CNN Q&A

### Question 1

Analyze your results from experiment 1.1. In particular,

1. Explain the effect of depth on the accuracy. What depth produces the best results and why do you think that's the case?

1. Were there values of `L` for which the network wasn't trainable? what causes this? Suggest two things which may be done to resolve it at least partially.

**\*\*ANSWER\*\***:

1. The optimal depth is four layers. From the graph, we can infer that as we add layers, the accuracy increases, until we increase the depth too much. Thus, there is a lot of maxPooling layers, which results in inputs that are too small for learning.

2. The network wasn't trainable for L - 8,16. This is because with this depth, with the same *\*every\_pooling\** value, there are a lot of maximum pool layers, decreasing the input size too much.

Suggestions for partially resolve:

\* **\*\*Limit the max pool layers\*\*** - Max pool layers can be limited. Limits will be calculated based on the input size - for example, allow pooling until the size is 1/8 (h,w) of the original, we'll do it by increase the gap between max pool layers based on **\*\*L\*\***.

\* **\*\*decrease the stride\*\*** to get larger output size

### Question 2

Analyze your results from experiment 1.2. In particular, compare to the results of experiment 1.1. For a spesific value of L, how the preformance change with respect to K? Does we saw the same phenomena in 1.1 for a spresific value of K?

**\*\*ANSWER\*\***:

As is observed in Experiment 1.1, we see the same phenomenon with L = 8. With a large number of max pooling layers, the network is unable to learn, and the K values have little significance.

Lower values of K (32,64) produced better results, while higher values of K (128,256) produced worse results for L = 2.

We see opposite results for L = 4, higher values of K (128,256) produce better results, while lower values (32,64) produce the worst results.

We can see that the effect of changing K values is less significant than changing L values