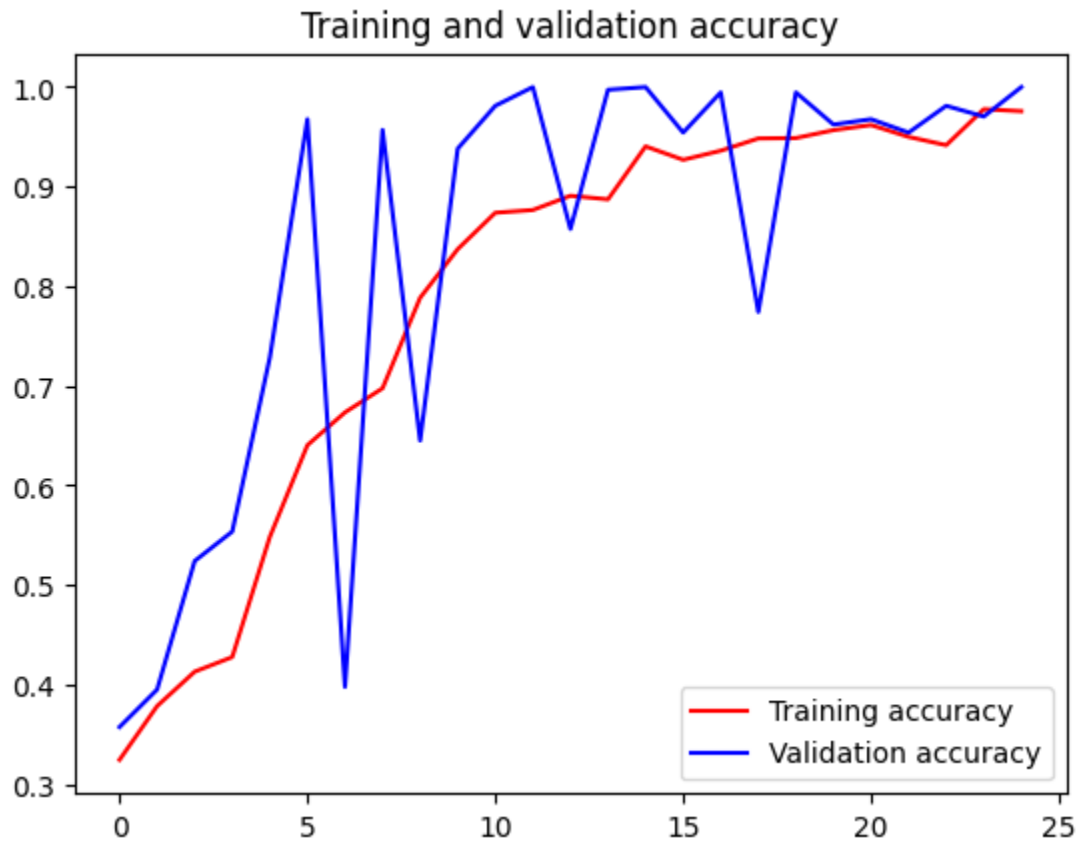
Name: Aadesh Sure

PART 1:

Part one has been implemented the way the tutorials have depicted. The codes are provided in the folder section name Part A.

Result image for part 4 (Rock Paper scissors):



