COSC 1306 Programming Assignment 1: Turtle Graphics and Loops

Due: Wednesday, September 25th 2019 at 11:59 AM CT (before noon)

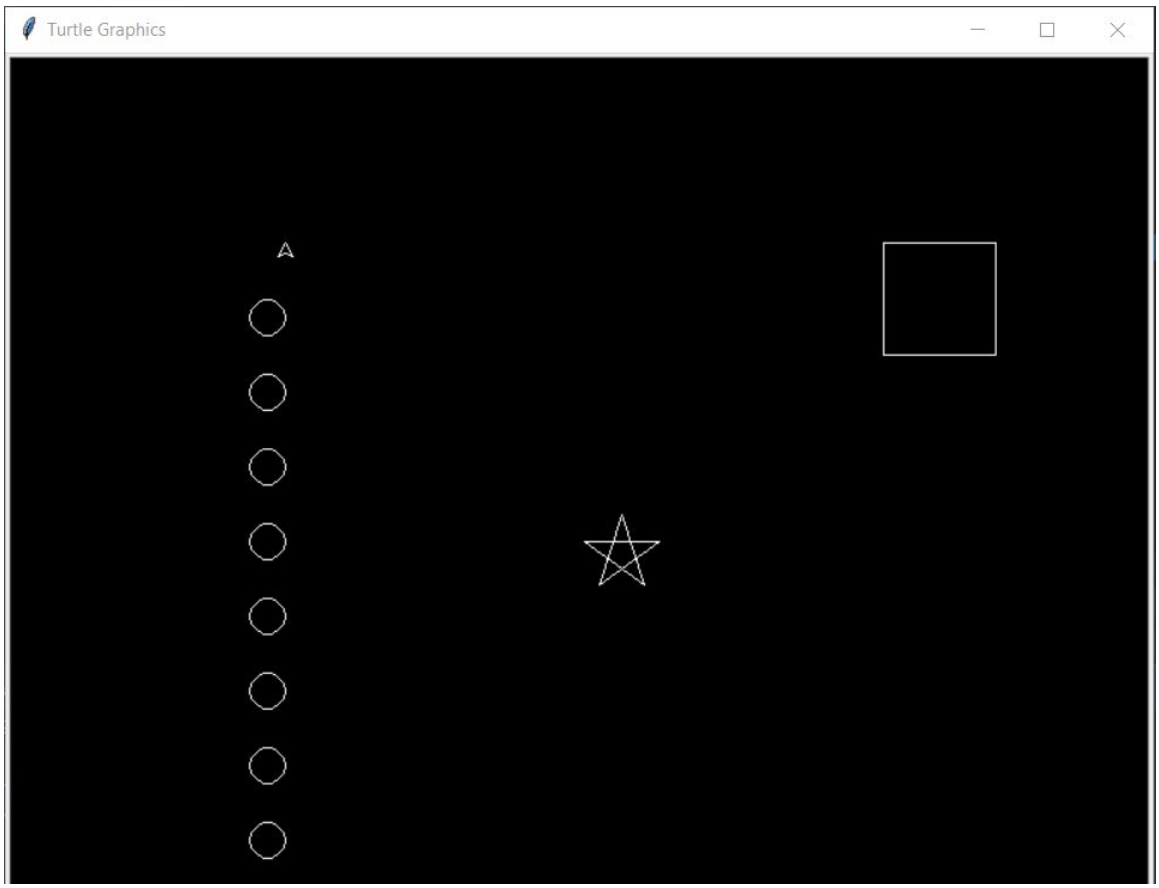
Objective

Move a turtle graphic to create various geometric patterns. Since the goal of the assignment is to reinforce the concept of iterations, you will need to use loops to create each geometric shape.

You have been provided with some sample code (PA1.py) to help you get started. Fill in the missing code for tasks 1, 2, 3, and 4.
Hint: Read through the program completely before you begin filling in missing sections.

Task 1: Geometric drawing

Generate a drawing like this:



Description:

1. Draw a star, a square, and a column of 8 circles. The code for the star and the basic loops are given to you to help you get started.

Hint: Use myShape.circle(#length_of_radius) to draw a circle at the turtle's current location.

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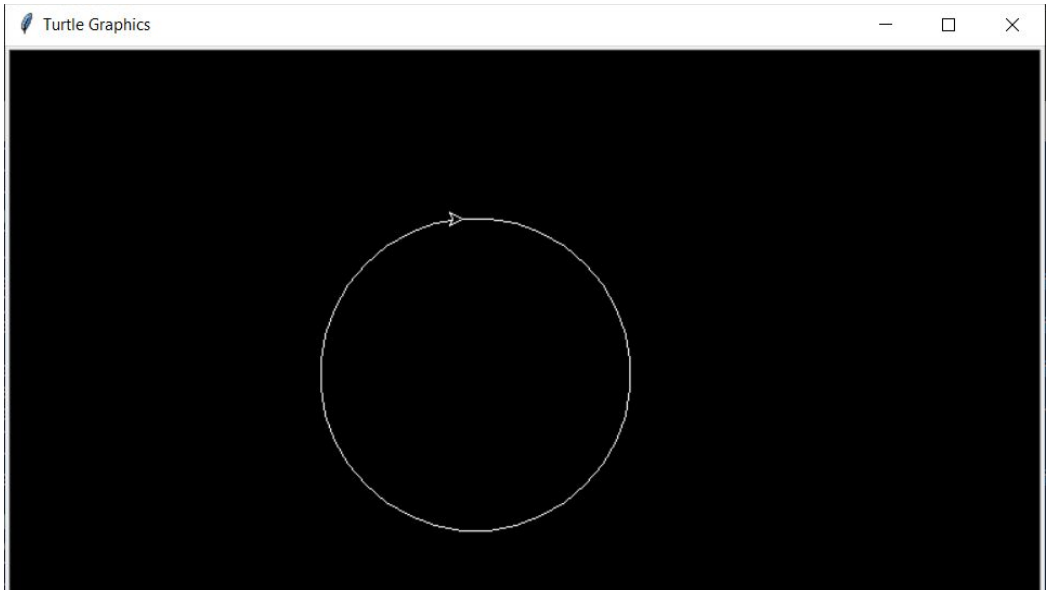
Task 2: Circle



