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CSC 2300 Project

HTX

This assignment seemed difficult upon first looking at it, but once I began coding it, I realized that wasn’t the case. The hardest part figuring out how to keep rolling the die until it reached the desired sequence, which I decided to do by instantiating a boolean and kept it rolling while it was true (i.e. hadn’t reached the HTX). Since the sequences are the same except the last value, and because heads and tails have the same probability of being flipped, I anticipated that after invoking the law of large numbers, the average number of flips for both would be about the same. This experiment concluded my hypothesis.

**Code for HTH:**

import java.text.DecimalFormat;

import support.MultiDie;

public class HTH {

public static void main(String[] args) {

// TODO Auto-generated method stub

MultiDie coin = new MultiDie(2);

DecimalFormat df = new DecimalFormat("#.##");

int max = 1000000;

int flipcount;

int flips=0; double avg;

int prev1 = 3; int prev2 = 3; int curr;

for(int i = 1; i <= max; i++){

flipcount=0;

boolean z = true;

while(z){

coin.roll();

flipcount++;

curr = coin.getFaceValue();

//System.out.println(curr);

if(prev1 == 1 && prev2 == 2 && **curr == 1){**

flips = flips+flipcount;

z = false;

//System.out.println("Restart: "+flipcount+" flips");

//System.out.println("total flips "+flips);

}

prev1 = prev2;

prev2 = curr;

}

}

System.out.println("Number of trials: "+max);

avg = (double)flips/max;

System.out.println("Average number of flips till HTH: "+df.format(avg));

}

}

**Code for HTT is the same except that the line above in bold is instead curr = 2.**

**Outputs:**

Number of trials: 1000000

Average number of flips till HTH: 8

Number of trials: 1000000

Average number of flips till HTH: 8.01

Number of trials: 1000000

Average number of flips till HTH: 7.99

Number of trials: 1000000

Average number of flips till HTT: 8

Number of trials: 1000000

Average number of flips till HTT: 8

Number of trials: 1000000

Average number of flips till HTT: 7.99