Queens College, CUNY, Department of Computer Science

Software Engineering

CSCI 370

Fall 2018

Instructor: Dr. Sateesh Mane

due Monday September 17, 2018

2 Project 2

2.1 Submission details

- The project 2 specification is to implement a GUI for a four function calculator.
- *The due date of Project 1 will be postponed, by one week, to 10/7/2018.*
- **Project 2 has "emergency priority" and must be completed on time.**
- **All students will be required to demo their Project 2 GUI in class on 9/17/2018.**
- **Bring a computer to class, and demo your GUI on your computer.**
- **All students must submit individual written reports for Project 2.**
  1. This is because your work will be a "final submission" for the project.
  2. **The written report may be submitted on Tuesday 9/18/2018.**
  3. Please employ the following naming convention for your report (zip archive).

     `StudentId_first_last_CS370_Project2.zip`
  4. The zip should contain your program code.
  5. For a project of this magnitude, it should be possible to write all the code in one file.
  6. If the code is written in Java, **the zip should contain a jar file.**
  7. For other languages, see if the zip can contain an executable file which I can run.
- **Tutorial:**
  1. For Java code, a student has kindly written a tutorial how to make a jar in a zip file, which is safe to email.
  2. The instructions use the Eclipse IDE.
  3. The tutorial is posted online at the following link:
     `http://venus.cs.qc.cuny.edu/~smane/cs370/projects/java_Tutorial.pdf`
- **Teams:**
  1. Students may work in teams (either existing teams or form new teams).
  2. *For new teams, the names of all team members must be submitted to me before 9/17/2018.*

2.2 GUI details

- The project specification is to implement a GUI for a four function calculator.
- **The basic GUI layout was displayed in class.**
- **The basic GUI functionality was displayed in class.**
- The four functions are the basic arithmetic operations $+, -, *, \div$.
- **Buttons:**
  1. Digits $0 - 9$ and button "." for decimal point.
  2. Button "+/−" to change sign of operand.
  3. Button "=" to perform calculation and display result.
  4. Buttons "C" to clear the current operand and "AC" to clear everything from memory.
- **You are NOT required to write a programmable calculator.**
  1. You are required to support only two operands.
  2. A calculation such as $1 - 2 * 3$ will be performed as follows:
  3. Enter "2" then enter "$*$" then enter "3" then enter = (to display "6") then enter "+/−" to change sign (to display "−6") then enter "+" then enter "1" then enter = (to display "−5").
  4. You are NOT required to implement a "stack" or "binary tree" to support multiple nested operations and operator precedence, etc.
- Results (for large/small magnitudes) can be displayed in fixed format or scientific notation.
- Leading zeroes should not be displayed (enter "0" and "1" the display should show "1" not "01").
- Trailing zeroes should not be displayed (enter "1" and "+" and "2.0" and "=" the display should show "3" not "3.0").
- Input a fraction as "." and "4" the display should show "0.4" (not ".4").
- Division by zero should display "err" or a suitable error message.
  1. Bad input must be trapped.
  2. **The GUI must not crash.**
  3. *Do not worry about overflow or underflow.*
  4. The GUI will not be tested with extreme numbers.
- **There is no memory.** If the GUI is restarted all previous calculations are lost.