

Qt –Development Tools

Hello World !

Yih-Chuan Lin

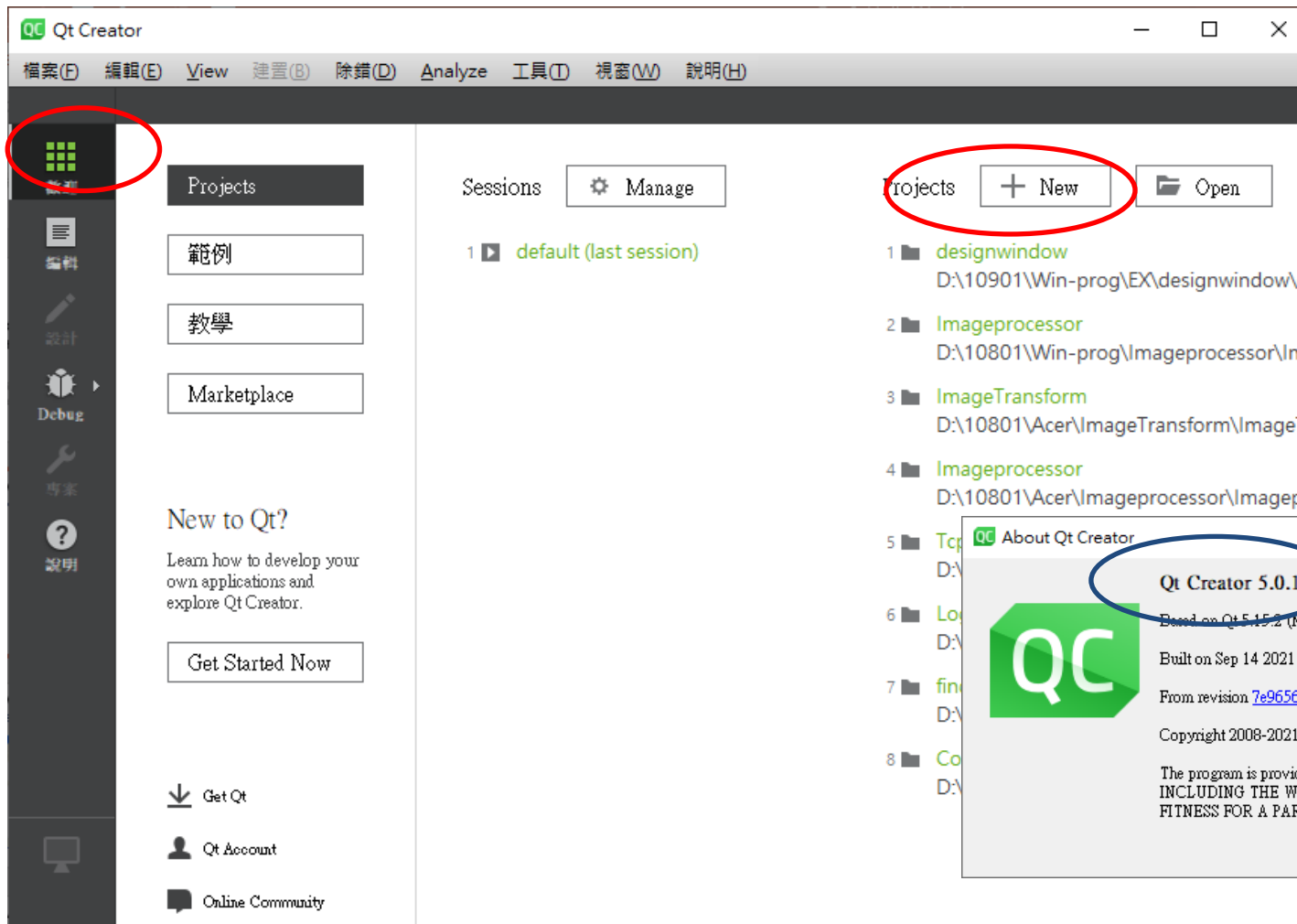
CSIE Windows Programming Class

National Formosa University

Qt Code less. Create more. Deploy everywhere.

