EXERCISE 1 - Gravity Calculator

In this assignment, you will create a program that computes the distance an object will fall in Earth's gravity.

Part One

1. Open the corresponding project in Codeboard.io

2. Check the following code is already included in the Main class

```java
class GravityCalculator {
    public static void main(String[] arguments) {
        double gravity = -9.81;  // Earth's gravity in m/s^2
        double initialVelocity = 0.0;
        double fallingTime = 10.0;
        double initialPosition = 0.0;
        double finalPosition = 0.0;
        System.out.println("The object's position after " + fallingTime +
            " seconds is " + finalPosition + " m.");
    }
}
```

3. Compile and Execute the program in Codeboard using the <u>Compile</u> and <u>Run</u> buttons of Codeboard.

What is the output of the unmodified program? Use the text edit you will find in the corresponding task in Aula Virtual to write down such output.

Part Two

Modify the example program to compute the position of an object after falling for 10 seconds, outputting the position in meters. The formula in Math notation is:

$$x(t) = 0.5 \times at^2 + v_i t + x_i$$

Variable	Meaning	Value
a	Acceleration (m/s^2)	-9.81
t	Time (s)	10
v_i	Initial velocity (m/s)	0
x_i	Initial position	0

Note: The correct value is -490.5 m. Java will output more digits after the decimal place, but that is unimportant.

Submission Instructions

Once you have finished submit your solution using the <u>Submit</u> button of Codeboard