SAYED MOHAMMED OWAIS
Roll no - 532

Assignment 1(A):

Aim: Write a program to create a robot to perform rectangular motion using gears

Description:

1] NxtRobot() :

Class that represents a simulated NXT robot brick. Parts (e.g. motors, sensors) may be assembled into the robot to make it doing the desired job.

2] Gear() :

Creates a gear instance with right motor plugged into port A, left motor plugged into port B.

3] addPart() :

Assembles the given part into the robot.

4] setSpeed() :

Sets the speed to the given value (arbitrary units).

5] forward() :

Starts the forward movement for the given duration (in ms) and stops. Method returns at the end of the given duration.

6] left() :

Starts to rotate left (center of rotation at middle of the wheel axes). Method returns immediately, while the movement continues

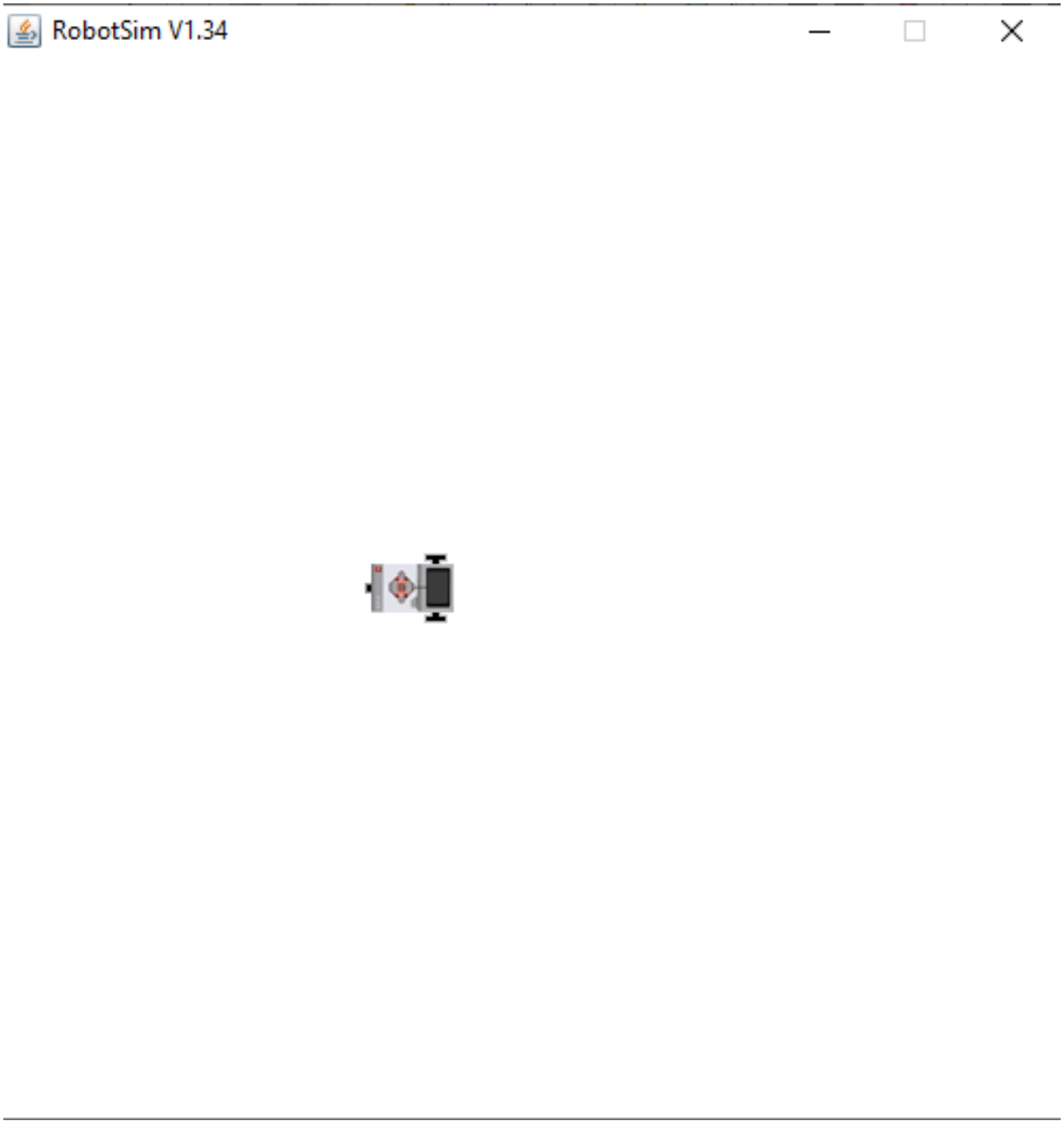
SAYED MOHAMMED OWAIS
Roll no - 532

Code:

```
import ch.aplu.robotsim.NxtRobot;
import ch.aplu.robotsim.Gear;
public class assignment1A {
   public assignment1A() {
      NxtRobot r = new NxtRobot ();
      Gear g = new Gear();
      r.addPart (g);
      g.setSpeed (100);
      while (true){
         g.forward (800);
         g.left (280);
      }
   }
   public static void main (String [] args){
      new assignment1A ();
   }
}
```

SAYED MOHAMMED OWAIS
Roll no - 532

Output:



SAYED MOHAMMED OWAIS
Roll no - 532

Assignment 1(B):

Aim: Write a program to create a robot to perform circular motion using gears

Description:

1] rightArc() :

Starts to move to the right on arc with given radius. Method returns immediately, while the movement continues.

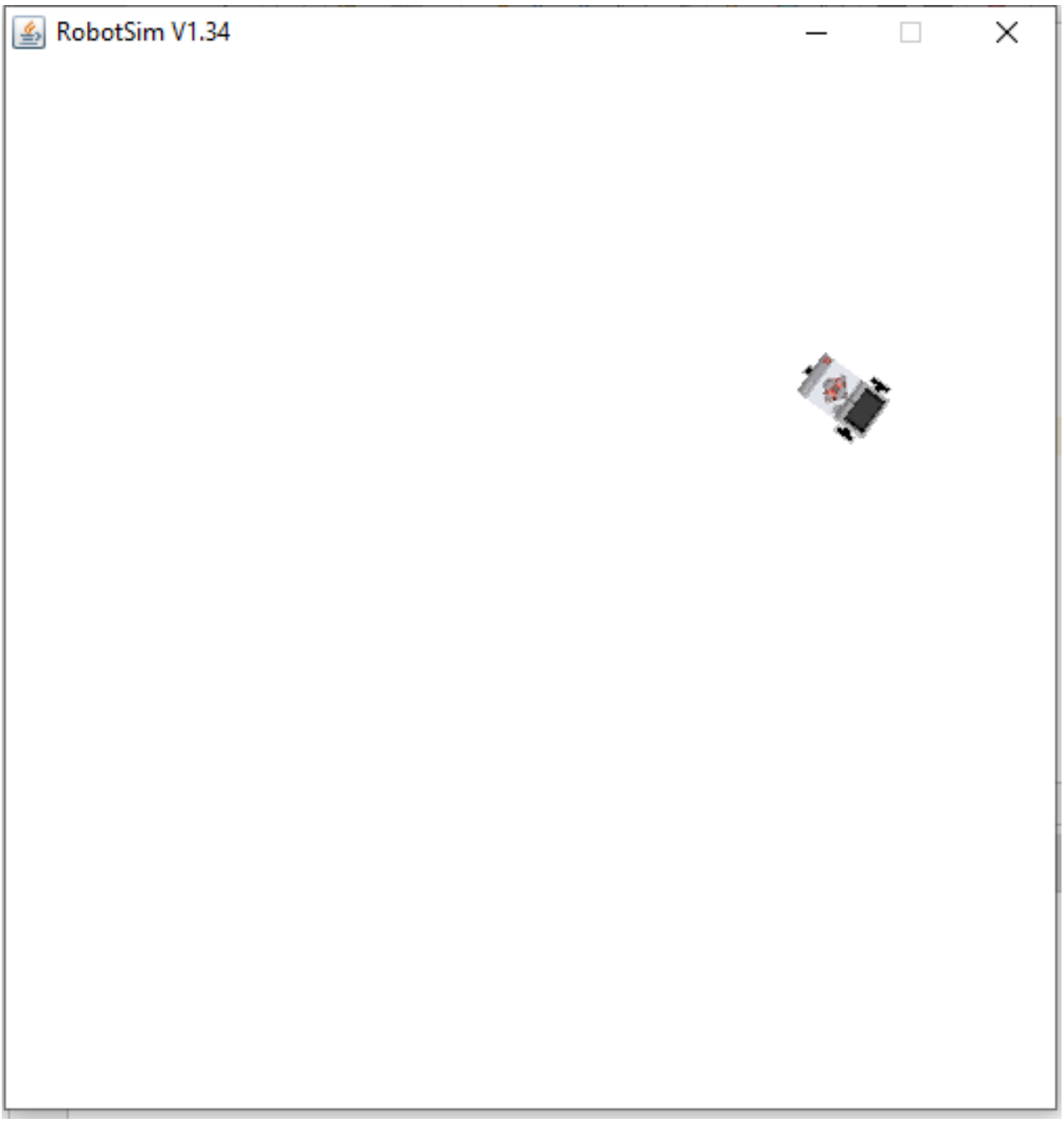
.

