

CS&E 1222
Quiz 0 – A Simple C++ Program

Name: _____

✓ **Important - Please read**

- This is a **quiz!**
 - Turn off all electronic devices
 - No talking during the quiz
 - Work on the quiz on your own (you may not work together nor discuss the quiz)
 - Direct all questions to your instructor only
 - You may use your lecture notes posted on Carmen, the textbook, and notes you took during lecture. Do not share your notes with another student.
- ✓ Sign the attendance sheet and write your assigned number (bottom right of this cover page)
- ✓ You will have until the end of class to turn in your work. Please pay close attention to your time so that you submit your work before the *Carmen dropbox* closes.

Setting up the Programming Environment

1. Login to your Carmen account. Click the *Modules* tab.
2. Under *Lecture Slides* click *01_Linux* to open the first set of lecture slides (you covered these during lecture). Follow the instructions to log in to **Unix (Linux)**.
3. Use the instructions to open a terminal window. This is where all programs are run such as **emacs** (to type in your C++ code), **g++** (the C++ compiler) and your compiled programs.

Assigned: _____

4. Type

```
mkdir quiz0
cd quiz0
```

Press enter at the end of each line.

- The command “mkdir quiz0” (do not type the double quotes) creates a new directory (folder) named quiz0. You will store your quiz0 program in this directory.
- The command “cd quiz0” changes the current working directory to the directory quiz0.

Every time you log in and want to see your files for quiz0, you will need to type “cd quiz0”. Note that you do not type “mkdir quiz0” ever again.

5. To see your current working directory, type the following and press enter:

```
pwd
```

The computer will respond with a message similar to:

```
/home/3/yourusername/quiz0
```

The number after “/home” may not be 3 and “yourusername” will be your user name.

6. Type the following and press enter:

```
/usr/local/bin/xemacs first.cpp &
```

(The & sign is not required, but it allows you to keep using the terminal while other programs are running.)

Typing “/usr/local/bin/xemacs first.cpp &” causes the emacs text editor to open and create a file named “first.cpp”. This file is in your directory quiz0. You will type in your C++ program using the emacs editor. To save your file, select “File→ Save first.cpp”. To reopen your file using emacs, type “emacs first.cpp &” when you are in the quiz0 directory.

A COMMON MISTAKE is typing “/usr/local/bin/emacs first.cpp” when you are NOT in the quiz0 directory. The emacs editor will open a new, blank “first.cpp” file and you will think you have lost your previous file. You haven’t lost it. The file is just in a different directory.

7. Turn on emacs line numbering which is very useful.

Select “Options→ Display→ Line Numbers”.

Select “Options→ Save Options to Custom File” to save your emacs options so that line numbering will always be displayed when you start emacs.

Typing in and running a program

1. Type in the following program source:

```
// File: first.cpp
// Created by: (your name)
// Created on: (today's date)

#include <iostream>
using namespace std;

int main()
{
    cout << "My first program in CSE 1222!" << endl;
    cout << "More output." << endl;

    return 0;
}
```

Put your name and the date on the second and third lines of the program.

2. Save the file by selecting “File-> Save first.cpp”.
3. To compile the program we use the C++ compiler g++. In the terminal window, type:

```
g++ first.cpp
```

This calls the C++ compiler g++ and instructs it to take your source file which you saved as “first.cpp” and create a machine executable called “a.out”. (Note that the executable does not end in “.exe”. In fact, it could end in “.exe” but is not required to do so in Unix.

Do NOT compile your program from within emacs by pressing the “compile” button!!

Note: If you see any kind of message after you run the compiler, then there is a syntax error in your program. Edit your program by typing “emacs first.cpp &”. Check and fix any errors in your program and compile it again. Compiling is required any time you make a change to your program.

4. To list all your files type the following and press enter:

```
ls
```

The computer should respond by printing the file names of your two files:

```
a.out          first.cpp
```

Note: If there was a syntax error in your program, then the file “a.out” will be missing. Fix the syntax error and compile your program again.

- To run your first C++ program, simply type in the name of the executable file, in this case “a.out” and press enter.

Programing assignment

- Now that you know how to edit, save, compile and run C++ programs from the terminal, create a new file called “favorites.cpp” by typing:

```
/usr/local/bin/xemacs favorites.cpp &
```

- Write a program which prints out your name, your favorite food, your favorite color and your favorite movie. Use the program in `first.cpp` above as a guide to help you write this program.
- The first three lines of your program should be comment lines with the file name, your name and today’s date. They should look like:

```
// File: favorites.cpp
// Created by: (your name)
// Created on: (today’s date)
```

- Compile and run your program.

Note: **NEVER print the executable file a.out.** If you accidentally print a.out, you will get lots of pages of meaningless characters and needlessly waste paper.

Quiz Submission Instructions:

- Print your name clearly on the first page of this question sheet. Turn this sheet back into your TA for attendance credit **before** you leave lab.
- Sign the attendance sheet and write your assigned number (found on the first page, bottom right corner of this question sheet)
- Quiz 0 counts towards the attendance extra credit. Submit the files `first.cpp` and `favorites.cpp` using the instructions below.

Submit Your Work

- In your Carmen account, click the *Activities* tab and choose *Dropbox*
- Submit your files into the *Carmen dropbox* named *Quiz0*

Important note: DO NOT submit the file `a.out`!