Joint Project CA
Object Oriented Software Development
Discrete Structures & Algorithms I

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Due Date: 25/01/2019

Instructions:

You are required to develop a calculator application in Java using the Graphical User Interface (GUI) components. The solution is to be presented in a report. This report is to contain

- a thorough description of the problem,

- a description of underlying data structures used to solve the problem,

- pseudocode of the Algorithms used,

- a copy of the Java code & executable jar file,

- a description of all the functions/routines which have been used, and

- Test data used and sample execution screen shots of outputs produced.

1

The marks for Object Oriented Software Development module will be allocated based on the level achieved in the assignment.

To receive a 40% pass mark, you must develop an application that can carry out at least the following functions:

- Addition

- Subtraction

- Multiplication

- Division

To receive a 60%+ marks, you must develop an application that can:

- Satisfy the 40% pass mark requirements

- Provide a way to clear the screen of numbers.

- Provide memory functions to remember numbers.

To receive a 70%+ mark, you must develop an Application that can:

- Satisfy the 60% pass mark requirements

- Use programmer defined Exception classes for Error Handling (i.e. use your own Exception Handling Classes)

- Anything beyond this will receive pro-rata marks!!!

In order to solve the problem you should perform each of the following steps:

1. Read the problem statement.

2. Formulate any algorithms using pseudocode, flowcharts and top-down, stepwise refinement.

3. Write the necessary Java classes.

4. Test, debug and execute the Java application.

5. Document the steps you have taken throughout the development life-cycle of the application, i.e. algorithm, code, debugging errors.

Extra Information:

1. You should comment your code appropriately.

2. Correct use of uppercase and lowercase lettering should be used.

3. Only include methods appropriate to the application.

4. The use of correct Java code conventions will gain extra marks also e.g. code indentation, opening and closing brackets/parenthesis, correct field and method naming etc. All of which we have been discussed and used in class.

5. You are permitted to work in groups of two (**no more!**), but must use a git repository (**share access with me**) and notify me of the groups members before you start the project (**groups cannot be changed later!**).

6. Email completed Assignments (source code, executable jar file & documentation zipped up) to Jason on or before Monday 28th January 2019 (No Extensions)

7. Hardcopy of the reports are to be handed to Aine on or before same date

8. Demos of the application will take place at a later date TBA