Katie Bogan

CSC 2300

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Coin Flip

This project was not very difficult. I created a MultiDie object with 2 sides and object to count the number of heads. I then made a for loop to increase the amount of times the die was flipped. One problem that I ran into was that I forgot that faceValue was a private integer, and Dr. Joyce pointed out that I had to use the getFaceValue method. The other one was my initial ratio for the number of heads, as I was consistently getting a miniscule ratio, but I realized that I needed an inner for loop to roll the die n times, and the outer loop multiplies n by 10. Overall, this project took me about 20 minutes to complete.

**CoinFlip.java**

import support.MultiDie;

import java.text.DecimalFormat;

public class CoinFlip {

public static void main(String[] args) {

// TODO Auto-generated method stub

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

MultiDie coin = new MultiDie(2);

int maximum = 10000000;

int hcount=0;

float result;

for(int n = 1; n <= maximum; n\*=10){

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

coin.roll();

//System.out.println(coin.getFaceValue());

if(coin.getFaceValue()==1)

hcount++;

}

result = (float)hcount/n;

System.out.println("Ratio of times heads appears for "+n+" trials: "+df.format(result));

}

}

}

**Sample Output**

Ratio of times heads appears for 1 trials: 1

Ratio of times heads appears for 10 trials: 0.6

Ratio of times heads appears for 100 trials: 0.55

Ratio of times heads appears for 1000 trials: 0.534

Ratio of times heads appears for 10000 trials: 0.5542

Ratio of times heads appears for 100000 trials: 0.5563

Ratio of times heads appears for 1000000 trials: 0.55609

Ratio of times heads appears for 10000000 trials: 0.55567

Ratio of times heads appears for 1 trials: 1

Ratio of times heads appears for 10 trials: 0.5

Ratio of times heads appears for 100 trials: 0.53

Ratio of times heads appears for 1000 trials: 0.563

Ratio of times heads appears for 10000 trials: 0.5666

Ratio of times heads appears for 100000 trials: 0.55888

Ratio of times heads appears for 1000000 trials: 0.55544

Ratio of times heads appears for 10000000 trials: 0.55532

Ratio of times heads appears for 1 trials: 1

Ratio of times heads appears for 10 trials: 0.3

Ratio of times heads appears for 100 trials: 0.58

Ratio of times heads appears for 1000 trials: 0.589

Ratio of times heads appears for 10000 trials: 0.5611

Ratio of times heads appears for 100000 trials: 0.55694

Ratio of times heads appears for 1000000 trials: 0.5561

Ratio of times heads appears for 10000000 trials: 0.55583