Model Development Phase Template

Date	4 July 2025
Team ID	SWTID1750170729
Project Title	Deepfruitveg: Automated Fruit And Veg Identification
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.

Model Selection Report:

Model	Description
Model 1	This model uses **EfficientNetB3** with an input size of **160×160** and is trained using a **DataFrame-based image loader** (flow_from_dataframe). It includes **basic augmentation** (flip, brightness, zoom), a lightweight dense layer with **L2 regularization**, and a dropout layer to reduce overfitting. The model is compiled with Adam optimizer (learning rate: 0.001) and trained for up to 20 epochs with early stopping and checkpointing. This version is optimized for **lower-resolution images and faster training** on smaller datasets.
Model 2	This model also uses **EfficientNetB3** but with a **larger input size of 300×300** and stronger augmentation (flip, rotation, zoom, shift, shear). It is trained using **directory-based loaders** (flow_from_directory) and incorporates **class weighting** to address class imbalance. The model

	includes a deeper dense layer (256 units), a larger dropout (0.4), and a much **smaller learning rate (1e-5)** for fine-tuning the pretrained base model. It is suited for **high-resolution input and better generalization** on complex or imbalanced datasets.