Computer Science 1	Lab 05A Multi-Day Major Python Assignment
Turtle Graphics Shapes	50 *through* 110 Point Versions

Assignment Purpose:

The purpose of this lab assignment is to introduce the concept of *graphics* using Python's *Turtle Graphics* which has instructions similar to programming a robot.

Using Python's *Turtle Graphics*, you are going to create a series of images, shapes and designs. There are a total of 13. The first image is worth **50** points and the other 12 are worth **5** points apiece. Completing the first image and any 10 of other 12 will earn a grade of 100. Completing all 13 images will earn the maximum grade of **110**.

A *skeleton* for the program has been written for you. If you look at the provided code, you see the proper libraries have been imported and the dimensions of the Turtle Graphics window have been "set up". Then there are 13 different sections, one for each shape/design. Each section begins with a comment showing its name and ends with a **sleep** and a **reset** command. These commands are commented out for now. In-between is where you write the code for that particular shape/design. Once you do, you need to uncomment **sleep** and **reset** so that after the computer draws the shape/design, it will wait one second, and then "reset" the window for the next shape/design.

NOTE: If you need more space to write your code, you can just press the <enter> key and insert as many blank lines as you wish.

Lab 05A Student Version	Do not copy this file, which is provided.

```
 1 # Lab05Ast.py
 2 # "Turtle Graphics Shapes"
 3 # This is the student, starting version of Lab 05A.
 4
 5
 6 from turtle import *
 7 from time import sleep
 8
 9 setup(1300,700)
10
11 ###################################
12 #  Thick Initials  -  50 Points   #
13 #=================================#
14 #  In order to receive credit,    #
15 #  these must be YOUR initials.   #
16 ###################################
17
18
19
20
21 #sleep(1)
22 #reset()
```

```
23
24 ##############
25 #  Pentagon  #
26 ##############
27
28
29
30
31 #sleep(1)
32 #reset()
33
34 ####################
35 #  Double Diamond  #
36 ####################
37
38
39
40
41 #sleep(1)
42 #reset()
43
44 ##################
45 #  8 Point Star  #
46 ##################
47
48
49
50
51 #sleep(1)
52 #reset()
53
54 ######################
55 #  SOS in Morse Code #
56 ######################
57
58
59
60
61 #sleep(1)
62 #reset()
63 ########################
64 #  Box in Box in Box  #
65 ########################
66
67
68
69
70 #sleep(1)
71 #reset()
72
73 ####################
74 #  Solid Staircase  #
75 ####################
76
77
```

```
 78
 79
 80 #sleep(1)
 81 #reset()
 82
 83
 84 ################
 85 #  Weird Face  #
 86 ################
 87
 88
 89
 90
 91 #sleep(1)
 92 #reset()
 93
 94 ########################
 95 #  Gold 5 Point Star  #
 96 ########################
 97
 98
 99
100
101 #sleep(1)
102 #reset()
103
104 ###########################
105 # Thick Rainbow Hexagon  #
106 ###########################
107
108
109
110
111 #sleep(1)
112 #reset()
113
114 ####################################
115 #  Half Thick Half Thin Snowflake  #
116 ####################################
117
118
119
120
121 #sleep(1)
122 #reset()
123
124 ####################
125 #  Thinning Spiral  #
126 ####################
127
128
129
130
131 #sleep(1)
132 #reset()
```

```
133
134 ###########
135 #  House  #
136 ###########
137
138
139
140
141
142
143
144 update()
145 done()
146
147
```

The First 50 Points

To earn your first 50 points, you need to draw your initials in thick, block-style letters in turtle graphics.

NOTE: THESE MUST BE YOUR INITIALS!