Hello World- Console App.

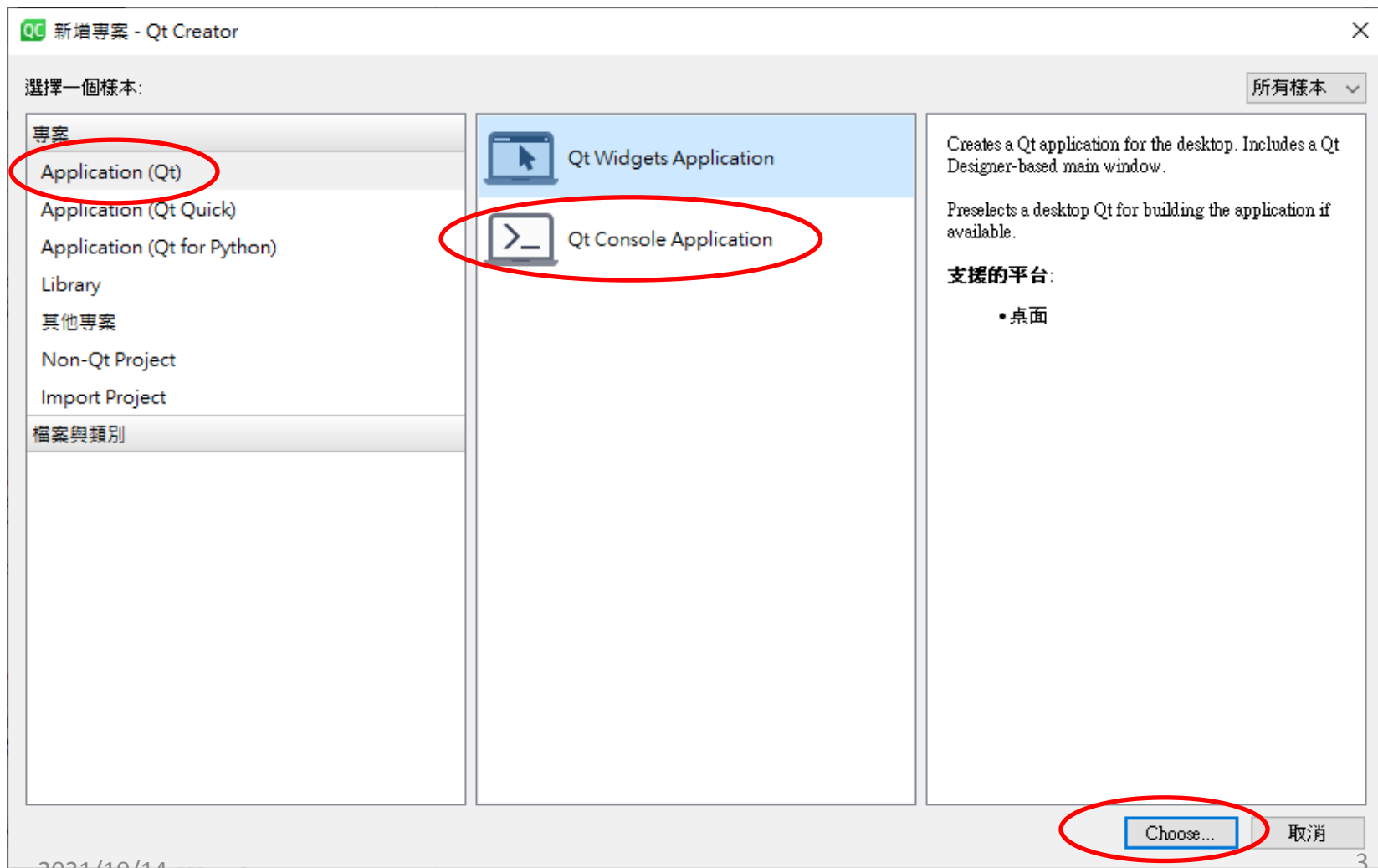
執行Qt Creator --> 「New Project」



Qt Code less. Create more. Deploy everywhere.

