

財務演算法

Financial Algorithms

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目 錄

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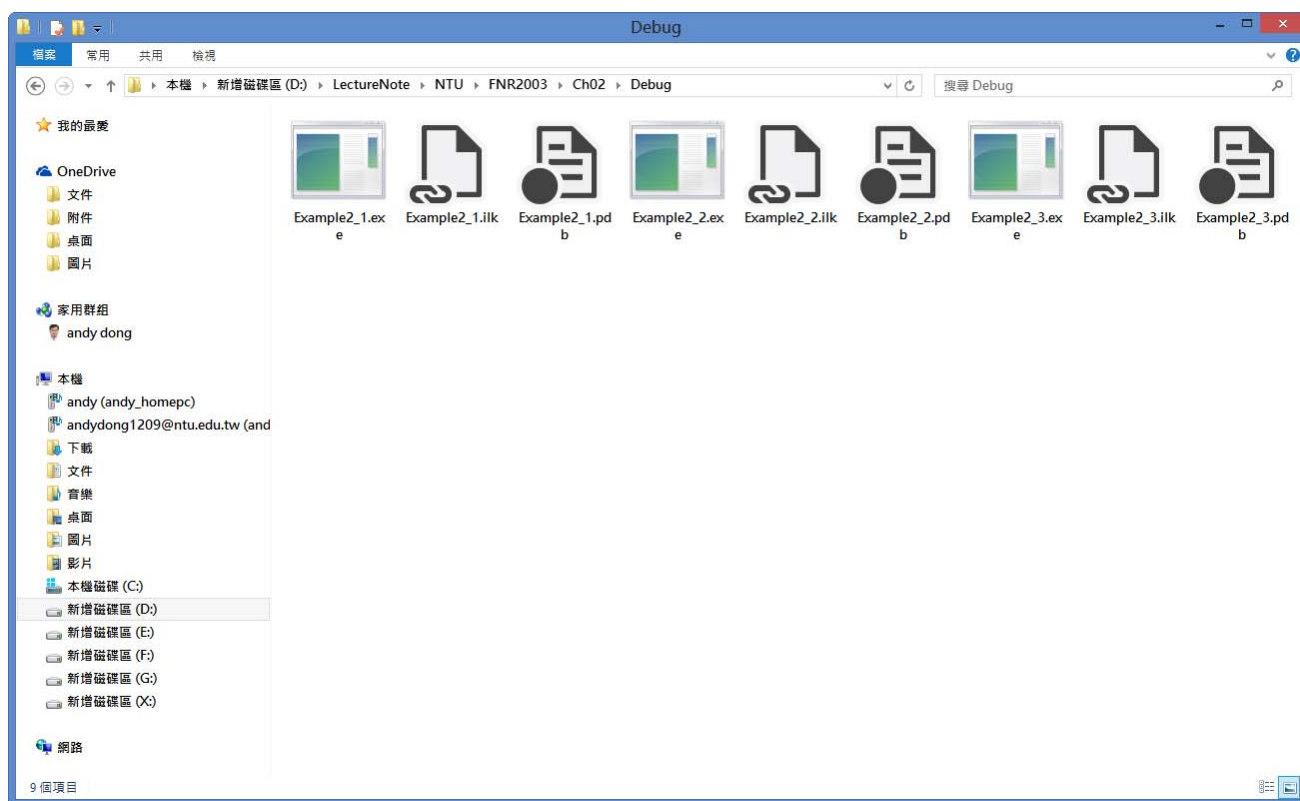
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Borland C++ Builder 6 使用說明

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一、專案結果

◆ Chapter 2 有三個 Examples，產生執行檔，如下位址。

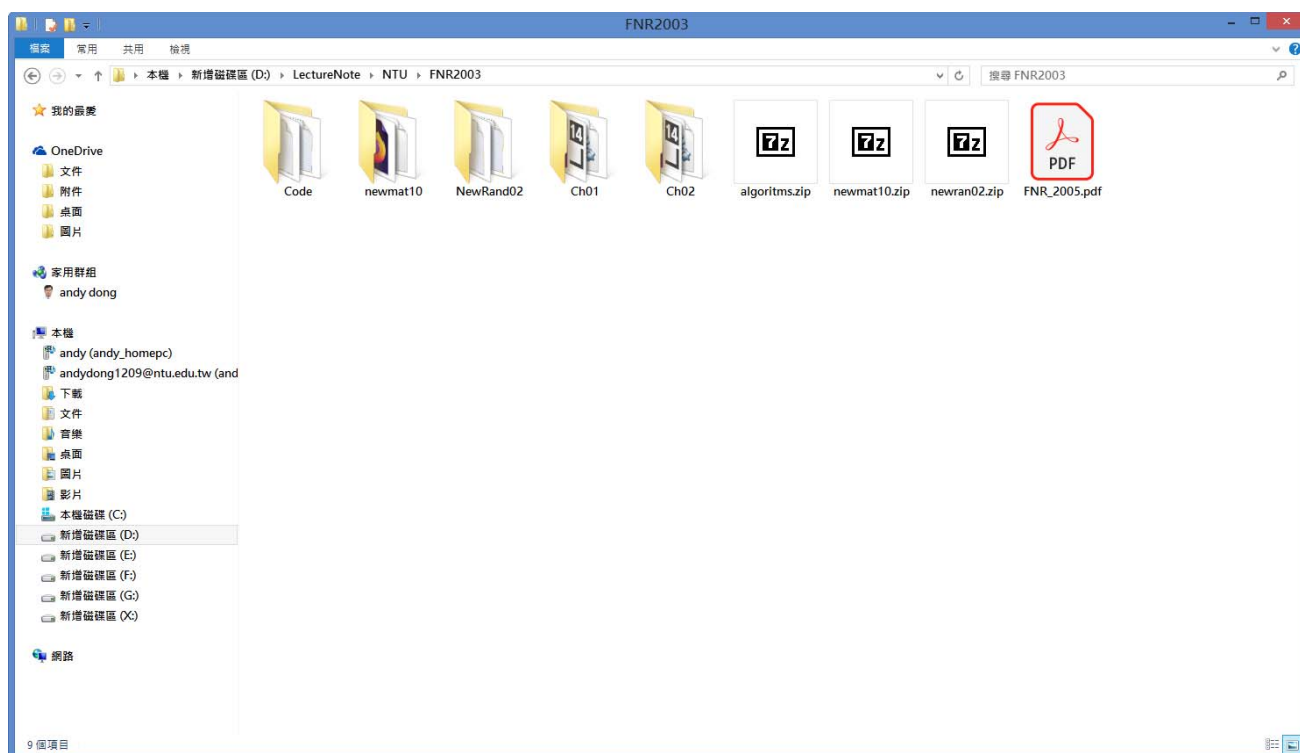


➤ Example2_1.exe 執行結果

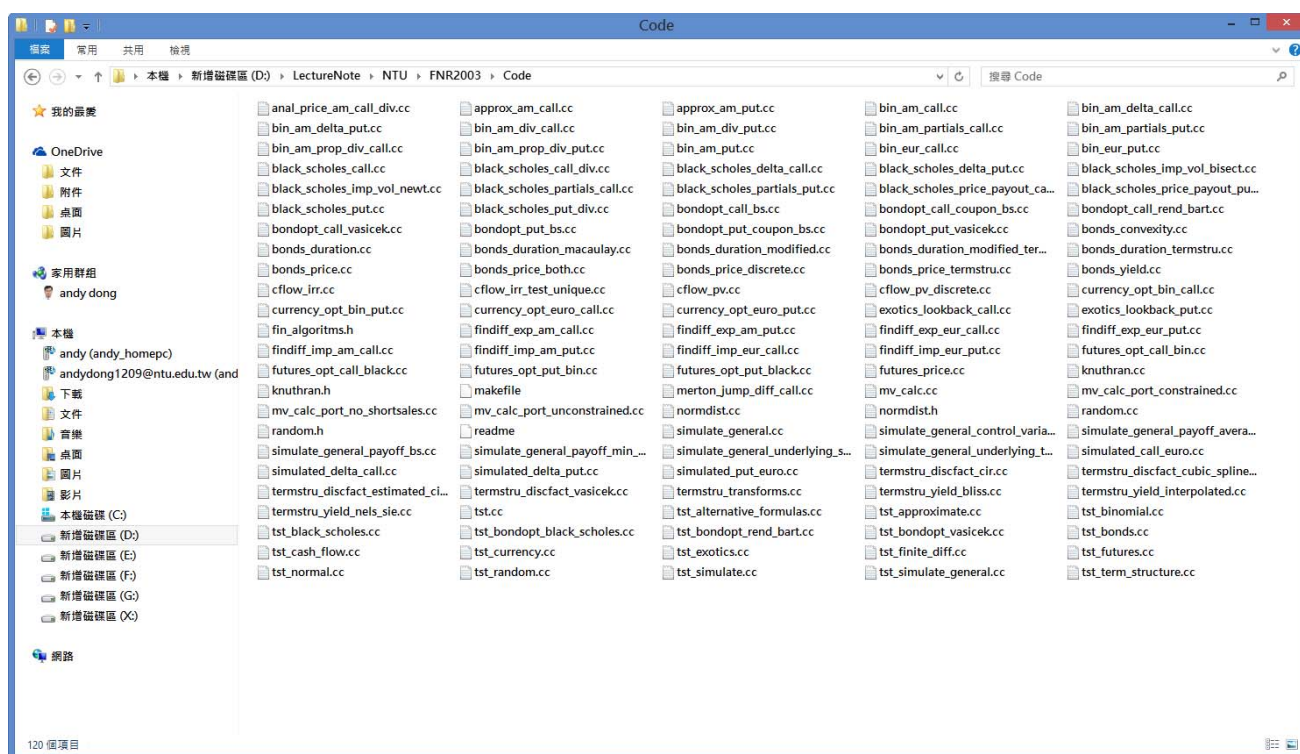
```
VS2015 x64
C:\>D:
D:\>cd LectureNote
D:\LectureNote>cd NTU\FNR2003\Ch02\debug
D:\LectureNote\NTU\FNR2003\Ch02\Debug>Example2_1.exe
present value, 5% discretely compounded interest = 9.29705
internal rate of return = 0.1
D:\LectureNote\NTU\FNR2003\Ch02\Debug>
```

二、檔案分佈

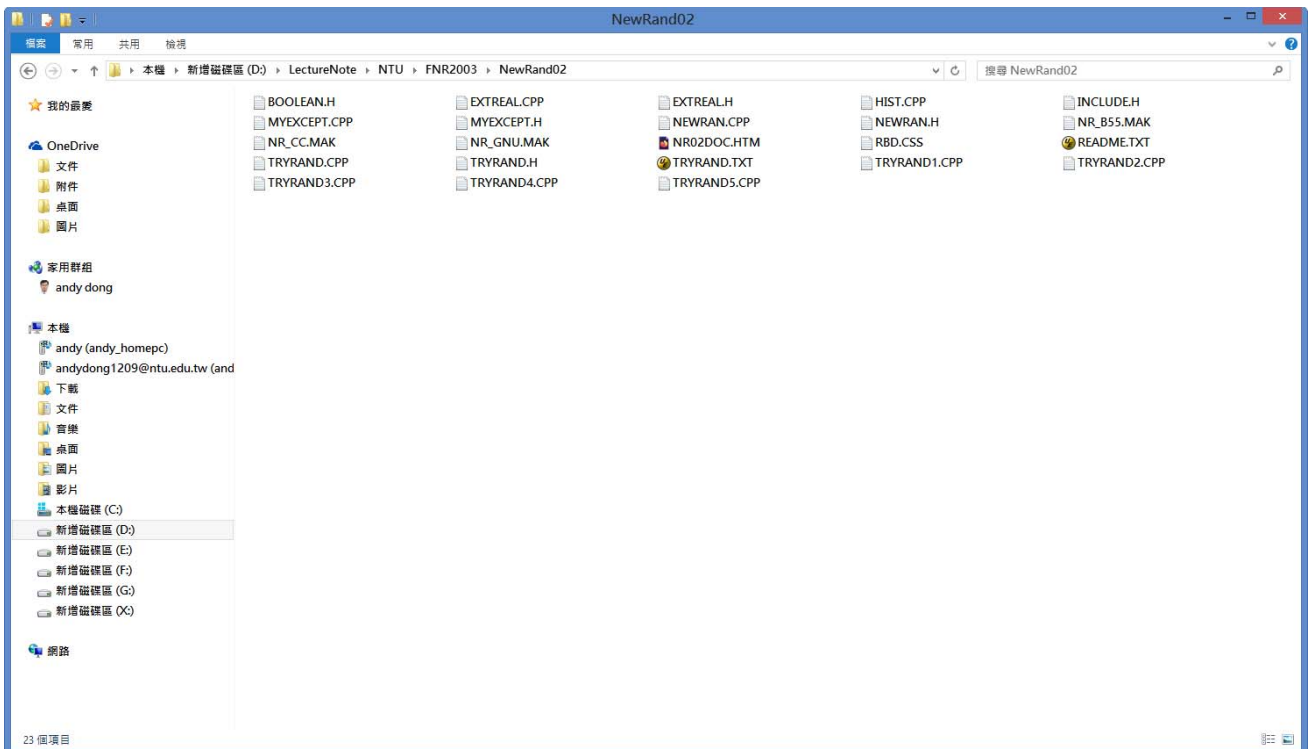
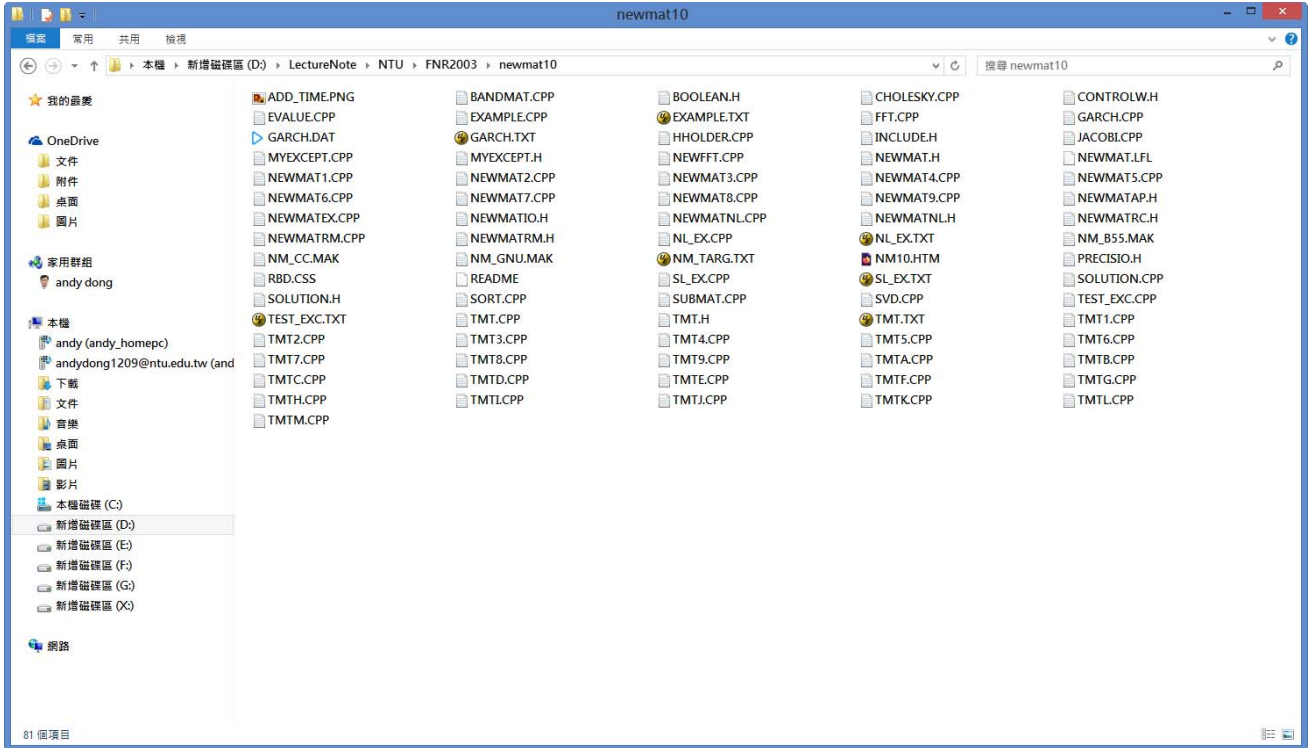
◆ 下載的壓縮檔與 pdf。