Code:

```
import ch.aplu.robotsim.NxtRobot;
import ch.aplu.robotsim.Gear;
public class assignment1B {
   public assignment1B () {
      NxtRobot r = new NxtRobot ();
      Gear g = new Gear ();
      r.addPart (g);
      g.setSpeed (100);
      while (true) {
         g.rightArc (0.5);
      }
   }
   public static void main (String [] args){
      new assignment1B ();
   }
}
```

SAYED MOHAMMED OWAIS
Roll no - 532

Output:



SAYED MOHAMMED OWAIS
Roll no - 532

Assignment 2 (A):

Aim: Write a program to create robot to perform a square motion without using gear.

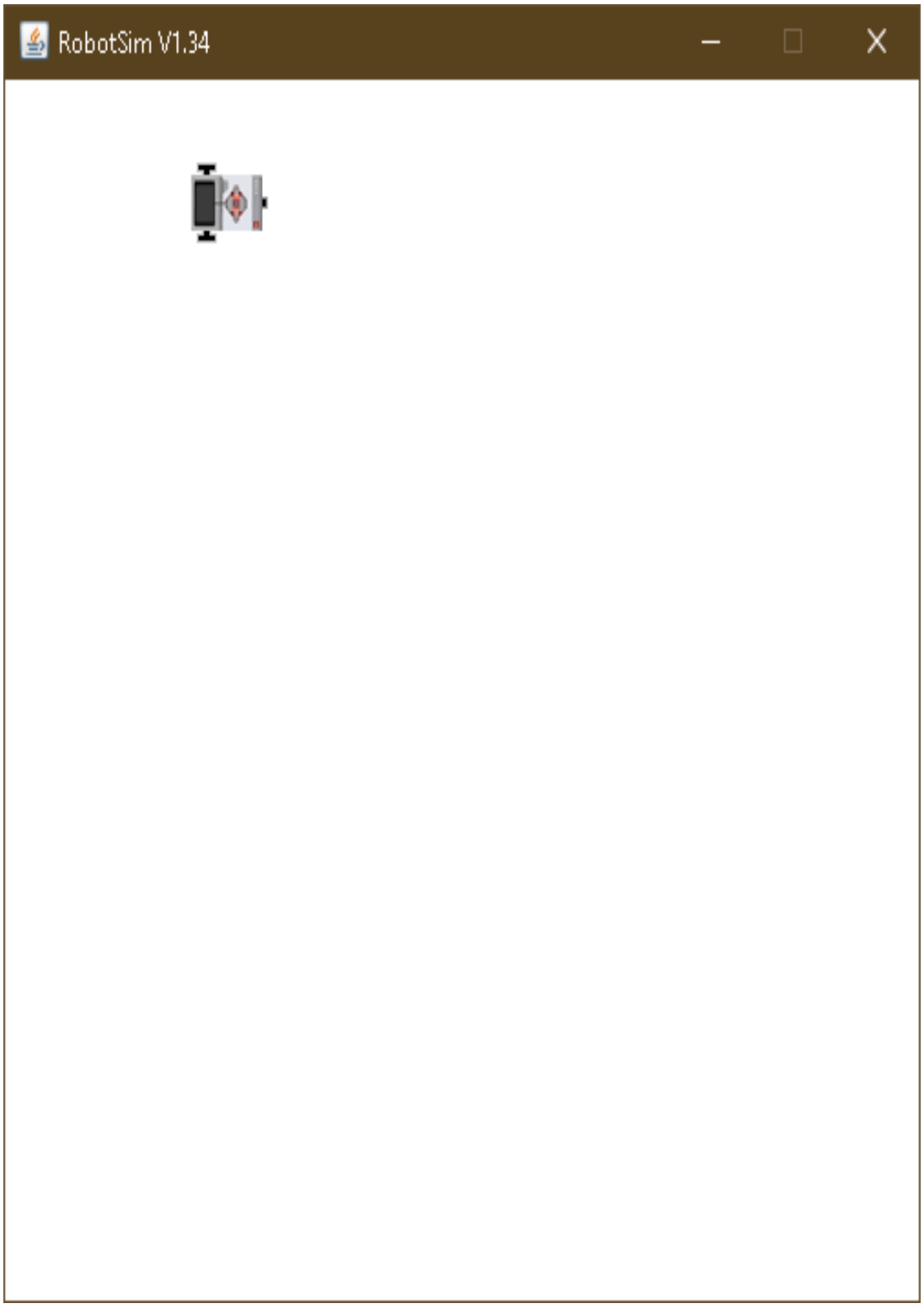
Code:

```
import ch.aplu.robotsim.*;

public class Assignment_2a {

   Assignment_2a () {

         TurtleRobot t = new TurtleRobot ();

         t.setTurtleSpeed (100);

         while (true){

            t.forward(200);

            t.left (90);

         }

      }

   public static void main (String [] args) {

      new Assignment_1a ();

   }

}
```