Hello World- Console App.

選「Application」→「Qt Console Application」





Code less.
Create more.
Deploy everywhere.

Hello World - Console App.

選「專案名稱」→「專案資料夾」✕

Qt Widgets Application

Project Location

This wizard generates a Qt Widgets Application project. The application derives by default from QApplication and includes an empty widget.

Location
Build System
Details
Translation
Kits
Summary

名稱: Hello
建立於: D:\M1001\EX 瀏覽...

☒ 做為預設的專案位置

1

下一個(N) 取消

Qt Widgets Application

Define Build System

Location
Build System
Details
Translation
Kits
Summary

Build system: qmake

2

下一個(N) 取消

Qt Console Application

Kit Selection

The following kits can be used for project Hello:

Type to filter kits by name...

☒ Select all kits

- ☒ Desktop Qt 5.12.11 MSVC2017 64bit 詳情 ▾
- ☒ Desktop Qt 5.12.11 MinGW 64-bit 詳情 ▾
- ☐ Replacement for "Desktop Qt 5.12.4 MSVC2017 64bit" 詳情 ▾

4

下一個(N) 取消

Qt Console Application

Translation File

Location
Build System
Translation
Kits
Summary

If you plan to provide translations for your project's user interface via the Qt Linguist tool, please select a language here. A corresponding translation (.ts) file will be generated for you.

Language: <none>
Translation file: <none>

3

下一個(N) 取消

2021/10/14





Code less.
Create more.
Deploy everywhere.

Hello World - Console App.

選「專案名稱」→「專案資料夾」

×

← Qt Console Application

Location

Build System

Translation

Kits

➡ Summary

Project Management

新增到專案中做為子專案: <None>

新增到版本控制系統(V): <None> Configure...

要新增到此處的檔案

D:\11001\EX\Hello:

