Model Development Phase Template

Date	9 July 2024
Team ID	team-739994
Project Title	Precise Coffee Quality Prediction
Maximum Marks	5 Marks

Feature Selection Report Template

In the forthcoming update, each feature will be accompanied by a brief description. Users will indicate whether it's selected or not, providing reasoning for their decision. This process will streamline decision-making and enhance transparency in feature selection.

Feature	Description	Selected (Yes/No)	Reasoning
ID	A unique identifier for each record in the dataset.	No	This is a unique identifier and does not provide any meaningful information for predicting coffee quality.
Number of Bags	The total number of bags in a given batch of coffee beans.	No	This attribute is more related to logistics and does not influence the sensory quality of the coffee.
Bag Weight	The weight of each bag, usually measured in kilograms or pounds.	No	Similar to 'Number of Bags', it relates to logistics rather than coffee quality characteristics.

Variety	The type or breed of coffee plant, such as Arabica, Robusta, etc.	No	While it provides information about the type of coffee plant, it's less directly related to sensory attributes that determine quality.
Processing Method	The method used to process the coffee beans post-harvest, e.g., washed, natural, honey.	No	Although it can affect quality, it is a categorical attribute that might complicate the model without providing direct sensory input.
Aroma	The fragrance or smell of the coffee, often evaluated on a scale.	Yes	A key sensory attribute that significantly contributes to the overall coffee quality
Flavor	The taste profile of the coffee, including notes like fruity, nutty, chocolatey, etc.	Yes	A crucial sensory attribute for determining the taste profile and overall quality
Aftertaste	The lingering taste left after drinking the coffee.	Yes	Provides insights into the lingering taste, impacting the perception of coffee quality.
Acidity	The bright and tangy quality of the coffee, contributing to its liveliness.	Yes	A major component of coffee's flavor profile, affecting its brightness and liveliness.

Body	The weight or thickness of the coffee on the palate, ranging from light to full.	Yes	Influences the mouthfeel of the coffee, an important sensory characteristic.
Balance	The overall harmony of the coffee's flavor, aroma, acidity, and body.	Yes	Represents the harmony of various sensory attributes, contributing to overall quality.
Uniformity	The consistency of the coffee's quality across different samples from the same batch.	Yes	Indicates consistency across samples, crucial for a reliable quality prediction.
Overall	A general rating of the coffee's quality by the grader.	No	Redundant attribute as it provides an aggregated quality score which we aim to predict using other sensory attributes.
Total Cup Points	The sum of scores for the various sensory attributes, giving an overall quality score.	No	This is the target variable that combines various sensory attributes into a single score.
Moisture Percentage	The moisture content of the coffee beans, expressed as a percentage	No	While important for storage and processing, it has less direct impact on sensory quality attributes.

Category One Defect	Serious defects in the beans that significantly impact quality (e.g., black beans, sour beans).	Yes	Critical defects significantly impacting the coffee's quality and sensory attributes.
Quakers	Underripe or unroasted beans that are considered defects and can affect the flavor profile.	Yes	Defective beans that directly affect flavor and overall quality.
Color	The color of the coffee beans, which can indicate quality and processing method.	Yes	Can indicate quality and processing method, providing useful information for quality assessment.
Category Two Defects	Minor defects that have a lesser impact on the overall quality (e.g., broken beans, insect damage).	Yes	Minor defects that still contribute to the overall quality assessment.