This is the bug class:

```
1 /*
 2 * Programer --> Akhil Devarapalli
 3 * 10/7/2020
 4 * On my honor I have neither given or recived unauthorized
help
 5 */
 6 public class Bug
 7 {
 8    //instacne variable
 9    private int position;
10    private int direction;
11
12    //constructor methods
13    public Bug(int Initialposition, int Initialdirection)
14    {
15       position = Initialposition;
16       direction = Initialdirection;
17    }
18
19    //Defualt values
20    public Bug()
21    {
22       position = 0;
23       direction = 1;
24    }
25
26    //Accessor methods
27    public int GetPosition()
28    {
29       return position;
30    }
31
32    public int GetDirection()
33    {
34       return direction;
35    }
36
37    //mutator methods
38    public void setPosition(int newPosition){
39       position = newPosition;
40    }
41
42    public void moveOne()
```

```
43     {
44        if (direction > 0)
45        {
46           position += 1;
47        }else{
48           position -= 1;
49        }
50     }
51
52     public void TurnAround()
53     {
54        direction *= -1;
55     }
56  }
```

This is the BugTester class and its output

```
1  /*
 2  * Programmer --> Akhil Devarapalli
 3  * 10/7/2020
 4  * On my honor I have neither given or recived unauthorized
help
 5  */
 6  import java.util.Scanner;
 7  public class BugTester
 8  {
 9     public static void main(String [] args)
10     {
11     //Get input to pass into a new bug class
12        int StartPos;
13        int StartDirection;
14        System.out.println("Input a starting postion from -100
to 100 and -1 for it start facing left and 1 for it to start
facing right");
15        Scanner scan = new Scanner(System.in);
16        StartPos = scan.nextInt();
17        StartDirection = scan.nextInt();
18        Bug ladyBug = new Bug(StartPos, StartDirection);
19        // We are going to verify if the input that we passed
into ladyBug works correctly
20        //The output should be the things we inputed
21        System.out.println(" The position is " +
```

```
ladyBug.GetPosition() + " The direction is " +
ladyBug.GetDirection());
    /*
    * Make the bug move one return value
    * Turn it around and move one and return value
    * Call moveOne 3 times and return values
    * Call TurnAround and call moveOne again
    * Have it return value
    * The code below makes sure the moveOne, TurnAround,
GetPosition, GetDirection works. They do
    * The code also shows message if the bug has no more rope
to walk on
    */

      ladyBug.moveOne();
      System.out.println(ladyBug.GetPosition());
      ladyBug.TurnAround();
      for (int i = 1; i <= 3; i++){
         ladyBug.moveOne();
      }
      System.out.println(ladyBug.GetPosition());
      ladyBug.TurnAround();
      ladyBug.moveOne();
      System.out.println("The Position is " +
ladyBug.GetPosition() + " The Direction is " +
ladyBug.GetDirection());
    /*
    * Uses the same lady bug class but this one makes sure
that the SetPostion mutator method works
    * We will start on ladyBugs last poistion and try to move
it to 50 and print position.
    * When we get position it should return 50
    */
      ladyBug.setPosition(50);
      System.out.println("The Position is " +
ladyBug.GetPosition() + " The Direction is " +
ladyBug.GetDirection());
    /*
      We are going to do what we did above, but this time we
will create a Bug class and not pass in any parameters
      We will create Bug with no values and make it go three
units, turn around and go two units
      We will print direction and postion, the output should
be "The postion is 1 the direction is -1"
```

```
53        ladyBug2 will be initlized with defualt values of
position = 0 and direction 1
54      */
55        Bug ladyBug2 = new Bug();
56        for (int i = 1; i <=3; i++)
57        {
58           ladyBug2.moveOne();
59        }
60        ladyBug2.TurnAround();
61        for(int i = 1; i <= 2; i++)
62        {
63           ladyBug2.moveOne();
64        }
65        System.out.println("The Position of bug 2 is " +
ladyBug2.GetPosition() + " The Direction of bug 2 is " +
ladyBug2.GetDirection());
66       /*
67        We are going to test SetPostion to 50
68        The final output here should be "The Position of bug 2
is 50  The Direction of bug 2 is -1"
69       */
70        ladyBug2.setPosition(50);
71        System.out.println("The Position of bug 2 is " +
ladyBug2.GetPosition() + " The Direction of bug 2 is " +
ladyBug2.GetDirection());
72     }
73 }
```

Output:

```
 ----jGRASP exec: java BugTester
 Input a starting postion from -100 to 100 and -1 for it
start facing left and 1 for it to start facing right
50 -1
 The position is 50 The direction is -1
49
52
The Position is 51 The Direction is -1
The Position is 50 The Direction is -1
The Position of bug 2 is 1 The Direction of bug 2 is -1
The Position of bug 2 is 50 The Direction of bug 2 is -1
```

```
----jGRASP: operation complete.
```