Hello.pro

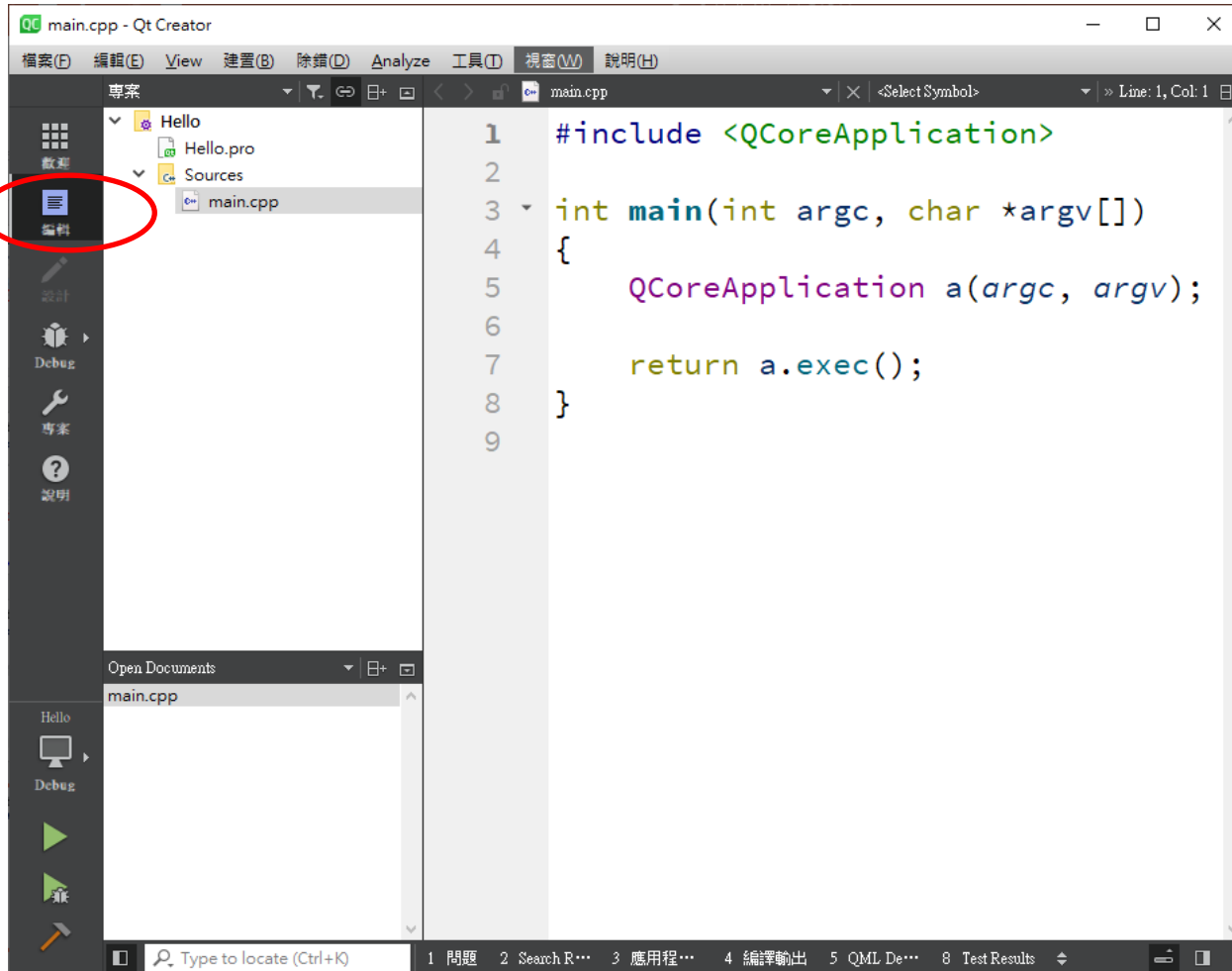
main.cpp

完成(F) 取消



Qt Code less. Create more. Deploy everywhere. Hello World - Console App.

