**User commands:**

*1. Create a Rectangle object and add it to the shapes list.*

addR <x\_coordinate\_leftTopPoint> <y\_coordinate\_leftTopPoint> <height> <width>

For example: addR 100 100 50 200

This command will add a rectangle with height=50 and width=200. The leftTop point of the rectangle is (100,100). After addition, you will print the object.

*2. Create a Square object and add it to the shapes list.*

addS <x\_coordinate\_leftTopPoint> <y\_coordinate\_leftTopPoint> <edge\_length>

For example: addS 200 250 30

This command will add a square with edge=30. The leftTop point of the square is (200,250).

After addition, you will print the object.

*3. Create a Circle object and add it to the shapes list.*

addC <x\_coordinate\_leftTopPoint> <y\_coordinate\_leftTopPoint> <radius>

For example: addC 150 280 50

This command will add a circle with radius=50. The leftTop point for this circle is (150,280).

After addition, you will print the object.

*4. Move an object in the shapes list to a new location.*

move <shape\_index> <x\_coordinate\_newLeftTopPoint> <y\_coordinate\_newLeftTopPoint>

For example: move 3 30 200

This command will move the third shape in the list to a new location, i.e. the third shape’s leftTop point will be updated as (30,200) and the other points will be re-calculated.

After updating, you will print the object.

*(Note: shape\_index starts from 1.)*

*4. Scale an object in the shapes list.*

scale <shape\_index> <x\_scale\_amount> <y\_scale\_amount>

For example: scale 5 0.5 1.5

This command will scale the fifth shape in the list, i.e. the fifth shape will be shrunk by half size in the x direction and it will be stretched to 1.5 its size in the y direction. leftTop point will kept constant, whereas the other corner points will be converted to the nearest int value.

After updating, you will print the object.

*(Note: shape\_index starts from 1.)*

*5. The program will stop when the user enters “exit”*

**Sample execution:**

Enter the command: addR 100 100 50 200

Rectangle[h=50,w=200]

Points[(100,100)(300,100)(300,150)(100,150)]

Area=10000.0 Perimeter=500.0

Enter the command: addS 200 250 30

Square[e=30]

Points[(200,250)(230,250)(230,280)(200,280)]

Area=900.0 Perimeter=120.0

Enter the command: addC 150 280 50

Circle[r=50]

Points[(150,280)(250,380)]

Area=7854.0 Perimeter=314.2

Enter the command: move 3 30 200

Circle[r=50]

Points[(30,200)(130,300)]

Area=7854.0 Perimeter=314.2

Enter the command: scale 1 2 2

Rectangle[h=100,w=400]

Points[(100,100)(500,100)(500,200)(100,200)]

Area=40000.0 Perimeter=1000

Enter the command: exit