Higher Diploma in Information Technology

Introduction to Programming (C++)

Year 1 Semester 1 – 2023

Worksheet 01 & 02

Intended Learning Outcomes:

At the end of the class the students should be able to:

- Create a source code file using Dev C++ to write a C++ program.
- Use simple arithmetic operators in a C++ program
- Use operators and expressions in a C++ program
- Use standard input and output in a C++ program

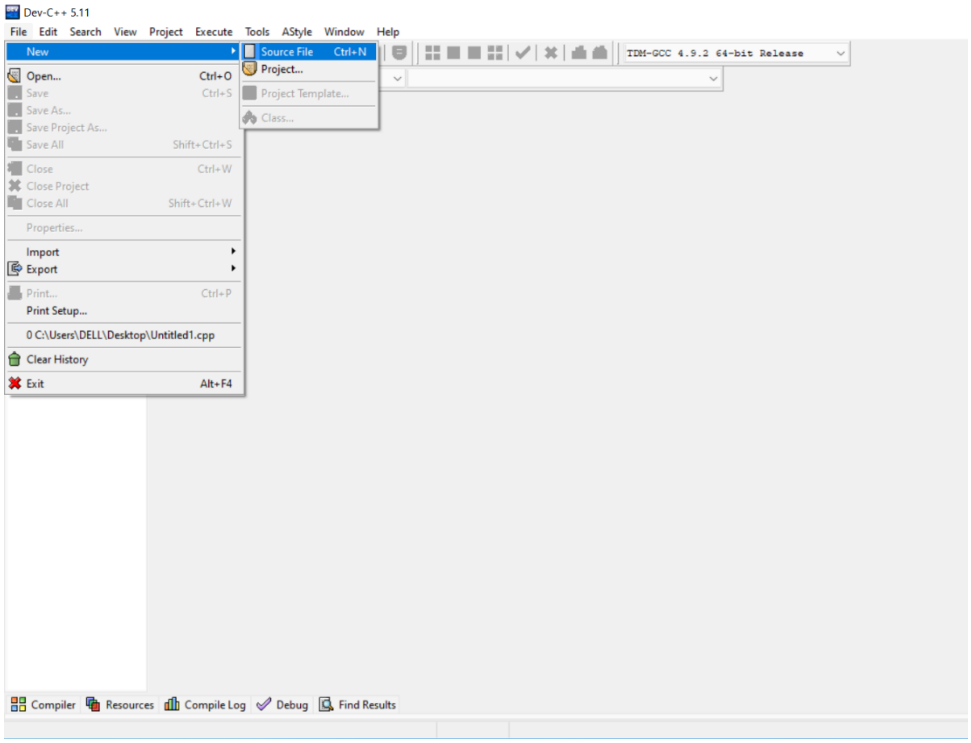
Exercise 01:

Follow the following steps to write a simple C program using Dev C++ IDE.

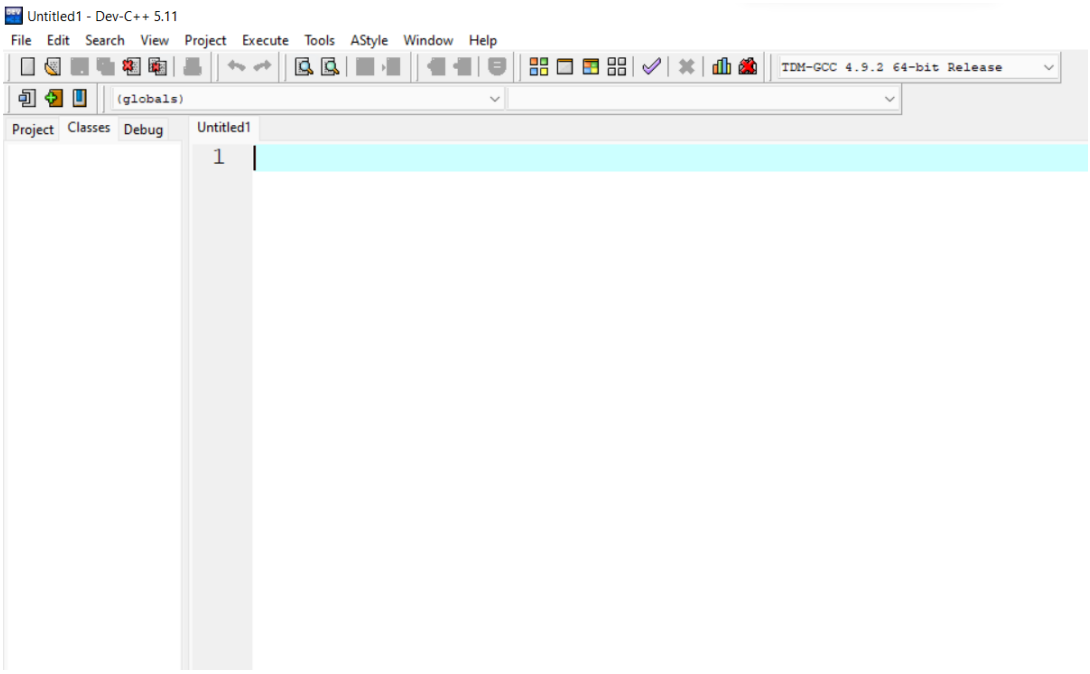
Step 01: First, create a folder in your desktop or Z drive and name it as **Lab01_02**.

