	21 June 2024
Team ID	739812
Project Title	Eudaimonia Engine: Machine Learning Delving into Happiness Classification
Maximum Marks	6 Marks

Model Selection Report

In the forthcoming Model Selection Report, various models will be outlined, detailing their descriptions, hyperparameters, and performance metrics, including Accuracy or F1 Score. This comprehensive report will provide insights into the chosen models and their effectiveness.

Model	Description	Hyperparameters	Performance Metric (e.g., Accuracy, F1 Score)
Decision Tree Model	Simple tree structure; interpretable, captures non-linear relationships, suitable for determining happiness of the people in the city.	-	Accuracy score = 69%
Random Forest Model	Ensemble of decision trees; robust, handles complex relationships, reduces overfitting, and provides feature importance for Happiness prediction	-	Accuracy score = 55%
KNN	Classifies based on nearest neighbors; adapts well to data patterns, effective for predicting Happiness criteria	-	Accuracy score = 38%

SVC	• The SVC model refers to Support Vector Classifier. • Its strengths in handling non-linear classification tasks, maximizing margins, utilizing kernel tricks, and fine-tuning hyperparameters to build a robust happiness classification model that accurately predicts and differentiates levels of happiness based on the input features.	-	Accuracy Score= 38%
Logistic Regression Model	Logistic model can build a binary classification model that predicts happiness levels based on the input features, gain insights into feature importance, interpret model results easily, and potentially achieve good predictive accuracy while maintaining a level of interpretability and simplicity in the model.	-	Accuracy score = 38%