Introduction to Microsoft Visual Studio

Objective: After completion of this exercise, you will be able to

- Edit, compile, link, and run a C++ program using Microsoft Visual Studio.

Discussion

A typical process of a C++ program implementation is composed of editing, compiling, linking, and running. The following diagram shows the steps for a sample program called **`test1_1.cpp`**.

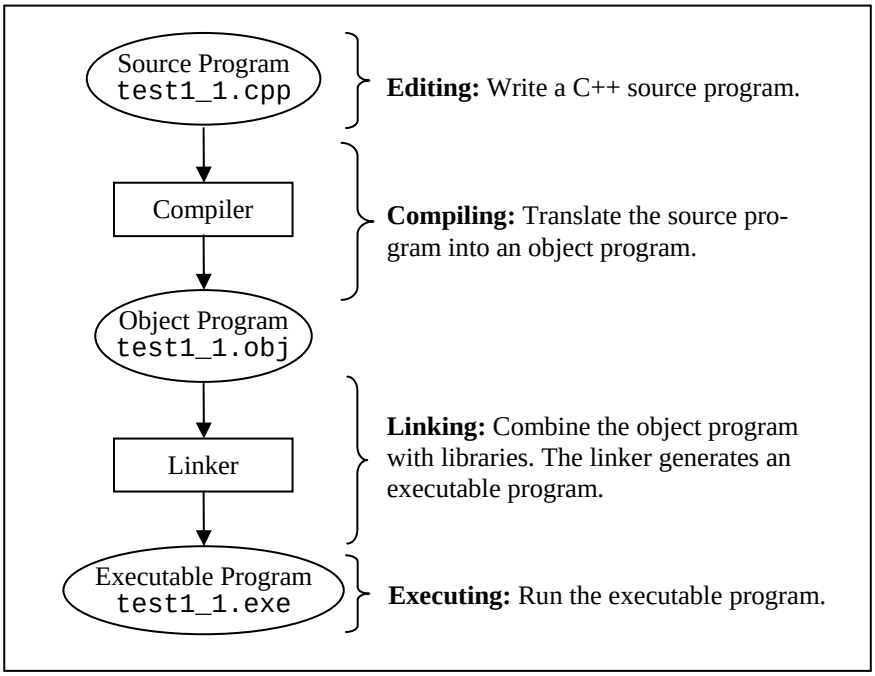

Figure 1. C++ Program Implementation Steps

In this document, you will practice all these steps using Microsoft Visual Studio. **This document presents the usage of Microsoft Visual Studio 2010**. **However, if you use a different version of Microsoft Visual Studio, it should work similarly.**

1. Start Microsoft Visual Studio

Before the development of a program, you must start the Microsoft Visual Studio tool. You can start it by clicking **Start → All Programs → Microsoft Visual Studio 2010 → Microsoft Visual Studio 2010**. Note that the **Start** button is at the lower-left corner of your screen as Figure 2. If the tool asks you to choose default environment settings, select **Visual C++ Development Settings**.

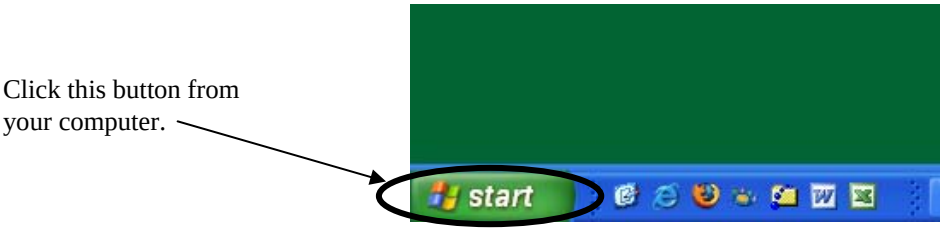

Figure 2. Start Button to Launch Microsoft Visual Studio

After starting the tool, your screen would be similar to Figure 3.