SAYED MOHAMMED OWAIS
Roll no - 532

Output:

SAYED MOHAMMED OWAIS
Roll no - 532



SAYED MOHAMMED OWAIS
Roll no - 532

Assignment 2 (B):

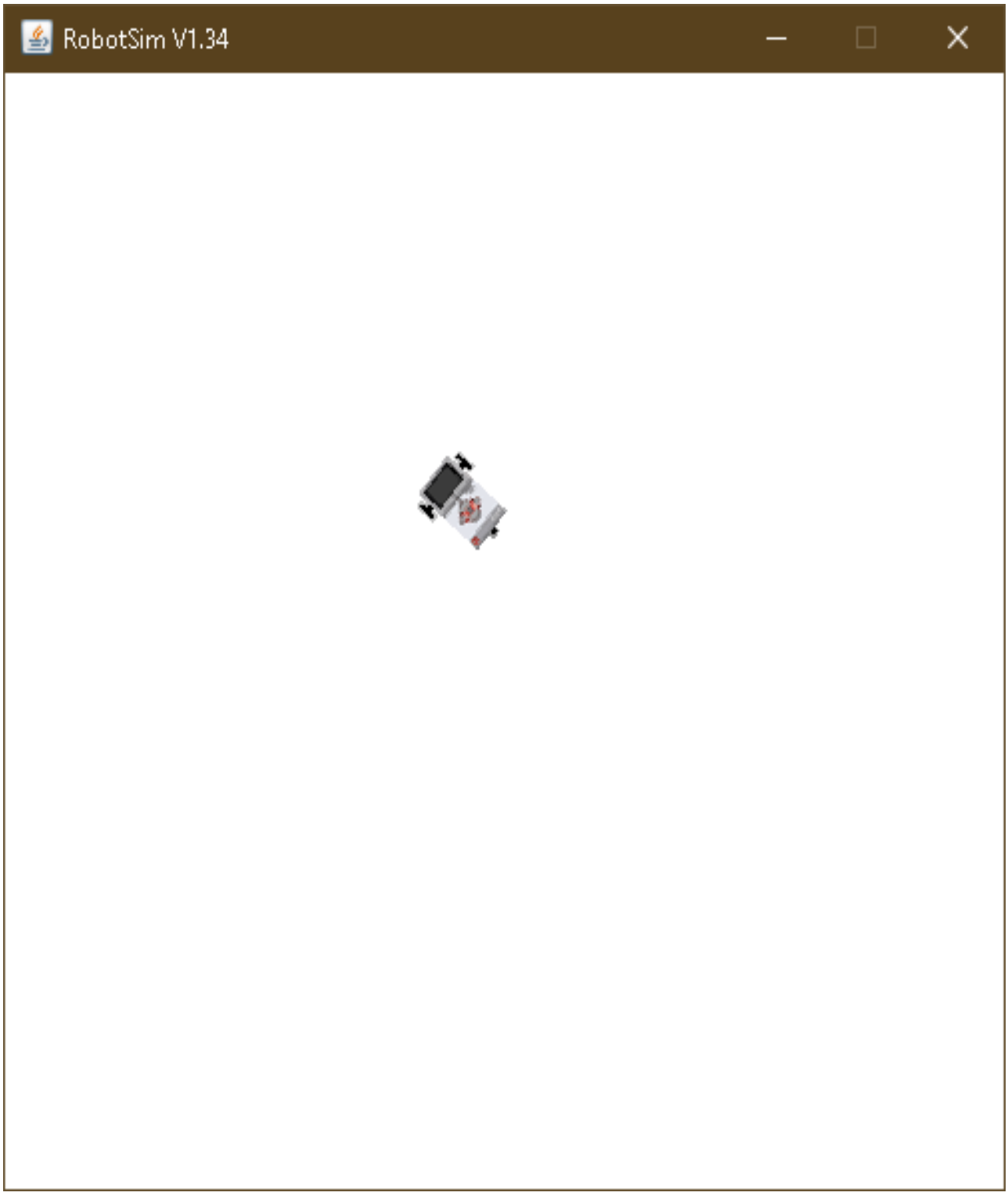
Aim: Write a program to create robot to perform a circular motion without using gear.