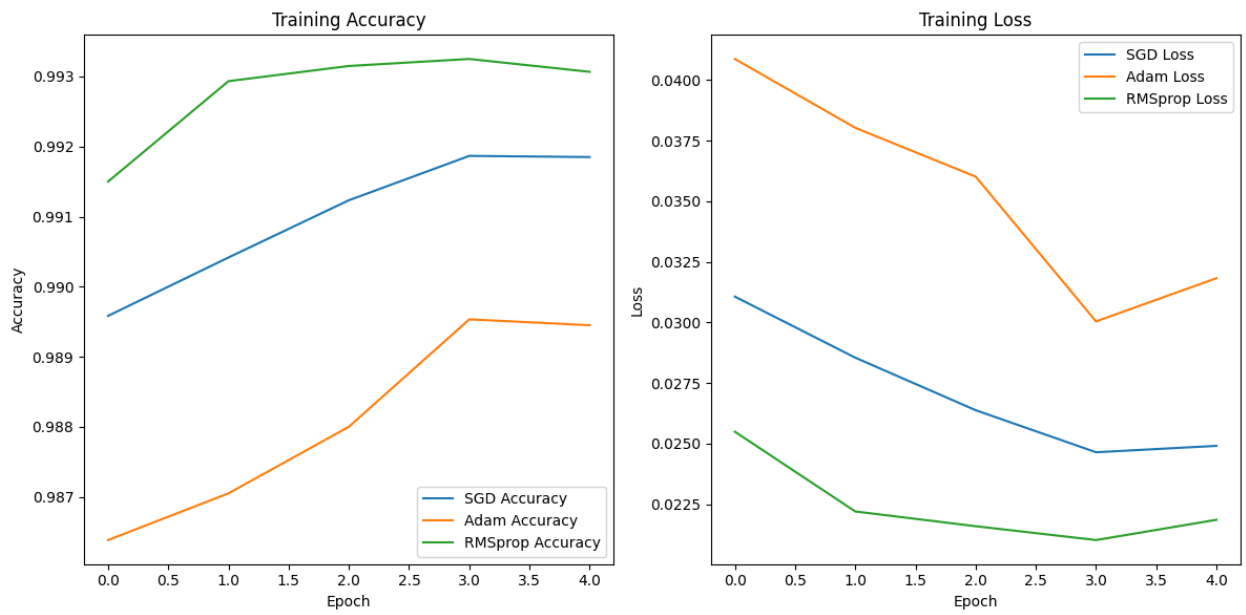
PART 2

A)

In the standard model as per the tutorial

We can observe that the Rmsprop optimizers gives the best results, followed by sgd and adam.

Results :



Optimizer: SGD
313/313 - 1s - loss: 0.0980 - accuracy: 0.9817 - 644ms/epoch - 2ms/step
Test accuracy: 0.9817000031471252

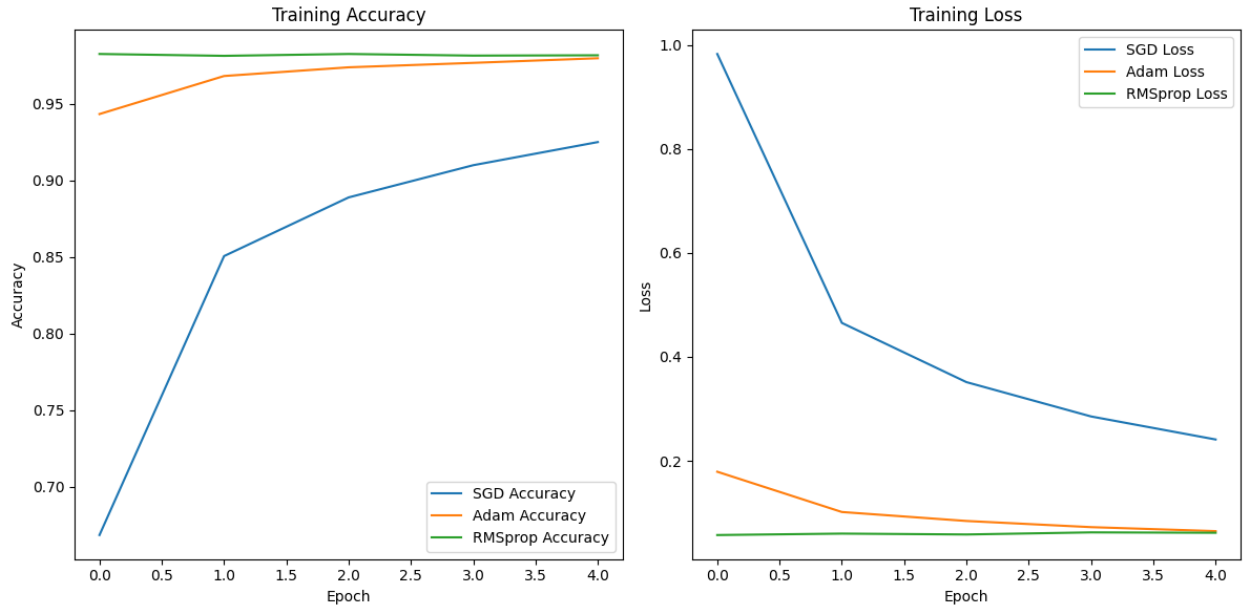
Optimizer: Adam
313/313 - 1s - loss: 0.0980 - accuracy: 0.9817 - 523ms/epoch - 2ms/step
Test accuracy: 0.9817000031471252

