Model Development Phase Template

Date	27 October 2024
Team ID	739652
Project Title	Ai-Powered Nutrition Analyzer For Fitness Enthusiasts
Maximum Marks	5 Marks

Model Selection Report

Deep learning using ImageGeneratorClassification is used for analyzing and classifying images of meals or food items to predict nutritional outcomes. This method leverages convolutional neural networks (CNNs) to extract features and classify images based on their nutritional content.

Model Selection Report:

Model	Description

Model 1	• **Feature Extraction**:
	
	  o **Convolutional Layers**: Used to extract spatial features from images representing different aspects of nutritional content (e.g., protein, carbs, fats).
	
	  o **Pooling Layers**: Reduce dimensionality while retaining essential features for classification.

- **Model Training**:

    - **Input Data**: Images of meals or ingredients.

    - **Classification**: The model is trained to classify images into categories such as balanced meals, low-calorie meals, or high-protein meals.

    - **Image Augmentation**: Techniques like rotation, scaling, and flipping enhance model performance by improving generalization to unseen data.

- **Prediction**:

    - The trained model predicts nutritional categories of images, offering insights into the nutritional composition of meals or ingredients.

Evaluation Metrics

- **Accuracy**: Measures the proportion of correctly classified images.

- **Precision**: Measures the proportion of true positive nutritional classifications among all classified categories.

- **Recall**: Measures the proportion of true positive nutritional classifications detected among all actual categories.

- **F1 Score**: Combines precision and recall to provide a balanced metric for evaluation.

F1 Score: The harmonic mean of precision and recall, providing a balance between the two