# 國立臺北科技大學 自動化所 – 人機介面

API Design (Creating Dynamic Libraries (.dll) on Windows)*

The following steps describe how to create a dynamic library on Windows. These steps are for Microsoft Visual Studio 2010, although the steps are similar for other versions of Visual Studio.

1. Select the menu File > New > Project

2. Select the Visual C++ -> Win32 option and the Win32 Project icon, then put the project name and path
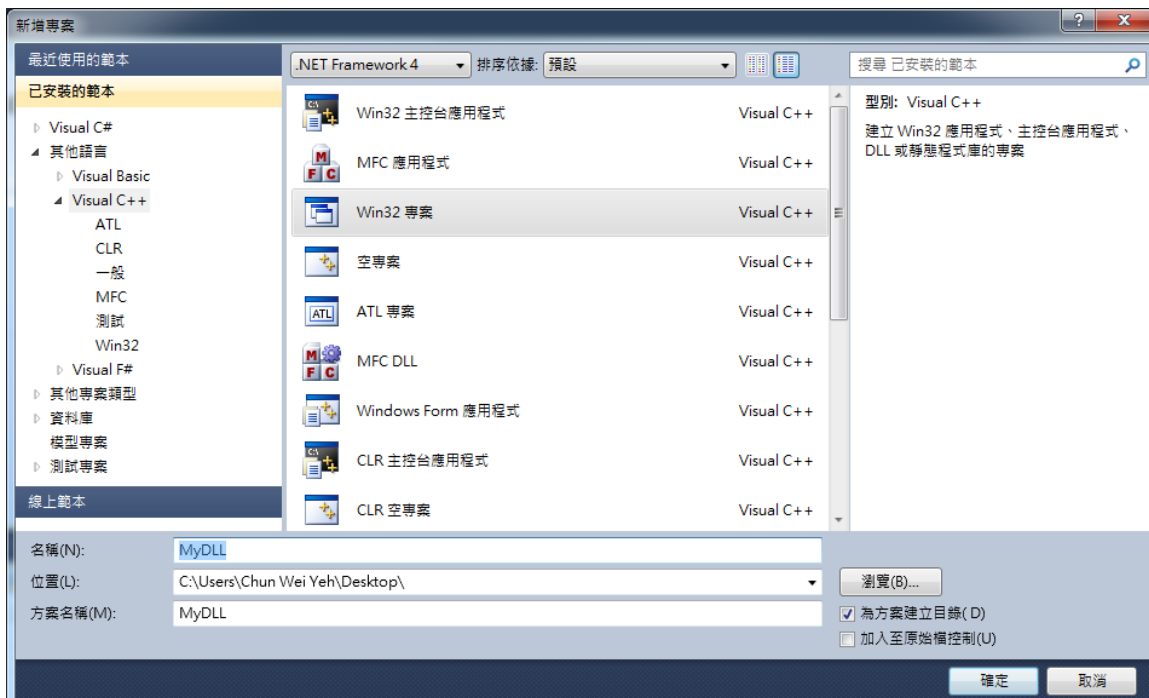
3. The Win32 Application Wizard should appear