Optimizer: RMSprop
313/313 - 1s - loss: 0.0980 - accuracy: 0.9817 - 526ms/epoch - 2ms/step
Test accuracy: 0.9817000031471252

B)

In my custom model

We can observe that the Rmsprop optimizers gives the best results, followed by adam and sgd.



Optimizer: SGD
313/313 - 3s - loss: 0.0346 - accuracy: 0.9890 - 3s/epoch - 9ms/step
Test accuracy: 0.9890000224113464

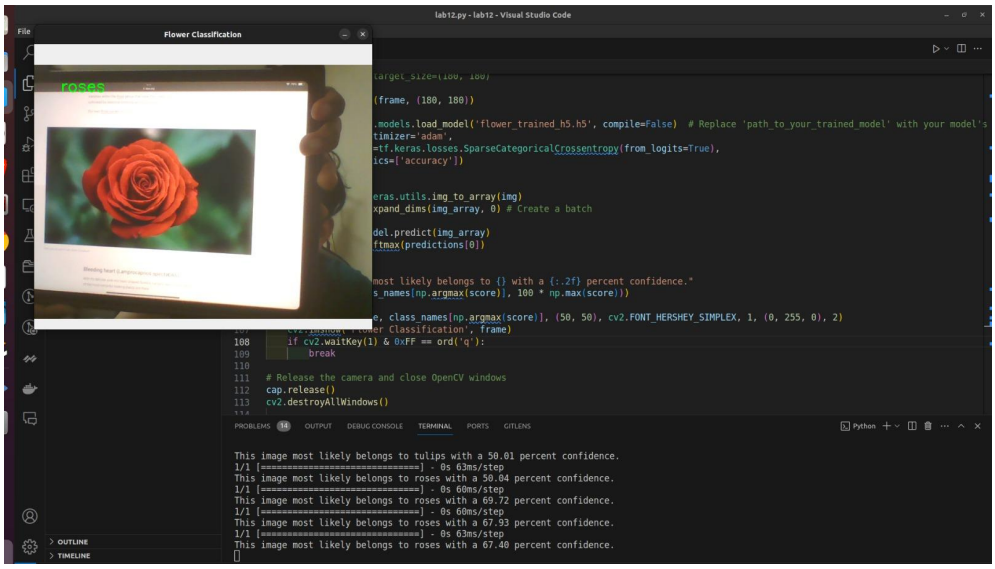
Optimizer: Adam
313/313 - 4s - loss: 0.0346 - accuracy: 0.9890 - 4s/epoch - 11ms/step
Test accuracy: 0.9890000224113464