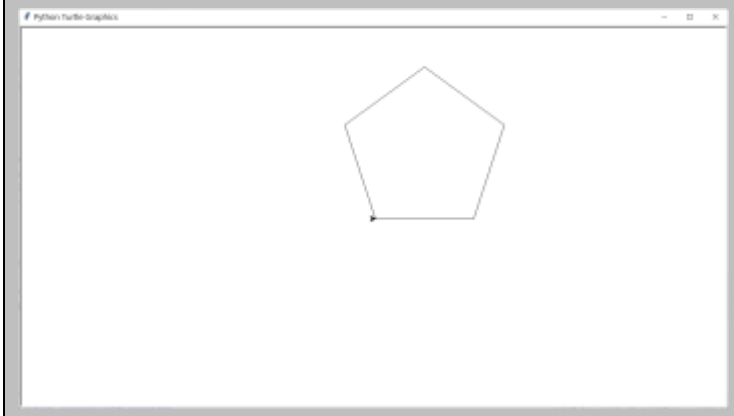
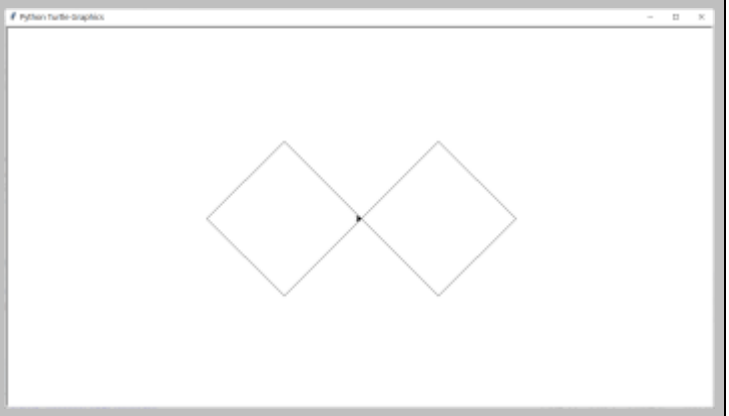
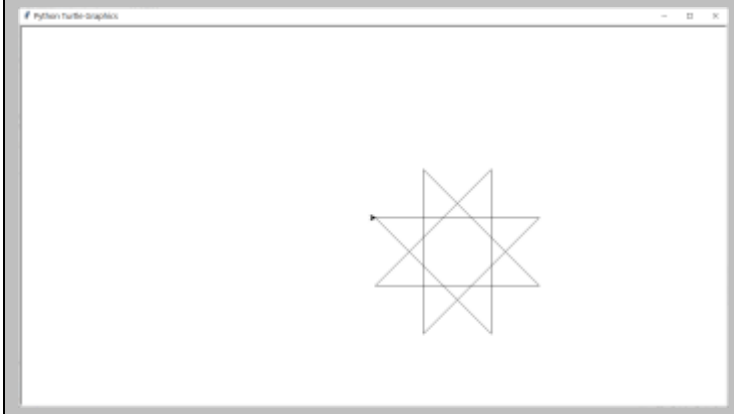
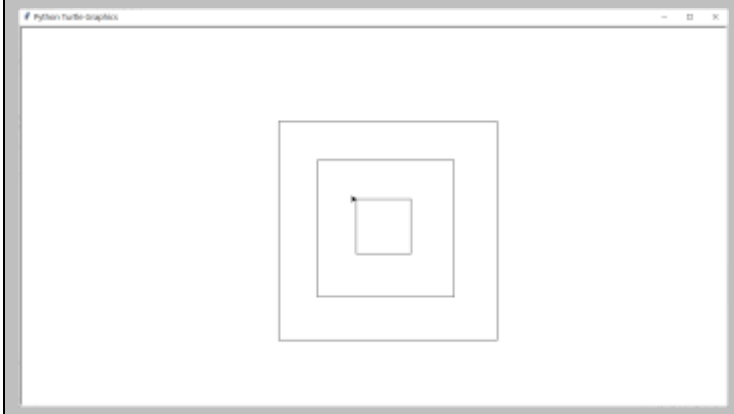
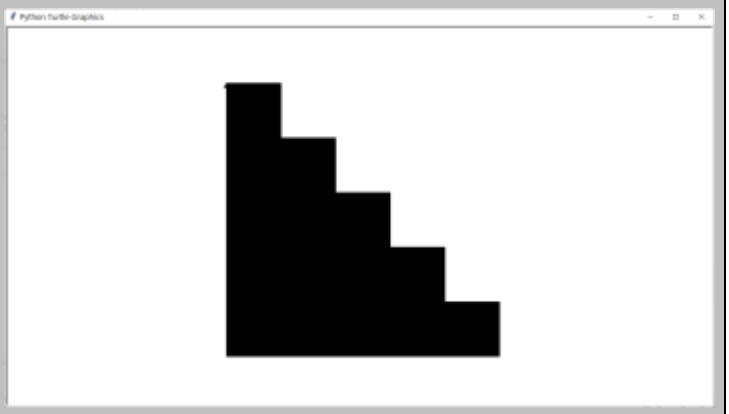
For example, if your name is “John Smith”, you would draw the letters ‘J’ and ‘S’ in thick, block-style letters as shown below. You will NOT receive credit if you draw initials that are not yours.

