

Model Development Phase Template

Date	15 July 2024
Team ID	739713
Project Title	Beansense: Precision Bean Classification For Enhanced Agricultural And Culinary Applications
Maximum Marks	5 Marks

Feature Selection Report Template

For Precision Bean Classification, this report outlines the selected features crucial for accurate agricultural and culinary applications, ensuring optimal model performance and interpretability.

Feature	Description	Selected (Yes/No)	Reasoning
Area	Area of the bean	YES	Indicates size, important for both culinary and agricultural applications.
Perimeter	Perimeter of the bean	YES	Defines the boundary of the bean shape.
MajorAxisLength	Length of the major axis of the bean	YES	Provides key information about the shape and size of the bean.

Minor Axis Length	Length of the minor axis of the bean	YES	Complements MajorAxisLength in defining the shape of the bean.
Aspect Ration	Ratio of major axis length to minor axis length	YES	Describes elongation or compactness of the bean.
Eccentricity	Measure of how much the shape deviates from a perfect circle	YES	Indicates the elongation and irregularity of the bean shape.
Convex Area	Area of the smallest convex polygon that can contain the bean	NO	Not directly relevant for bean shape description in this context.
Equiv Diameter	Diameter of a circle with the same area as the bean	NO	Redundant with Area and Perimeter information.
Extent	Ratio of the area of the bean to the area of the bounding box	NO	Not critical for describing bean shape characteristics.
Solidity	Ratio of the area of the bean to its convex hull	NO	More relevant for shape analysis in other contexts.
roundness	Measure of how close the shape of the bean is to a circle	NO	Less relevant for non-spherical objects like beans.
Compactness	Measure of how compact the	NO	Focuses on compactness, less critical for bean shape.

	shape of the bean is		
ShapeFactor 1	Shape factor based on area and perimeter	NO	Specific to shape analysis, not directly useful for beans.
ShapeFactor 2	Shape factor based on area and compactness	NO	Similar to ShapeFactor1, less relevant for beans.
ShapeFactor3	Shape factor based on perimeter and compactness	NO	Provides additional shape characterization based on perimeter and compactness.
ShapeFactor4	Shape factor based on area and eccentricity	YES	Adds further shape description based on area and eccentricity.