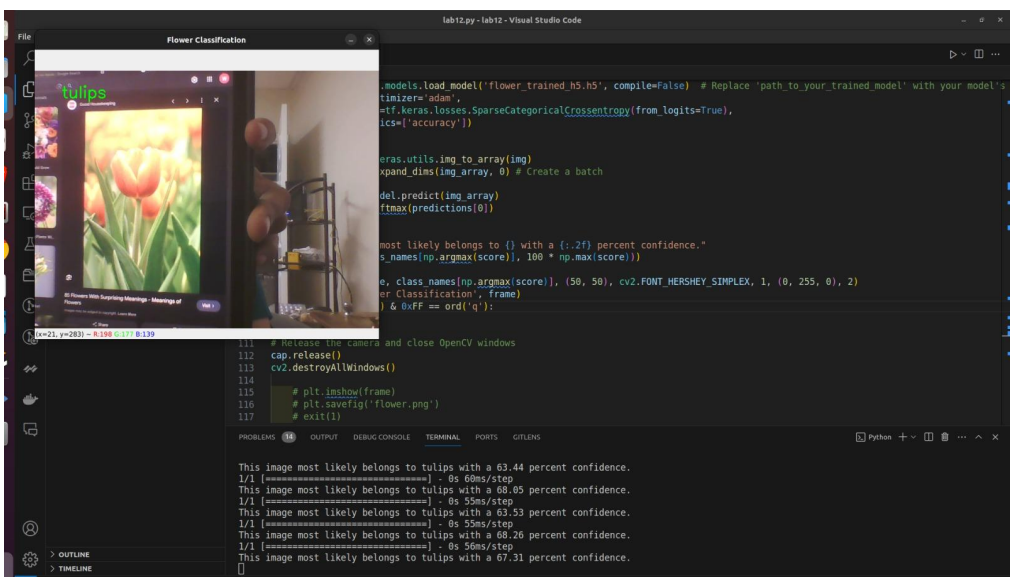
Optimizer: RMSprop
313/313 - 3s - loss: 0.0346 - accuracy: 0.9890 - 3s/epoch - 9ms/step
Test accuracy: 0.9890000224113464

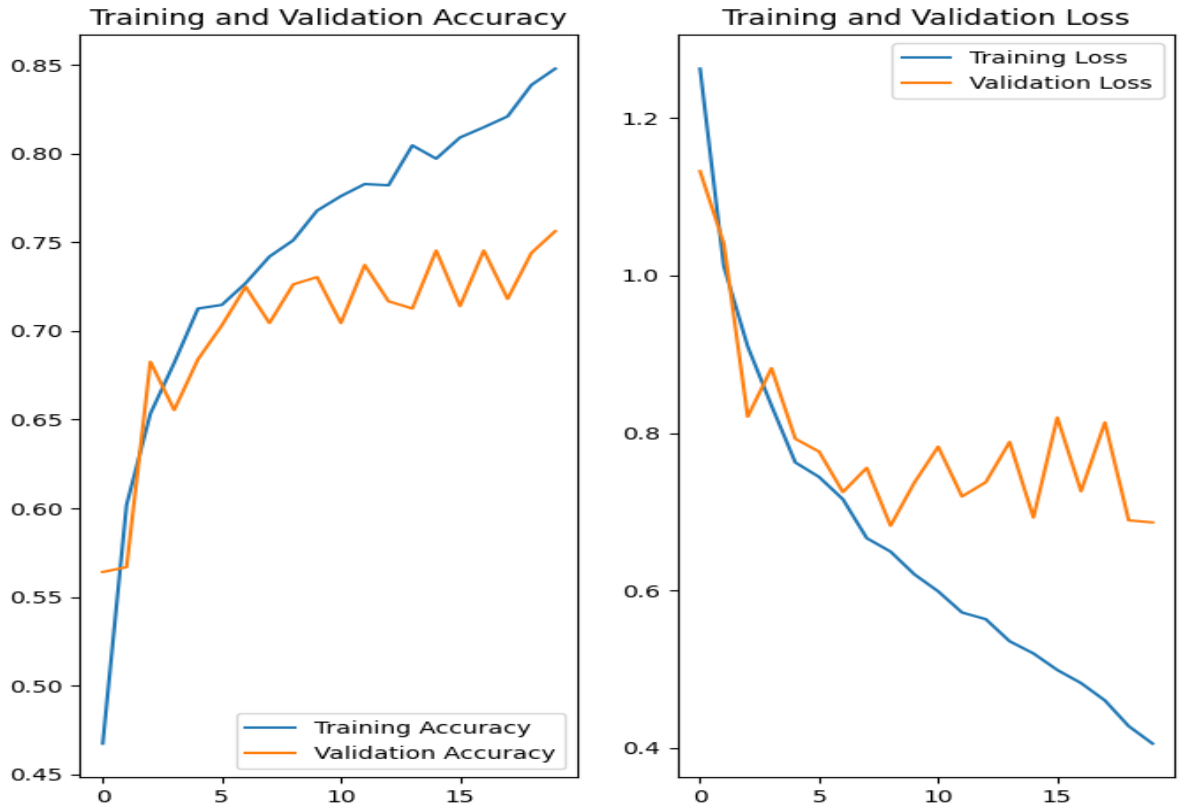
FOR PART C:

I trained the model for 20 epochs on google colab and then loaded the weights and ran on the video recording scripts.

