1. Do you get the same results if you run the Notebook multiple times without changing any parameters?

Answer: No, we won’t get the exact same result even without changing any parameters because within the framework itself there is randomization and the kernel initialization is also randomized. To prevent this a “seed” can be set so as to reproduce the same results.

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

Answer: Generally, adding more neurons to the Conv2D layers will improve the accuracy of the AI model as the model we will be able to extract more features but after a certain threshold the accuracy will deteriorate as model will overfit on the training data.

1. What happens if we manipulate the value of Dropout?

Answer: Dropout is added to the model layers as a regularization technique, to prevent overfitting, but if the dropout value is exceeding a threshold, then the model will start to underfit and the accuracy will deteriorate.

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

Answer: The main purpose of adding activation layer is to introduce non-linearity to the network. That means the activation layers helps in “how” the network weights get updated.

As such there is no empirical evidence that adding more activation layers will result in better accuracy.

1. What is the accuracy score if we use more Dense layer in the model?

Answer: Generally, adding more Dense layer will increase the parameters in the model and thus leads to better accuracy. At the same time this can also lead to overfitting as well as the model starts to learn “less significant features” more and thus overfits.

1. Does manipulating the learning rate affect the model? Justify your answer.

Answer: Yes, manipulating the learning rate will affect the model. Generally, the model with high learning rate will underfit as the model will get stuck in some indefinite loop (divergent behaviour) without reaching the global minima, and model with low learning rate will tend to overfit because due to the extremely slow weights updates and high chances of getting stuck in local minima.