Thick Initials

110 Point Version Specifics and Output

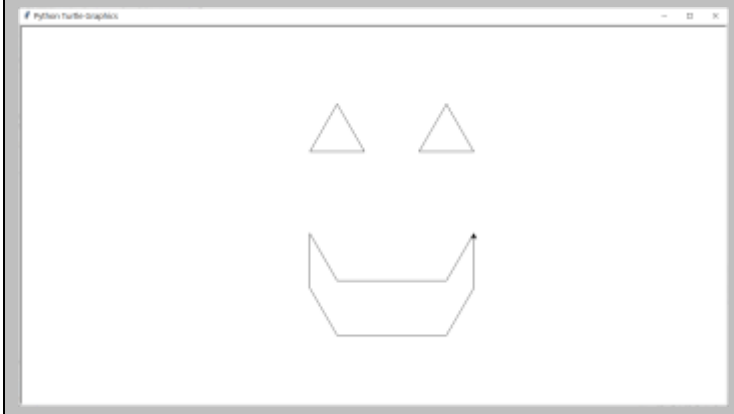
After your initials, you need to display each of the shapes/designs below, one at a time.

Remember uncomment the **sleep(1)** and **reset()** commands after each shape/design that you finish. This includes uncommenting the **sleep(1)** and **reset()** commands after your thick initials as well.

Pentagon 	Double Diamond 
8-Point Star 	SOS in Morse Code 
Box-In-Box-In-Box 	Solid Staircase 

NOTE: On some computers, the middle of the Solid Gold 5-Point Star does not fill in. This is OK.

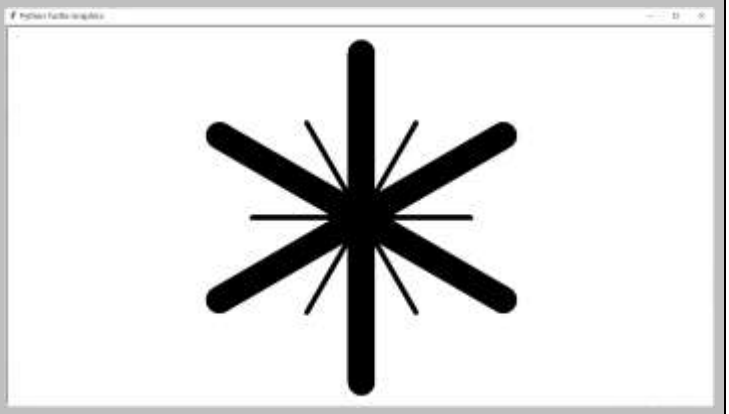
Weird Face



Solid Gold 5-Point Star

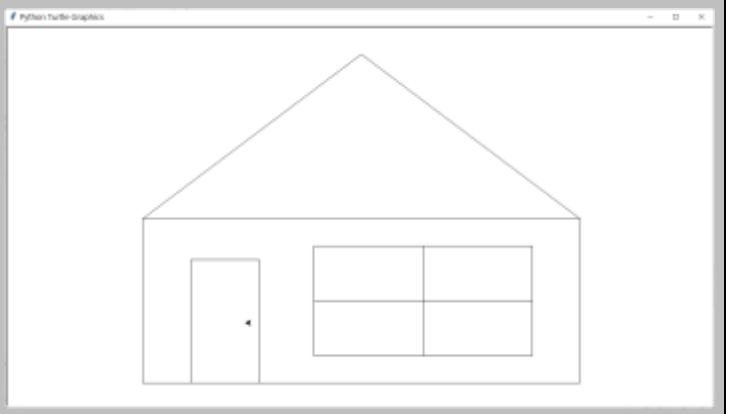
Thick Rainbow Hexagon

Half Thick Half Thin Snowflake



Thinning Spiral

House



The following needs to be understood when doing this assignment:

1. This project will take more than one class period. You must save your work so you can continue to work on it later. It may be necessary that you work on your project at home as well.

2. The first shape/design that you must do is the *Thick Initials*. After that, you can do the rest of the shapes/designs in any order. Just make sure you put each in its proper location in the program. Regardless of the order in which you created the different shapes and designs, it will still execute in the same order (Thick Initials, Pentagon, Double Diamond, 8-Point Star, etc.)

3. Your drawings should be similar to the drawings shown in the provided output, but they do not have to match exactly:

    a. Your pictures may be bigger or smaller.

    b. Your pictures may be in a different part of the screen.

    c. Your "turtle" may have a different final resting position.
        - Except for the last image. With the house, the last thing the turtle needs to do is move to the proper position to become the doorknob.

    d. However, one thing that must match is the *orientation*. Your drawings must be rotated the same way as the drawings shown in the provided output.

    e. When doing the initials, they need to be YOUR initials.

    f. You may not do any other shape/design until you have done YOUR initials.

4. You will only receive credit for a shape/design that is completely drawn. There is no partial credit for partially drawn shapes or designs.