

## Model Development Phase Template

|               |  |
|---------------|--|
| Date          | 20 November 2025   |
| Team ID       | 740018   |
| Project Title | Deepfruitveg:Automated Fruit And Vegetables Identification |
| Maximum Marks | 10 Marks   |

### Initial Model Training Code, Model Validation and Evaluation Report

The initial model training code will be showcased in the future through a screenshot. The model validation and evaluation report will include a summary and training and validation performance metrics for multiple models, presented through respective screenshots.

```
# model training
model.fit(x=train_data,
          epochs=10,
          validation_data=val_data,
          validation_freq=1
        )
```

```
Epoch 1/10
190/190 — 149s 475ms/step - accuracy: 0.1320 - loss: 3.1434 - val_accuracy: 0.4080 - val_loss: 1.9802
Epoch 2/10
190/190 — 134s 435ms/step - accuracy: 0.4454 - loss: 1.8554 - val_accuracy: 0.5356 - val_loss: 1.5017
Epoch 3/10
190/190 — 146s 460ms/step - accuracy: 0.5941 - loss: 1.3114 - val_accuracy: 0.5861 - val_loss: 1.3509
Epoch 4/10
190/190 — 138s 437ms/step - accuracy: 0.6688 - loss: 1.0655 - val_accuracy: 0.6751 - val_loss: 1.1063
Epoch 5/10
190/190 — 142s 437ms/step - accuracy: 0.7279 - loss: 0.8683 - val_accuracy: 0.6647 - val_loss: 1.0964
Epoch 6/10
190/190 — 142s 438ms/step - accuracy: 0.7784 - loss: 0.7049 - val_accuracy: 0.6751 - val_loss: 1.0812
Epoch 7/10
190/190 — 148s 467ms/step - accuracy: 0.8082 - loss: 0.5601 - val_accuracy: 0.6944 - val_loss: 1.1582
Epoch 8/10
190/190 — 136s 435ms/step - accuracy: 0.8357 - loss: 0.4831 - val_accuracy: 0.6944 - val_loss: 1.1538
Epoch 9/10
190/190 — 142s 437ms/step - accuracy: 0.8605 - loss: 0.4281 - val_accuracy: 0.6677 - val_loss: 1.1791
Epoch 10/10
190/190 — 154s 503ms/step - accuracy: 0.8833 - loss: 0.3573 - val_accuracy: 0.6869 - val_loss: 1.2301

<keras.src.callbacks.history.History at 0x7fea2a9a6050>
```

### Initial Model Training Code (5 marks):

**Model Validation and Evaluation Report (5 marks):**

| <b>Model</b> | <b>Summary</b>                           | <b>Training and Validation Performance Metrics</b>   |
|--------------|--|--|
| Model 1      | Screenshot of the neural network summary | Screenshot of the training and validation performance metrics (output of the model.fit()). |
| Model 2      | Screenshot of the neural network summary | Screenshot of the training and validation performance metrics (output of the model.fit()). |
| ...          | ...                                      | ...  |