◆ 所有的 code，放在下面位址。

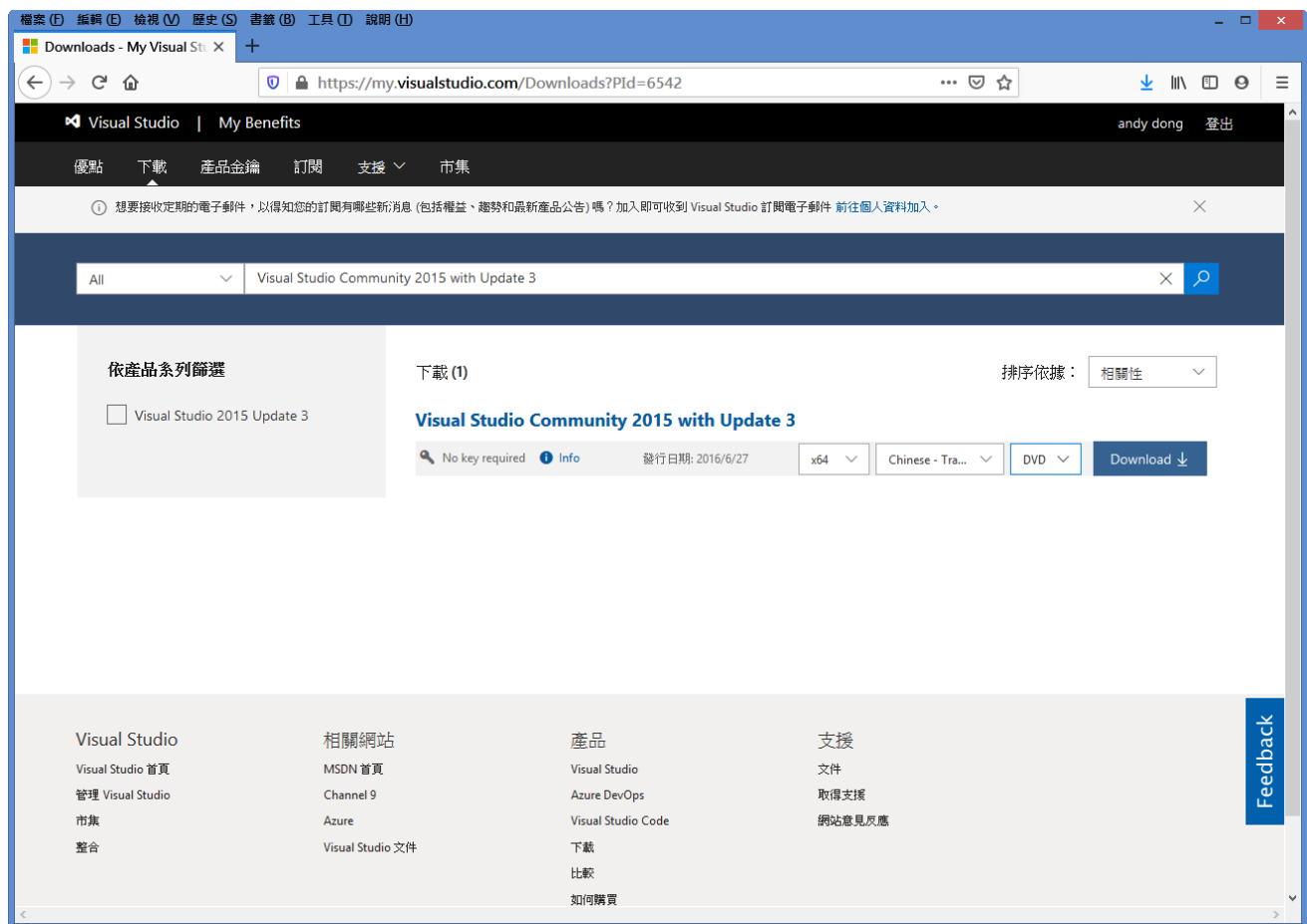


◆ NewMat10 與 NewRand02



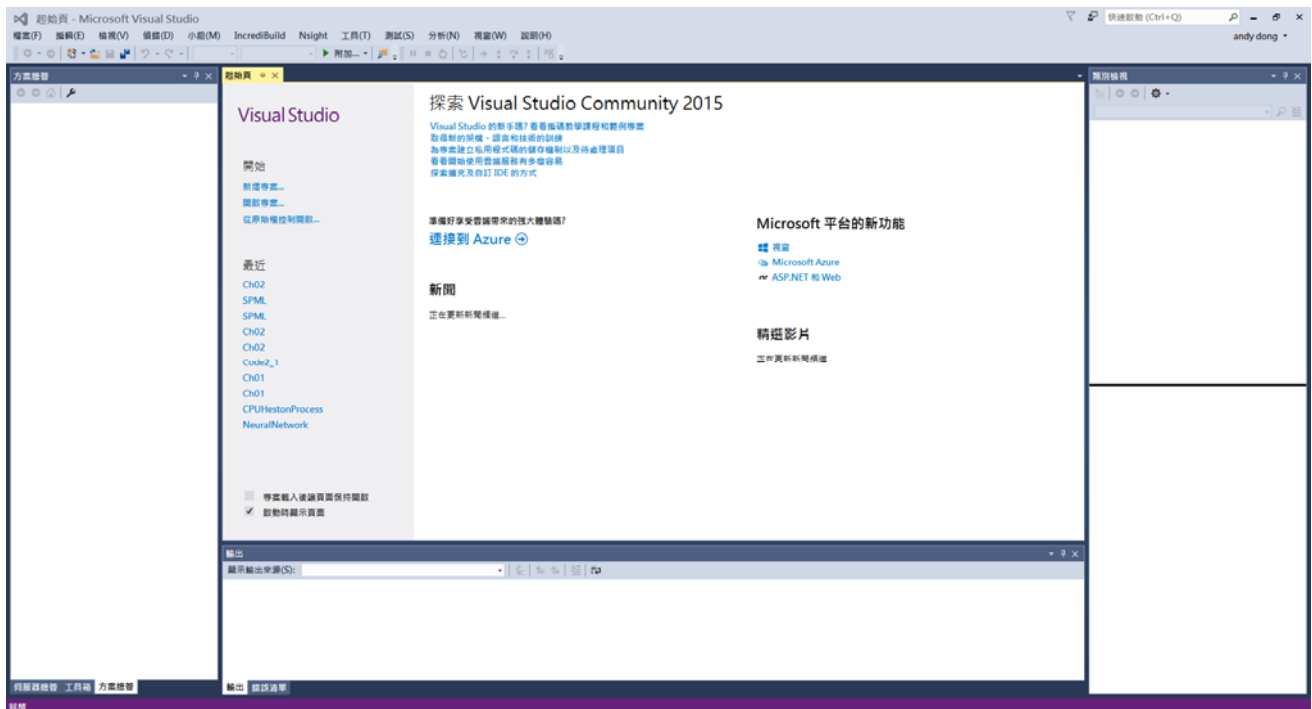
三、使用 Visual Studio 2015

◆ 下載 Visual Studio 2015

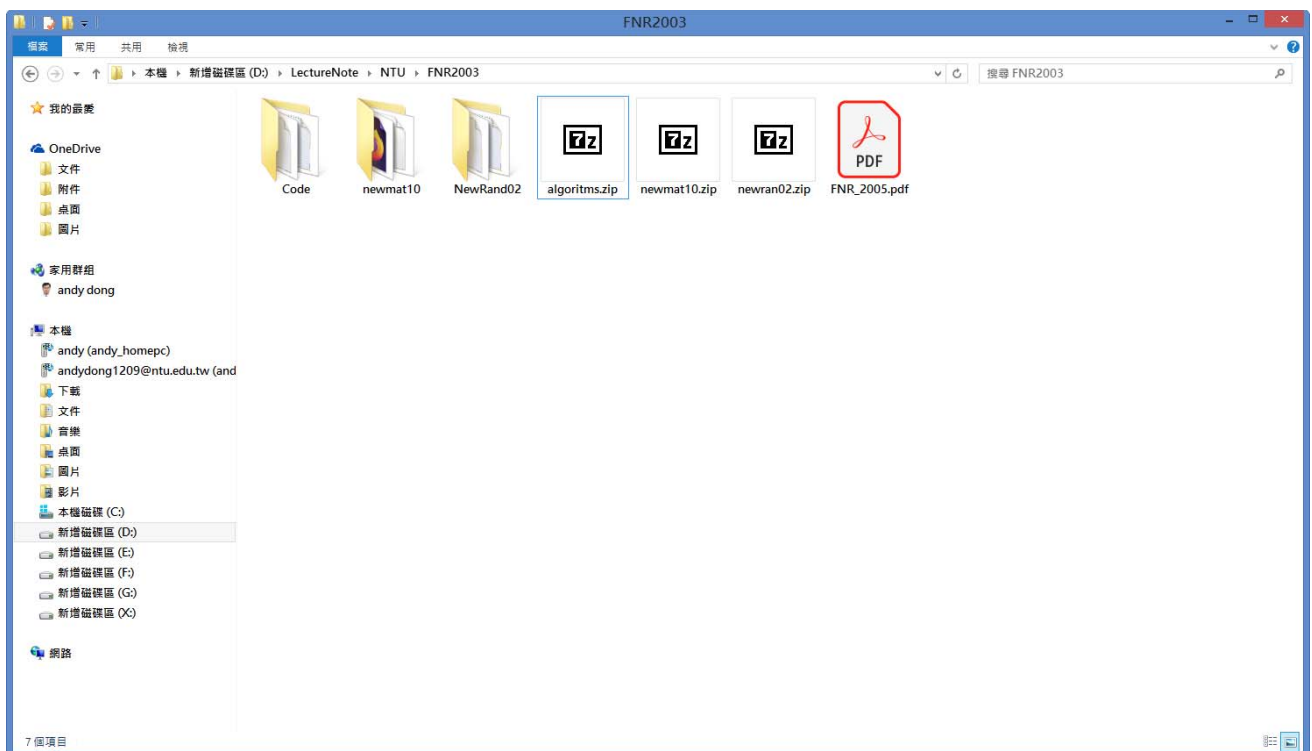


➤ 可能須要註冊

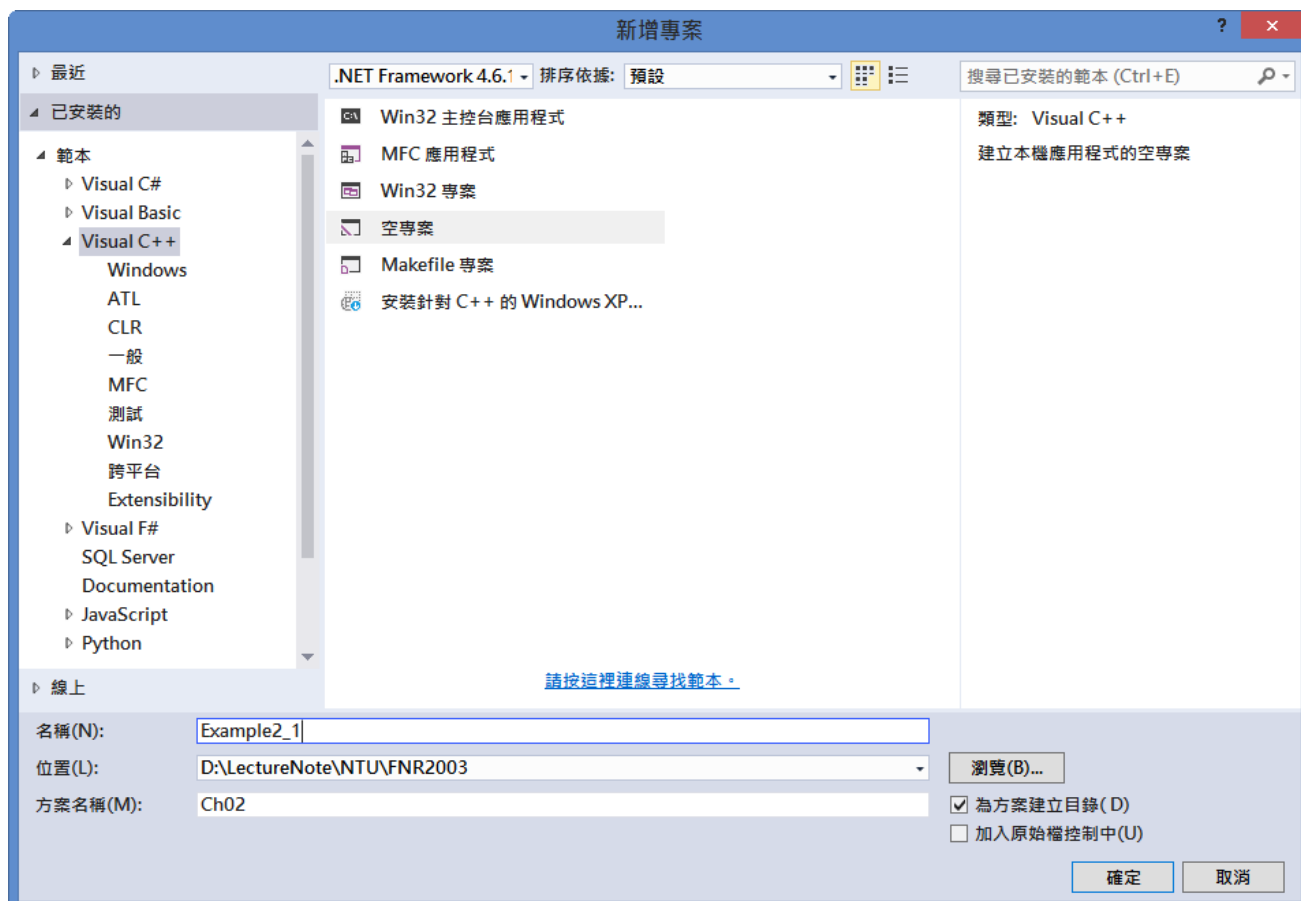
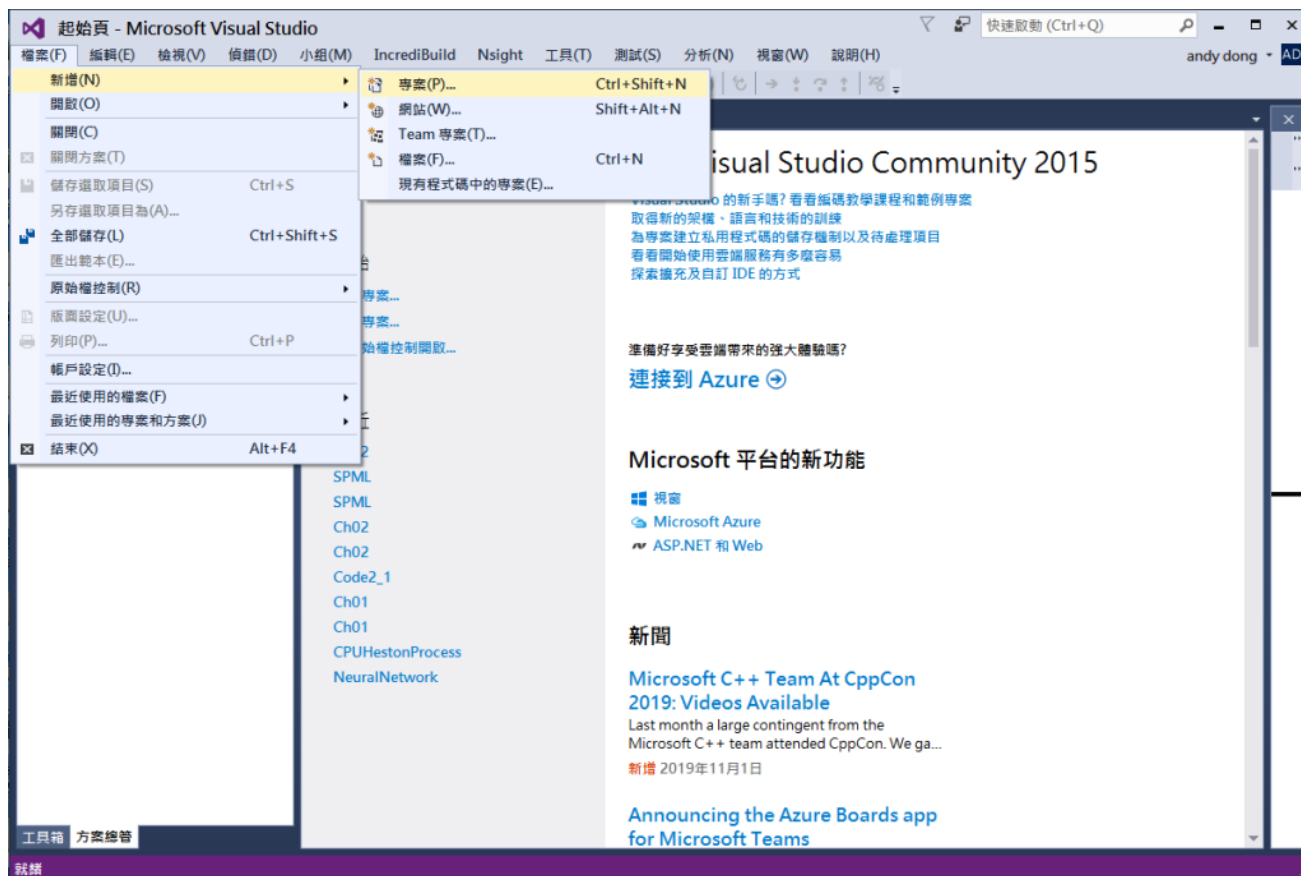
◆ 安裝完成，執行 VS2015



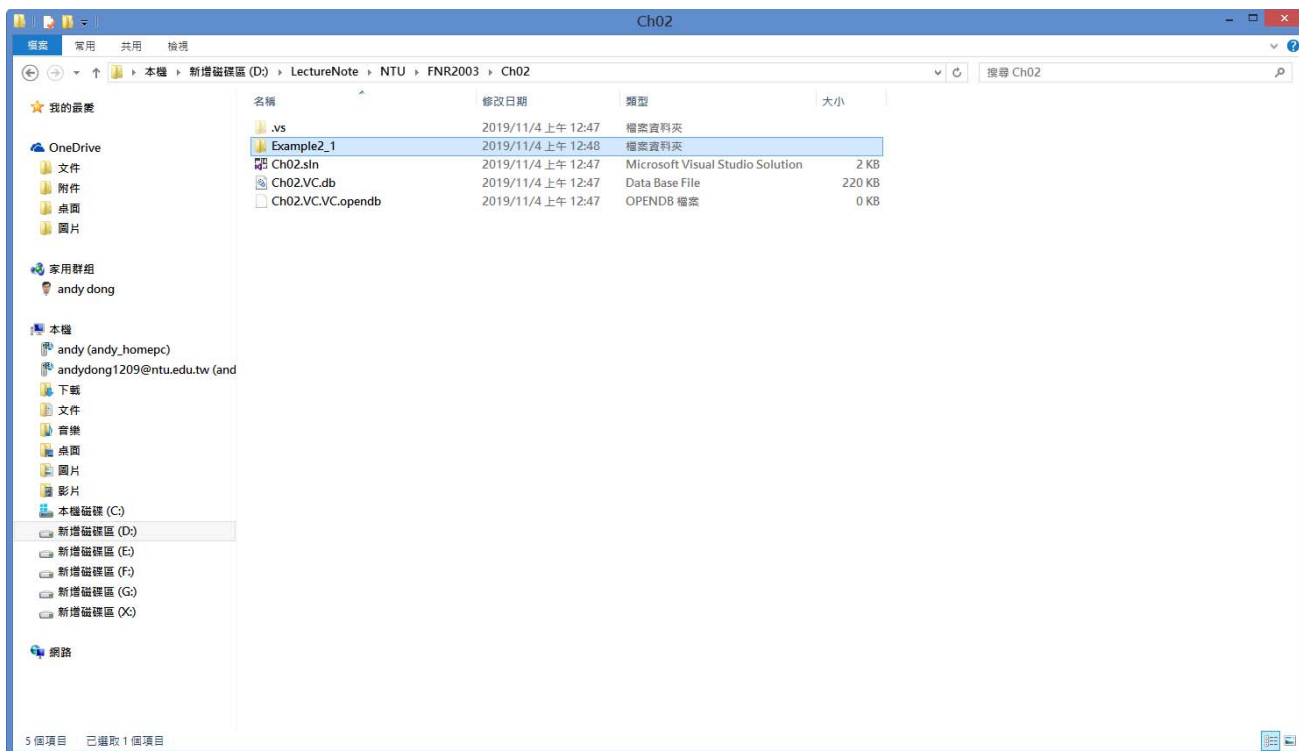
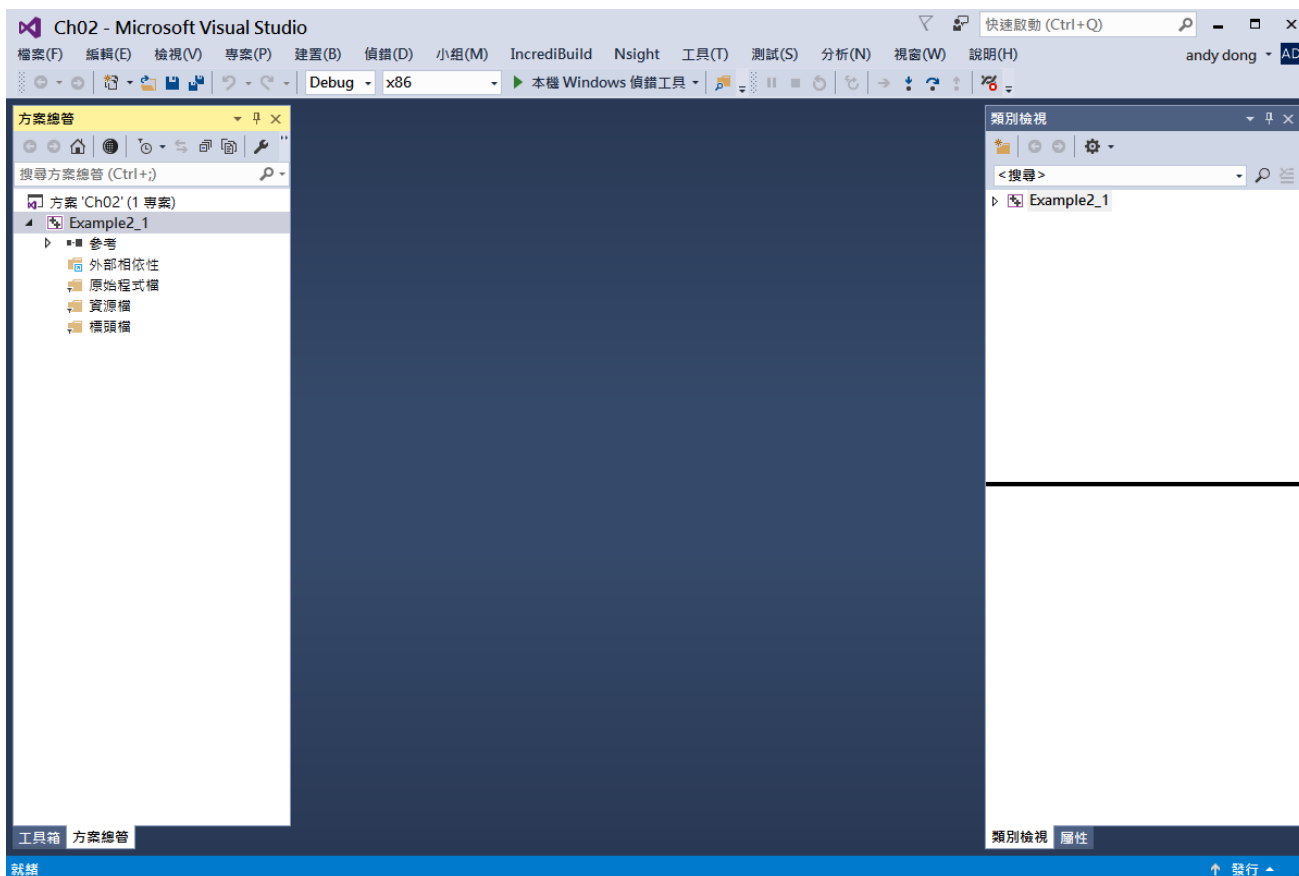
➤ 現有情況



