**CSC 1100 – Problem Solving and Programming**

**Homework 4 – [your name]**

**25 points – Due March 7, 11am**

**Late deadline is March 9, 11:59pm, but 20% off**

**a)** Save this document with your name and the homework number somewhere in the file name.

**b)** Type/paste your answers into the document.

**c)** Submit this document to the Canvas item where you downloaded this document.

**1) [1 point]** Name a software engineer (famous or not) and briefly describe their contribution to computing.  
{ Bjarne Stroustrup – Created the C++ Language}

**2) [2 points]** The most common logical operators are AND, OR, and NOT, but there are other ones. Research and complete truth tables for the following operators:

**a)** Joint denial (NOR)

|  |  |  |
| --- | --- | --- |
| “nor” operator truth table | | |
| Left side | **Right side** | **Result** |
| TRUE | TRUE | FALSE |
| TRUE | FALSE | FALSE |
| FALSE | TRUE | FALSE |
| FALSE | FALSE | TRUE |

**b)** Alternative denial (NAND)

|  |  |  |
| --- | --- | --- |
| “nand” operator truth table | | |
| Left side | **Right side** | **Result** |
| TRUE | TRUE | FALSE |
| TRUE | FALSE | TRUE |
| FALSE | TRUE | TRUE |
| FALSE | FALSE | TRUE |

**3) [8 points]** Write the number of **for statement** loops that will be performed for each of the following:

|  | Initialization | Condition | Update | Loops? |
| --- | --- | --- | --- | --- |
| a) | i = 6 | i <= 12 | i = i + 1 | 7 |
| b) | i = 4 | i < 15 | i = i + 3 | 4 |
| c) | i = 18 | i <= 18 | i = i – 1 | ∞ |
| d) | i = 1 | i > 16 | i = i \* 2 | 0 |
| e) | i = -10 | i < 50 | i = i – 10 | ∞ |
| f) | i = 19 | i > 9 | i = i – 2 | 5 |
| g) | i = 14 | i != 8 | i = i – 2 | 3 |
| h) | i = 31 | i <= 31 | i = i + 1 | 1 |

**4) [1 point]** Why should the **continue statement** rarely be used?

{Because Mr. Dan Ouellette said it’s spaghetti code.}

**5) [4 points]**

**a)** Describe the difference between **definite** and **indefinite** iteration.

{Definite iterations have a defined amount of times that it will iterate, while an indefinite iteration will loop an unpredictable amount of times}

**b)** List a C++ statement that performs:

Definite iteration ►

{for}

Indefinite iteration ►

{do, and do-while}

**6) [3 points]** From web page http://www.cplusplus.com/reference/cstdio/, pick any three functions from the list of C++ input-output functions and list the name, parameters (if any), and return type for each one. Many of the data types will seem unusual since we've not discussed them.

| Name | Parameter(s) | Return type |
| --- | --- | --- |
| ferror | stream | Nonzero or zero |
| Remove | String filename | Nonzero or zero |
| fclose | stream | Zero or EOF |

**7) [6 points]**

**a)** Write a **cout statement** that calls the following value function:

string cityState(string city, string state)

{

return city + ", " + state;

}

cout statement ► cout << cityState(“Detroit”, “Michigan”);

**b)** List the parameters and arguments, if any, involved the call.

Parameters ►

* + - string city
    - string state

Arguments ►

* “Detroit”
* “Michigan”