專案文字編輯器 及 專案資料夾內容

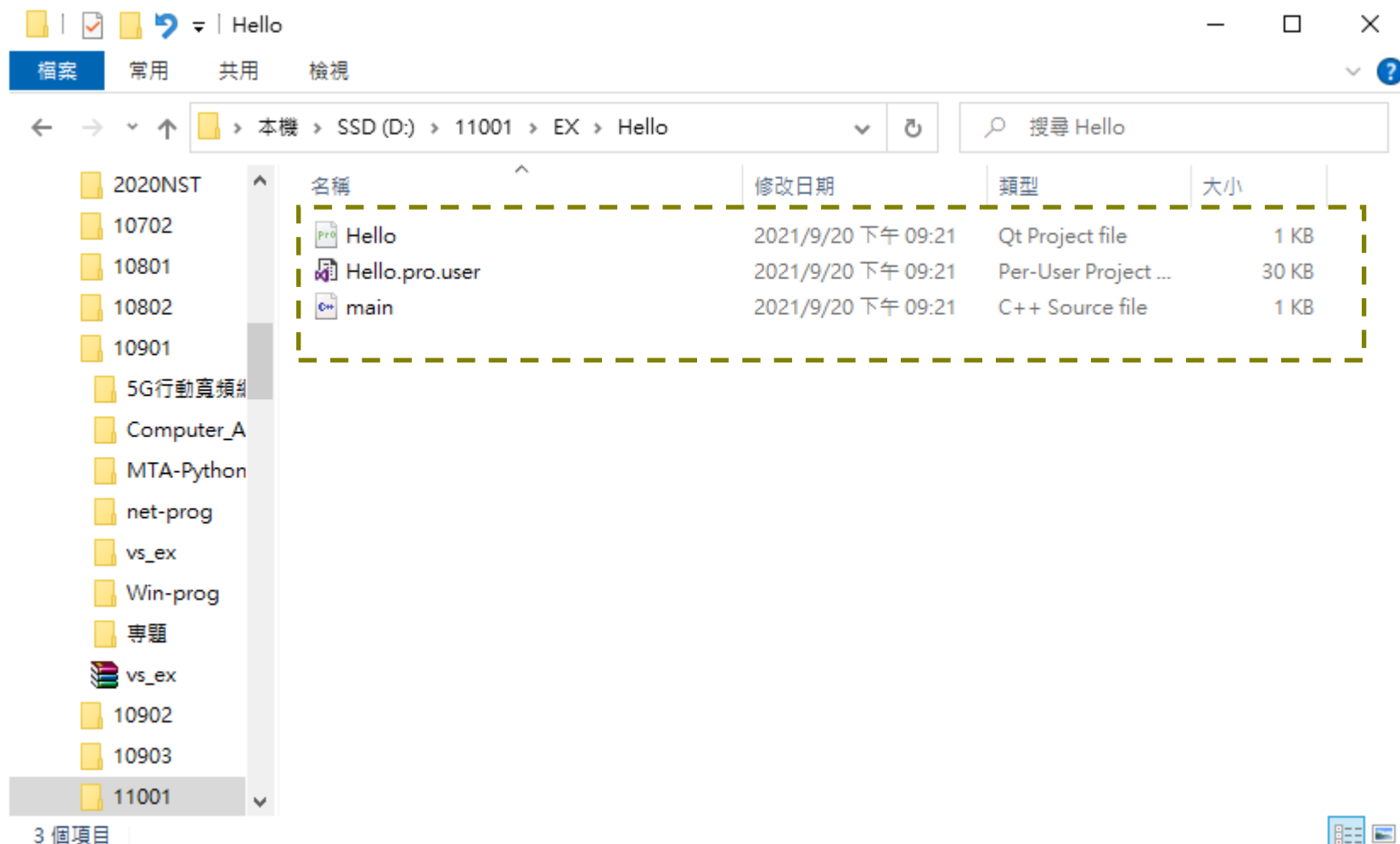




Code less.
Create more.
Deploy everywhere.