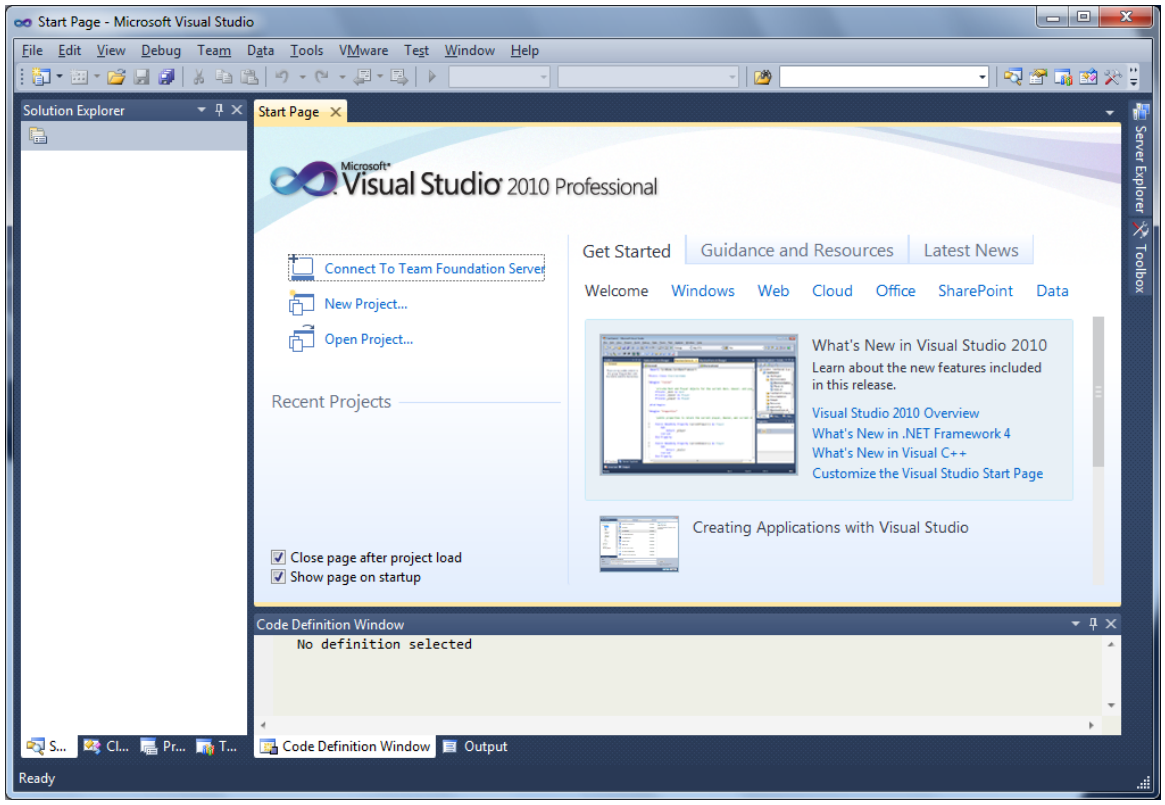

Figure 3. Microsoft Visual Studio 2010 Start Page

2. Create a New Project

Before editing a C++ source program, you have to create a **Project** that makes it possible for you to organize a source program and associated files such as the object and executable files. To create a new project, click **File** → **New** → **Project…** Figure 4 shows the new project creation window.

