LAB 3

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PART A

1. No-step

/\*\*

\* Moves the robot to right

\*

\*/

public void moveRight()

{

}

1. No-step
2. No-step
3. No-step

/\*\*

\* Constructor for objects of class Robot

\*

\* @param theX displays the x-coordinate of the upper-left corner of the robot

\* @param theY displays the y-coordinate of the upper-left corner of the robot

\* @param pic displays the image of the robot

\*/

public Robot(int theX, int theY)

{

x = theX;

y = theY;

pic = new Picture("myrobot.jpeg");

}

1. We initialize the values for X and Y, we get an error and the picture is not displayed
2. pic.draw();
3. pic.translate(pic.getWidth(), 0);
4. When we click on moveRight on the red blob the Robot moves right.

PART B

1.

/\*\*

\* Moves the robot to right

\*

\*/

public void moveDown()

{

pic.translate(0, pic.getHeight());

}

/\*\*

\* Moves the robot to right

\*

\*

\*/

public void moveDown()

{

pic.translate(0,-pic.getHeight());

}

2. We compile a test run

3.

/\*\*

\* Moves robot horizontally by a multiple of its width

\*

\* @param steps Movement distance by the times of its width

\*

\*/

4.

public void moveHorizontally(int steps)

{

pic.translate(steps\*pic.getWidth(), 0);

}

5. We compile our Robot class and in the red blob we put the move horizontal to 5; The robot moves right by 5 units of its width. Then we put the move horizontal to -3; The robot moves 3 units of its width left.. So it is now at 2 units of its width from right.

6. We put the move horizontal to -3 units. So the Robot disappears.

7.

/\*\*

\* Moves robot vertically by a multiple of its height

\*

\* @param steps Movement distance by the times of its height

\*

\*/

public void moveVertically(int steps)

{

pic.translate(0, steps\*pic.getHeight());

}

8. We first move horizontally, the robot 5 units of its width size to its right and then it goes 5 units of its height downwards from that point.

9. To bring back the robot to its original position, we move the robot horizontally by 5 units of its width and then we move the robot -5 units vertically.

PART C

1. This method is an accessor. Because it does not change the value of the object.
2. We expected the X coordinate of the top left corner of the robot image.
3. We get the original position of the robot (1) when we run the getX method.
4. I added x = steps\*pic.getWidth();
5. We get the value -306
6. It is mutator method, We change the method to x = x + steps;

public int getY()

{

return y;

}

1. We compile it and run it

PART D

1.

/\*\*

\* Write a description of class MoveTester here.

\*To test the methods and accessor of class Robot

\* @author Nachiketh Mamidi

\* @version Feb 19, 2021

\*/

public class MoveTester

{

public static void main()

{

Robot one = new Robot (0,0);

one.moveHorizontally(5);

one.moveHorizontally(-3);

System.out.println(one.getX());

System.out.println("Expected: 2");

}

}

2. When we run the program we get 2 and in the next line it is expected: 2

3.

one.moveVertically(6);

one.moveVertically(-4);

System.out.println(one.getY());

System.out.println("Expected: 2");

4. We get 2 and expected: 2 , again

5. No, they aren’t increasing by the same amount

6. We can get the X value of the robot by dividing it by pic.getWidth()

7. We get the same result as return x;

8. return pic.getY() / pic.getHeight();

9. We are using getX and getY in our return statement so X and Y are useful.

PART E

1. We use move horizontally method to moveRight
2. We need to call the moveHorizontally method on pic object.
3. No-Step
4. We need to moveRight to the moveTester class to check if it works

one.moveRight();

System.out.println(one.getX());

System.out.println("Expected: 3");

1. The other way is pic.translate(steps\*pic.getWidth(), y);
2. Yes
3. I like moveVertically(1); more because we are just using the method we already made.

public void moveDown()

{

moveVertically(1);

}