Homework 2 Due May 14th 11:59 PM

Submit Assignment

Due Thursday by 11:59pm **Points** 15 **Submitting** a file upload
Available May 7 at 4pm - May 14 at 11:59pm 7 days

Instructions: Have all the code for all the questions in one Jupyter notebook and upload the file at the time of submission. I will only consider this file format for grading.
So, after you uploaded the file, check the file extension and if it is not an ipynb, then upload the right file.
Way to present:
\# Solution 1 to indicate solution to question 1. Please submit original work.

For show work questions, workout the problem in our notebook, then take pictures using your phone. Upload the pictures into your Jupyter notebook by selecting the cell to be Markdown. Or, you can use Latex to represent mathematical equations in Markdown cells.

Images can be inserted by using the following command in the cell

<img src="filename.jpg" width=400, height=300>

you can have the image as a png or a jpg.

Question 1:

Download a chest x-ray image from **https://radiopaedia.org/cases/normal-chest-x-ray (https://radiopaedia.org/cases/normal-chest-x-ray)** and save it to your course folder. Use the image for the following: a) Add Gaussian filter to the image. b) Apply mean filter to the output image from part 2. c) Apply median filter to the output image from part 2.

Use subplots to plot the input image for each part along with its output.

Question 2: If there are 10 students in a class and all of the students can be in one photo, then answer the following first by showing work and then by using Scipy: a) How many photos do you have to take if the order in which the students are arranged is important? b) How many photos do you have to take if the order is not important?

Question 3: Answer the following questions: a) If you are tossing a fair coin five times, then what is the probability of getting heads 3 times? b) If you are rolling a six sided dice twice and add the outcomes on the dice then what is the probability of getting a sum 5 or sum 8?