**Practical 1**

**Develop C++ program using Visual Studio 2019**

In this practical you will create a simple C++ program using Visual C++.

1. Open Visual Studio 2019 interface.
2. Click on the **Create a new project** button then followed by **Empty Project** button.
3. In the **Configure your new project**, enter Project Name, Location (advise to put in the Desktop folder for ease of reference later).
4. Coming to the Project Solution interface, if **Solution Explorer** is not displayed, on the **View** menu, click **Solution Explorer**.
5. At the Solution Explorer window, add a **new source** file to the project, as follows.
   1. In **Solution Explorer**, **right-click** the **Source Files** folder, point to **Add**, and then click **New Item…** .
   2. In the **Add New Item**, click **C++ File (.cpp)**, type a name for the file (e.g. “*practical01*”), and then click **Add**.

The **.cpp** file appears in the Source Files folder in Solution Explorer, and the file is opened in the Visual Studio editor.

1. In the editor, type the code as shown on Page 2.
2. **Save** the file.
3. On the **Build** menu, click **Build Solution (Ctrl + Shift + B)**.

The Output window displays information about the compilation progress, for example, the location of the build log and a message that indicates the build status.

1. On the **Debug** menu, click **Start without Debugging (Ctrl + F5)**.

All the elements of the standard C++ library are declared within what is called a namespace, the namespace with the name std. So in order to access its functionality we declare with this expression that we will be using these entities.

Lines beginning with a hash sign (#) are directives for the preprocessor and indications for the compiler's preprocessor. In this case the directive #include <iostream> tells the preprocessor to include the iostream standard file. This specific file (iostream) includes the declarations of the basic standard input-output library in C++.

|  |
| --- |
| // my first program in C++  /\* try this sample code \*/  #include <iostream>  using namespace std;  int main ()  {  int age;  cout << "Welcome to TAR University College" << endl;  cout << "I'm a C++ program" << endl;  cout << "How old are you?" << endl;  Finish an output line and go to the next line.  cin >> age;  cout << "Your are " << age << " years old" ;  return 0;  The return statement causes the main function to finish. Return may be followed by a return code (in our example is followed by the return code with a value of zero). A return code of 0 for the main function is generally interpreted as the program worked as expected without any errors during its execution. This is the most usual way to end a C++ console program.    } |

This is a comment line. Comments do not have any effect on the behavior of the program.

This line corresponds to the beginning of the definition of the main function. The main function is the point by where all C++ programs start their execution, independently of its location within the source code.

Name of the standard output stream in C++, and the meaning of the entire statement is to insert a sequence of characters into the standard output stream (cout, which usually corresponds to the screen).

Handling the standard input in C++ is done by applying the overloaded operator of extraction (>>) on the cin stream. The operator must be followed by the variable that will store the data that is going to be extracted from the stream.

**Exercise**

1. Rewrite the above program so that the system will get a name as an input from the user instead of age. Display the output as shown below based on the given name.

Welcome to TAR University College

I'm a C++ program

What is your name? *<<name>>*

Hi, *<<name>>*. How are you?

1. Write a C++ program that prompts the user to enter a name (single-word string), age (integer), gender (character, ‘M’ or ‘F’) and income (2-decimal-place float). Read all the input values by using ONLY ONE cin. The program will then display the values, with appropriate labels, on separate lines. A sample run is shown below:

|  |
| --- |
| Input  -------  Enter <name> <age> <gender> <income> : Christine 25 F 3500.00  Output  -------  Name : Christine  Age : 25  Gender : F  Income : 3500.00 |

To be entered by the user

1. Write a C++ program that display a checkerboard pattern made of stars and blanks, as shown below. A checkerboard is eight squares by eight squares. This will be easier if you first declare two named string constants representing the two different row patterns. Be sure to include appropriate comment in your code, choose meaningful identifiers, and use indentation as do the programs.

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\* \* \* \*

1. Write a C++ program that will give you a beep sound when the following output is shown.

Welcome to “Malaysia”! Malaysia is a beautiful country.

1. Reorder the following lines to make a working program.

{

}

#include <iostream>

const string TITLE = “Dr.”;

cout << “Hello ” + TITLE + “ Stroustrup!”;

int main()

#include <string>

return 0;

using namespace std;