// Author: Kaleb Cosgrave  
//Topic: Introduction to Java using Intellij  
  
public class lab {  
  
 public static void main(String [] args){  
 System.*out*.println("Welcome to Data Structures. I am Kaleb Cosgrave.");  
  
   
 int sum = 0;  
 int number = 10; //Number changes based on Test

//find the sum of the Integers up to  
 for(int x = 1; x <= number; x++){  
 sum = sum + x;  
 }  
  
 System.*out*.println("The Sum of the numbers up to " + number + " is " + sum);  
   
 //find the factorial of number  
 int fact = number;  
 for(int x = 1; x < number; x++){  
 fact \*= (number - x);  
  
 }  
  
 System.*out*.println("The factorial of " + number + " is " + fact);  
 // test sum with numbers = 10, 100, 500, 1000, 10000  
 // test factorial with numbers 3, 5, 7, 8, 10   
  
 }  
}

Sum of the first 10 Numbers

Welcome to Data Structures. I am Kaleb Cosgrave.

The Sum of the numbers up to 10 is 55

The factorial of 10 is 3628800

Process finished with exit code 0

Sum of the first 100 Numbers

Welcome to Data Structures. I am Kaleb Cosgrave.

The Sum of the numbers up to 100 is 5050

The factorial of 100 is 0

Process finished with exit code 0

The Factorial is 0 because the number is too big to be placed as an int

Sum of the first 500 Numbers

Welcome to Data Structures. I am Kaleb Cosgrave.

The Sum of the numbers up to 500 is 125250

The factorial of 500 is 0

Process finished with exit code 0

The Factorial is 0 because the number is too big to be placed as an int

Sum of the first 1000 Numbers

Welcome to Data Structures. I am Kaleb Cosgrave.

The Sum of the numbers up to 1000 is 500500

The factorial of 1000 is 0

Process finished with exit code 0

The Factorial is 0 because the number is too big to be placed as an int

Sum of first 10000

Welcome to Data Structures. I am Kaleb Cosgrave.

The Sum of the numbers up to 10000 is 50005000

The factorial of 10000 is 0

Process finished with exit code 0

The Factorial is 0 because the number is too big to be placed as an int

Factorial of 3

Welcome to Data Structures. I am Kaleb Cosgrave.

The Sum of the numbers up to 3 is 6

The factorial of 3 is 6

Process finished with exit code 0

Factorial of 5

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The Sum of the numbers up to 5 is 15

The factorial of 5 is 120

Process finished with exit code 0

Factorial of 7

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The Sum of the numbers up to 7 is 28

The factorial of 7 is 5040

Process finished with exit code 0

Factorial of 8

Welcome to Data Structures. I am Kaleb Cosgrave.

The Sum of the numbers up to 8 is 36

The factorial of 8 is 40320

Process finished with exit code 0

Factorial of 10

Welcome to Data Structures. I am Kaleb Cosgrave.

The Sum of the numbers up to 10 is 55

The factorial of 10 is 3628800

Process finished with exit code 0