January 27,2017

Purpose: To create a program that records the outcomes of heads N times and calculating the ratio of getting heads. This should prove the law of large numbers.

Outputs Examples:

I was able to display on the screen how many heads and Tails appear, but I had trouble computing the ratio.

```
  1
  1
  2
  2
  1
  1
  1
  2
  2
  1
N=10
Total heads: 6
Ratio of Heads=
0.60000
```

```
  1
  1
  1
  2
  2
  2
  2
  1
  1
  2
N=10
Total heads: 5
Ratio of Heads=
0.50000
```

```
N=1000
Total heads: 522
Ratio of Heads= 0.52200

N=100000
Total heads: 49879
Ratio of Heads= 0.49879

N=10000000
Total heads: 5000088
Ratio of Heads= 0.50001
```

Reflections:

I had trouble starting out this project because I did not understand how to use other methods from different classes in Java. So I had to watch a couple of Youtube videos and online textbooks to see a couple of examples. After a while, I was able to understand it. However, I got stuck adding how many heads appeared. I tried to use an If statement. If getFaceValue=1 then that is a heads and I would add sum+=getFaceValue. However, that wasn't working. I couldn't think of any other way to approach this then to add

```
if (1= x)
{
	headsCount++;
}
else {
	tailsCount++;
}
```

.

After attending JavaBootcamp, during the lecture I noticed my problem was that I did not added double = to equal the condition inside the if loop. Once I changed that, the correct number of heads appeared when I tested out a small number of sample (5). I then had trouble getting the ratio because I kept getting an error of " cannot convert from double to int". After researching what my problem was by googling integer division, I found out that I had to put a double when calculating the ratio so both sides would be the same.

```java
package secondProject;

public class MainFlip {
	public static void main (String[] args)
	{
		int headsCount=0;
		int tailsCount=0;
		// ratio=0;


		final int N = 10 ; // constants for declaring the flips later on


		MultiDie coin= new MultiDie(2); // Constructor

		for( int i=1; i<= N; i++){
			//tossing the coin
			coin.roll();
			int x = coin.getFaceValue();
			//displaying the outcome of each tosee
			System.out.printf( "  %d\n", x);

			//counting each outcome
			  if (x==1)
			{
				headsCount++;
			}
			else {
				tailsCount++;
			}

		}

	System.out.println("N="+ N);
	System.out.printf("Total heads: %d\n", headsCount);
	//calculating ratio
	double ratio  = (double)headsCount/N;
	System.out.printf("Ratio of Heads= %.5f\n", ratio);

	}
}
```