**Part2 Exam: complex output making**

**Part2\_Exam:** You will write a Python program as described below. The final exam folder, will be uploaded using WinSCP to your account into your ~/bin on remy.parkland.edu. Be sure to place good comments in your program so that I can try to understand what you were attempting to do and can give partial credit if it is warranted. Your readme file should outline exactly what your program does in order to meet the requirements. You may use any resources at your disposal including your previous programs that you have written for this class. All code must be your own.

**The Program:**

Create a Python program is JES that allows the user to choose image file (o/p of the part1\_exam) using the mouse and then manipulates and shows the final manipulated image to the user when it is done with the manipulation. (Note: It also gets one argument at the command line which is a file name that the user wants to write the resulting image to. The file must be your own images not images you downloaded from the Internet.

**Specifications:**

The program will have total 5 functions (one mainFn and 4 subFn):

* 1. The **initialization function or mainFn():**
     + Which is our typical "control function" that collects user information and creates the variables needed and passes them on to the other function(s). This function is also the function that displays and/or writes the files to disk.
     + It has the user choose 1 image file (F1OUT.jpg) that you supply to make your final image and your program will use this image to make complex o/p.
     + You will be making a canvas 3 times the height and width of the input file (F1OUT.jpg) also it will ask user to choose color of that canvas under mainFn(). Your final output for this one will be a canvas that you are creating and you will also write this canvas to the disk.
     + It also takes an argument at the command line that will be a file (path with file name) that the user wishes to write out. Please note that the file path will be different for you and me to write your file to disc. User will be submitting file path while running mainFn().
     + Initialization function or mainFn() will call four sub-functions that are actually editing and making complex output.
     + The program then displays the final image (canvas) to the user. (Remember user controls are all executed through the initialization function)
     + The program then writes the canvas to disk to the place that the user entered as a command line argument. (Again remember user controls are all executed through the initialization function)
  2. **4 Four more Sub function(s)** that actually manipulates the image. Note that each of these functions or methods used shall be documented in the program itself, including reference what the function does and/or reference to the book where the particular technique was shown.
     + - **subFn1:** This function will be called by mainFn. subFn1 will draw a rectangular border or box (PenWidth of turtle will be 40) of blue color to the canvas. The border should be inside of the canvas leaving some visible (40-80) pixels from the top, bottom and sides.
       - **subFn2:** This function will be called by mainFn. subFn2 will copy the F1OUT.jpg image to four locations in your canvas.
         1. copy image to the top left corner
         2. copying a file/picture to top right corner
         3. copying a file/picture to bottom left corner
         4. copying a file/picture to bottom right corner
       - **subFn3:** This function will be called by mainFn. subFn3 will draw randomly on canvas. It can make as many iterations as you want just make sure that it is covering the whole canvas. Here the turn, color everything will be random. Keep the PenWidth() of 3 for drawing random turtle. This will partially cover all the corner images and empty space on canvas.
       - **subFn4:** This function will be called by mainFn. subFn4 will do only one thing that is to copy same file (F1OUT.jpg) to the center of the canvas. The edges of the four corner images will be touching the four edges of the center image.

**The Files on Remy:**

Save these program and output file in your final exam folder and then upload it to remy account ~/bin/cis122 subdirectory on remy.parkland.edu

* [your\_parkland\_username]\_part2\_Exam.py
* F2OUT.jpg

**The Files on cobra:**

Place this file in final exam folder, zip that folder and finally submit it to final exam dropbox on cobra.

* [your\_parkland\_username]\_part2\_Exam.py
* F2OUT.jpg

Note:

1. If I found two or more exactly same codes of different students while checking I will discard that and I will fail those students. Be sure to write your own code and write comments on what you are trying to attempt. Partial credits will be given.
2. Please be sure to follow all your instructions and submit it within time.
3. File name should be exactly same as what is expected and given.