**Final report**

Github link: https://github.com/GeeBcodes/AI-Image-Processing-Classification

Starting out on this project things were going well. I was able to successfully run the basic\_classifier.py file an returned the following results for both the basic cat image as well as an image I found of a squirrel(test1.jpg).

Top-3 Predictions(Basic\_Cat.jpj):

1: tiger\_cat (0.35)

2: tabby (0.34)

3: Egyptian\_cat (0.07)

Top-3 Predictions(test1.jpg):

1: red\_wolf (0.13)

2: red\_fox (0.10)

3: Irish\_terrier (0.10)

Once I moved onto the Implement Grad-CAM and Image Occlusion steps, that’s where I ran into issue running the program successfully. I did attempt to modify the program based on suggestions from AI. I also attempted to work through errors. However, I was not able to get the program to run successfully in time before submission. At this point I cannot record my observations on the effectiveness of occlusion and use of Grad-CAM. I plan to continue working on this project to learn what was intended even after grading.

With that said, I was able to successfully run the basic\_filter program as well as implement a modified version with 3 different filters suggested by AI and an additional filter of my own.

**Update:**

Continuing to work on this assignment, I was able to successfully implement Grad-CAM and Image Occlusions. I have tested an additional three images and have recorded the top-3 predictions below. My Observation on Grad-CAM implementation is that the classifier seems to focus on the center of the image and sometimes seemingly on the eyes. However, I noticed with test1.jpg the Grad-CAM didn’t focus much on the animal. In this test, much of the focus was just above the animal. That area has a lot of contrast so maybe that’s what caught the focus of the Grad-CAM.

As it pertains to occlusion, I will continue working on my implementation to provide a more accurate feedback of their effectiveness with Grad-CAM.

Top-3 Predictions(test2.jpg):

1: black\_grouse (0.19)

2: hen (0.09)

3: cock (0.04)

Top-3 Predictions(test3.jpg):

1: koala (0.87)

2: fox\_squirrel (0.02)

3: wombat (0.01)

Top-3 Predictions(test4.jpg):

1: sorrel (0.11)

2: Saluki (0.10)

3: Arabian\_camel (0.06)

Side Note: I need to work on the way WSL accesses my file system. Currently its cause very slow performance on my machine that makes it very time-consuming to run the code and make updates as necessary.