**ITCS 1212L**

**Lab 1**

**From Source Code to Executable and Algorithms**

**Prelab Activity:** Make sure to answer the prelab activities before coming to lab session.

**In this lab you will enter source code using an IDE called Code::Blocks then compile, link and run the executable**. **Show your TA the results after completing each step.**

1. **Create your first project!**

Create a console project, on the desktop, name it lab 1a

In the source code file, called ***main.cpp*,** erase what is there and type in this program source code:

/\* Program: Hello.cpp

Date: put today’s date here

Programmers: Your name and your partners name

Purpose: This program prints a simple welcome message on the

screen.

\*/

#include<iostream>

using namespace std;

int main()

{

// cout is used to display output on the screen

cout << “Hello my name is ” << “*put your name here*” << “and my partners name is ” << “*put your partner’s name here.*”;

return 0;

}

Compile, link and then run this program.

Change the **cout** message to display anything you want to see on the screen. When you make changes to the source code file, you must save, compile and link before you run the program again.

1. A) Compile the following program. Here we have our first example of the many syntax errors that you no doubt will encounter in this course. Unfortunately, where the message indicates that the problem exists, and where the problem actually occurs may be two different places. Try to correct the problem.

*B)* Re-compile the program and when you have no syntax errors, run the program and input 9 when asked. Record the output.

*C)* Try running it with different numbers. Record your output. Do you feel you are getting valid output?

#include <iostream>

using namespace std;

int main()

{

int number;

float total;

cout << "Today is a great day for Lab"

cout << endl << "Let's start off by typing a number of your choice" << endl;

cin >> number;

total = number \* 2;

cout << total << " is twice the number you typed" << endl;

return 0;

}

1. Create a new project and enter the following C++ source code statements. These statements have several syntax errors. When you compile, the compiler will find these errors and give you a message stating what the errors are. The first few weeks, the syntax of the language will be your biggest problem, but as you go on the course you will become accustomed to the syntax of C++. Until you get to the point, at least you have the compiler to let you know what is wrong.

After you correct all the syntax errors you will get a “clean compile” and the linker will produce an executable.

/\* Program: FindSum.cpp

Date: put today’s date here

Programmers: Your name and your partner’s name

Purpose: This program prompts the user to enter 2 integers.

It reads these integers, calculates the sum and

prints the sum on the screen.

\*/

#include<iostream>

using namespace std;

int main()

{

// Declare all needed variables

int firstNum;

int secondNumber

int the Sum;

// Get user input

cout << “Enter the first number:”;

cin >> firstNumber;

cout << “Enter the second number:”;

cin >> second Number;

// Calculate the sum of the two numbers entered by the user

sum = number1 + secondNumber;

// Display the sum

cout << “The sum is: ” >> sum;

return 0;

}

1. The source code in this step contains a logic error. The compiler will not tell you about any logic errors, because the compiler has no idea about your intended logic.

Create a project on the desktop and name is lab1c. Type this code, compile link and run it and then correct the logic error so the output is correct.

/\*

Program: calculateAverage.cpp

Date: put today’s date here

Programmers: Your name and your partner’s name

Purpose: This program prompts the user to enter 3 test scores. It reads in these scores, calculates the average and prints the average to the screen.

\*/

#include<iostream>

using namespace std;

int main()

{

// Declare needed variables

float test1, test2, test3, average;

// Accept test values from the user

cout << “Enter the first test grade:”;

cin >> test1;

cout << “Enter the second test grade:”;

cin >> test2;

cout << “Enter the third test grade:”;

cin >> test3;

// Calculate the Average of the 3 test

average = test1 + test2 + test3 / 3;

// Display the average on the screen

cout << “The average of ” << test1 << “ and ” << test2 << “ and “ << test3 << ” is: ” << average;

return 0;

}

1. **More complex project:**

Create a project on desktop and name it lab1d. Enter this code, compile it, link it and run it. Correct the logic problems, recompile, link and run.

/\*

Program: calculateDiscount.cpp

Date: put today’s date here

Programmers: Your name and your partner’s name

Purpose: This program prompts the user to enter the original price of the item and the percent discount. It calculates the new price and displays it on the screen.

\*/

#include<iostream>

using namespace std;

int main()

{

// Declare needed variables

double originalPrice;

double percentDiscount;

double newPrice;

// Accept values from the user

cout << “Enter the original price of the item you are buying:” << endl;

cin >> originalPrice;

cout << “Enter discount percent:” << endl;

cin >> percentDiscount;

// Calculate the new price

newPrice = originalPrice \* percentDiscount;

// Display the new price on the screen

cout << “The original price of $” << originalPrice << “ has been reduced to: $” << newPrice;

return 0;

}

**Sample Output:**

Enter the original price of the item you are buying: 25.00

Enter discount percent: 10

The original price of $25.00 has been reduced to: $22.50