LAB 1

Hi everyone!

This lab file will explain to you how to compile a C program using MinGW and command prompt software.

You may also use any other tools that you prefer to compile lab programs. E.g. Visual Studio, etc.

COMPILING A C PROGRAM

If you use command prompt and MinGW to compile your program, here is the explanation of the compile command.

1. Make sure the path in command prompt is the path where your C file is.
2. gcc lab1.c command will compile a saved C file named lab1.c and generate an executable file for the source file.
3. By default, the executable file is named a.exe.
4. Adding -o lab1.exe ensure that the executable file is generated and named specifically as lab1.exe.

```
C:\Users\user>gcc lab1.c -o lab1.exe

C:\Users\user>lab1.exe
```

Do the exercises that follows and submit the screenshot images required for each exercise in google classroom (GC).

EXERCISE 1

Type and save the following program as 'lab1a.c', compile and run it. Understand the syntax of C program from this code. It is just a little bit different with C++ syntax, which you have learnt in the previous semester.

```c
#include <stdio.h>
//this is a one line comment

/*this is a
multiple line
comment*/

int main()
{
    int num1, num2; //declares 2 integer variables in one line
    char letter; //declares a character variable
    float decimal=7.5; //declares and initialises a floating-point variable

```

```
14      num1=100; //initialise the integer variable
15      num2=200; //initialise the integer variable
16      letter='A'; //initialise the character variable
17
18      printf("Num1 is %d \n", num1);
19      printf("Num2 is %d \n", num2);
20      printf("Letter is %c \n", letter);
21      printf("Decimal is %f \n", decimal);
22
23      return 0;
24  }
```

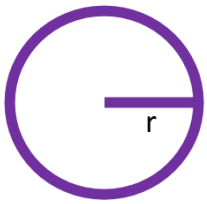
Compile and execute the above program.

Screenshot the final output to be submitted in GC.

EXERCISE 2

Create a new C file named 'lab1b.c', and try to answer the question below, without looking at the suggested solution first:

Write a program to calculate the area of a circle.



Area of a circle $(A) = \pi r^2$

Expected Output:

```
Enter the radius of the circle: 34

Area = 3629.84
```

Write the above program, compile and execute it. Screenshot the final output to be submitted in GC.

Suggested Solution:

lab1a.c

```
1  #include <stdio.h>
2  int main()
3  {
4      float radius;
5      double area;
6      printf("\n Enter the radius of the circle: ");
```

```c
    scanf("%f", &radius);
    area = 3.14*radius*radius;
    printf("\n Area = %.2lf", area);
    return 0;
}
```

Example of compiling & executing the code in PowerShell software:

```
PS D:\SEM FEB 22\CSS3123_DataStructure\Lab> gcc lab1a.c -o lab1a.exe
PS D:\SEM FEB 22\CSS3123_DataStructure\Lab> ./lab1a

 Enter the radius of the circle: 34

 Area = 3629.84
```

EXERCISE 3

Create a new C file named 'lab1c.c', and try to answer the question below, without looking at the suggested solution first:

Write a program to convert an integer into the corresponding floating-point number.

Tips: Use type casting method.

Expected Output:

```
Enter any integer: 23

The floating point variant of 23 is = 23.000000
```

Write the above program, compile and execute it. Screenshot the final output to be submitted in GC.

Suggested Solution:

lab1b.c

```c
#include <stdio.h>
int main()
{
    float f_num;
    int i_num;
    printf("Enter any integer: ");
    scanf("%d",&i_num);
    f_num=(float)i_num;
    printf("\nThe floating point variant of %d is = %f", i_num, f_num);
    return 0;
}
```

EXERCISE 4

Write a C program named 'lab1d.c' to find whether a number entered by the user is even or odd.

Expected Output:

```
Enter a number: 34

The number is an even number.
```

Write the above program, compile and execute it. Screenshot the final output to be submitted in GC.

EXERCISE 5

Write a C program named 'lab1e.c' to determine whether the entered character is a vowel or not.

Expected Output:

```
Enter any one character: g

g is not a vowel.
```

Write the above program, compile and execute it. Screenshot the final output to be submitted in GC.

EXERCISE 6

Write a program to calculate the sum of numbers from m to n. m & n are both numbers entered by the users.

Expected Output:

```
Enter the value of m: 2

Enter the value of n: 10

The sum of numbers from 2 to 10 is 54
```

Write the above program, compile and execute it. Screenshot the final output to be submitted in GC.

Congrats!

You are done with the lab!