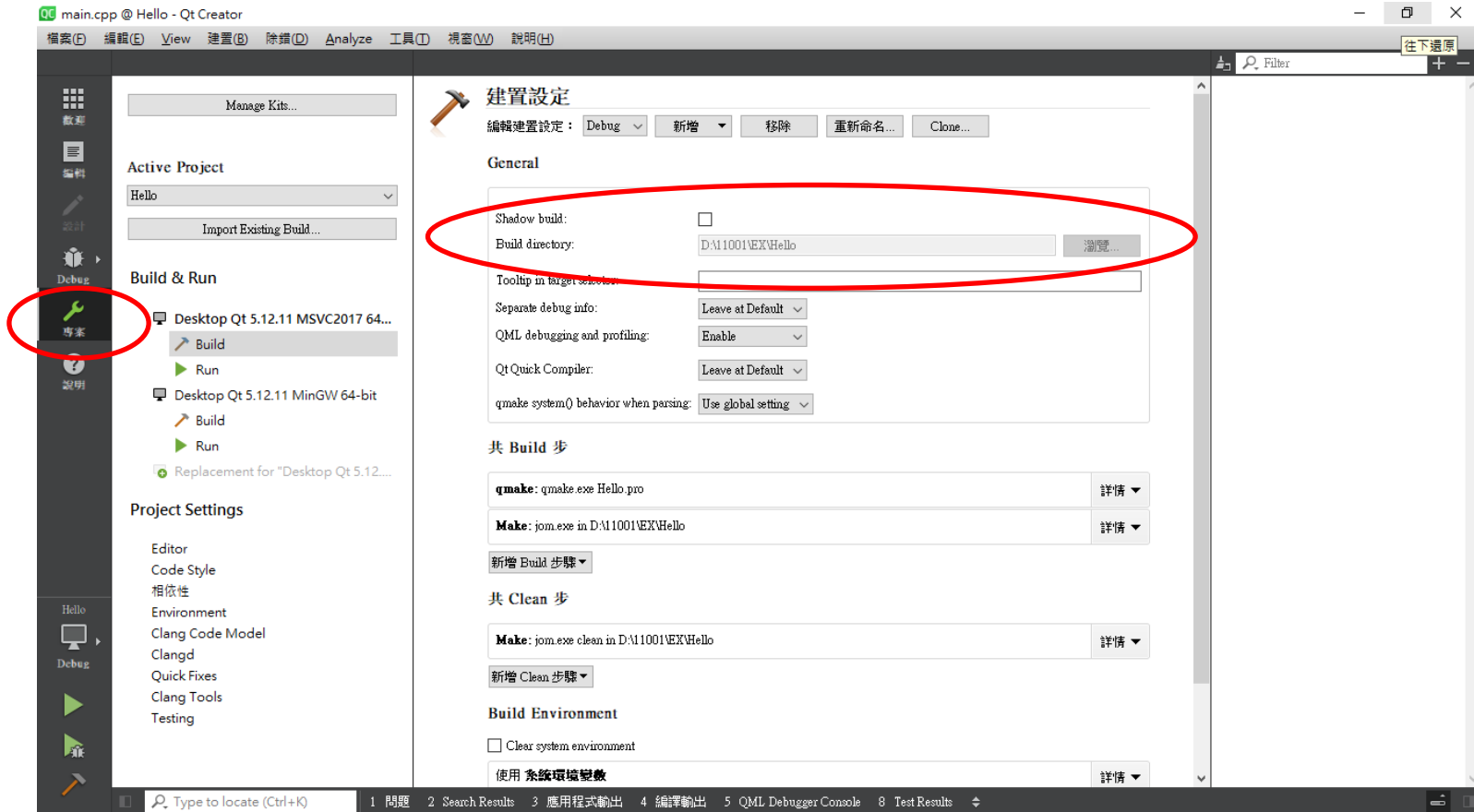
Hello World - Console App.

專案文字編輯器 及 專案資料夾內容



Qt Code less. Create more. Deploy everywhere. Hello World - Console App.