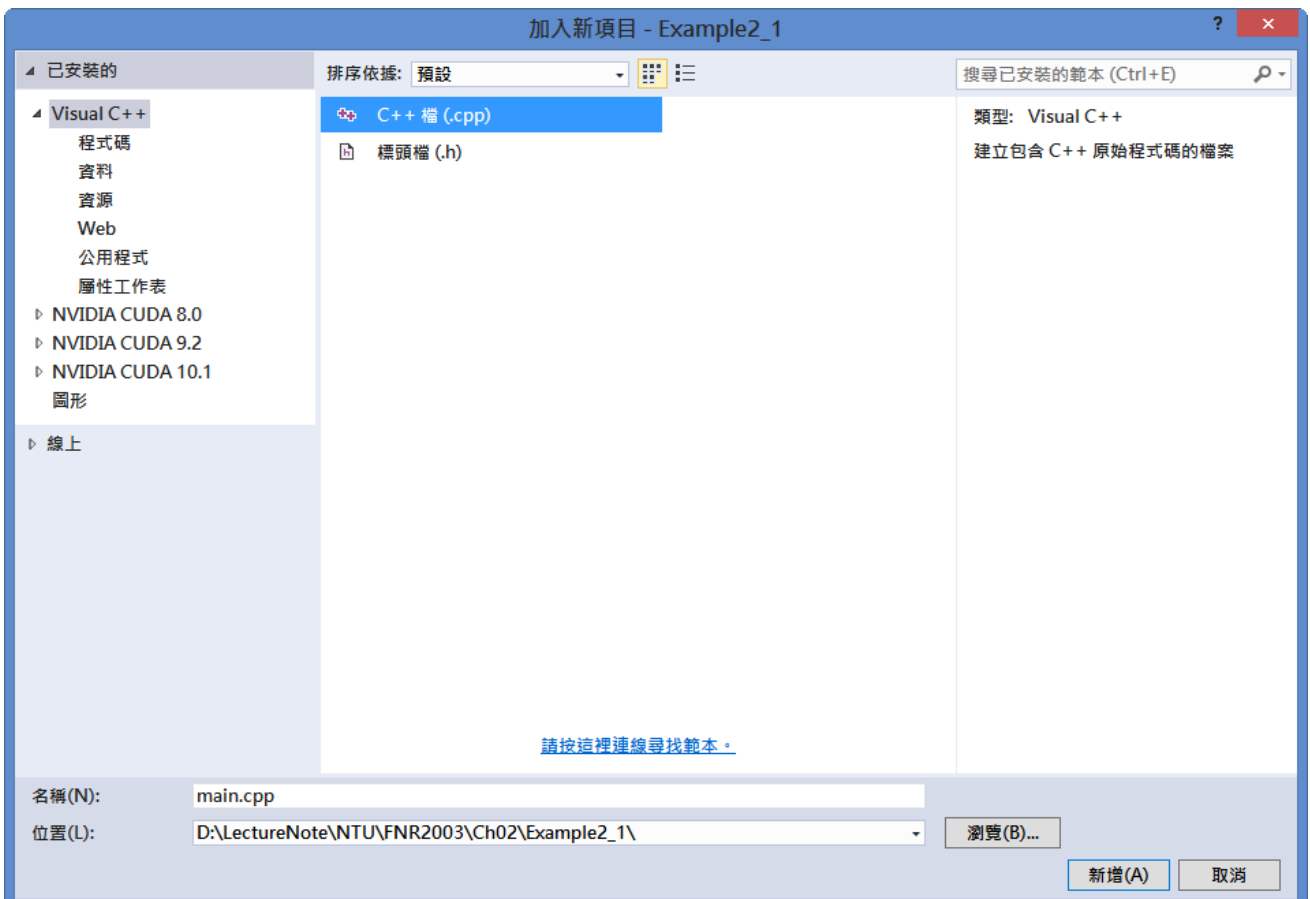
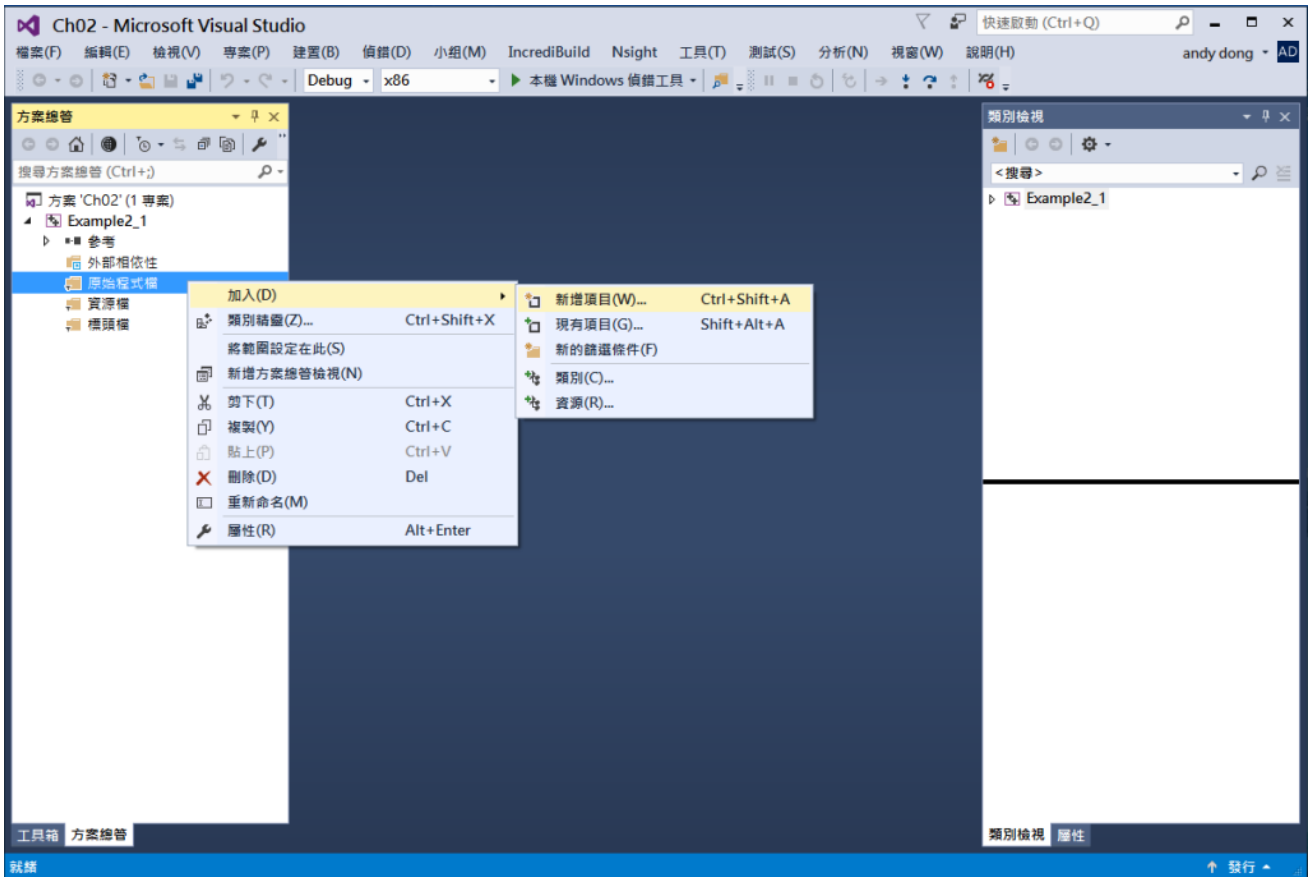
◆ 新增專案

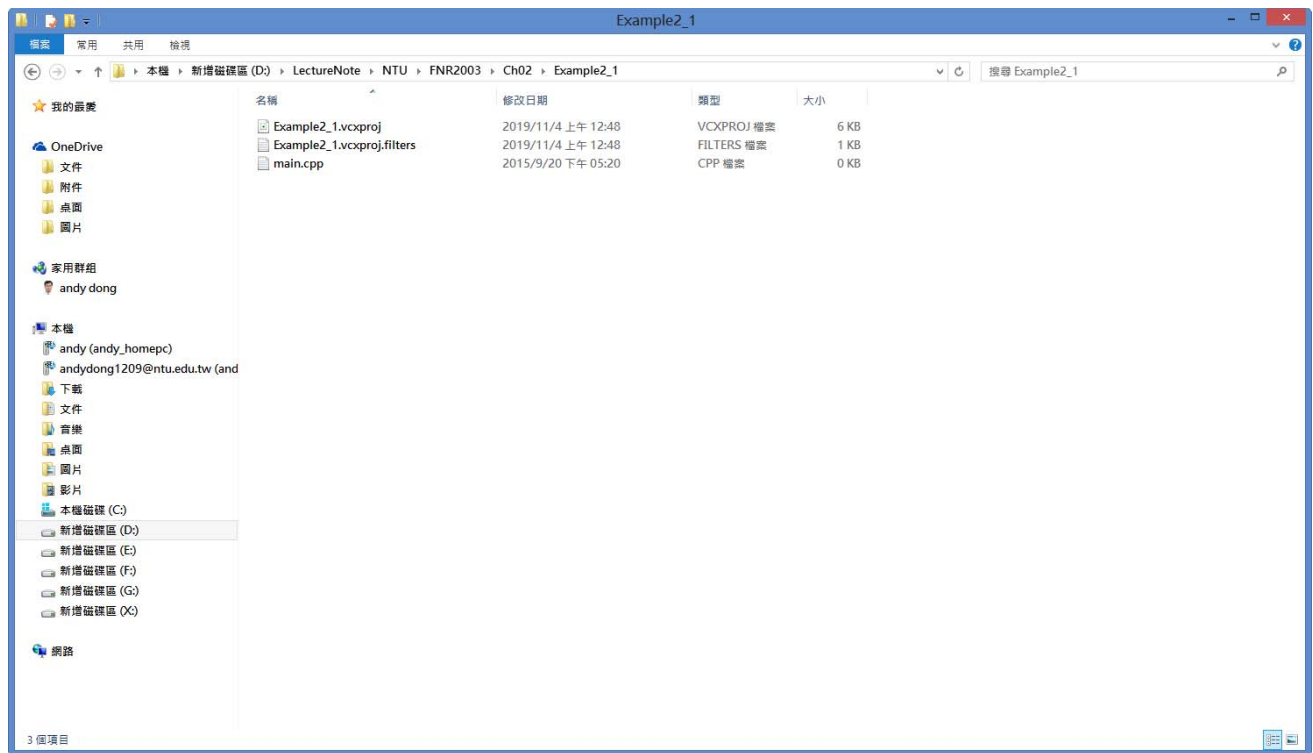


◆ 產生框架

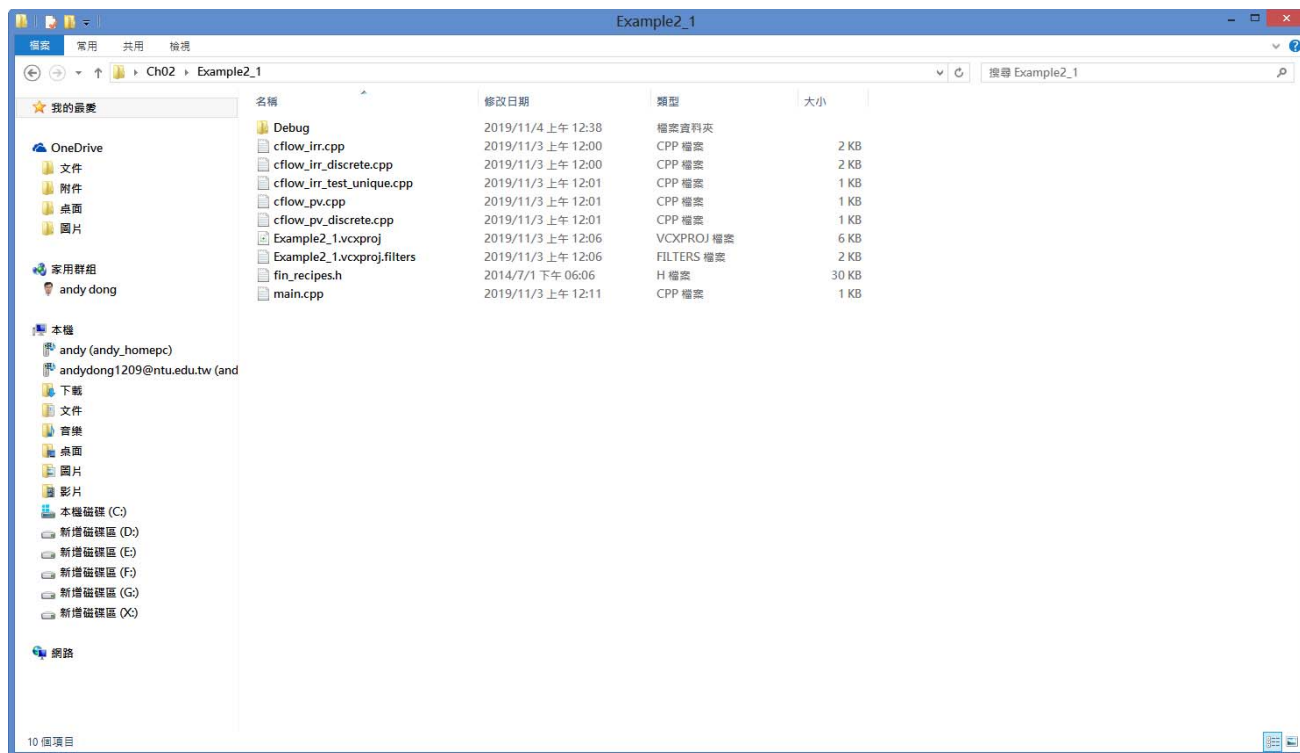


◆ 加入主程式，main.cpp

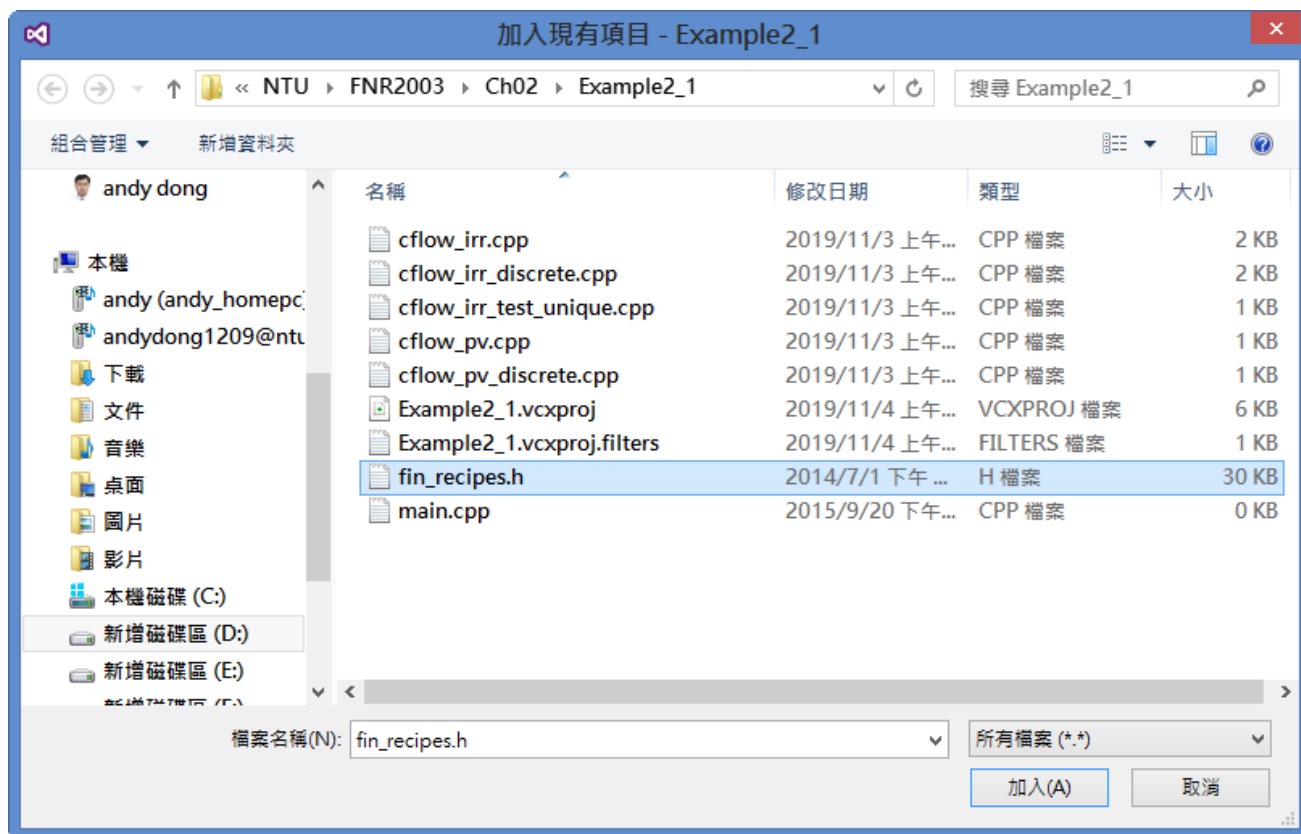
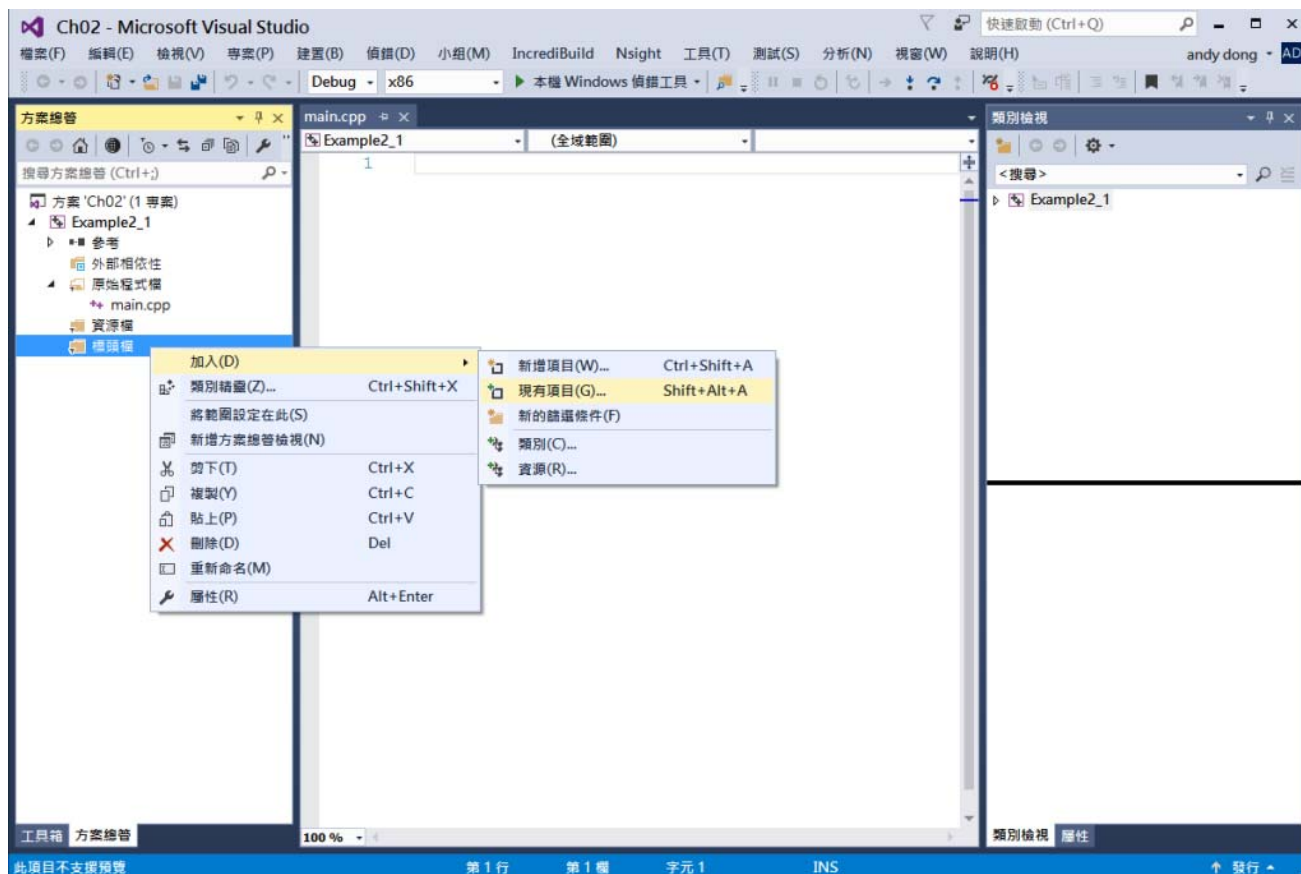


