Christopher Chen
https://github.com/compscichris/CSCI611_Summer25_Chris_Chen

Part 1

I was able to successfully generate kernels to apply to the image, used some of the slides as referenced, and verified them online to create the challenge filtered images. I used the vertical edge, horizontal edge, bottom left, bottom right, top left, top right filters. One thing that was interesting to me was that the corner filters had more prominent and sharper images than the edge filters.

Part 2

It took me a while to be able to understand this assignment, as the math and the functions where a little difficult. However, I was able to create the CNN successfully (I think). The first result, I ignored using dropout, and stuck to SDG, which yielded an average of 54% accuracy, vs second result with Adam, which yielded 47% accuracy.

```
# specify optimizer
optimizer = optim.SGD(model.parameters(), lr=0.01)
#optimizer2 = optim.Adam(model.parameters(), lr=0.01)
```

Then I enabled dropout to see other results.
Dropout enabled SDG with same params = 49%
Dropout enabled Adam with same params = 42%

Then, I changed parameters to a lower learning rate.
Dropout enabled SDG with new params = 26%
Dropout enabled Adam with new params = 56%

```
optimizer = optim.SGD(model.parameters(), lr=0.001)
optimizer = optim.Adam(model.parameters(), lr=0.001)
```

I am writing this a few minutes before submission, as I found the lab difficult and ran out of time to do extensive testing. I was unable to get it to a 70% success rate overall, but I believe that the pattern is smaller learning rate = better success accuracy, and dropout can affect the accuracy as well. I will submit an update report on github, but this is all I believe I can do for now.