

COP 3275 - Computer Programming using C

Summer 2018

Assignment #3 – July 6th

Problem Description

Using the different control statements (e.g. if, if-else, while, for), functions and basic data-types discussed in class, develop an interactive calculator. The calculator supports a set of operators and saves the result of the last operation to be used furthermore, as follows:

- A. Start your calculator with an appropriate prompt welcome message then ask the user to select one of the following options:
 - 1. Insert two operands (A and B) and an operator
 - 2. Use the previous result as operand A, insert operand (B) and an operator.
- B. The operands are float-point data-type values whereas the operator is a character data-type value.
- C. For the operands A and B, the program supports the following operators (implement the function of each operator using a separate function):
 - + returns the result of adding A and B
 - returns the result of subtracting B from A
 - x returns the result of multiplying A and B
 - P returns the result of A to the power of B
 - ! returns the factorial of A + B, where the factorial of $N = 1 \times 2 \times 3 \times 4 \times \dots \times N$
- D. The program performs the appropriate calculation indicated by the operator on the input operands and saves the result (so it can be used again as mentioned in the second option of the menu).
- E. The program then asks the user if he wants to calculate something else, Y (for yes) or N (for no).

Cases to consider:

- The saved/previous result is initially equal to zero.
- The user will enter float-type value when asked for operands and character-type value when asked for operator, no need for type check.
- The '!' and 'P' operators work only on positive operands: thus, for non-positive operands (A or B) display a prompt message and return value of -1.
- If the user inserted an operator outside those defined in step C, display message that such operator is not supported.

Submission

***Submit on Canvas (Sakai) -due friday's class (July 13th - 11:00 am)- a zip folder that contains:

- 1) Your source program named as (yourFirstName_yourLastName.c).
- 2) PDF file that contains a copy of your source program and screenshots of the output in the different scenarios/functions (the way you find appropriate).

*** you must also print the PDF file mentioned above and hand it to the instructor at the beginning of the Friday's class (July 13th – 11:00 am)

Grading Criteria

- 1- The program compiles and works properly (ignore warnings generated by the compiler).
- 2- Interactive program (prompt messages and clear flow).
- 3- Clearly documented (appropriate comments and variables names).