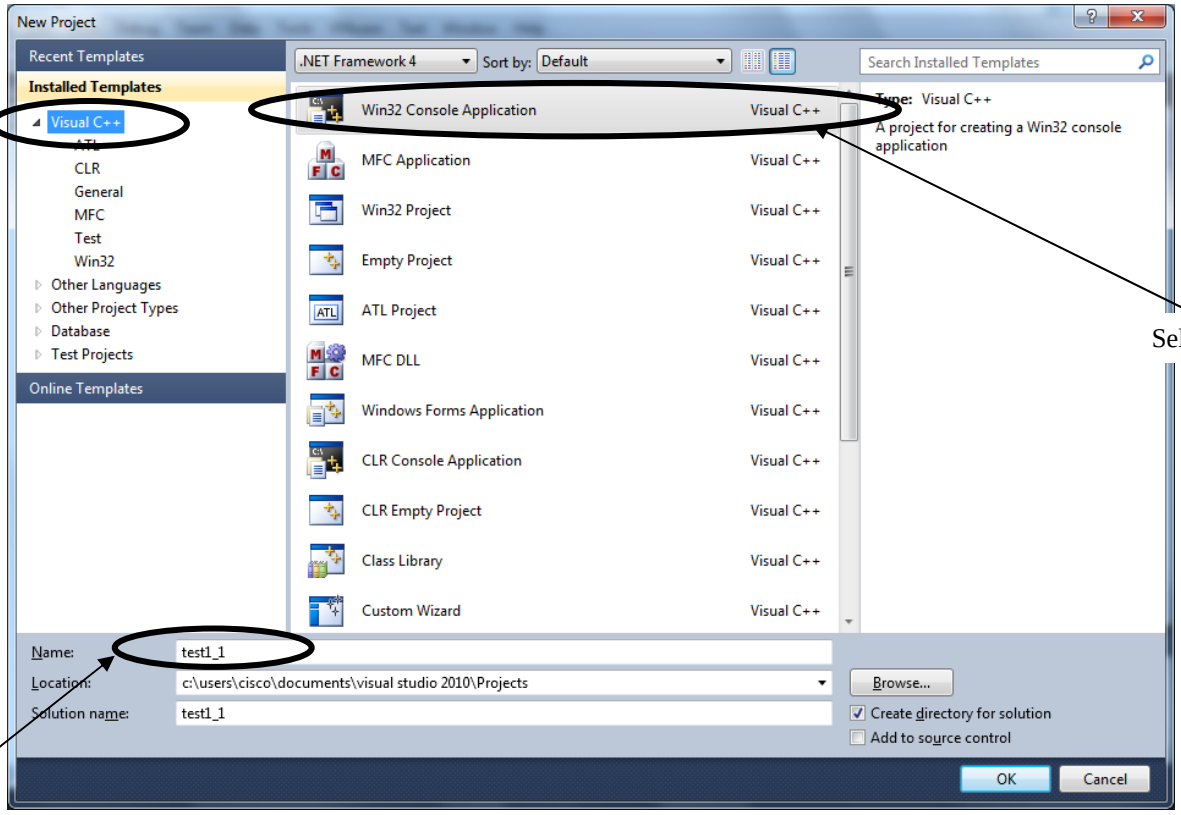

Figure 4. New Project Creation Window

From the window, you should select the **Visual C++** and **Win32 Console Application**. Additionally, you should provide the **Name** of the project. In this example, you need to type **`test1_1`**. After typing the project name, click on the **OK** button. You can see the Win32 Application Wizard as Figure 5.

