**Sudarshan Paul (1945581)**

**Assignment – 4**

**1. Do you get the same results if you run the Notebook multiple times without changing**

**any parameters?**

Ans. The results are almost similar however the evaluation metrics (like accuracy) differ by a slight margin, this is due to the random initialization of weights at the beginning of model training. The prediction accuracy in real time shows similar outcomes.

**2. What is the effect of adding more neurons to each Conv2D layer?**

Ans. The effect of adding more neurons to each Conv2D layer is that the model has more number of parameters to learn and train. The time taken to train the model increases along with the overall complexity of the model which also increases. The performance of the model may or may not show improvement based on the dataset.

**3. What happens if we manipulate the value of dropout?**

Ans. A greater value of drop out provides a strong regularizing effect on the model which might over simplify the model as it disconnects more number of neurons in each pass. However a lower drop out rate would mean the model learning curve stays the same and has nil or very minimal effect on preventing overfitting (less regularization effect).

**4.What is the effect of adding more activation layers to the network?**

Ans. Adding more activation layers increases the total learnable parameters for the model. The model may or may not improve its performance based upon the dataset and the problem statement. However, increasing the training layers beyond a certain limit will have an adverse effect on the test set metric due to overfitting.

**5. What is the purpose of the MaxPooling2D layer?**

Ans. The MaxPooling2D layer helps to reduce the dimensionality of the image by considering only the most contrasting features of an image and discarding the rest during training process thus helping to reduce the computational load.