CSE142 – Spring 2017

Homework #1

Due: April 20th, 2017

For this homework, you will write a menu-driven program that draws the coordinate system and some geometric shapes on the console screen.

The program will ask the user to choose one of the following shapes:

1. Line
2. Parabola
3. Circle

If the user chooses to draw a line, the program asks for the coefficients **a** and **b** that define the line on the coordinate system: $\mathbf{y = ax + b}$

Similarly, for the parabola, the program asks for the coefficients **a**, **b**, c to define the parabola: $\mathbf{y = ax^2 + bx + c}$

Finally, for the circle, the program asks for the **radius (r)** and **center (a,b)** to define it: $\mathbf{(x - a)^2 + (y - b)^2 = r^2}$

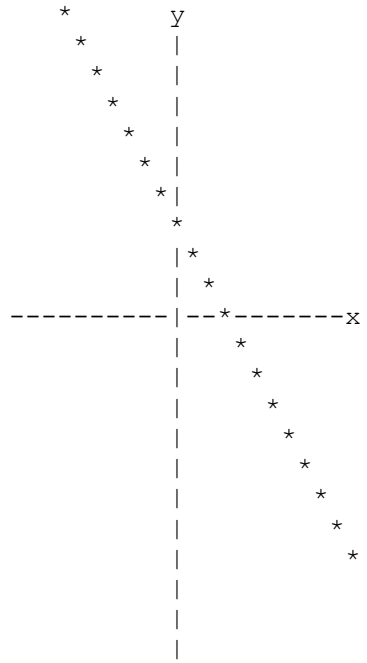
After getting required parameters, the program draws the coordinate system on the console screen using **–** and **|** characters, and draws the geometric shape using * character.

Both x and y values in the coordinate system should range at least in [-10,10]. You may draw a bigger coordinate system as it will look clearer. However, make sure that your coordinate system fits in the console screen.

Sample runs of the program are as follows:

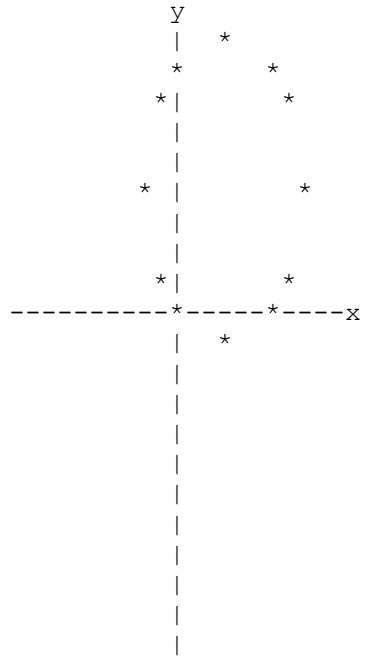
```
Which shape would you like to draw?
 1. Line
 2. Parabola
 3. Circle
 4. Exit
1

Line formula is y = ax + b
Please enter coefficients a and b:-1
3
```



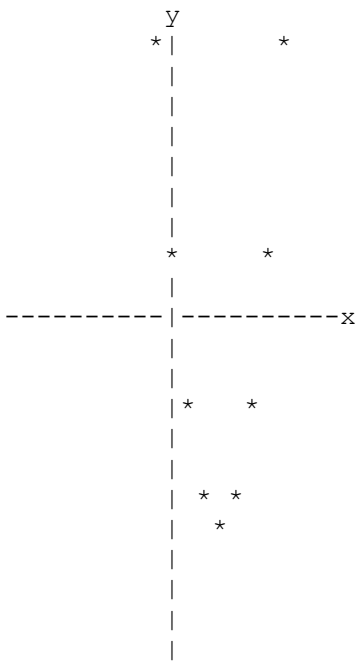

```
Which shape would you like to draw?
 1. Line
 2. Parabola
 3. Circle
 4. Exit
3

Circle formula is (x-a)^2 + (y-b)^2 = r^2
Please enter center's coordinates (a,b) and radius:3
4
5
```



```
Which shape would you like to draw?
 1. Line
 2. Parabola
 3. Circle
 4. Exit
2

Parabola formula is y = ax^2 + bx + c
Please enter coefficients a, b and c:1
-6
2
```




```
Which shape would you like to draw?
 1. Line
 2. Parabola
 3. Circle
 4. Exit
4
```

Notes:

- Write your name, id and at the top line of each submitted file in a commented manner. Ex: // Özgür Yurtsever, 123456789, HW1.
- WARNING: This homework is an individual assignment. Your programs are checked and compared against each other using automated tools. Any act of cheating will be punished. DO NOT GIVE/TAKE YOUR HOMEWORK TO/FROM OTHERS.