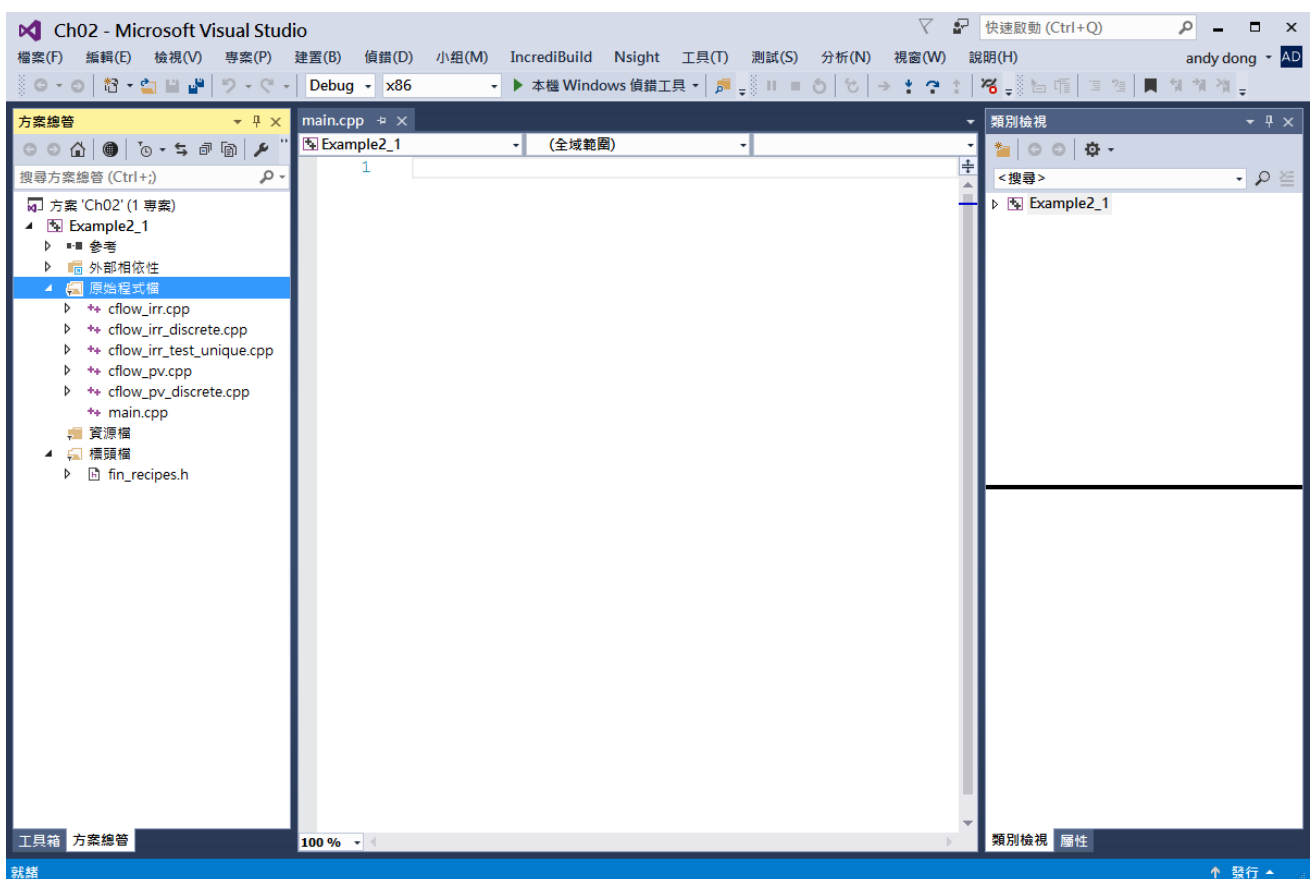
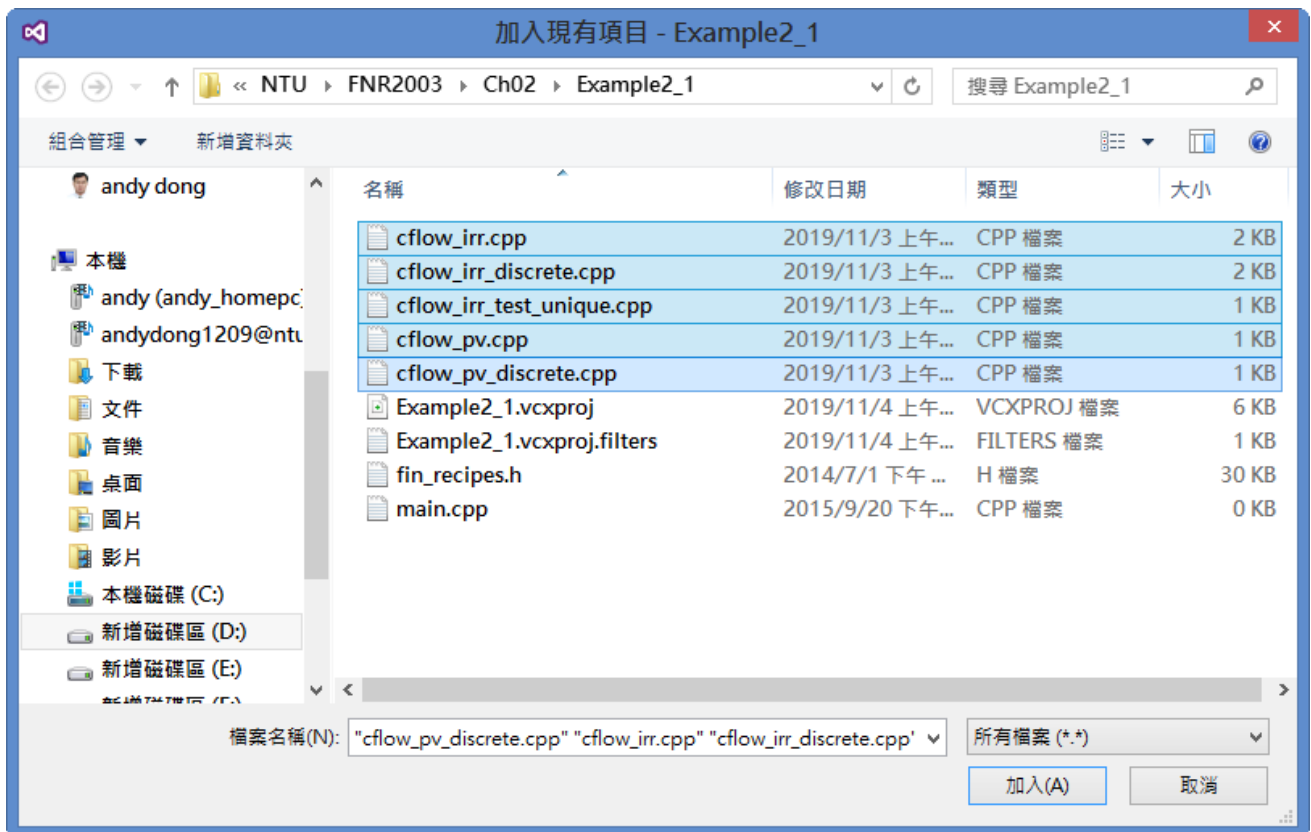


◆ 將相關檔案由 Code ， Copy 到目錄下，



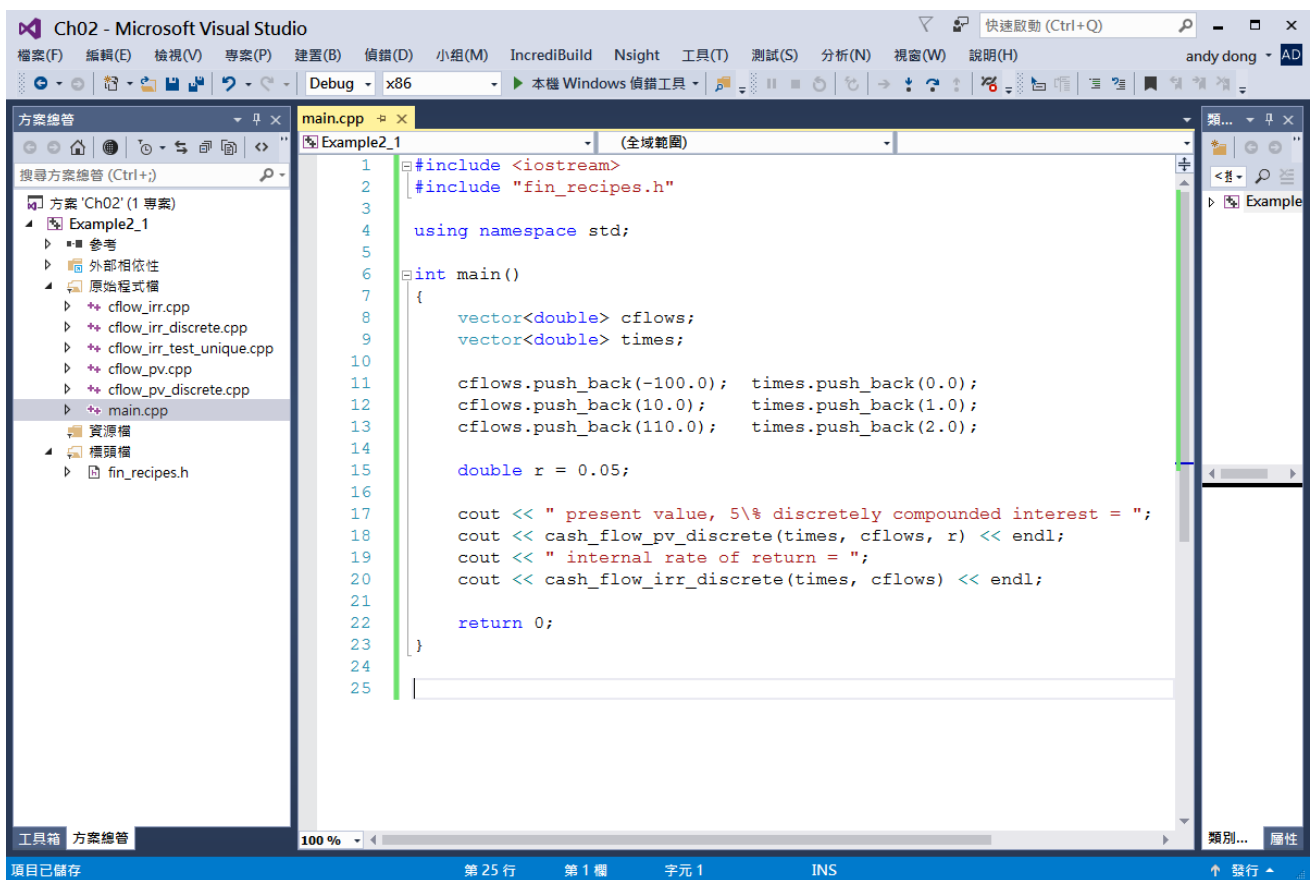
◆ 加入檔案到專案內





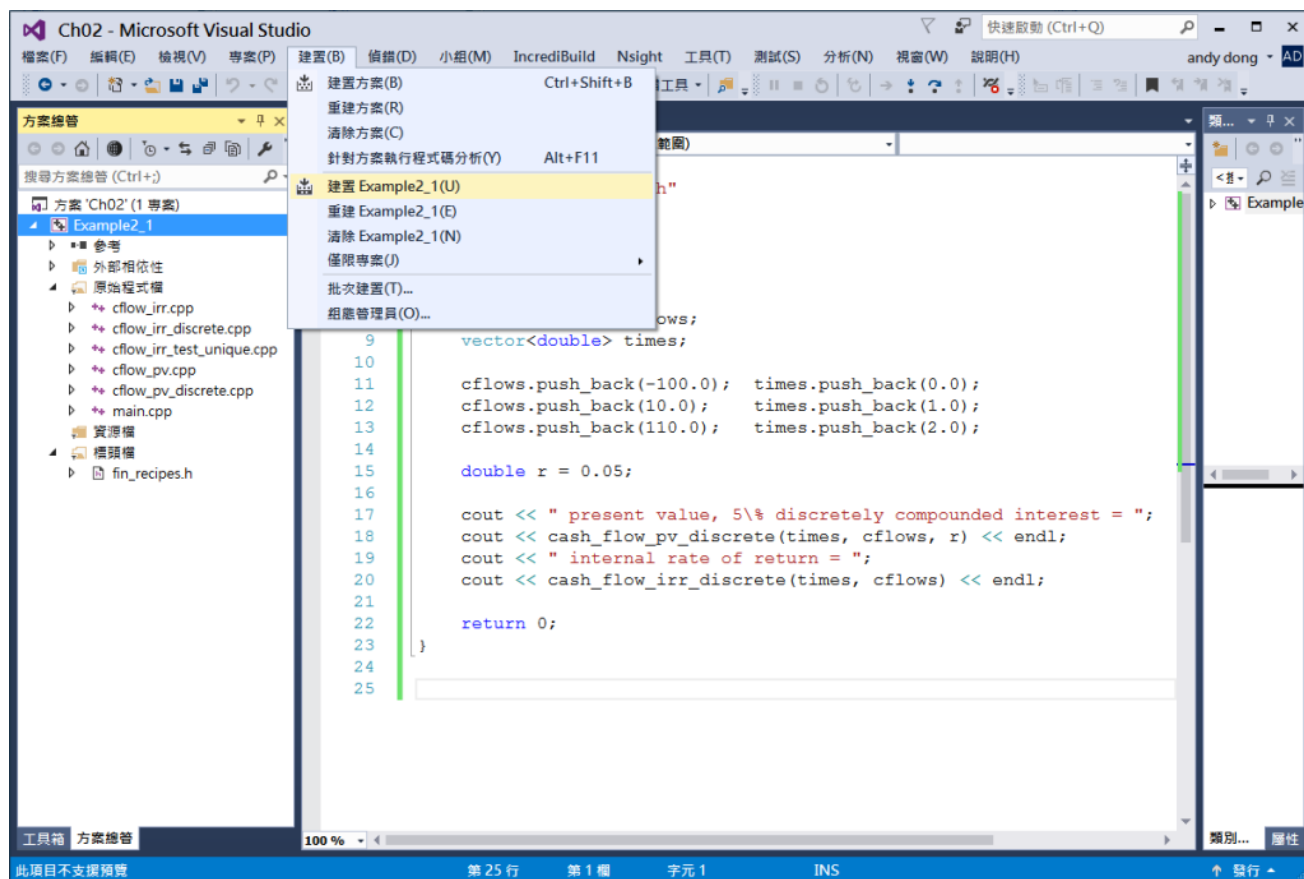
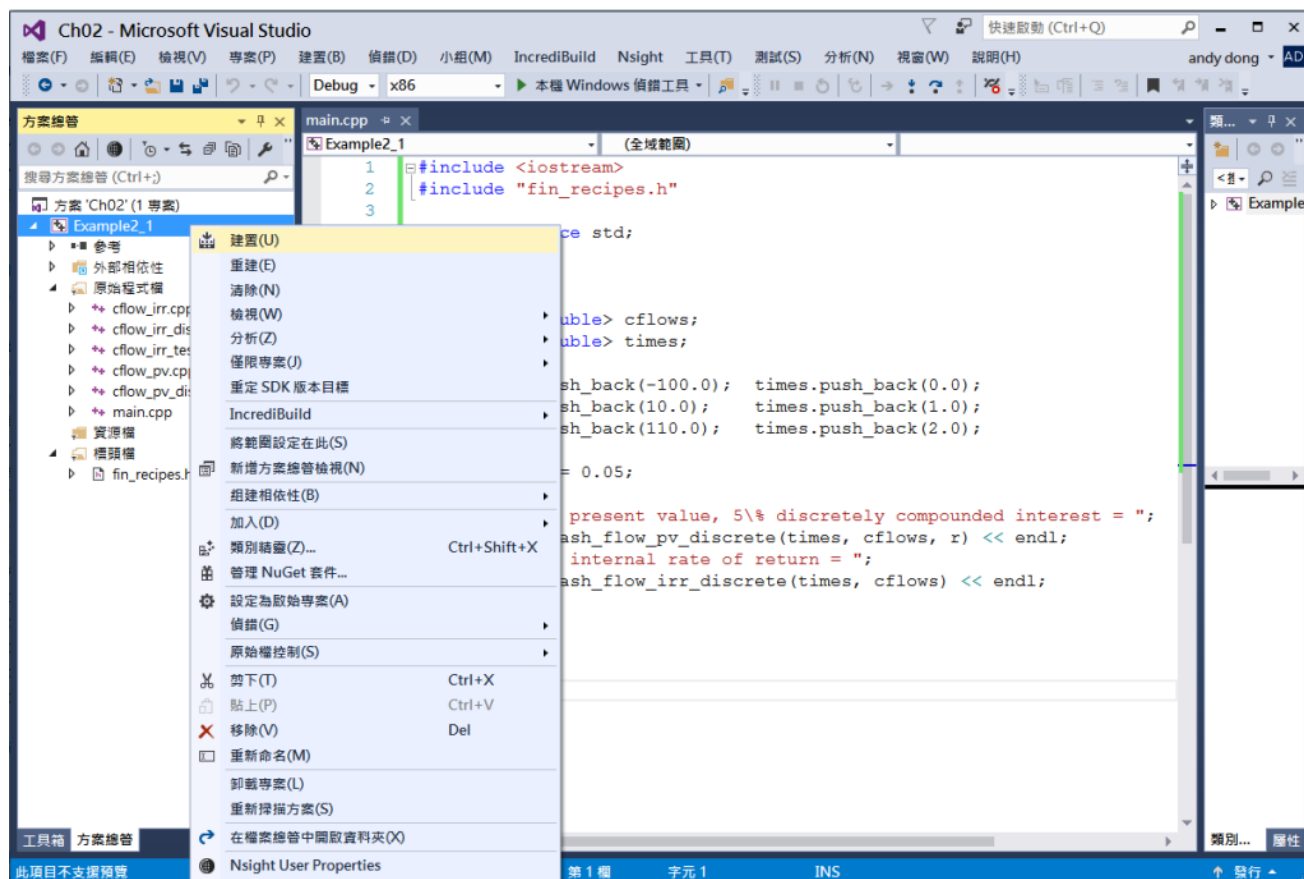
四、編譯程式