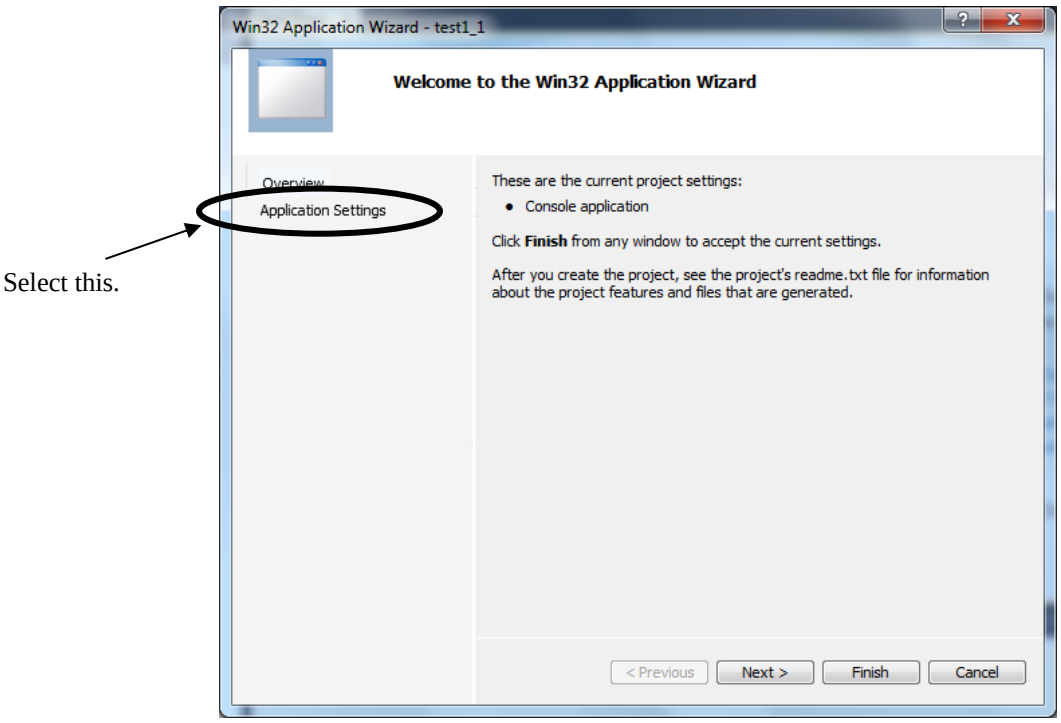

Figure 5. Win32 Application Wizard Window

From the left section of the window, select **Application Settings** for additional project configuration option. Figure 6 presents the **Application Settings** window where you should select **Empty project**. Click the **Finish** button at Figure 6 to move to the next step. Figure 7 presents the result of project creation.