Code:

```
import ch.aplu.robotsim.*;

public class Assignment_2b {

  Assignment_2b () {

      TurtleRobot t = new TurtleRobot ();

      t.setTurtleSpeed (100);

      while (true) {

         t.forward (2);

         t.left (2);

      }

   }

  public static void main (String [] args)  {

      new Assignment_1b ();

  }

}
```

SAYED MOHAMMED OWAIS
Roll no - 532

Output:



SAYED MOHAMMED OWAIS
Roll no - 532

Assignment 3:

Aim: Write a program to do a square using while or for loop, change direction based on condition and control motor movement

Description:

1] Motor() :

Creates a motor instance that is plugged into given port.

2] Tools.delay() :

Suspends execution of the current thread for the given amount of time.

Code:

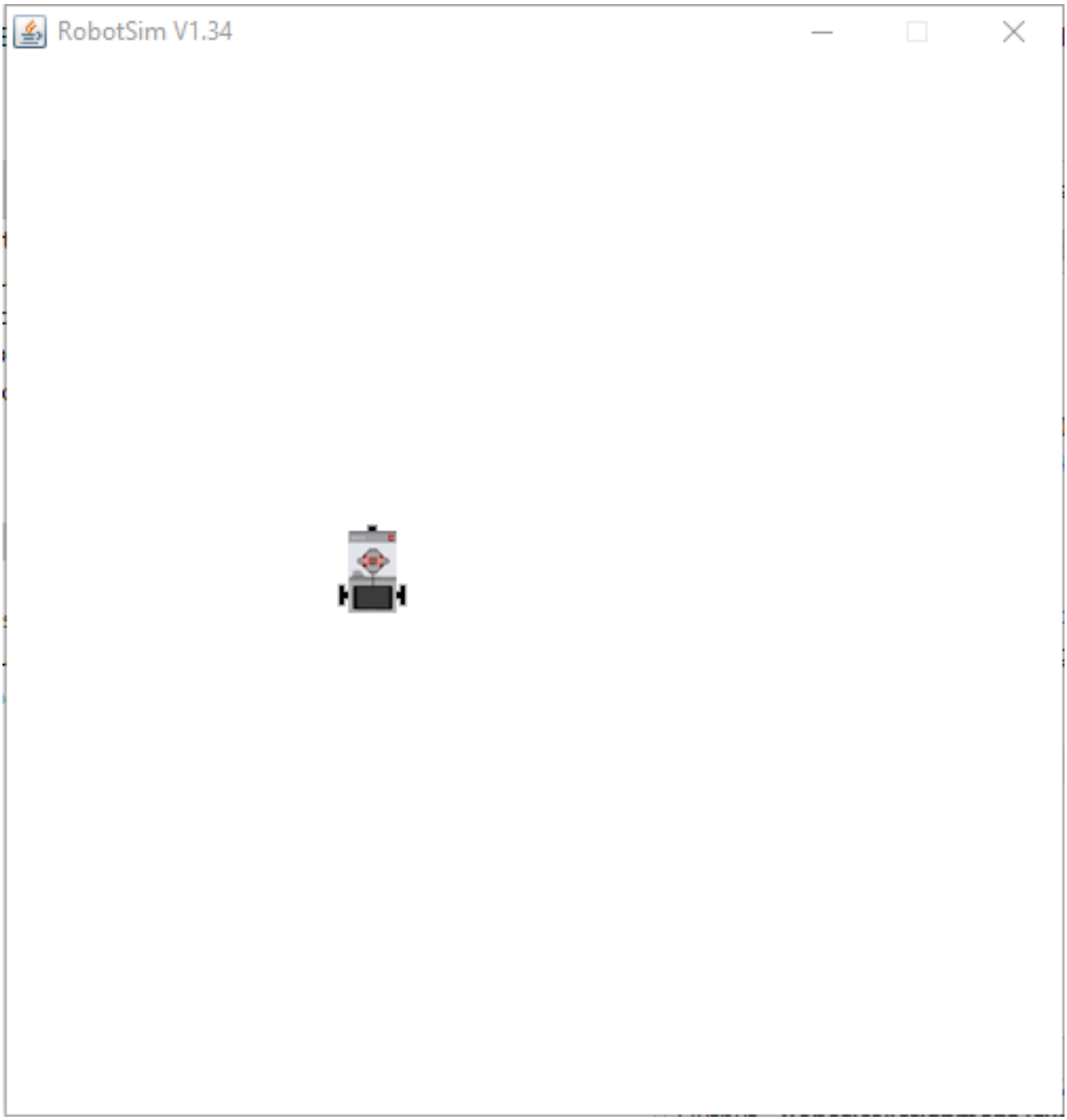
```
import ch.aplu.robotsim.*;
import java.util.*;
public class assignment2 {
   assignment2 () {
      Scanner sc = new Scanner (System.in);
      NxtRobot r = new NxtRobot ();
      Motor m1 = new Motor (MotorPort.A);
      Motor m2 = new Motor (MotorPort.B);
      r.addPart (m1);
      r.addPart (m2);
      System.out.println ("Enter 1 for left and 2 for right :");
      int direction = sc.nextInt ();
      switch (direction) {
```