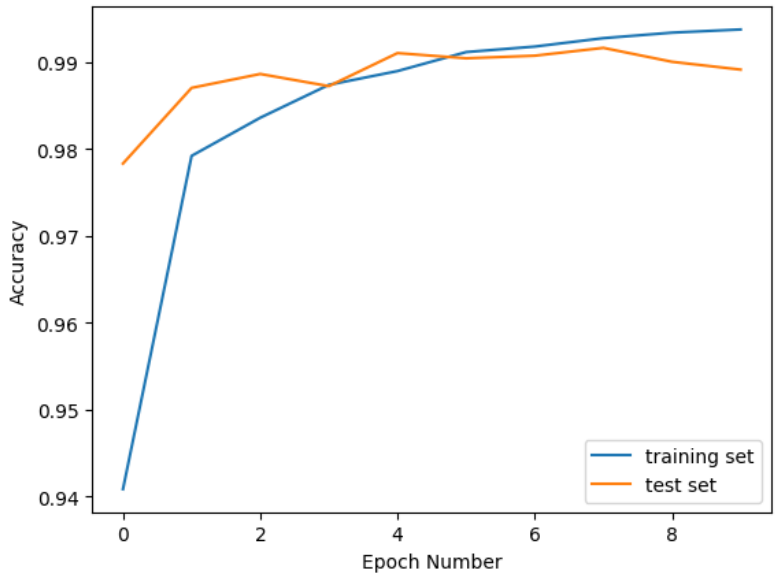
Here are some snippets:

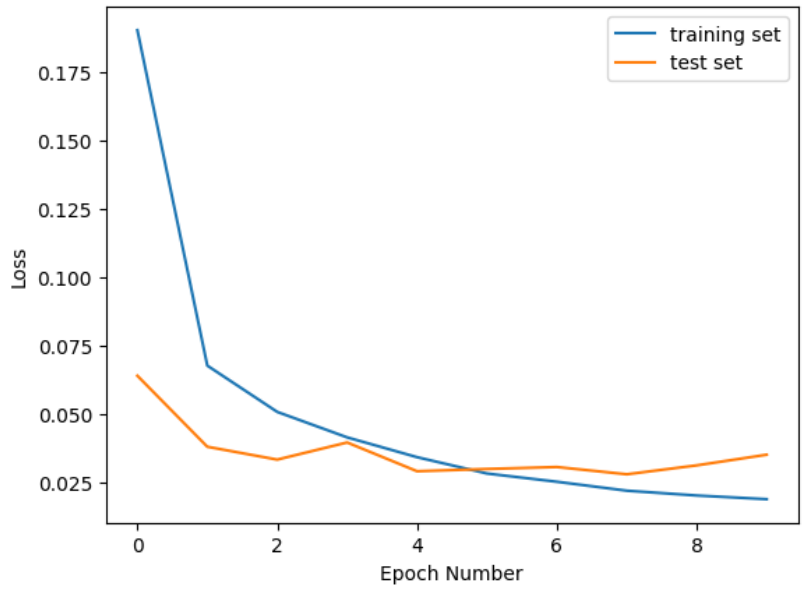





Training and Validation Accuracy
0.85
0.80
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0
5
10
15
Training Accuracy
Validation Accuracy
Training and Validation Loss
1.2
1.0
0.8
0.6
0.4
0
5
10
15
Training Loss
Validation Loss

BONUS:


0.99
0.98
0.97
0.96
0.95
0.94
Accuracy
0
2
4
6
8
Epoch Number
training set
test set


0.175
0.150
0.125
0.100
0.075
0.050
0.025
Loss
0
2
4
6
8
Epoch Number
training set
test set