Lab 6: Some Problems Involving Loops

Instructions: Write code to address questions 1 – 4.

Question 1: Dice Roll

Write a program that asks the user to output the sum of the values generated by the rolling of two six-sided dice three times, using a repeat control structure.

Sample output:

```
The sum of 3 and 4 is 7.

The sum of 1 and 1 is 2.

The sum of 3 and 2 is 5.
```

Question 2: Repeating Rolls

Write a program that asks the user for the value of a dice roll, and repeats asking until the user enters a legal integer (1 through 6). For each received value that is not legal, the program prints the entered value and "is not legal. Please enter another value" When a legal value is entered, the program should print the entered value, followed by " END!"

Sample output:

```
Enter the value of the dice roll:

> 7

   7  is not legal. Enter another value:

> 12

12 is not legal. Enter another value:

> 3

3 END!.
```

Question 3: Average

Write a program that asks the user for a positive integer (N) and prints the average of N random integers (from 1 to 1000).

Question 4: Exponentiation

Write a program that asks the user for two positive integers (N and M) and prints the value of N raised to the power M using a repeat control structure.

Recall:

A **while loop** is a repeat structure that terminates when a given condition is not met.

```
while (condition)
{
    // Code to be executed
}
```

For example:

```
var x = 3;
         // Exit when x becomes greater than 4
        while (x >=0)
        {
            print( x + " ,");
            x = x - 1;
        }
```

For loop is useful when the number of executions of the code is known before hand:

For example:

```
var y = 0;
    // for loop execution with range
    for(y <- 1 to 5)
    {
      print(y + " ." );
    }
```

Hint: To simulate the roll of a single die, use: (6*math.random).toInt +1