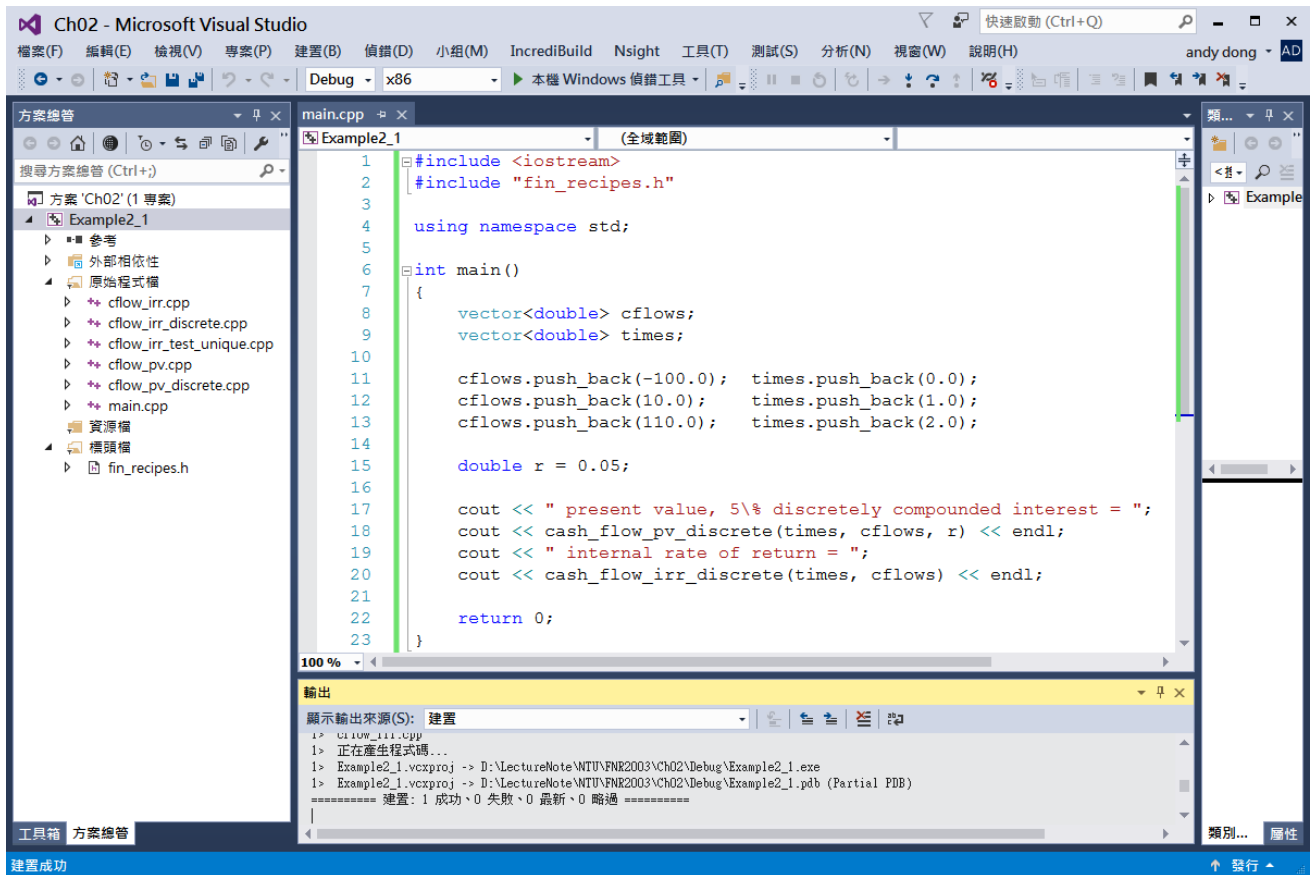
◆ 將程式碼打入，



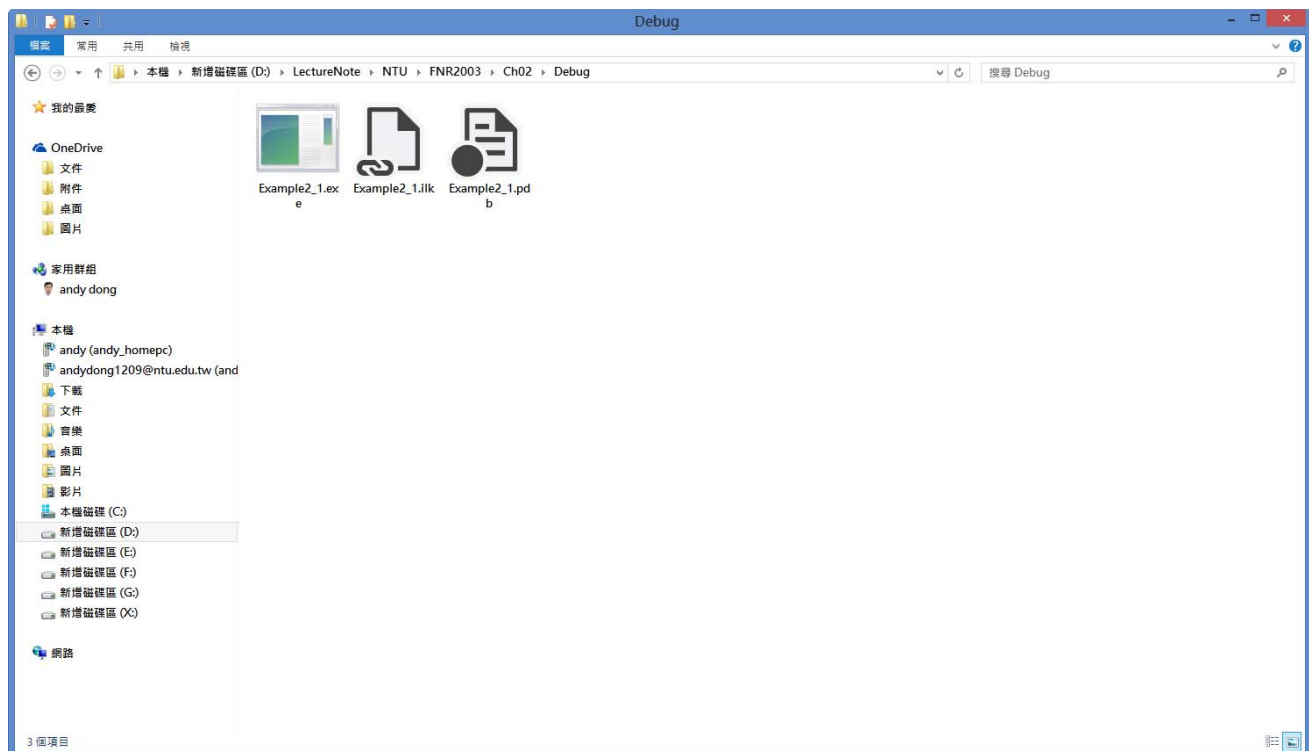
```
1 #include <iostream>
2 #include "fin_recipes.h"
3
4 using namespace std;
5
6 int main()
7 {
8     vector<double> cflows;
9     vector<double> times;
10
11     cflows.push_back(-100.0); times.push_back(0.0);
12     cflows.push_back(10.0); times.push_back(1.0);
13     cflows.push_back(110.0); times.push_back(2.0);
14
15     double r = 0.05;
16
17     cout << " present value, 5\% discretely compounded interest = ";
18     cout << cash_flow_pv_discrete(times, cflows, r) << endl;
19     cout << " internal rate of return = ";
20     cout << cash_flow_irr_discrete(times, cflows) << endl;
21
22     return 0;
23 }
24
25
```


◆ 編譯程式





◆ 輸出



```
VS2015 x64

D:\MagaedCUDA\managedCuda-20191010\samples\ManagedCudaSamples>cd\
D:\>cd LectureNote\NTU\FNR2003\Ch02
D:\LectureNote\NTU\FNR2003\Ch02>cd Debug
D:\LectureNote\NTU\FNR2003\Ch02\Debug>dir/w
volume in drive D is 新增磁碟區
volume serial number is E842-74F2

Directory of D:\LectureNote\NTU\FNR2003\Ch02\Debug

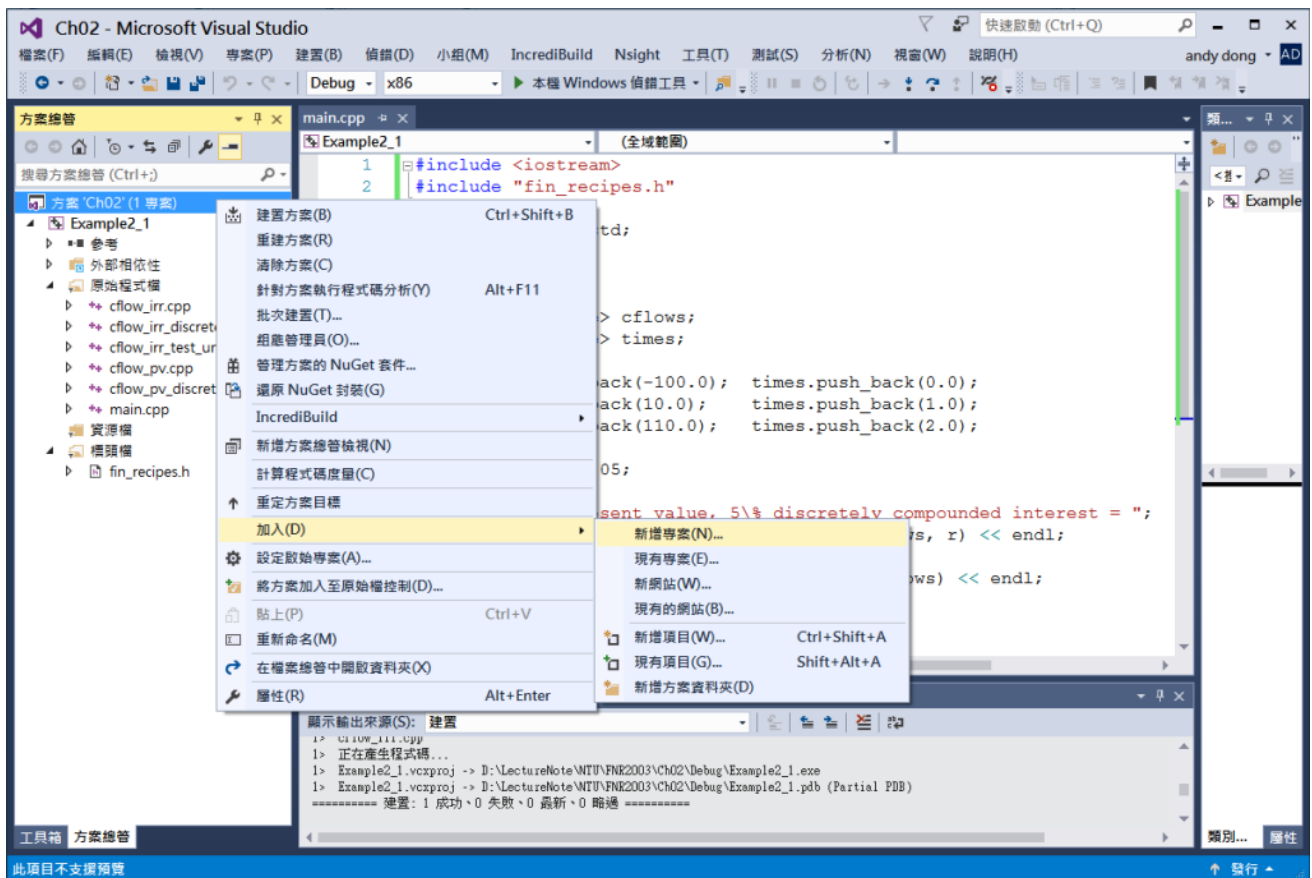
[.]          [..]          Example2_1.exe  Example2_1.ilc
Example2_1.pdb
              3 File(s)      1,126,924 bytes
              2 Dir(s)  1,530,758,291,456 bytes free

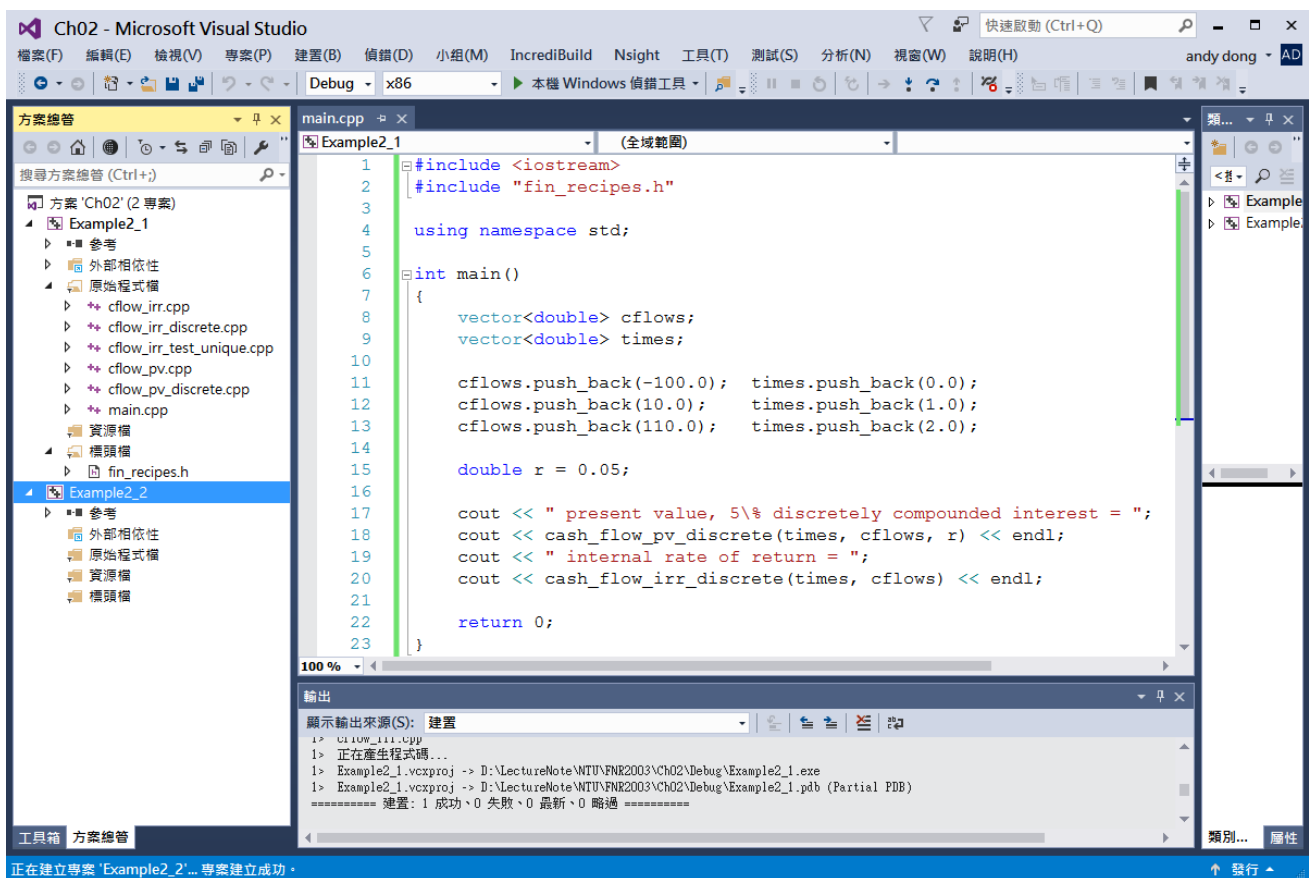
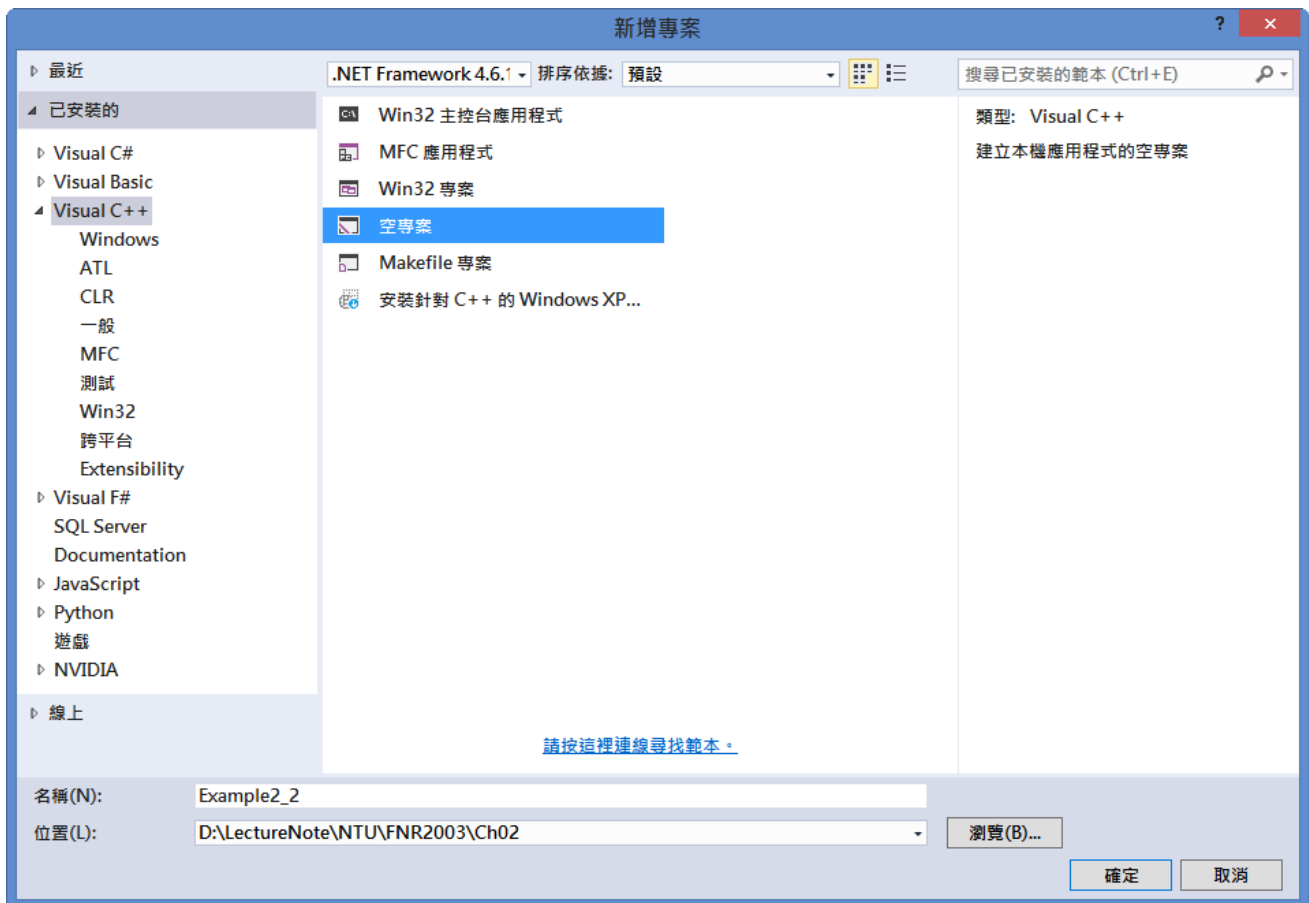
D:\LectureNote\NTU\FNR2003\Ch02\Debug>Example2_1.exe
present value, 5% discretely compounded interest = 9.29705
internal rate of return = 0.1

D:\LectureNote\NTU\FNR2003\Ch02\Debug>
```

