

Assignment: Associate Software Development Engineer Python

Problem Statement 1: Numpy

- Write python code to create the smallest bounding rectangle of all non zero values in a numpy array
 - Consider a 2D numpy array which is filled with zeros
 - Few random cells have non zero values
 - Find the coordinates(x,y,height,width) of the smallest rectangle that contains all non zero values
- Deliverables
 - Code in Python

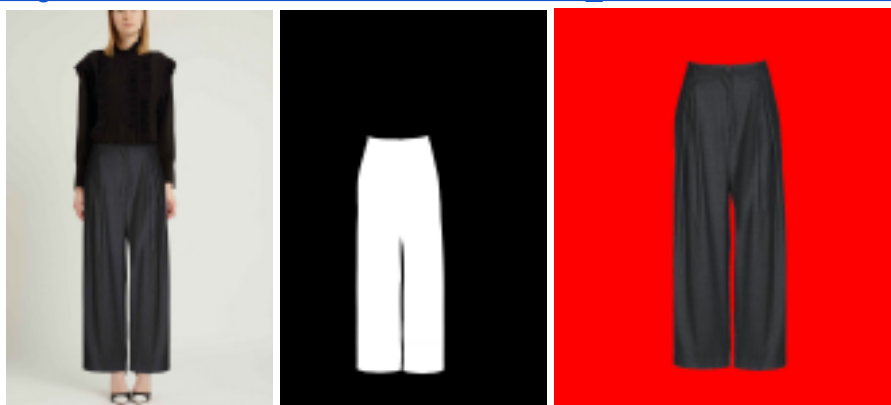
Problem Statement 2: MultiThreading

- Write a python code to do the following:
 - It should be able to launch 3 different thread
 - Each thread should print this every 5 second:
 - Thread <thread number> is running at <time elapsed>
 - E.g.
 - "Thread 2 is running at 0"
 - "Thread 2 is running at 5"
 - "Thread 2 is running at 10"
 - Initially start thread 1 and 3
 - After 20 second stop thread 1 start thread 2
 - Again after 18 second stop thread 3 and start thread 1
- Deliverables
 - Code in Python

Problem Statement 3 : Create Required Image

- Given the image input.jpg and mask.png create the image result.jpg.
- Link to images:

https://drive.google.com/drive/folders/1DB60KVzGCFe1d1_V2aAIRMSwNOS9939i?usp=sharing



Input.jpg mask.png result.jpg

- Deliverables
 - Code in Python
 - Resulting image
- Hint
 - <https://learnopencv.com/alpha-blending-using-opencv-cpp-python>