選「Projects」→取消「Shadow build選項」

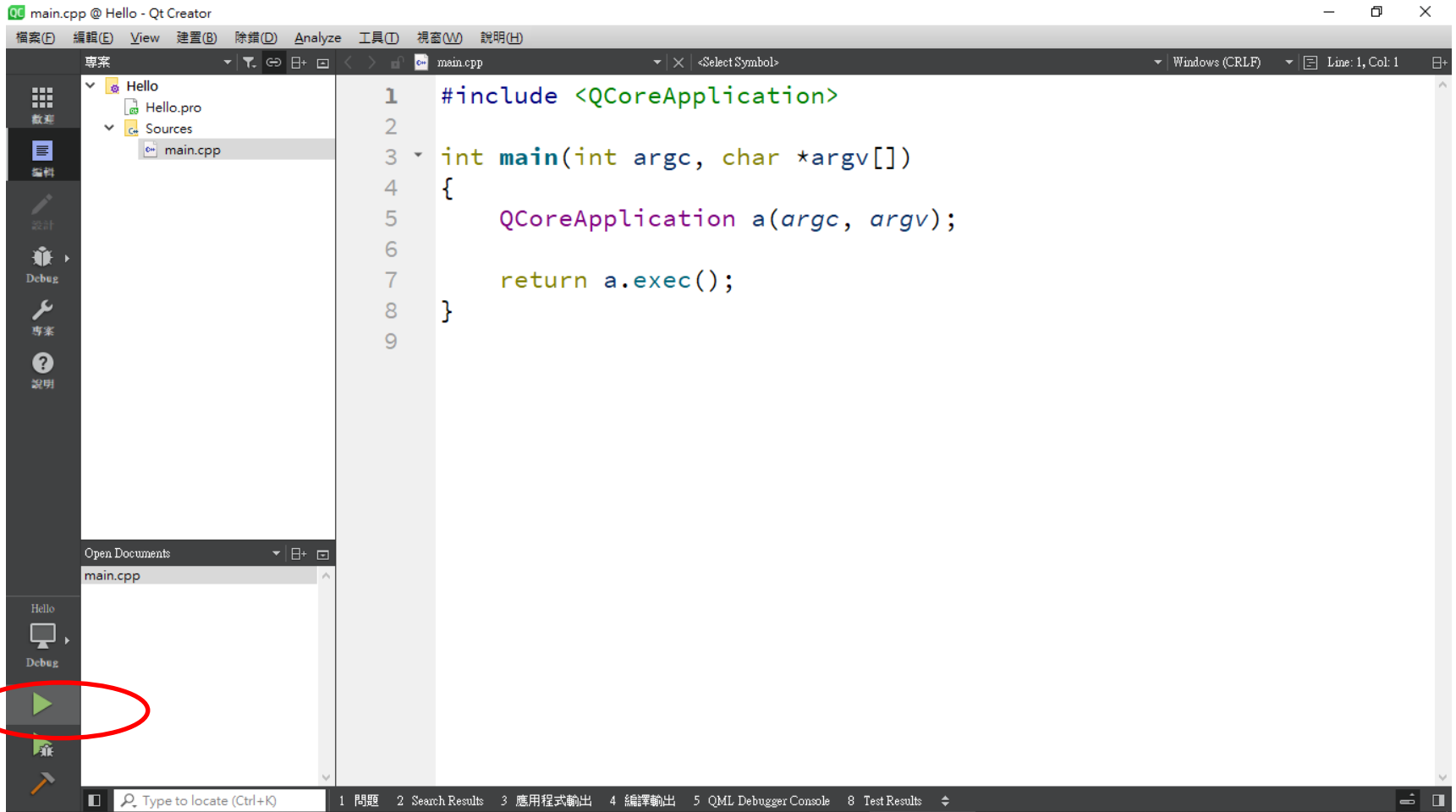




Code less.
Create more.
Deploy everywhere.