五、新增另一專案

◆ 新增 Example2_2 ,



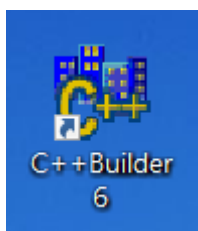


六、使用 BCB 6.0

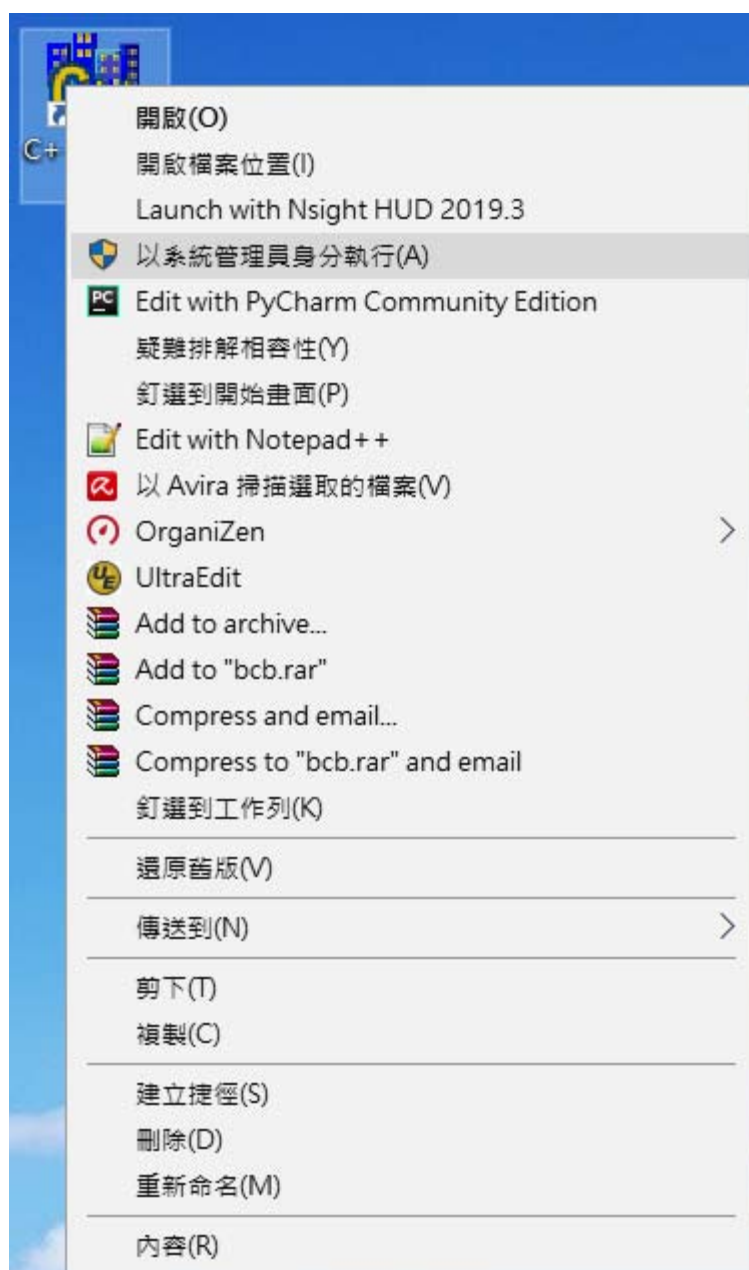
◆ 安裝 BCB 6.0，完成後重新開機，程式出現在選單中。



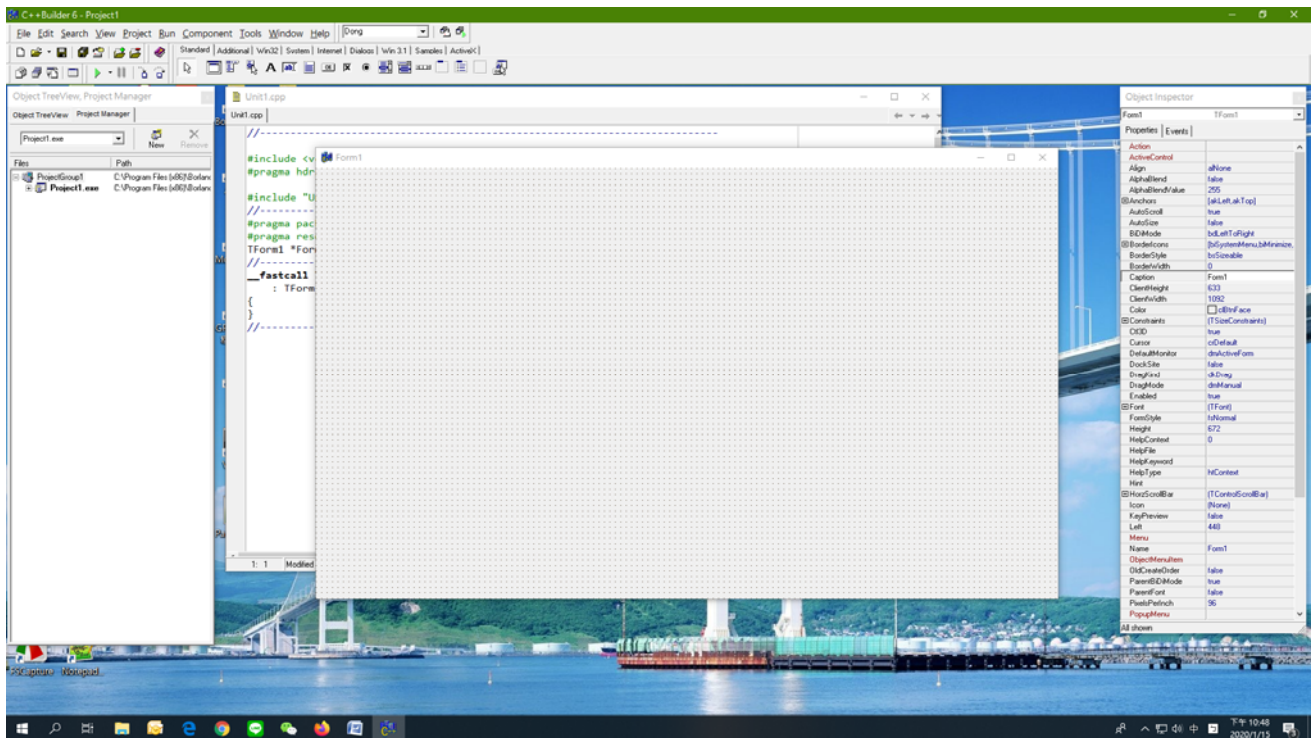
► 拖拉到桌面上。



- 以系統管理員身分執行，完成登錄事項。

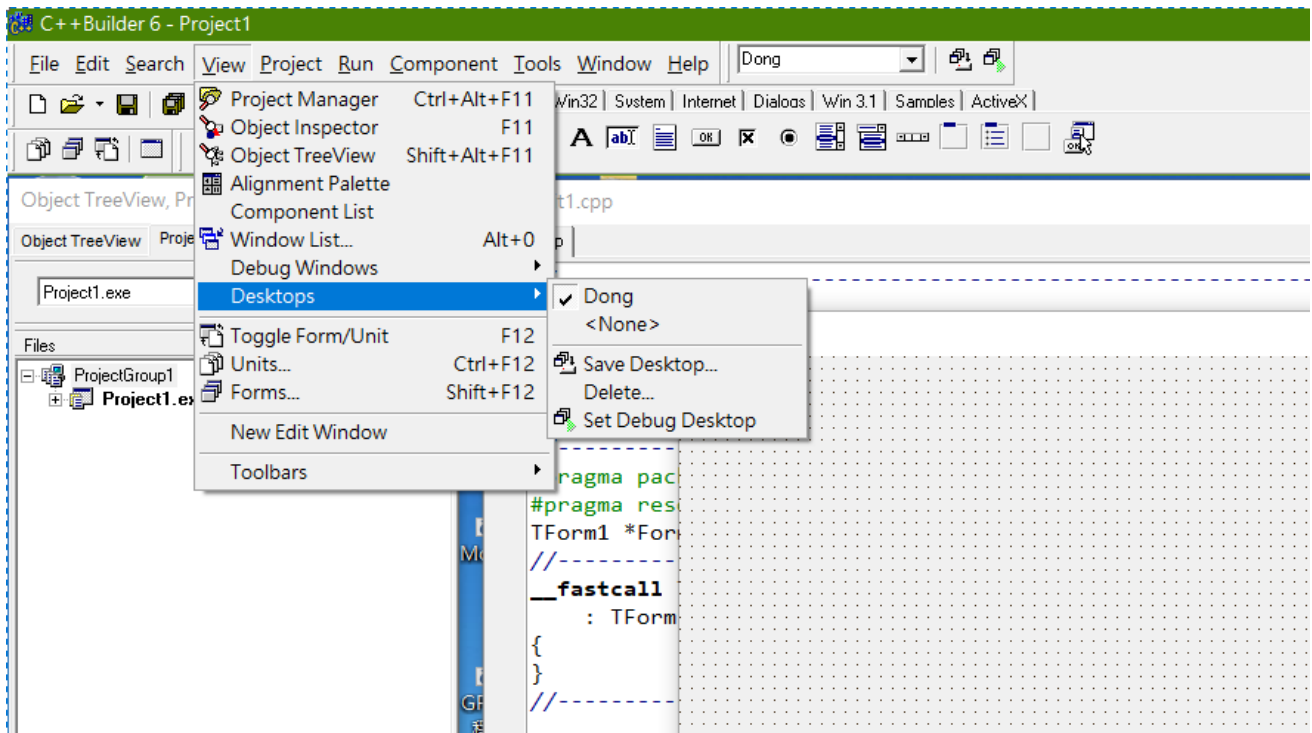


◆ 程式執行畫面，



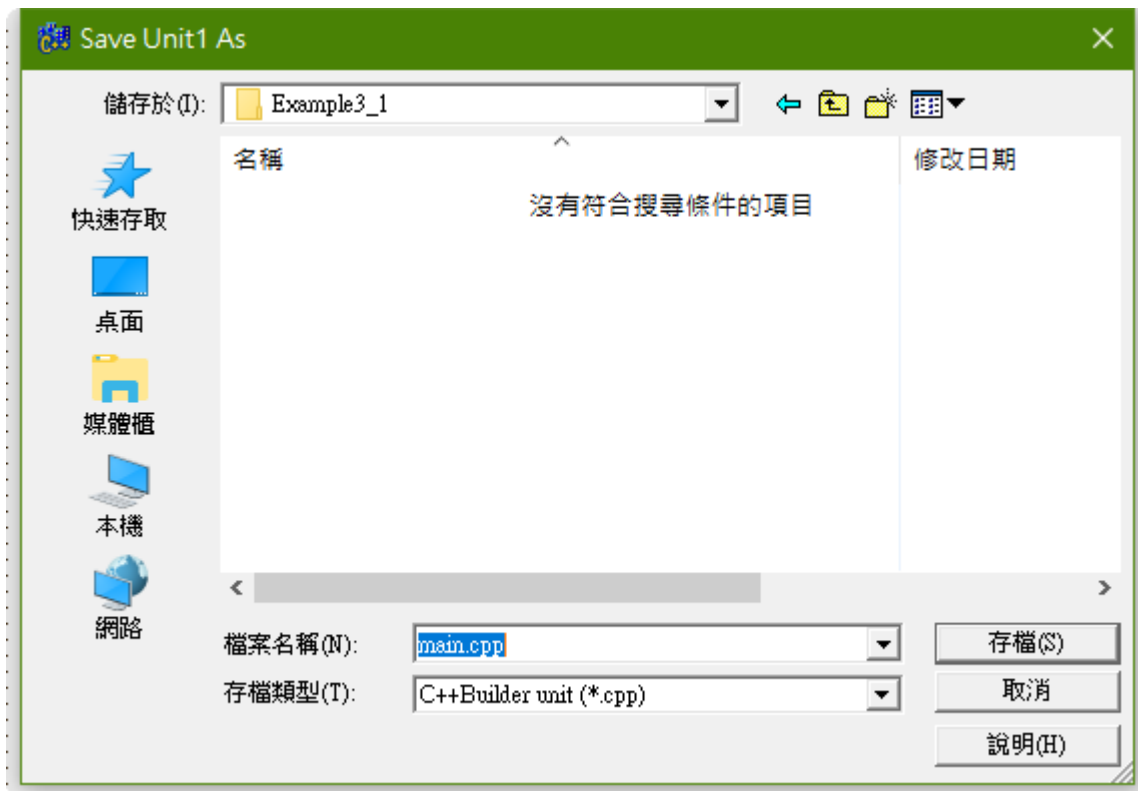
➤ 調整各類設定，字型、版面。

➤ 完成設定後，儲存桌面設定。