Step 02: Next open Dev C++ IDE and select

File ➔ New ➔ Source File



Step 03: A source file will be created as shown below.



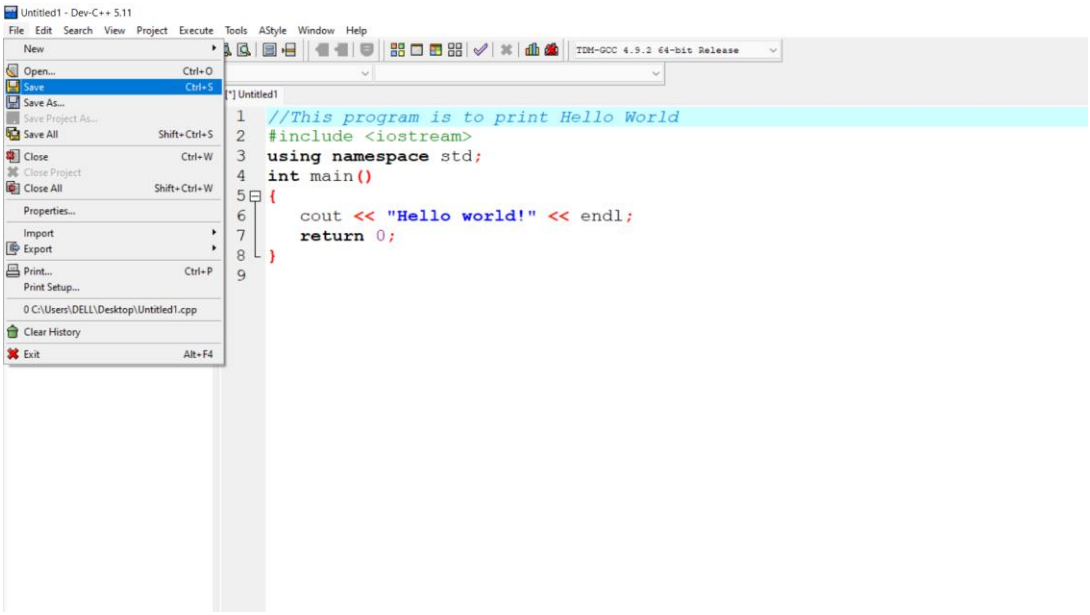
Step 05: Now, type the following program.

