UNIVERSITY OF COLOMBO SCHOOL OF COMPUTING

IS2104 - Rapid Application Development 2020

Activity 2

In this tutorial, we are going to learn about the variables, data types, and operators of Java.

Objective

- Learn about the datatypes of Java.
- Take inputs from the terminal.
- Perform arithmetic operations on data.
- Output the processed data on the terminal.

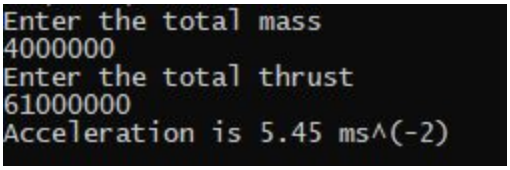
Instructions

- You should submit
    1. **Rocket.java** and **Rocket.class** file from question number 1
    2. **Clac.java** and **Calc.class** from question number 2
    3. A report with screenshots of
        a. Contents of Rocket.java file
        b. Output of running Rocket.class file with given testcase
        c. Contents of Calc.class file
        d. Output of Calc.class file with given 2 test cases
- Report must be in **PDF** format.
- Report name should be <Index Number>.pdf
    - eg – 18000000.pdf
- Zip all 5 files (Rocket.java, Rocket.class, Calc.java, Calc.class and Report), name it <Index Number >.zip and upload it to the submission link.
    - eg – 18000000.zip
- Use appropriate text editor (eg – Notepad , Notepad ++)
- You are not allowed to use IDEs
- Any form of plagiarism or collusion is not allowed.

Assignment 2

1.

- Calculating the acceleration of a space rocket. (Rocket.java)
- The two main forces affecting the rocket at the moment of launch are the thrust upwards and the weight of the rocket downwards. Weight can be calculated by multiplying mass (kg) by 9.8.
- The resultant force upwards is equal to thrust - weight.
- Acceleration can be calculated by dividing the resultant force (N) by the mass (kg).
- Create a Java program to calculate the acceleration of the space shuttle. Identify the inputs to the Java program with the appropriate data types and take the inputs from the terminal.
- Do not use separate functions, use only the main method to create the program.
- Use the following data to test your Java program.
- These are the details of the space shuttle launched on 24 February 2011. Total mass was 2 million kilograms. Thrust generated by two rocket boosters were 12.5 million newtons and the shuttle was 5.5 million. Therefore the total thrust was 30.5 million Newtons. (If you calculated correctly the acceleration should be 5.45ms^{-2}.)
- Example output



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2.

- Simple calculator. (Calc.java)
- Create a Java program to read 2 non zero integer inputs A & B and output
    - A+B
    - A-B
    - A*B
    - A/B
- Do not use separate functions, use only the main method to create the program.
- Use the following data to test your program.
    - A => 10, B =>5
    - A => 5, B => 10
- Example Output

```
Enter your first number (A)
100
Enter your second number (B)
7
A+B = 107
A-B = 93
A*B = 700
A/B = 14.285714
```