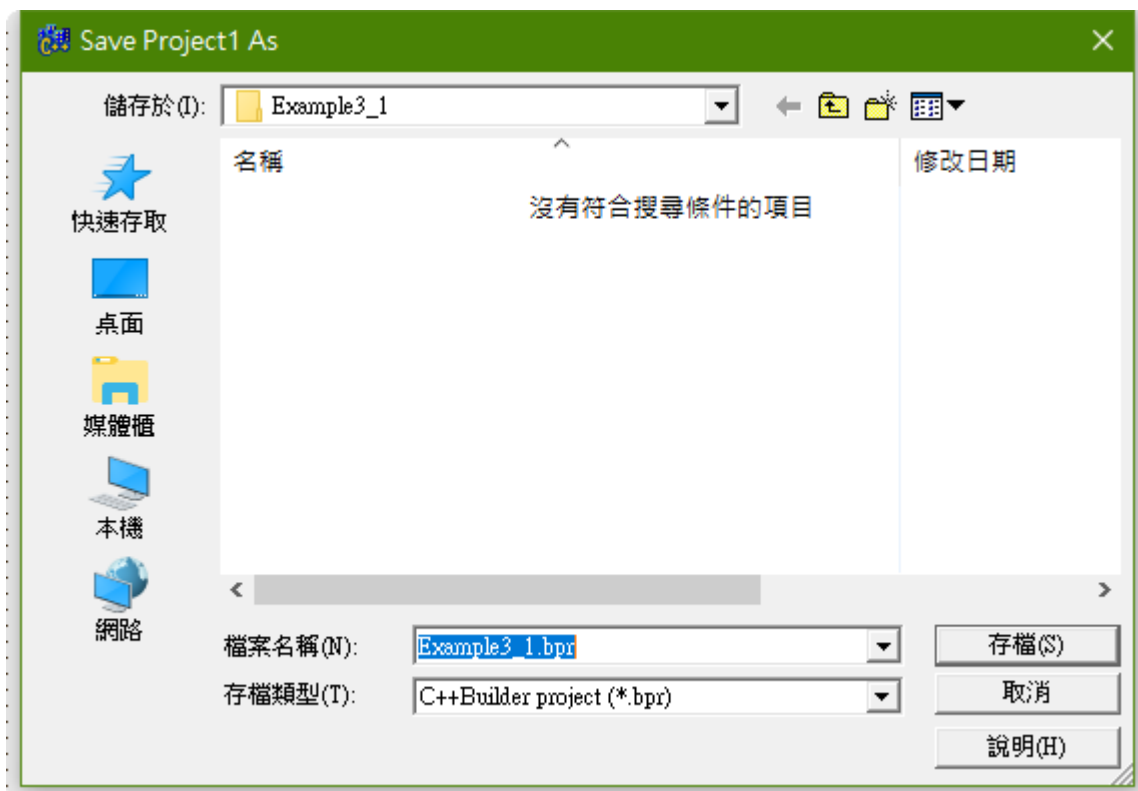


◆ 儲存檔案

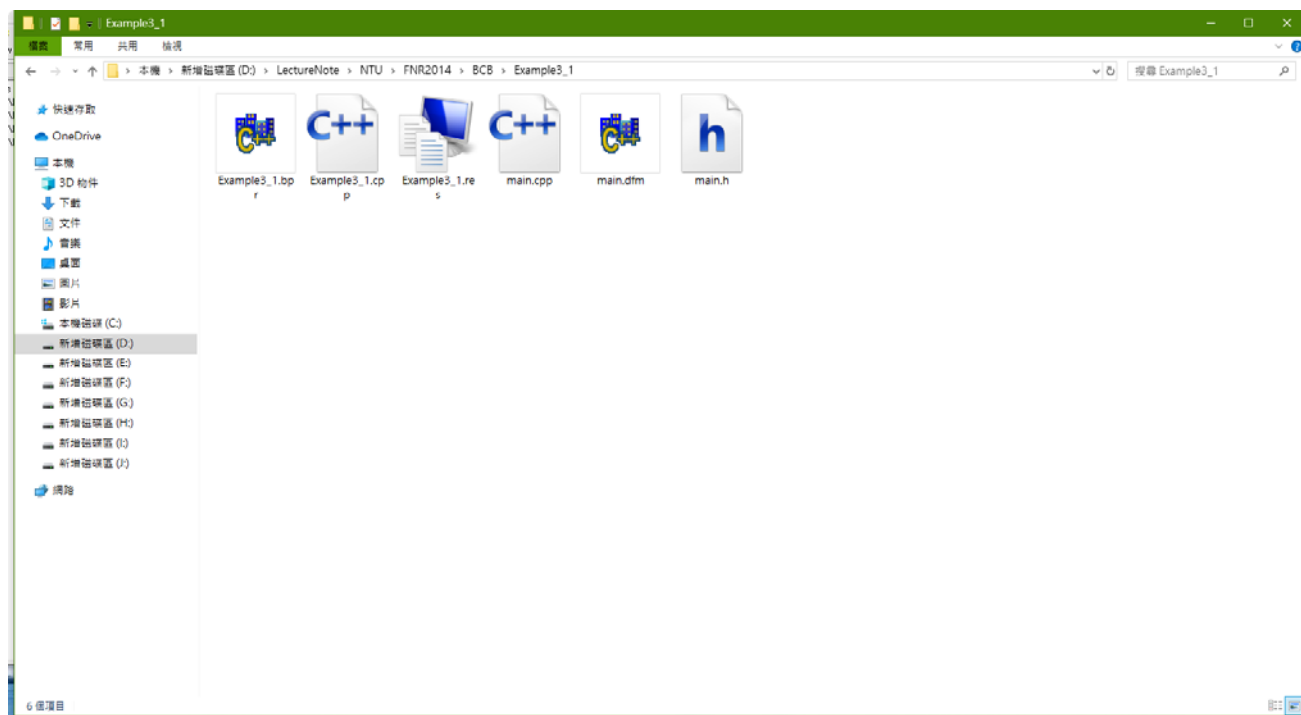
➤ 儲存 Unit1.cpp



➤ 儲存專案

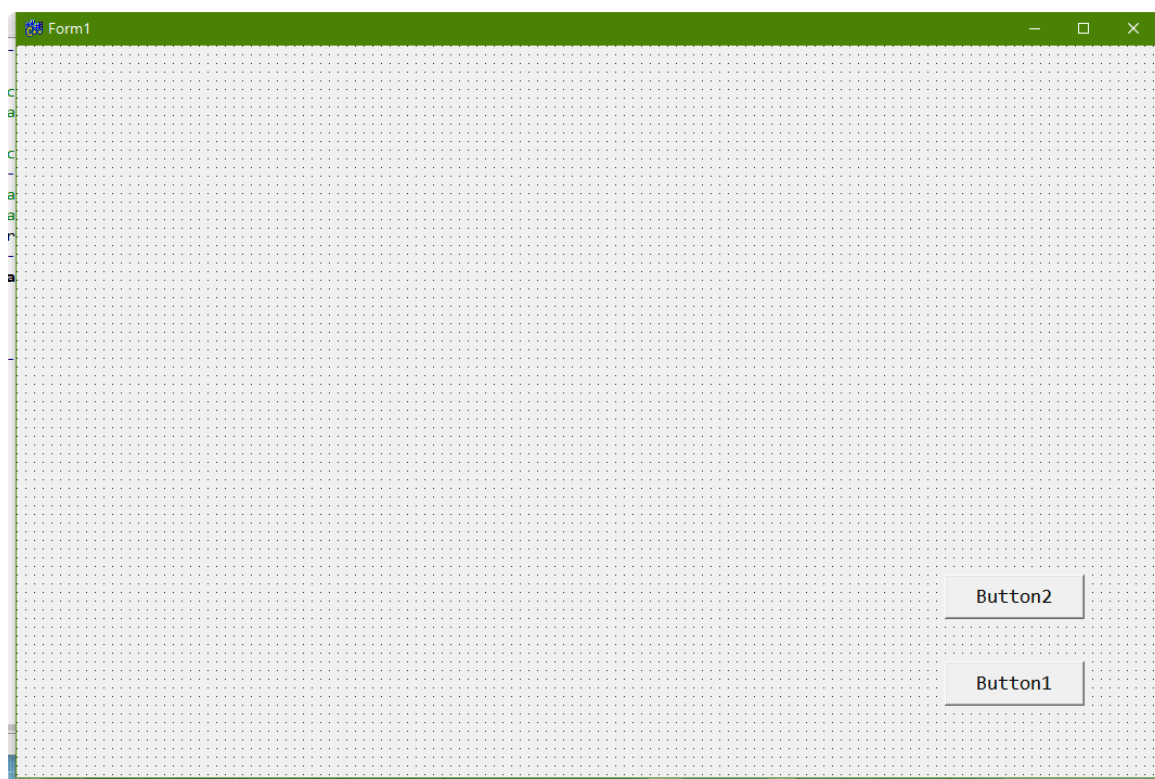


➤ 檔案位址

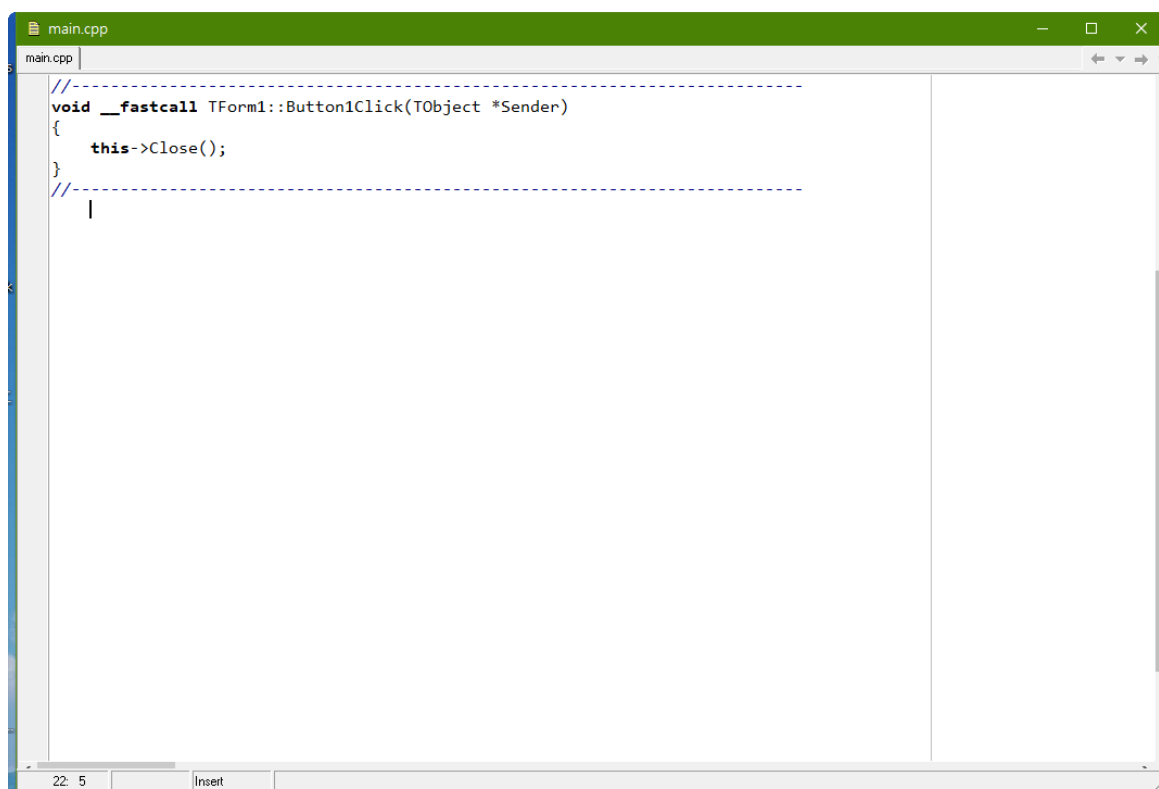


七、編譯程式

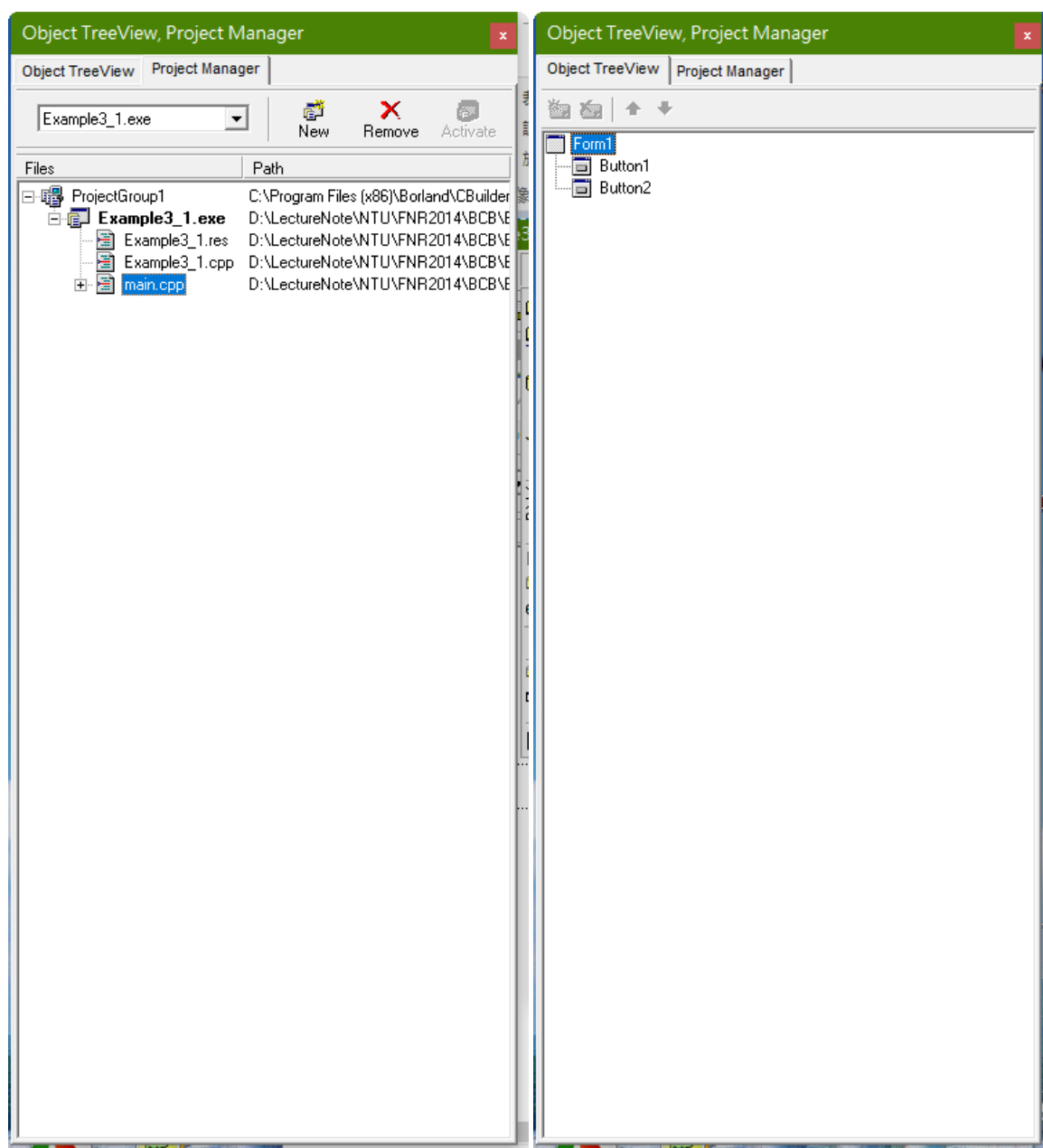
◆ 放上元件



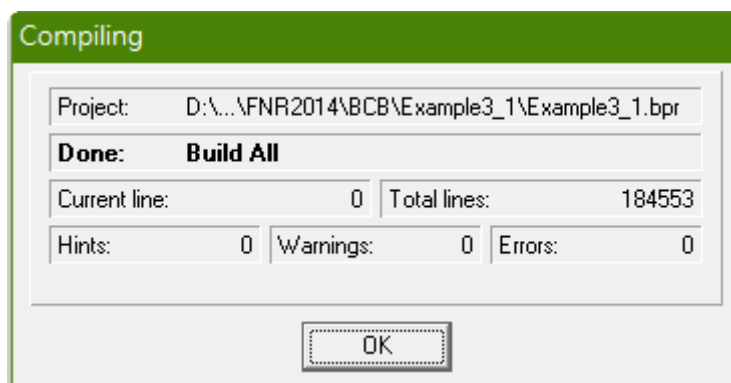
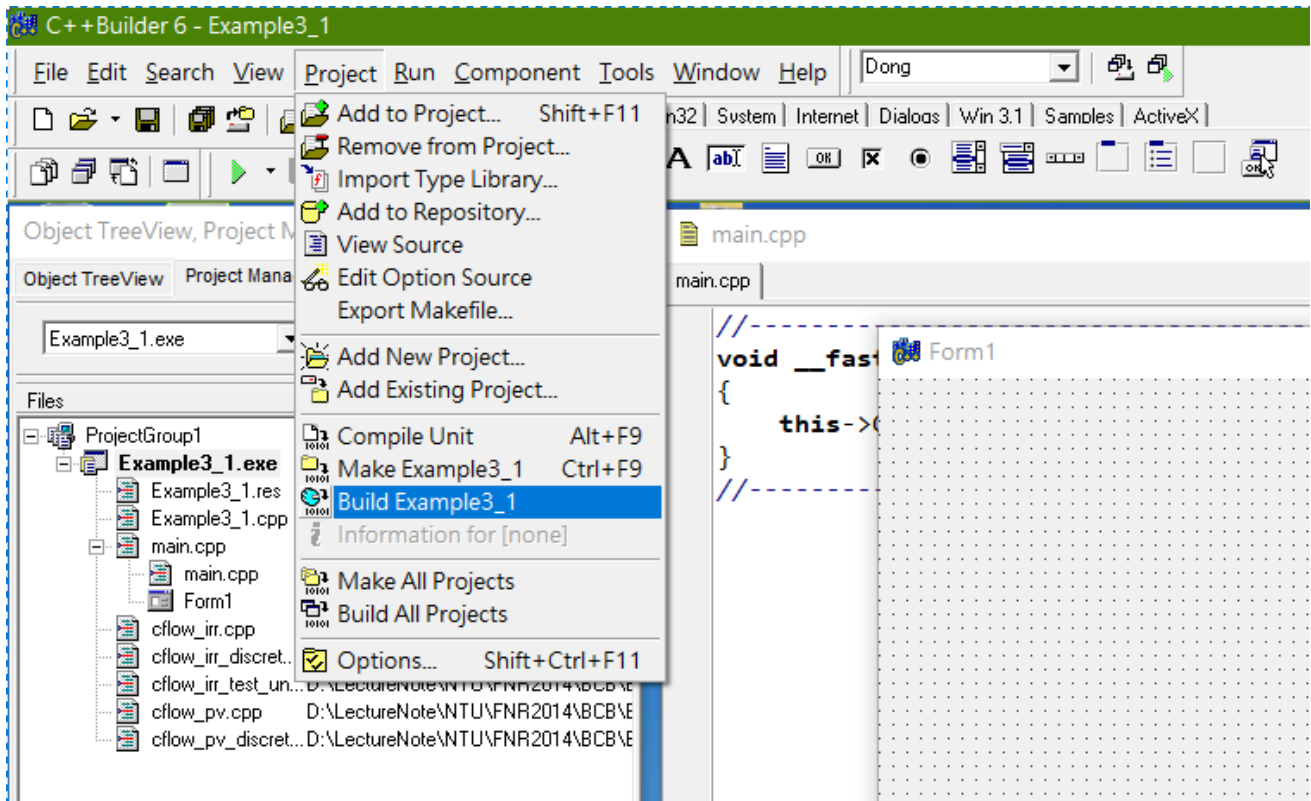
➤ 放上程式碼