Writing a simple C++ program to print a Hello World

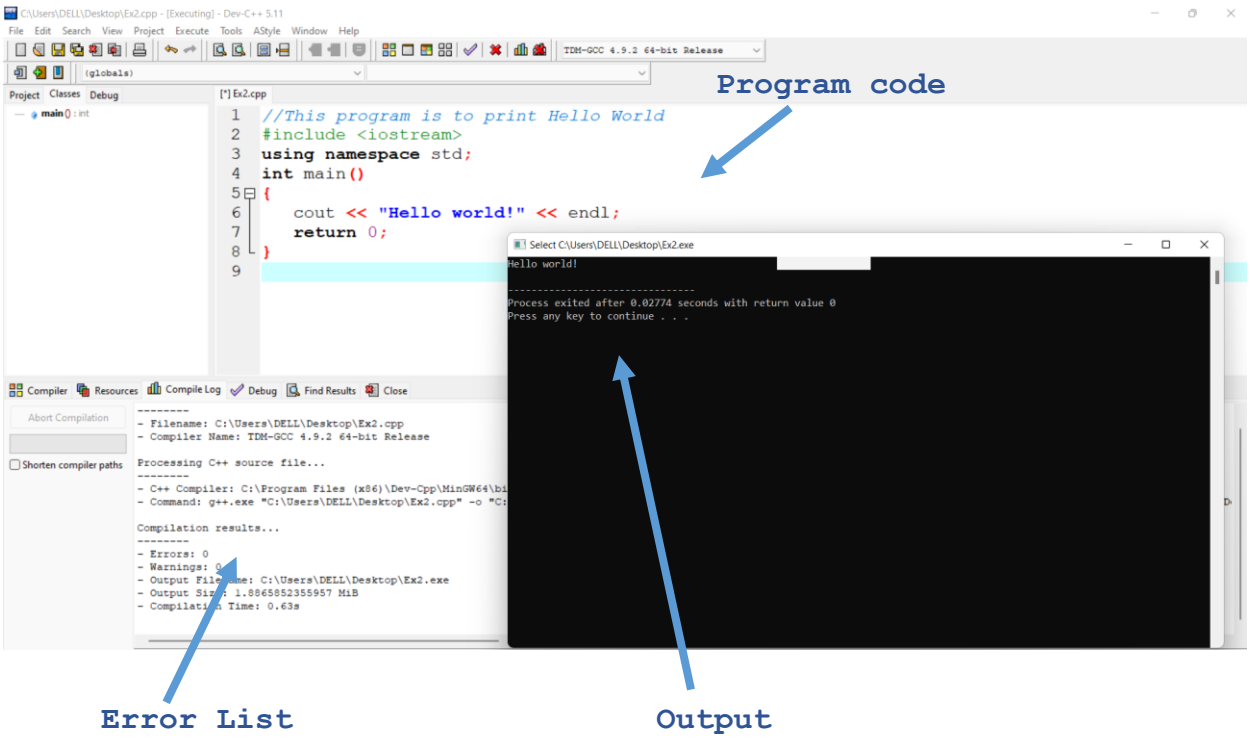
```
//This program is to print Hello World
#include <iostream>
using namespace std;
int main()
{
   cout << "Hello world!" << endl;
   return 0;
}
```

Step 06: Save the source file as **Ex01.cpp** inside the folder **Lab1** in your desktop.

File ➔ Save



Step 07: Compile and run the program.



Exercise 02: Modify the above program to print your name and address. Save the file with the name of **Ex02.cpp.**

Exercise 03: Type the following program, which converts the temperature in Fahrenheit to Celsius. Save the file with the name of **Ex03.cpp**

Formula: $$\boldsymbol{Celsius = \frac{5}{9}(Fahrenheit - 32)}$$

```
//This program will convert temperatures between Fahrenheit
and Celsius
#include<iostream>
using namespace std;
int main()
{
   //Intialize variables
   double Celsius, Fahrenheit;
   Fahrenheit = 212.0;

  //Convert Fahrenheit into Celsius
   Celsius = (Fahrenheit - 32) * 5.0/9.0;

  //Print the values
  cout<<Fahrenheit<<" degrees Fahrenheit is "<<Celsius;
  cout << " degrees Celsius.\n";
  return 0;
} //main
```

Exercise 04: Modify the program to read user inputs.

Now type the following in your program and save it as **Ex04.cpp.**

```
cout << "Enter Fahrenheit: "
cin >> Fahrenheit;
```

Exercise 05:

Write a C++ program to prompt the terminal operator for the radius **(r)** of a sphere, accept the reading as a **float**, and calculate and display to the screen the volume of the sphere(V), calculated by ($V= 4/3\ \pi\ r^3$). Consider π=3.14.

Save the program with the name of **Ex05.cpp.**

```
Sample Output:
Enter radius: 3
Volume of sphere is: 113.14
```

Exercise 06:

Write a C++ program to swap two numbers entered by user. Save the program with the name of **Ex06.cpp.**

Exercise 07:

Write a C++ program to prompt the user to enter lengths of large side(a) and length of small size(b), height(h), and calculate the area of Trapezoid (A) as follows:

$$A = \frac{a+b}{2}\ h$$

```
Sample Output:
Enter the length of large side: 10
Enter the length of small side: 6
Enter the height: 10
Area of Trapezoid :80
```

Save the program with the name of **Ex07.cpp.**