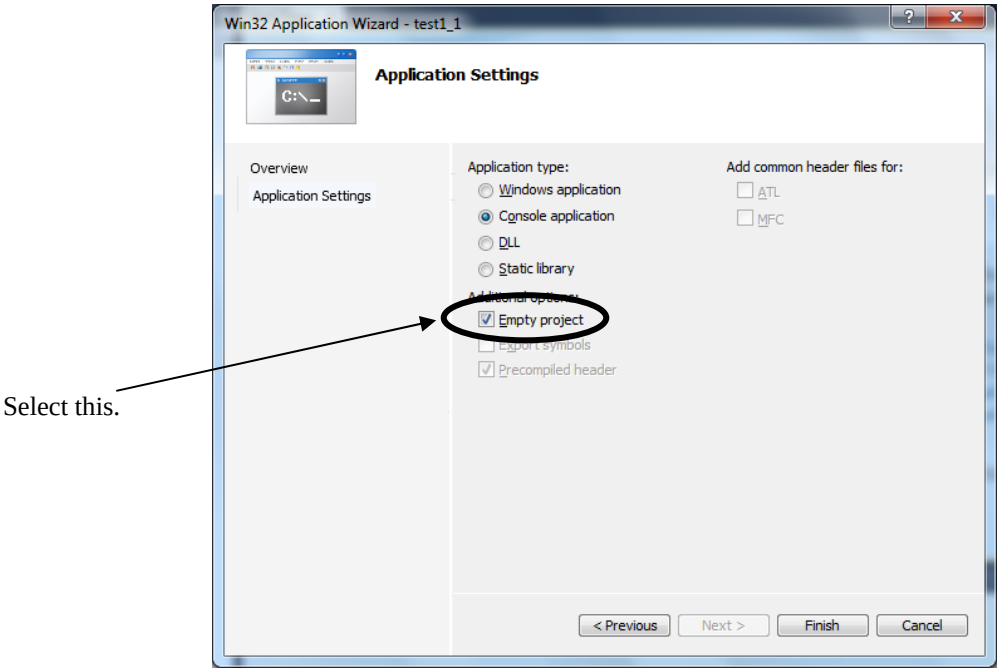

Figure 6. Application Settings of Win32 Application Wizard

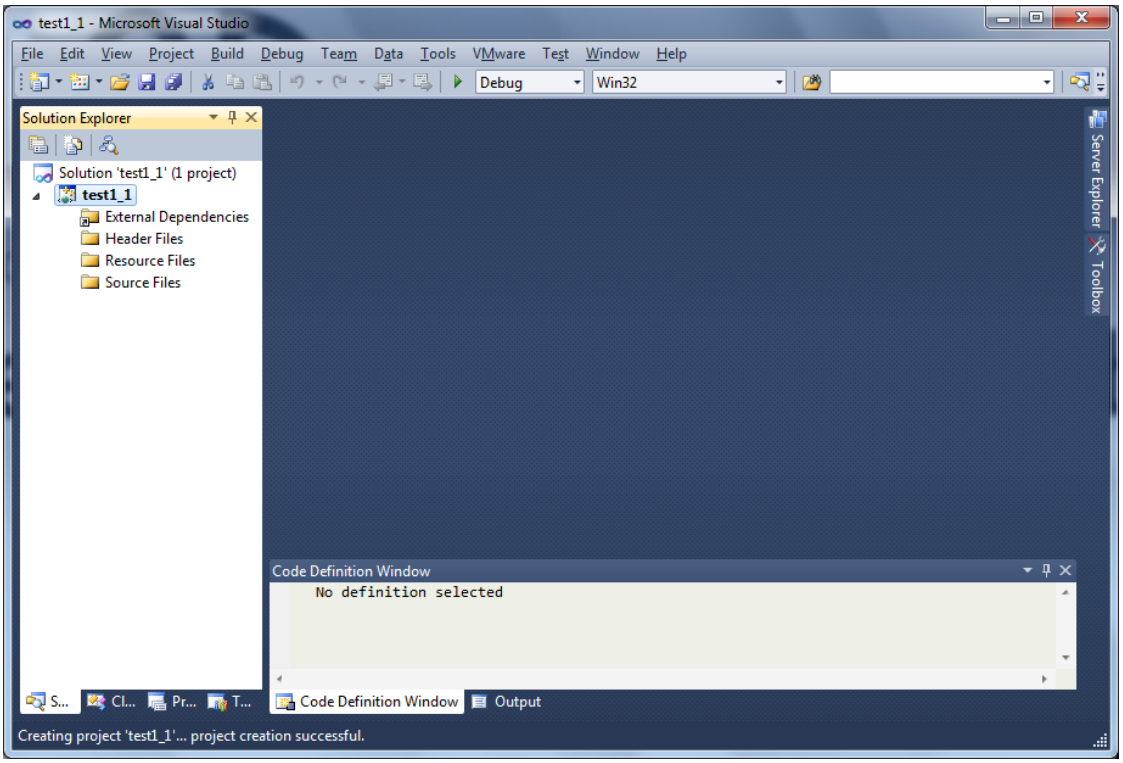

Figure 7. Project Window

3. Edit Source Program

Click **Project** → **Add New Item …** to create a source program as Figure 8. Select **`C++ File (.cpp)`** from the window and enter the name of source program as **`test1_1.cpp`**.