4. Select the DLL option under Application type

5. If you want a function to be callable from a DLL on Windows, you must explicitly mark its declaration. The following code (MyDLL.h) provides a simple demonstration of this.
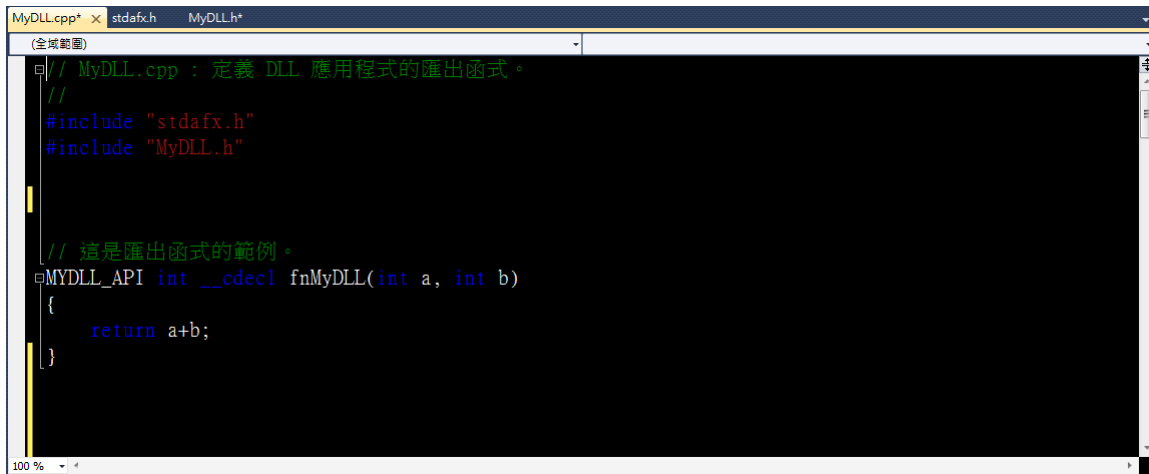


```
#ifdef MYDLL_EXPORTS
#define MYDLL_API __declspec(dllexport)
#else
#define MYDLL_API __declspec(dllimport)
#endif

#ifdef __cplusplus
extern "C" {
#endif

MYDLL_API int __cdecl fnMyDLL(int a, int b);

#ifdef __cplusplus
}
#endif
```

6. You can then add new or existing source files (MyDLL.cpp) to your project under the Source Files folder in the left-hand pane.
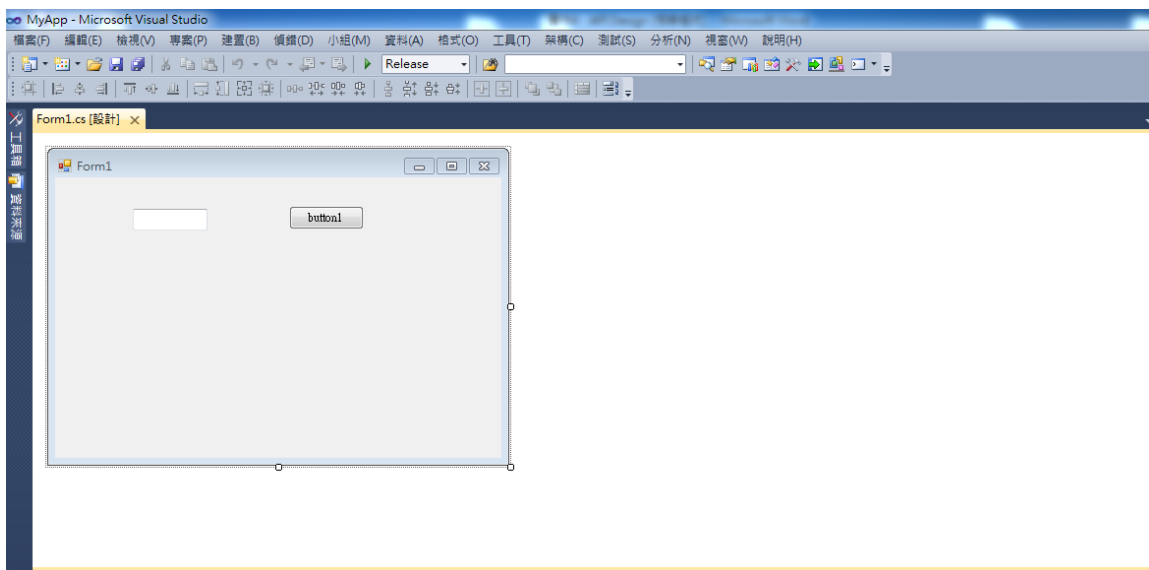

