**CSIT 111: Fundamentals of Programming I**

**In-class Lab**

**Instructions**

Write a class called **Calculation** to finish the following tasks of computation.

1. Given an integer value, calculate the sum of the square of the numbers from 1 to the given value. For example, given the value 5, the sum of squares can be calculated as:

2. Given three double values ***x***, ***v***, and ***t***, calculate the displacement in meters after ***t*** seconds when an object is thrown straight up from initial height ***x*** meters with velocity ***v*** meters per second.

The displacement with values ***x***, ***v***, and ***t*** can be calculated by the following equation:

where ***G*** is the constant 9.78.

For example, with x: 10.0, v: 0.0, and t: 1.0, the displacement is 5.11.

You do not have to use the Math class to do above two tasks.

**Specifications**

**main Method**

The main method must create a Scanner object.

For the first task, it asks the user for an integer, and use the Scanner object to get an input from the user.

If the input is less than 1, an error message is printed.

If the input is larger or equal to 1, the main method should call the sumSquare method to get the sum of the squares of the number from 1 to the integer entered by the user. And print the value returned by the sumSquare method.

For the second task, the main method must ask the user to enter three double values x, v, and t. Then, it will call the method displacement and pass the entered values to the parameters of displacement. And print the value returned by the displacement method.

**sumSquare Method**

The sumSquare method **must** take an integer as its parameter and return an integer.

The method should calculate the sum of the squares of the number from 1 to the value of the parameter and return the sum.

**displacement Method**

The displacement method **must** take three double values (***x***, ***v***, and ***t***) as its parameters and return a double.

The method should declare the constant ***G*** and initialize it as 9.78. Then it calculates the displacement of the values of the parameters and return the displacement.

**Submission**

Compile and test your program before submission. Next, create a folder and name it with the course, section, lab number, and your name. Example: ***csit111\_02\_lab\_jane***. Copy **Calculation.java** to this folder. Last, zip the folder and submit it to Canvas before the given deadline for grading.