

Miami University
College of Engineering and Computing
Department of Computer Science and Software Engineering

CSE-278 Systems I Fall 2018

Lab 02

This lab will show you how to run C++ programs using IDE's and the command line g++. Please read the section on Labs/Homeworks on the syllabus.

You will find the source and data files in

/home/cse-278/WK02

This time it has the files

lb02.pdf

ex-lab02.docx

The first one is the *.pdf file that you are reading.

Work through the worksheet **ex-lab02.docx**, and submit it to grading by the due date. Then work on the supplementary problems.

This supplementary exercises are about Linux/macOS, IDE's and basic command compiling. They are intended to complement your lab exercises.

Bear in mind these are not graded, but you should work on them, as they will teach you techniques you will find very useful. Throughout the course, we will learn more tricks.

1. In the lab exercises, we compiled a program *remotely* using NetBeans. After creating a suitable directory on **database**, for example **/test-g++/**, copy the files source files to it. This is similar to what you already did in the lab. Call your program **prgm.cpp**
2. We are going to compile the program using intermediate steps, so you will see the versatility of **g++**
 - a. Creating the intermediate file (running the preprocessor). Note, this outputs to the terminal (**stdout**), thus you should *redirect* to a file. Use:
g++ -E prgm.cpp
 - b. Creating an object file *.o. Use
g++ -c prgm.cpp
 - c. Link the program and the object file (using **g++** !). There is an option for renaming the output of **g++**. Use it to rename your executable.
 - d. The *a.out* file that you get by entering
g++ prgm.cpp
is exactly the output that you obtain in c..
3. The document *guidelines.pdf* contains an example of a very simple Java program. Can you create a C++ version of it? Compile it and run it using **g++**.

4. Study the following program. What does the program intend to do? (Hopefully, you may not need to review your pre-calculus math).

```
#include<iostream>
#define PI 3.14159035

using namespace std;

int main (int argc, char * argv[]) {
    int i;

    double h;
    int const N = 10;
    double n90 = PI / 2.0;

    h = n90/N;

    for ( i = 0 ; i <= N ; ++i )
        cout << left<< setw(15)<< cos( i*h ) << left << setw(15) << sin (i*h)
        << endl ;

}
```

5. Type in you program using vim or nano. Try to compile using NetBeans or g++. Study the type of problems you run into, and use your textbook or online documetation to fix the problem and get it to run.