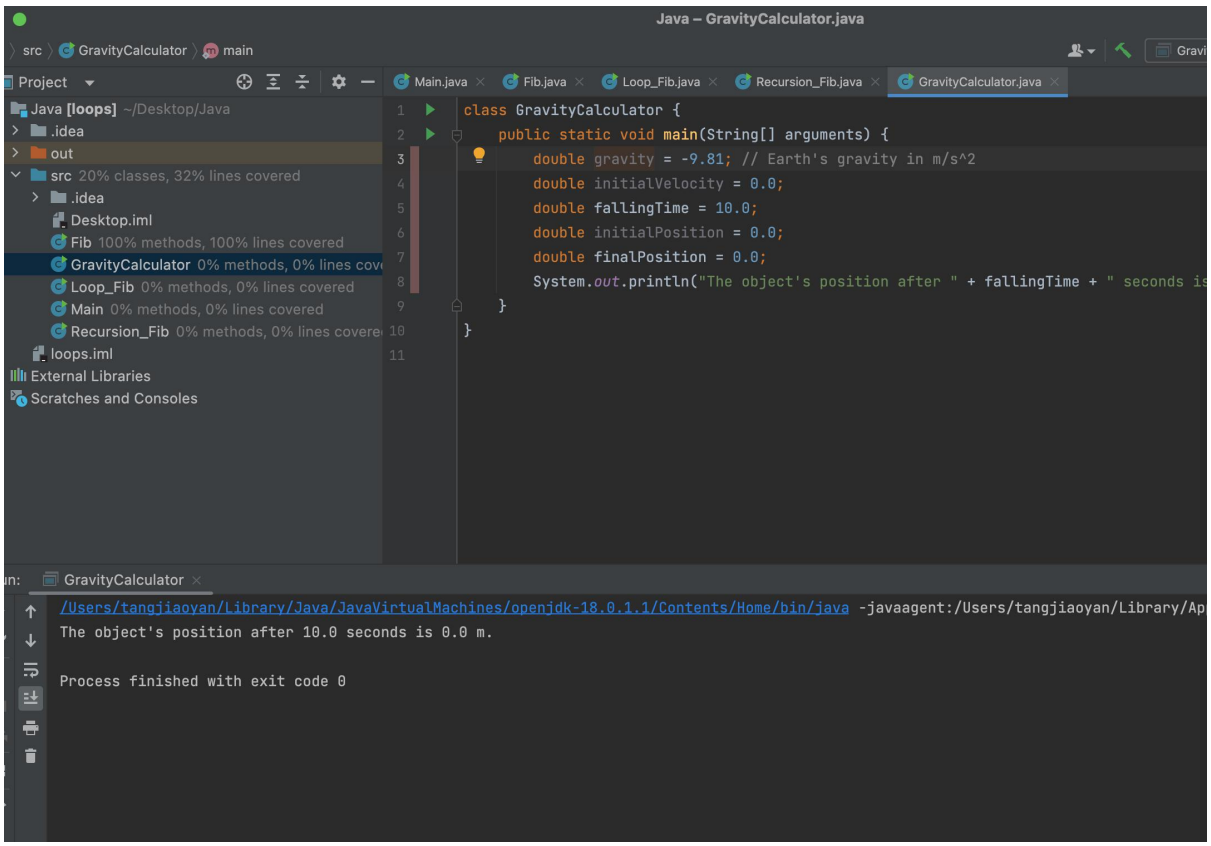
Assignment1_2

Student:Tang Jiaoyan

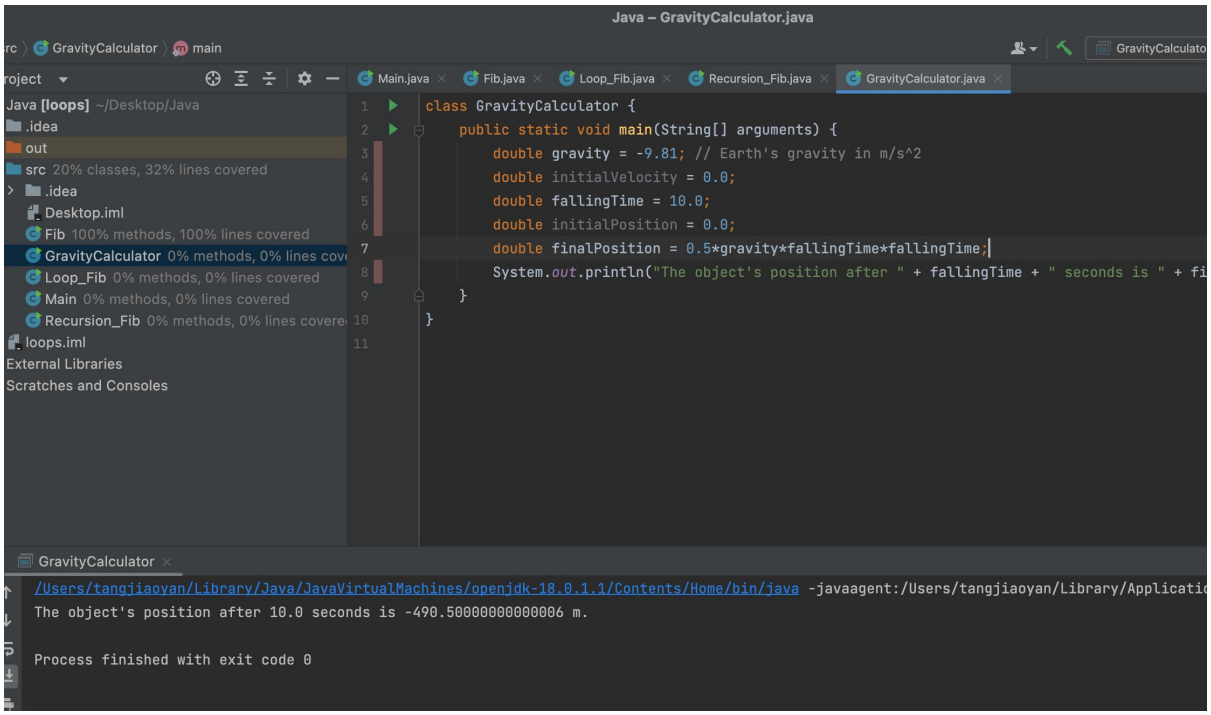
In this assignment, you will create a program that computes the distance an object will fall in Earth's gravity.

1. Create a new class called GravityCalculator.
2. Copy and paste the following initial version:
3. Run it in IntelliJ. What is the output of the unmodified program?

The object's position after 10.0 seconds is 0.0 m.



4. Include this as a comment in the source code of your assignment. 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 × at 2 + vit + xi Variable Meaning Value a Acceleration (m/s 2) -9.81 t Time (s) 10 vi Initial velocity (m/s) 0 xi Initial position 0 Note: The correct value is -490.5 m. Java will output more digits after the decimal place, but that is unimportant.



Code:

```
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 = 0.5*gravity*fallingTime*fallingTime;
        System.out.println("The object's position after " + fallingTime + " seconds is " + finalPosition + " m.");
    }
}
```