CS 1428 Honors
Lab 2

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Questions

1. (10 pts) Write a snippet of code that includes an if statement to compare the value of x (a variable inputted by the user) to the named constant *NUM*, which you must declare and assign a value of your choice ($0 <= NUM <= 256$). You must prompt the user for the value of x.

2. (10 pts) Evaluate these logical expressions. Write the answers on this work sheet. Do NOT use the computer to evaluate these expressions.

   - $T \;\&\; \&F$
   - $T||F$
   - $F \;\&\; \&F$
   - $!(T \;\&\; \&T)$
   - $!T \;\&\; \&T$

3. (10 pts) What is the output for the following snippet of code?

```
int main()
{
    int x = 3;
    bool y = false;
    cout << x++ << endl;
    if(y && ++x == 5)
    {
        cout << "Hooray!"<<endl;
    }
    else
    {
        cout << "awww...."<<endl;
    }
    cout << x << endl;

    return 0;
}
```

4. (60 pts) You will need to make a program named lab2h.cpp that will function as a basic calculator. Requirements:

   - Declare the following constants (same as last week).
     - OP_ADD with a value of 0
     - OP_SUB with a value of 1
     - OP_MUL with a value of 2
     - OP_DIV with a value of 3
     - OP_MOD with a value of 4
     - OP_EXP with a value of 5
     - OP_RED with a value of 6
     - OP_WRT with a value of 7
   - Declare the following variables:
     (a) inst (integer)
     (b) data0 (integer)
     (c) data1 (integer)
     (d) data2 (integer)
   - Prompt the user to input the value of inst, which will be the numerical interpretation of the operation you wish to perform, followed by the values of data1 and data2, which are the two numbers to perform the operation on. In other words, to add 3 and 5 together, the user would enter "0", followed by "3" and then "5".
   - Use if statements to handle control flow. (You may use other tools if you know them)
   - The result of the calculation should be stored in the variable data0.
   - If the user selects an option that the calculator is not equipped to perform, (like 6 or 7, for instance, or any other invalid number) merely output the string "Unable to perform operation." and assign the value "-1" to data0.

- After the calculation, output a message to the user informing them that their calculation is done and output the result.
- Your calculator must at least handle one operation per program execution. You may, at your discretion, code it to allow more than one.

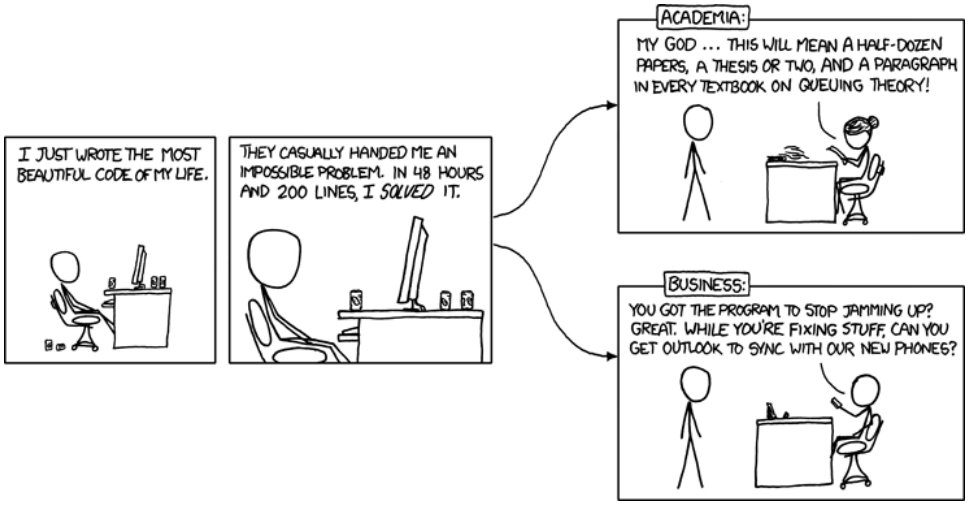
Extra Credit

(10 pts possible) What is the logical equivalent of the following statement and what law does it follow? (p and q represent two different values)

$!(p \;\&\; \&q)$

Deliverables

Hard copy of the source code you wrote (lab2h.cpp) and the answers to the questions. Soft copy (upload to homework upload) of your source code.



Some engineer out there has solved P=NP and it's locked up in an electric eggbeater calibration routine. For every 0x5f375a86 we learn about, there are thousands we never see.