

CS 111 – Introduction to Computer Science – Fall 2017

Lab Assignment #4

Methods and Graphics * (20pts)

Due Date: at 11:59pm on Saturday, March 3.

The purpose of this lab is to provide practice working with methods and the EzGraphics Python package. You will be modifying an existing program and writing two from scratch.



Before getting started with the lab, copy the entire `lab4` folder from the course folder (H:\Compsci\givens\cs111) to your U:\cs111 folder.

Colors

To get started, load the `house.py` program from your `lab4` folder into *Wing*.



The program creates a graphics window and draws several shapes and text on the canvas, creating a little house, but all of the shapes are drawn unfilled with black outlines. You are to modify the program to add color to the drawing and fill some of the shapes. You must use at least 6 different colors other than black and white and at least 3 of the shapes must be filled.

After you have added color to the program, comment your code to highlight which pieces of code create the following items: house, roof, door, doorknob, house numbers, window, and decoration (the arrow). You'll notice that some of the methods used in the program are new. Open `ezgraphics.py` module and search for the method, ask your professor, or deduce what those methods do.

After completing the program, be sure the file is saved with the original name. Don't forget to add your name to the file prolog.



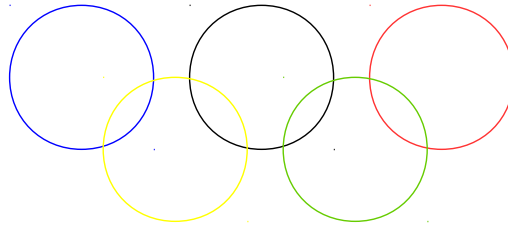
Olympic Rings

You are going to write your own graphics program from scratch. You may want to base your program on those provided in the lecture and this lab.



You are to design and implement a graphics program that draws the Olympic logo. The circles in the logo should be colored, from left to right, blue, yellow, black, green, and red.

*Based on the labs of Dr. Rance Necaise



Your program should be written to the following specifications:

- Name your program `olympicRings.py`
- Include an appropriate file prolog in the source file.
- Use a minimum diameter of 100 for the rings.
- Hard code (put in literal values) for the size of your canvas and the size and position of everything you draw on the canvas.

After completing your program, be sure to save the source file.



Bull's Eye

For your final program, you are going to draw a bull's eye in a graphics window similar to the following:



You are to design and implement a graphics program that draws a target containing a bull's eye. The target will consist of 4 rings and a bull's eye in which the size of the rings and the bull's eye are based on the size of the target. The size of the target (i.e. the diameter of the outer ring) will be determined by the user of the program. Your program should be written to the following specifications:

- Name your program `bullsEye.py`

- Include an appropriate file prolog at the top of the source file.
- Prompt the user for the size of the target before creating the graphics window. The size of the graphics window should be the same as the target size.
- Draw the target based on the size specified by the user. You will need to compute the position and size of each ring based on the size of the target.
- Use four colors for your drawing: background, bull's eye, and two for the alternating ring colors.
- Use meaningful variable names and provide appropriate comments throughout the program.

After completing your program, be sure to save the source file.



Finishing Up

When you are finished with the lab, you need to show me that your code runs and correctly computes the solution for each part of the lab. Also, you need to submit the source files for grading. To submit the files, find the lab assignment on Canvas and upload the three files:

- `house.py`
- `olympicRings.py`
- `bullsEye.py`

Remember, all of the files must be named exactly as indicated above, with the same case and with no spaces or special characters.