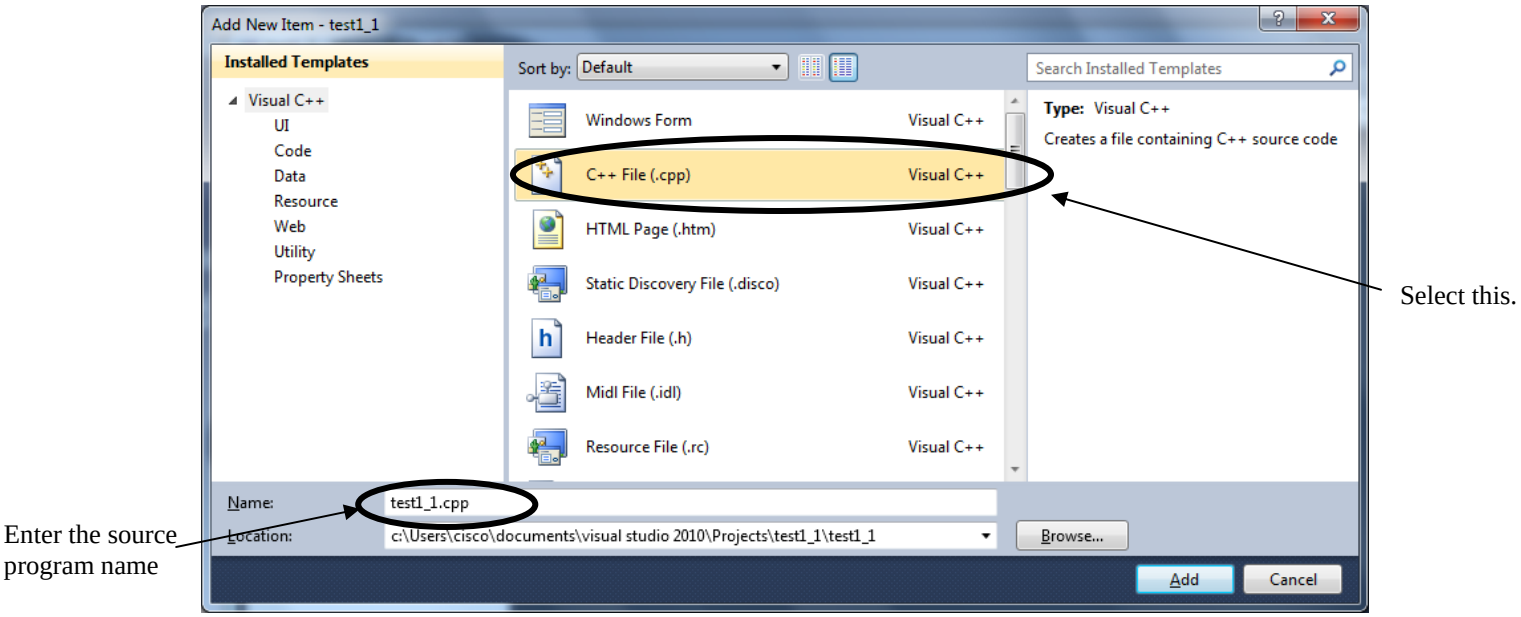

Figure 8. Add New Item Window

Click **Add** button to start the editing of the source code as Figure 9.

