HW10\src\Problem1.java

```
1  /*
2  Name: Hunter Poole
3  Date: 4/16/25
4  HW #: 10
5  Problem #: 1
6  Source Code: Problem1.java
7  Action: Determines the count and percentage of heads or tails given 1000 coin flips.
8          Takes no input. Calls a function "Flip" to flip each coin.
9  */
10
11 public class Problem1
12 {
13
14     public static void main(String[] args)
15     {
16         int FlipResult = -1, HeadsCount = 0, TailsCount = 0;
17         float HeadsPercentage, TailsPercentage;
18
19         for (int i = 0; i < 1000; i++)
20         {
21             FlipResult = Flip();
22
23             if (FlipResult == 1)
24             {
25                 ++HeadsCount;
26             }
27             else
28             {
29                 ++TailsCount;
30             }
31         }
32
33         HeadsPercentage = (HeadsCount / 1000f) * 100f;
34         TailsPercentage = (TailsCount / 1000f) * 100f;
35
36         System.out.printf("%s %d %.1f%s %n%s %d %.1f%s", "Heads =", HeadsCount,
   HeadsPercentage, "%",
37                           "Tails =", TailsCount, TailsPercentage, "%");
38     }
39
40 /*
41 Action: Flips a coin! Uses Math.random() and rounds to 0 or 1 using Math.round().
42 Parameters: N/A
43 Returns: int 0 for tails or 1 for heads.
44 Precondition: N/A
45 */
46
```

```
47      static int Flip()
48      {
49          int IsHeads;
50
51          IsHeads = (int)Math.round(Math.random());
52
53          return IsHeads;
54      }
55
56  }
57
58  /*
59  Heads = 526 52.6%
60  Tails = 474 47.4%
61
62  Heads = 497 49.7%
63  Tails = 503 50.3%
64
65  Heads = 499 49.9%
66  Tails = 501 50.1%
67
68  Heads = 497 49.7%
69  Tails = 503 50.3%
70   */
```

HW10\src\Problem2.java

```
1  /*
2  Name: Hunter Poole
3  Date: 4/16/25
4  HW #: 10
5  Problem #: 2
6  Source Code: Problem2.java
7  Action: Asks for a base and an Exponent from the user. Then, calls IntegerPower function
8          to calculate the result without using any of the math methods.
9  */
10
11 import java.util.Scanner;
12
13 public class Problem2
14 {
15
16     public static void main(String[] args)
17     {
18         int Base, Exponent, Answer;
19
20         Scanner Input = new Scanner(System.in);
21         System.out.print("Please input the base --> ");
22         Base = Input.nextInt();
23
24         System.out.print("Please input the exponenet --> ");
25         Exponent = Input.nextInt();
26
27         Answer = IntegerPower(Base, Exponent);
28
29         System.out.print("Answer is = " + Answer);
30     }
31
32 /*
33 Action: Given two integers, a base and an exponent, finds the result of the exponential
   math.
34 Parameters: int Base, int Exponent
35 Returns: int Result
36 Precondition: int Exponent is non-zero and non-negative.
37 */
38
39     static int IntegerPower(int Base, int Exponent)
40     {
41         int Result = Base;
42
43         for (int i = 2; i <= Exponent; i++)
44         {
45             Result *= Base;
46         }
```

```
47
48          return Result;
49      }
50
51  }
52
53  /*
54  Please input the base --> 2
55  Please input the exponenet --> 5
56  Answer is = 32
57
58  Please input the base --> 2
59  Please input the exponenet --> 10
60  Answer is = 1024
61
62  Please input the base --> 3
63  Please input the exponenet --> 3
64  Answer is = 27
65
66  Please input the base --> 8
67  Please input the exponenet --> 2
68  Answer is = 64
69  */
70
71  // Constraints tests //
72
73  /*
74  Please input the base --> 2
75  Please input the exponenet --> 0
76  Answer is = 2
77
78  Please input the base --> 2
79  Please input the exponenet --> -1
80  Answer is = 2
81
82  Please input the base --> 2
83  Please input the exponenet --> 999999999
84  Answer is = 0
85  */
```