

TortoiseandHare.java

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package programmingassignment4;

import java.util.Random;

public class TortoiseandHare
{
    public static void main(String []args)
    {
        //initialize variables
        int T = 0; //Starting location of the tortoise
        int H = 0; //Starting location of the hare
        Random rand = new Random();
        int tRand1 = rand.nextInt(10)+1;
        int hRand1 = rand.nextInt(10)+1;
        boolean tWin = false;
        boolean hWin = false;

        char [ ] TortoiseandHare = new char [70]; // TortoiseandHare is an array of
characters

        //Initialize the array to hyphens
        for (int i = 0; i< TortoiseandHare.length; i++)
            TortoiseandHare[i] = '-';

        do //set up the game
        {
            //Roll the dice for the tortoise and the hare for this turn
            tRand1 = rand.nextInt(10)+1;
            hRand1 = rand.nextInt(10)+1;
            //blank out current location of the tortoise
            TortoiseandHare[T] = '-';

            //tortoise options
            switch (tRand1) //Should have a value of 1-10
            {
                case 1:
                case 2:
                case 3:
                case 4:
                case 5:    T +=3;    break; //move forward 3 spaces 50% of the time
                case 6:
                case 7:    T -=6;    break; //move backward 6 spaces 20% of the time
                case 8:
                case 9:
                case 10:   T++;      break; //move forward 1 space 30% of the time
            }//switch

            //tortoise conditions
            if ( T > 69)
            {
                T = 69;
                tWin = true;
            }
            else if ( T < 0)
                T = 0;

            TortoiseandHare[T] = 'T';
            //blank out current location of the hare
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TortoiseandHare[H] = '-';

//hare options
switch (hRand1)
{
case 1:
case 2: break; //no movement for the hare
case 3:
case 4: H+=9; break; //move forward 9 spaces 20% of the time
case 5: H-=12; break; //move backward 12 spaces 10% of the time
case 6:
case 7:
case 8: H++; break; //move forward 1 space 30% of the time
case 9:
case 10: H-=2; break; //move backward 2 spaces 20% of the time
} //switch

//hare conditions
if ( H > 69)
{
    H = 69;
    hWin = true;
}
else if ( H < 0)
    H = 0;

TortoiseandHare[H] = 'H';

//Print the current state of the race
for (int i = 0; i< TortoiseandHare.length; i++)
    System.out.print(TortoiseandHare[i]);
System.out.println();
}while ( !tWin && !hWin); //while
//Winner
if ( T >= 69)
    System.out.println("T is the Winner!");
else if ( H >= 69)
    System.out.println("H is the Winner!");
else if ( T == H )
    System.out.println("Tied!");
} //main
} //class

```