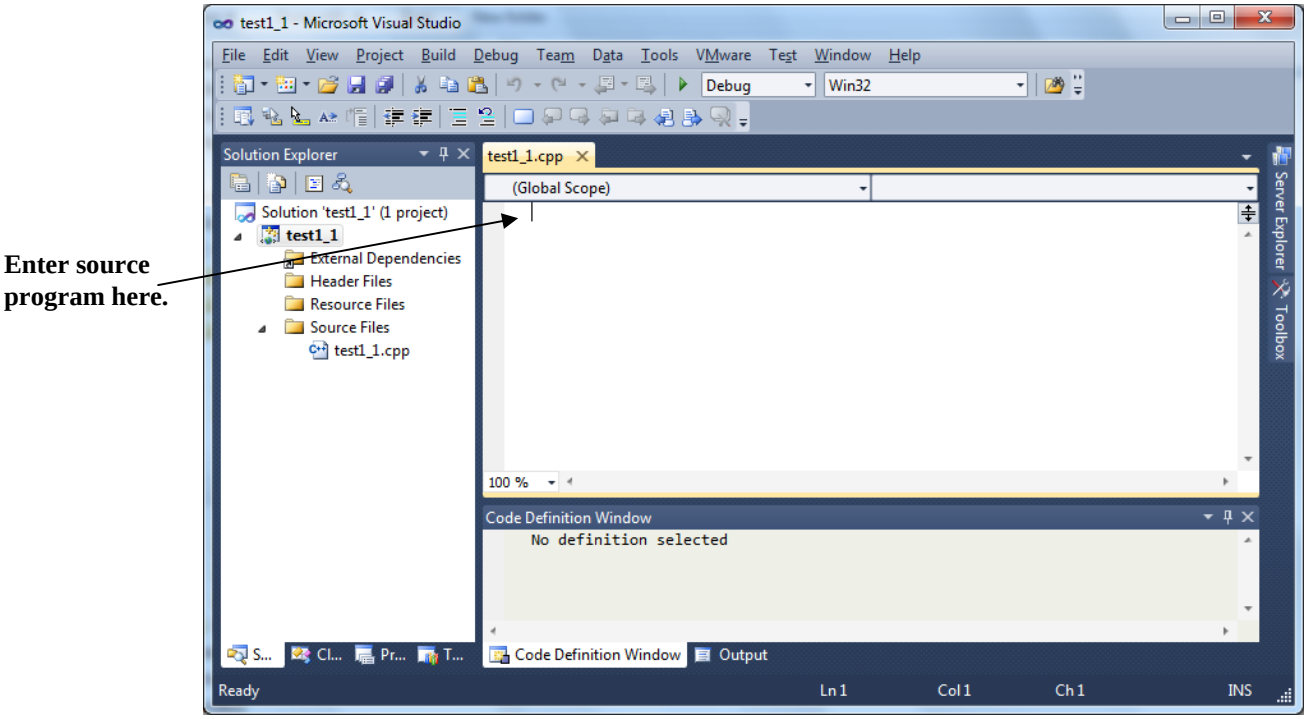

Figure 9. Source Code Window

Now, you can type the following sample program into the source code window.

```
/*
 * Title: test1_1.cpp
 * Abstract: This program prints out Hello World! on the screen.
 * Author: [Put your name]
 * ID: [Put your choice of four-digits as ID of this course]
 * Date: [Today]
 */

#include <iostream>
using namespace std;

int main ()
{
	cout << "Hello World!" << endl;

	return 0;
}
```

Don't forget to save your program frequently. To save your program, click either **File → Save test1_1.cpp** or **File →Save All**.

4. Build (= Compile and Link) Executable Program

In Microsoft Visual Studio, both compiling and linking are conducted in a single phase called "**Build**". To build an executable program, click **Build→ Build test1_1**. Compiler and linker messages appear in the output pane, as shown in Figure 10.

Compiler and linker messages. Note that the build was succeeded.

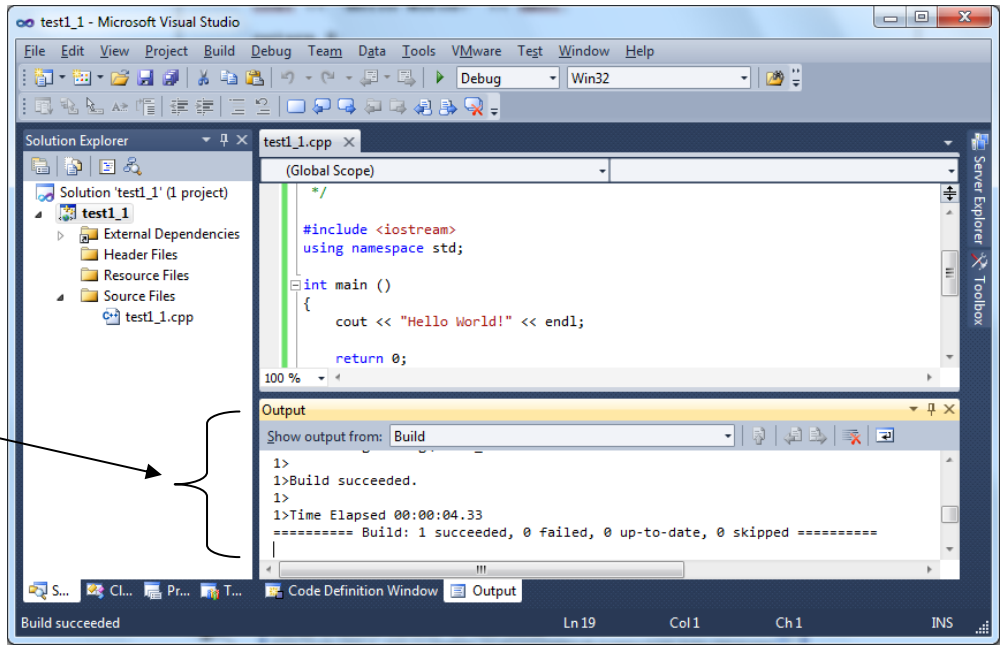

Figure 10. Window Configuration after Build Command

In this program, there is no error message(s) and warning(s). If any error or warning message appears in the output pane, double-click an error message to see the location of source program with the offending line.

5. Run the Executable Program

To run the executable program, click **Debug → Start Without Debugging**. Figure 11 shows the execution result of the `test1_1` that prints the message "`Hello World!`" on your screen. Note that the "`Press any key to continue . . .`" after "`Hello World!`" is not a part of the program execution. The message is automatically generated by the tool. To close the execution window of Figure 11, press any key of your keyboard.

