Introduction to Programming and Computer Science

Assignment 1 Programming: Sequential Execution

Due: Monday, March 4, 2019 by 22:00

Worth 100 points

This programming homework is designed to get you more practice with writing and visualizing algorithms using the Turtle library.

1 Drawing a line

Task 1 (5 pt) Write a function called drawLine that takes two input parameters: an angle and a length. The function should turn the turtle left by the angle passed to the function and then move the turtle forward by the distance provided. For example, calling the function as drawLine(45,100) will turn the turtle left by 45 degrees and then move the turtle forward by 100cm.

2 Star gazing!

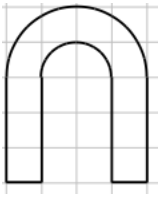
Task 2 (10 pts) Write a function called drawStar that draws a star using the Turtle library. The function should take an input argument for length of each side of the star. For this question, you should only use a sequence of drawLine functions and no other code.

3 Brick walls!

Task 3 (10 pt) Write a function called drawRectangle that takes two arguments x and y and then draws a rectangle with width of x and height of y using only the drawLine function.

4 The Arches!

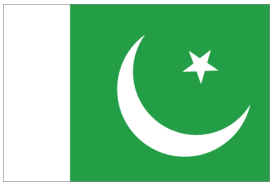
Task 4 (15 pts) Write a function called drawArch that draws an arch using the Turtle library as shown below:



You do not need to draw the background grid - as it is there only for reference. Each block of the grid is 10cm wide.

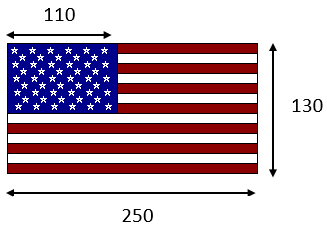
5 Pakistan Flag

Task 5 (20 pts) Write a function called drawPakistanFlag that draws the Pakistani Flag as shown below. You might need to look up turtle library functions to figure out how to fill in shapes. You should use the star function you wrote earlier



6 The US Flag

Task 6 (20 pts) Write a function called drawUSFlag that draws the Flag for United States as shown below. You should use the star function you wrote earlier.



7 Put it all together

Task 7 (20 pts) Write a function called DrawPicture that draws the figure below using turtle graphics. Your function will not draw the grid, which is reported here only to help you measure the size of the figure (each grid square is 10 turtle steps long). Make sure your code is modular: organize the different components to be drawn in appropriate functions, then call those functions to compose the entire drawing

Your file should contain all the function definitions and should only contain a call to this (DrawPicture) function.