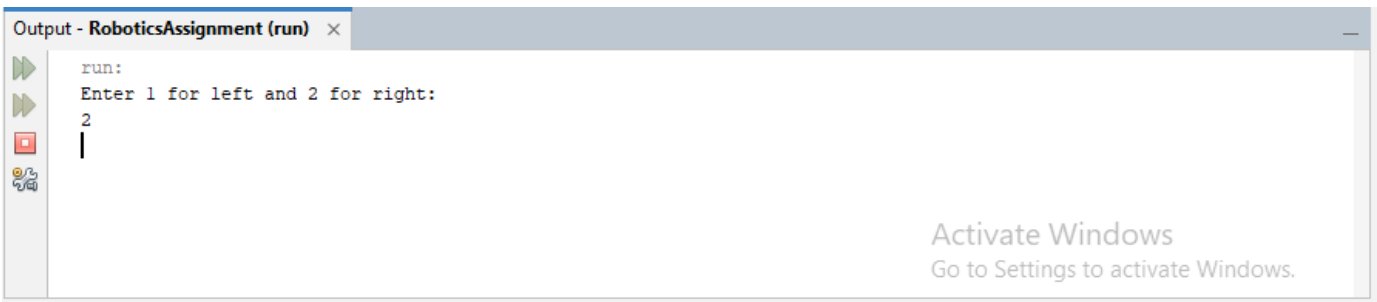
```
            case 1:
               for (int i=0; i<4; i++){
                  m1.forward ();
                  Tools.delay (1090);
                  m2.forward ();

                  Tools.delay (1090);
                  m1.stop ();
                  m2.stop ();
               }
            break;
            case 2:
               for (int i=0; i<4; i++){
                  m2.forward ();
                  Tools.delay (1090);
                  m1.forward ();
                  Tools.delay (1090);
                  m1.stop ();
                  m2.stop ();
               }
            break;
         }
      }
      public static void main (String args[]){
         new assignment2 ();
      }
}
```

SAYED MOHAMMED OWAIS
Roll no - 532

Output:

SAYED MOHAMMED OWAIS
Roll no - 532





SAYED MOHAMMED OWAIS
Roll no - 532