Figure 11. Program Execution Window

6. Store Source Program to a Safe Place

After finishing your programming in the lab machine, you **should store your source program to a safe place because your source program will be removed automatically from your lab computer after logout**. Thus, you have to store your program at a safe place such as your own flash drive. To find out your source program, click **Start → Documents** from your computer.

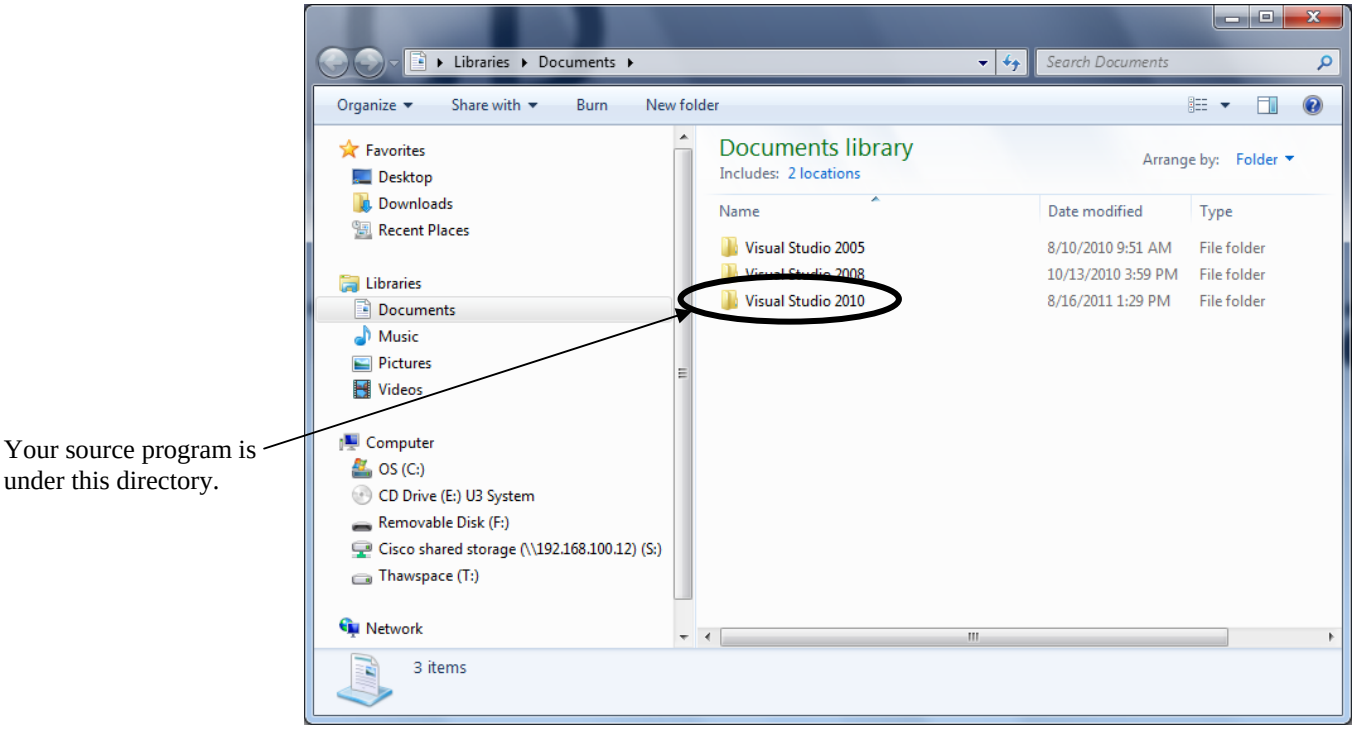

Figure 12. Search Your Source Program from My Documents

From Figure 12, double click **`Visual Studio 2010` → `Projects`**. Then you can find out a directory named **`test1_1`**. Double click it. Then, you can find out your source program named **`test1_1.cpp`** from the directory. Copy this program to a safe place. Note that your object and executable programs are under the directory of **`Debug`**.

7. Quit the Microsoft Visual Studio

To quit the tool, click **File → Exit**.