7. Build → Build Project (or Build MyDLL), then Visual Studio will generate a .dll file and an associated .lib import file.
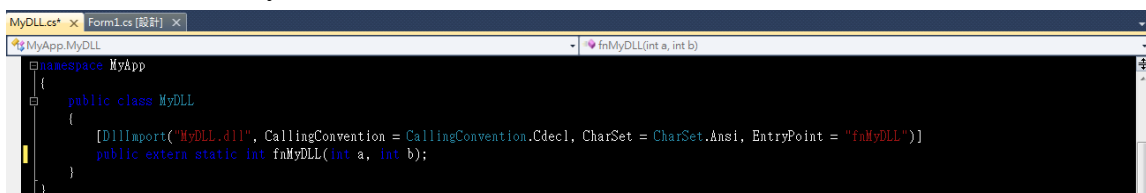
8. The man-machine interface, named MyApp, will be created by using C# to new a button and a textbox as follows.

9. Add MyDLL.cs to your C# project.
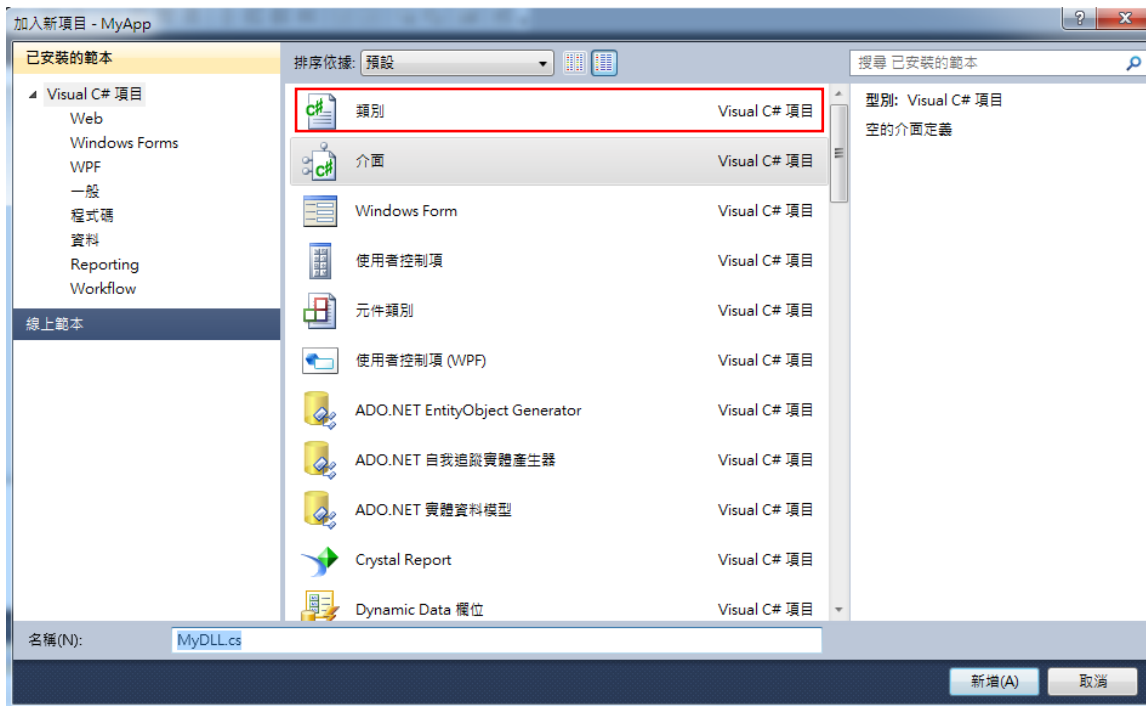
10. The details of MyDLL.cs are as follows.

11. Call the function in the event of buttion1_Click:

```
private void button1_Click(object sender, EventArgs e)
{
    int a = 10;
    int b = 20;
    int c = MyDLL.fnMyDLL(a, b);

    textBox1.Text = c.ToString();
}
```

12. Build → Build MyApp, and copy the MyDLL.dll file built in step 7 to the folder of MyApp.exe.
Now your MyApp.exe is executable.