**OBJECT ORIENTED PROGRAMMING**

**JAVA CODE :**

**import java.util.Random;  
  
public class Race {  
 public static void main(String[] args) {  
 Random random = new Random();  
 int tortoisePosition = 1;  
 int harePosition = 1;  
 int finishLine = 70;** // Race start message **System.out.println("The race has started!");  
  
 while (tortoisePosition < finishLine && harePosition < finishLine) {** // Tortoise movement **int tortoiseMove = random.nextInt(100) + 1;** // Random number between 1 and 100 **if (tortoiseMove <= 50) {  
 tortoisePosition += 3;** // Fast plod **} else if (tortoiseMove <= 70) {  
 tortoisePosition -= 6;** // Slip **} else {  
 tortoisePosition += 1;** // Slow plod **}** // Hare movement **int hareMove = random.nextInt(100) + 1;** // Random number between 1 and 100 **if (hareMove <= 20) {  
 // Sleep, no movement  
 } else if (hareMove <= 40) {  
 harePosition += 9;** // Big hop **} else if (hareMove <= 50) {  
 harePosition -= 12;** // Big slip **} else if (hareMove <= 80) {  
 harePosition += 1;** // Small hop **} else {  
 harePosition -= 2;** // Small slip **}** // Ensure positions do not fall below 1 **if (tortoisePosition < 1) {  
 tortoisePosition = 1;  
 }  
 if (harePosition < 1) {  
 harePosition = 1;  
 }** // Print current positions **System.out.println("Tortoise position: " + tortoisePosition + ", Hare position: " + harePosition);** // Check if either has reached the finish line **if (tortoisePosition >= finishLine || harePosition >= finishLine) {  
 if (tortoisePosition >= finishLine && harePosition < finishLine) {  
 int difference = tortoisePosition - harePosition;  
 System.out.printf("The race is over and the tortoise won by %d squares ahead of the hare.\n", difference);  
 System.out.println("The tortoise is rewarded with a bucket of fresh carrots and lettuce!");  
 } else if (harePosition >= finishLine && tortoisePosition < finishLine) {  
 int difference = harePosition - tortoisePosition;  
 System.out.printf("The race is over and the hare won by %d squares ahead of the tortoise.\n", difference);  
 System.out.println("The hare is rewarded with a bucket of fresh carrots and lettuce!");  
 } else {  
 System.out.println("!The race is over and both animals reached the finish line at the same time");  
 System.out.println("Both the tortoise and the hare are rewarded with a bucket of fresh carrots and lettuce!");  
 }  
 break;  
 }** // Wait for 1 seconds **try {  
 Thread.sleep(1000);  
 } catch (InterruptedException e) {  
 e.printStackTrace();  
 }  
 }  
 }  
}**

**Sample Output:**

The race has started!

Tortoise position: 1, Hare position: 2

Tortoise position: 2, Hare position: 1

Tortoise position: 5, Hare position: 1

Tortoise position: 8, Hare position: 1

Tortoise position: 2, Hare position: 1

Tortoise position: 5, Hare position: 2

Tortoise position: 1, Hare position: 3

Tortoise position: 4, Hare position: 3

Tortoise position: 7, Hare position: 12

Tortoise position: 8, Hare position: 12

Tortoise position: 11, Hare position: 21

Tortoise position: 14, Hare position: 22

Tortoise position: 17, Hare position: 22

Tortoise position: 20, Hare position: 31

Tortoise position: 23, Hare position: 32

Tortoise position: 17, Hare position: 30

Tortoise position: 20, Hare position: 39

Tortoise position: 23, Hare position: 48

Tortoise position: 26, Hare position: 57

Tortoise position: 29, Hare position: 55

Tortoise position: 32, Hare position: 55

Tortoise position: 26, Hare position: 55

Tortoise position: 27, Hare position: 56

Tortoise position: 30, Hare position: 44

Tortoise position: 31, Hare position: 53

Tortoise position: 25, Hare position: 54

Tortoise position: 28, Hare position: 52

Tortoise position: 29, Hare position: 61

Tortoise position: 32, Hare position: 70

The race is over and the hare won by 38 squares ahead of the tortoise.

The hare is rewarded with a bucket of fresh carrots and lettuce!