Description:

2. Draw circle using a 'for' loop (*without* using 'circle' function of turtle)

Hint: Your loop will need to repeat many times and move a small distance each time. Make sure the degrees the turtle turns * the number of iterations in your loop = 360.

Task 3: Shrinking lines

Description:

1. The length of each succeeding line is half the length of the preceding line.
2. The width of each succeeding line is half the width of the preceding line (use turtle's *pensize* function to set the width of line)
3. You can start from any line length and continue drawing lines until the line approximates a dot

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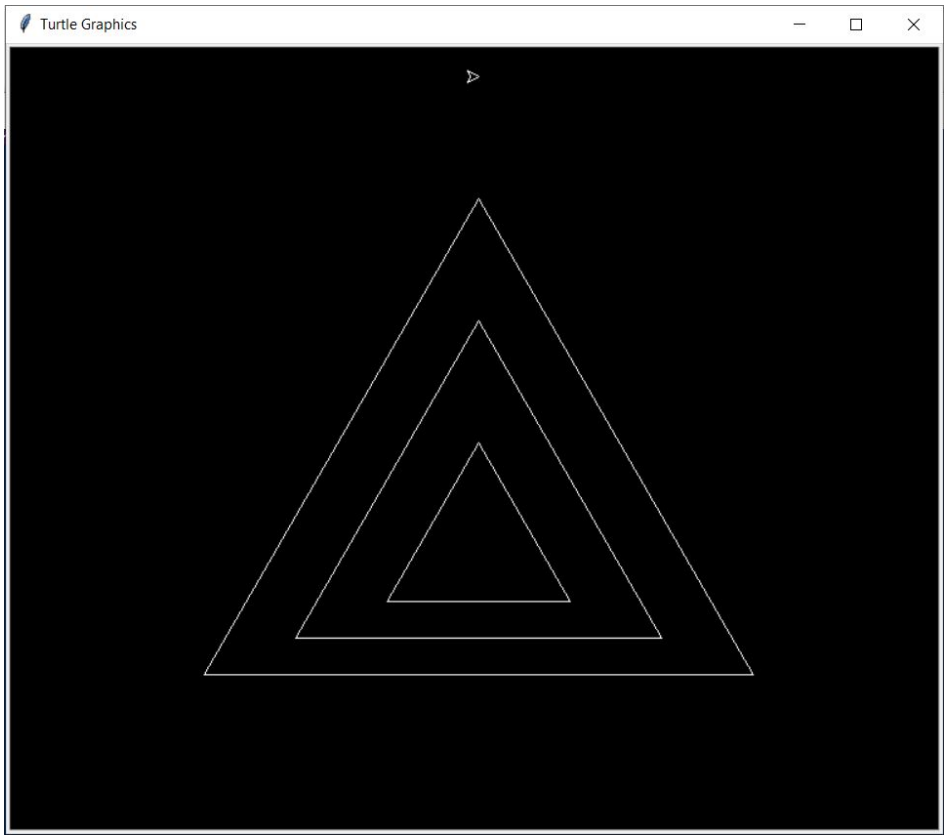
Task 4: Equilateral Triangles



Description:

This is an extra credit task.

1. Draw 3 nested equilateral triangles.

File description

We are providing the following file for you to complete the assignment:

• PA1.py: this file is the starting code that you need to complete. You will find instructions of what to do and what blanks you need to fill inside it. Please read this file carefully as your grade will be based on your work on this file.

Deadline

This assignment is due September 25th before noon, 11:59 AM CT.

What to submit

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Turn in your LastName_FirstName_PeopleSoftID_PA1.py file through the assignment link on Blackboard. No other files are needed. Points will be deducted if your file does not follow this convention. Example: Will_Smith_1234567_PA1.py

Additional Requirements

Your **source code must run without errors in order to receive credit for this assignment.** Make sure you run and test your code carefully before submitting. Add comments throughout your code that describe what each section of the program is supposed to do.

Questions

If you have any questions, please ask on Piazza or visit a member of the COSC 1306 team during office hours.

Grading Rubric:

Task	Criteria	Points
Task 1		
	Draw star (Program compiles)	9
	Draw rectangle	8
	8 Circles using *circle* function and a loop	8
Task 2		
	Circle drawn using loop, not circle function	25
Task 3		
	All lines drawn correctly using for loop	25
Task 4		
	Draw 3 nested equilateral triangles	25