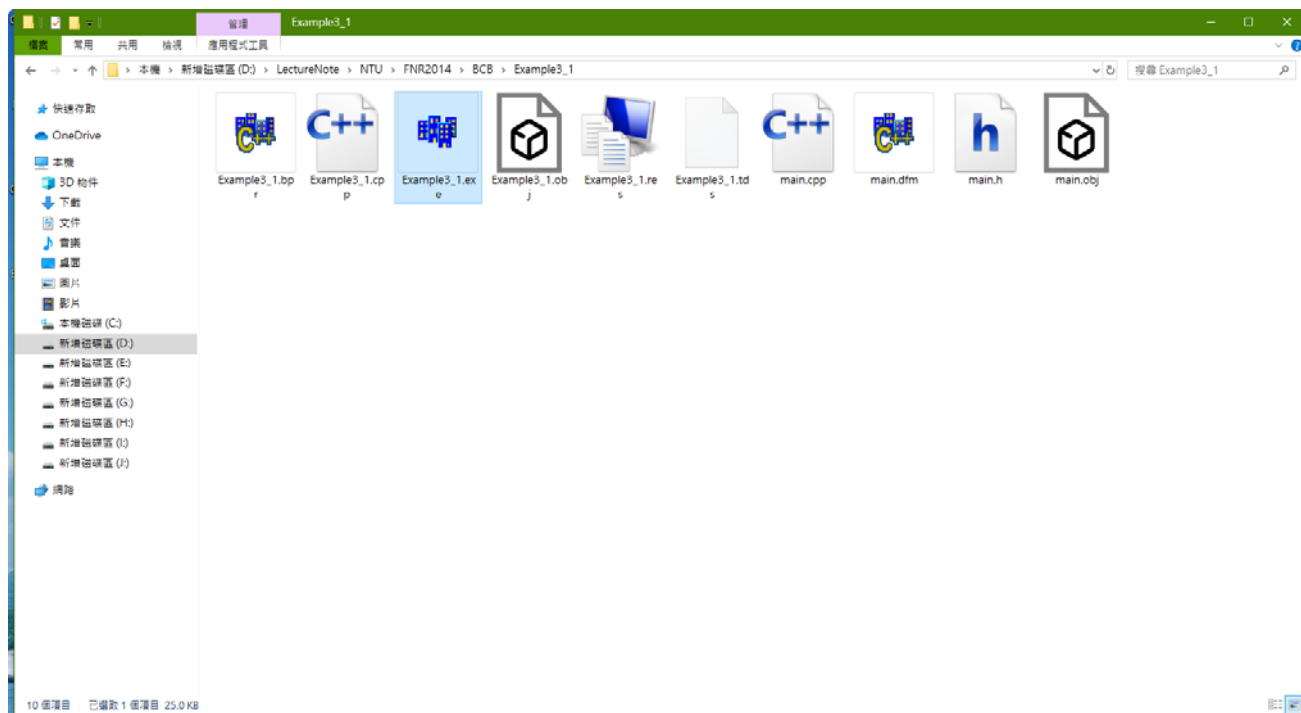
► 專案內容



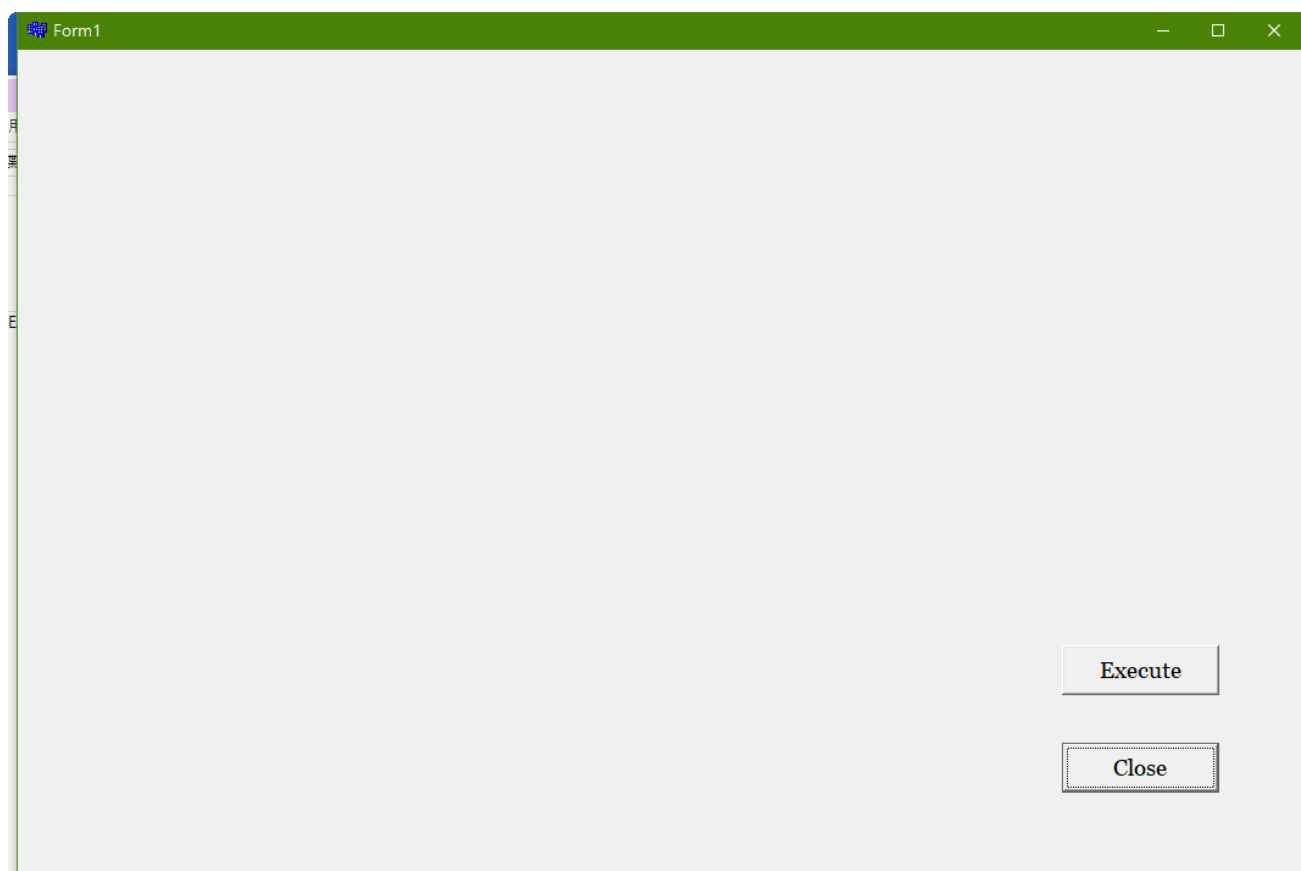
◆ Project->Build



◆ 輸出

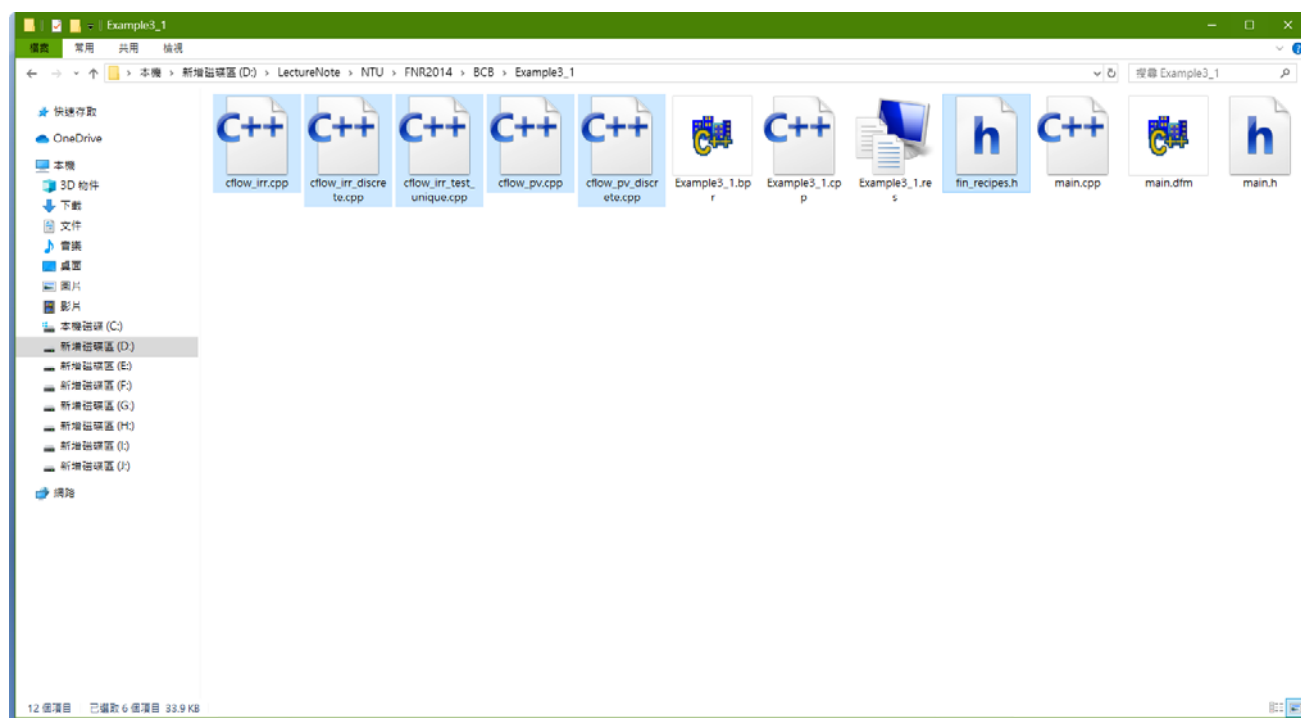


➤ 執行

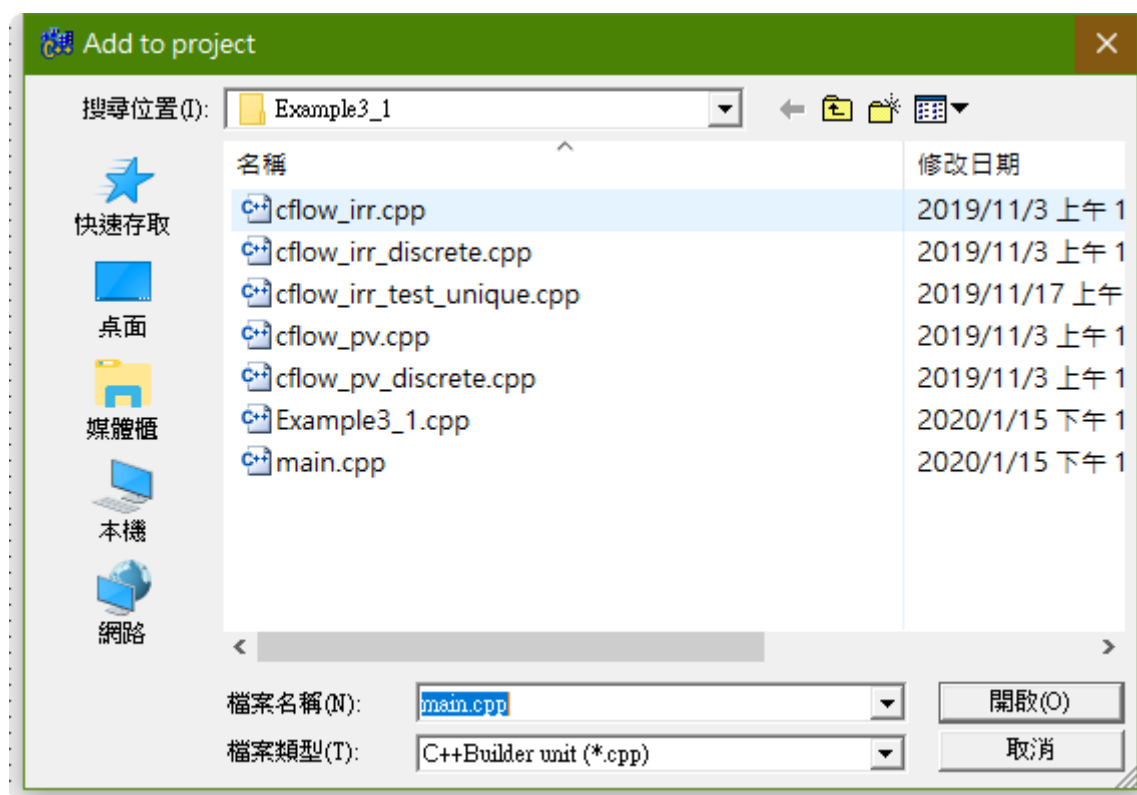


八、輸出結果

◆ 拷貝檔案



➤ 加入檔案



◆ 編輯畫面

Form1

	Label15	Label16
Label11	Edit1	Edit2
Label12	Edit3	Edit4
Label13	Edit5	Edit6
Label14	Edit7	

Label17	Label18
Edit8	Edit9

Calculate

Close

Form1

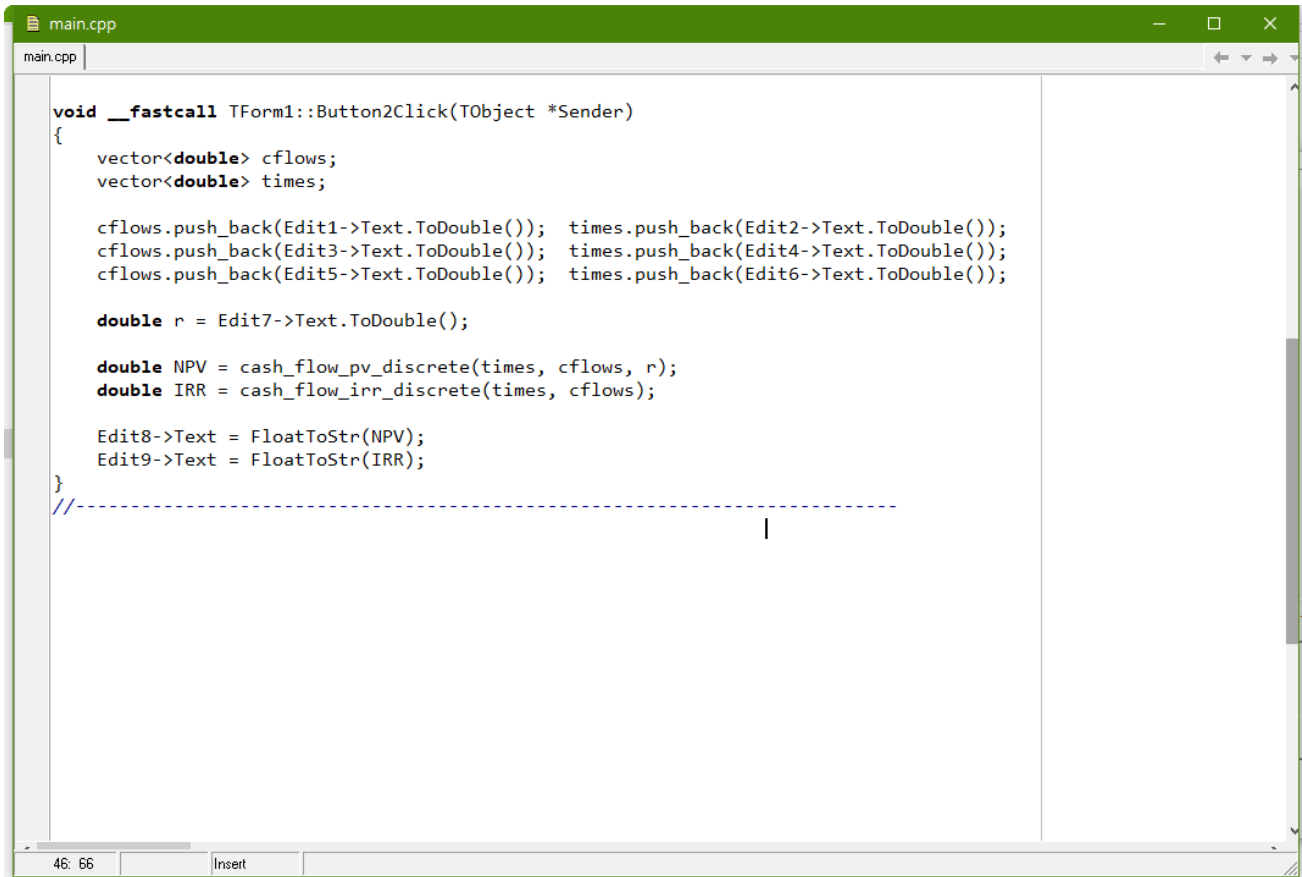
	Amount	Time
Cash Flow 0:	-100.0	0.0
Cash Flow 1:	10.0	1.0
Cash Flow 2:	110.0	2.0
Interest Rate:	0.05	

CF NPV	CF IRR

Calculate

Close

◆ 加入程式碼



```
main.cpp
main.cpp

void __fastcall TForm1::Button2Click(TObject *Sender)
{
    vector<double> cflows;
    vector<double> times;

    cflows.push_back(Edit1->Text.ToDouble()); times.push_back(Edit2->Text.ToDouble());
    cflows.push_back(Edit3->Text.ToDouble()); times.push_back(Edit4->Text.ToDouble());
    cflows.push_back(Edit5->Text.ToDouble()); times.push_back(Edit6->Text.ToDouble());

    double r = Edit7->Text.ToDouble();

    double NPV = cash_flow_pv_discrete(times, cflows, r);
    double IRR = cash_flow_irr_discrete(times, cflows);

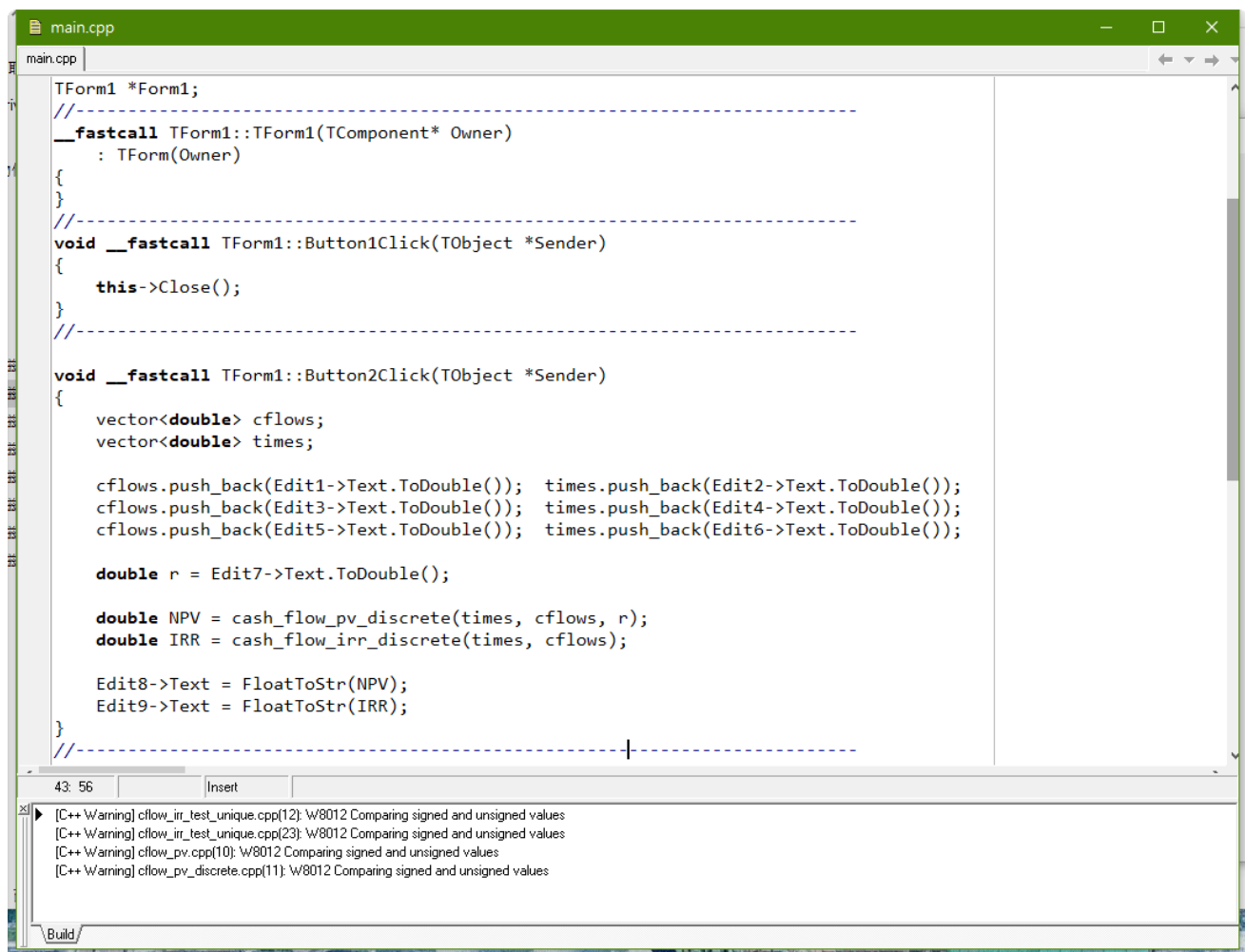
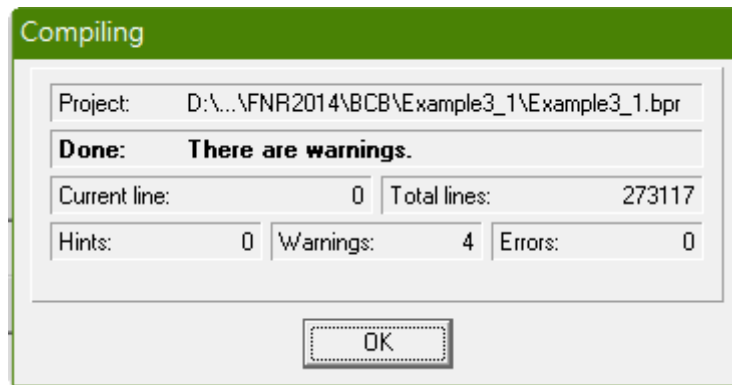
    Edit8->Text = FloatToStr(NPV);
    Edit9->Text = FloatToStr(IRR);
}
//-----
|
```

46: 66 Insert

➤ Code

```
//-----  
#include <vcl.h>  
#pragma hdrstop  
  
#include "main.h"  
#include "fin_recipes.h"  
//-----  
#pragma package(smart_init)  
#pragma resource "*.dfm"  
  
using namespace std;  
  
TForm1 *Form1;  
//-----  
__fastcall TForm1::TForm1(TComponent* Owner)  
: TForm(Owner)  
{  
}  
//-----  
void __fastcall TForm1::Button1Click(TObject *Sender)  
{  
    this->Close();  
}  
//-----  
  
void __fastcall TForm1::Button2Click(TObject *Sender)  
{  
    vector<double> cflows;  
    vector<double> times;  
  
    cflows.push_back(Edit1->Text.ToDouble()); times.push_back(Edit2->Text.ToDouble());  
    cflows.push_back(Edit3->Text.ToDouble()); times.push_back(Edit4->Text.ToDouble());  
    cflows.push_back(Edit5->Text.ToDouble()); times.push_back(Edit6->Text.ToDouble());  
  
    double r = Edit7->Text.ToDouble();  
  
    double NPV = cash_flow_pv_discrete(times, cflows, r);  
    double IRR = cash_flow_irr_discrete(times, cflows);  
  
    Edit8->Text = FloatToStr(NPV);  
    Edit9->Text = FloatToStr(IRR);  
}  
//-----
```

◆ 編譯



◆ 執行

Form1

	Amount	Time
Cash Flow 0	<input type="text" value="-100.0"/>	<input type="text" value="0.0"/>
Cash Flow 1	<input type="text" value="10.0"/>	<input type="text" value="1.0"/>
Cash Flow 2	<input type="text" value="110.0"/>	<input type="text" value="2.0"/>
Interest Rate	<input type="text" value="0.05"/>	

CF NPV	<input type="text"/>	CF IRR	<input type="text"/>	<input type="button" value="Calculate"/>
	<input type="text"/>		<input type="text"/>	<input type="button" value="Close"/>

Form1

	Amount	Time
Cash Flow 0	<input type="text" value="-100.0"/>	<input type="text" value="0.0"/>
Cash Flow 1	<input type="text" value="10.0"/>	<input type="text" value="1.0"/>
Cash Flow 2	<input type="text" value="110.0"/>	<input type="text" value="2.0"/>
Interest Rate	<input type="text" value="0.05"/>	

CF NPV	<input type="text" value="9.2970521541"/>	CF IRR	<input type="text" value="0.1"/>	<input type="button" value="Calculate"/>
				<input type="button" value="Close"/>