**CSE1502 – Intro to Software Dev. with C++**

**Software Development Lab Report**

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*By*

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Lab 1:

Teaching Instructor:

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# 1. Problem Statement: Problem 1 and 2

*The first problem tasked me with programming an executable file in C++ that outputs a single line of text in the terminal, using the “cout” command that was demonstrated in class. The second problem tasked me with creating an executable that prompts the user for their name and favorite food using “cin” and outputs related lines of text in the terminal using “cout.”*

# 2. Requirements

*This section lists the functional requirements given for the software. Functional requirements dictate what the software needs to do (i.e., that major functions of the software). Each requirement must be presented using a numbered list. In addition, each requirement must specify one (and only one) function of the system, it must be attainable and verifiable.*

*Program 1:*

*1. The program must execute when called*

*2. The program must output text in the terminal*

*3. The program must conclude*

*Program 2:*

*1. The program must execute when called*

*2. The program must prompt the user in the command line for their name and favorite food*

*3. The program must allocate the user’s inputs into memory*

*4. The program must return a statement in the terminal calling both strings that were stored previously.*

*5. The program must conclude*

*…*

# 3. Software Construction (C++ Code)

*This section includes the software implementation of the design provided in section 3—it includes annotated explanations of well-formatted and commented C++ code. Students shall follow coding guidelines (given by Faculty/TA) to ensure high-quality software. Example is presented below.*

*Problem 1:*

#include <iostream>

int main () {

std::cout << "Hello all! This is my first C++ Program for CSE1502." << std::endl;

return 0;

}

*In line 1, the program is instructed to include iostream, which allows the code to use input/output objects. On line 3, the program’s main function is called, which starts the program’s operations. It is called and specified to return an integer. Line 4 contains the instructions for how to stream the console output, ‘cout’ the text and ‘endl’ once the text is streamed. The final instruction tells the function main to return and int value of 0, which tells the operating system that the program closed without any errors.*

*Problem 2:*

#include <iostream>

#include <string>

using namespace std;

int main()

{

/\* Get input from the console \*/

string yourName;

string favoriteFood;

cout << "Hello! What's your name?" << endl;

cin >> yourName;

cout << "What's your favorite food?" << endl;

cin >> favoriteFood;

/\* Use the input to print the message \*/

cout << "Nice to meet you " << yourName << ", "

<< favoriteFood << " sounds yummy!" << endl;

return 0;

}

*In the first two lines, the program is told to include libraries iostream and string, allowing for use of input/output macros and string var types. I instruct the program to use the std namespace, which tells the compiler to automatically interpret “cout,” “cin,” and “endl” as being from the std namespace. The main function is called to return an int, and the official program execution begins here. The program declares two string vars, which allocates the necessary bytes for storing the values the user will input.*

*The program uses “cout” several times to output text to the console, “endl” several times to begin a new line in the console, and “cin” to take console input and store the input into the bytes allocated to the variables yourName and favoriteFood. The program then outputs a combination of text and the two string variables into the console, and the main function is told to return a value of 0 just before termination, which tells the OS that it operated without any critical runtime errors.*

# 4. Software Testing

*Text

Description automatically generated*

# 5. Self-Reflection

*This section provides information about what the student learned, what challenges were encountered, and what the student did to overcome the challenges and complete the lab. Please make sure that you document any other information that was helpful to you during this assignment.*

In problem 1, I had compiler errors because I was not providing the proper linking instructions. I managed to get it to working by including -lstdc++ in the line for compilation. It took a while, but after doing some research on compilation, and experimenting, I found the problem. The guides provided about MacOS C++ development also helped me understanding it.

Program 2 taught me to use the std namespace, which made the work of typing out several lines of console input/output instructions.

All in all, I learned some basic things about the C++ language, but also got some very useful experience in how to practically solve problems, or make the job easier.