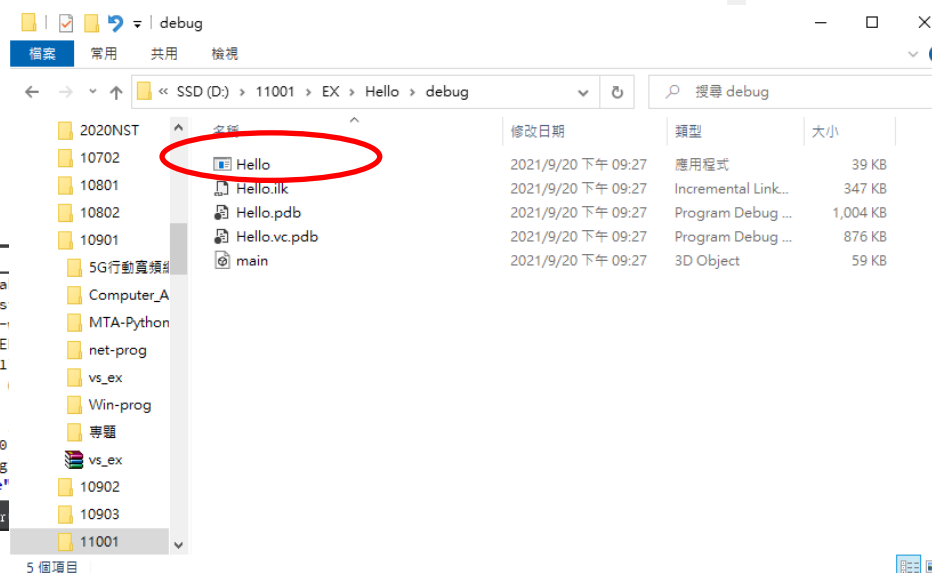
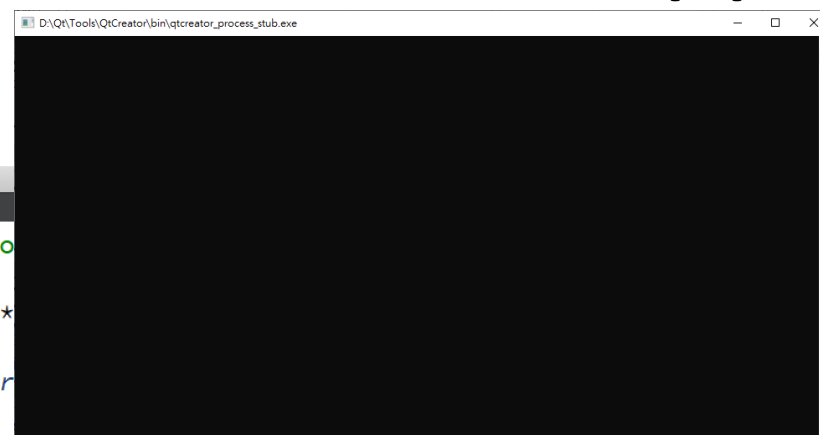
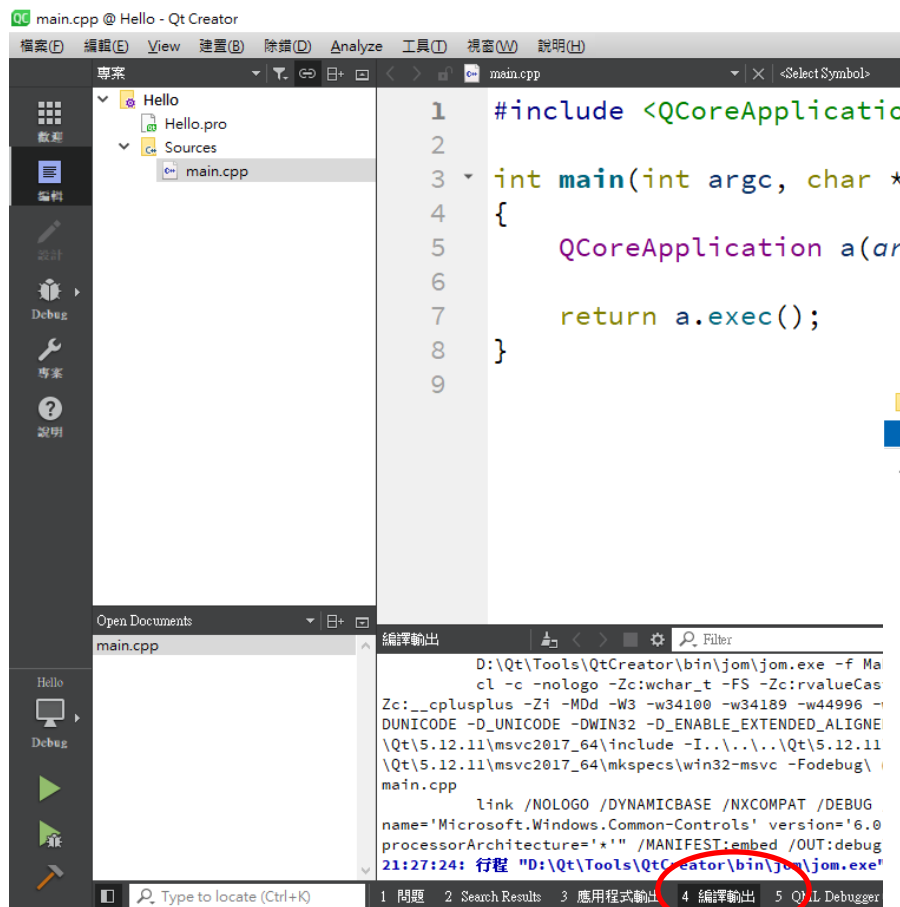
Hello World - Console App.

按專案執行鈕「Run」



Hello World - Console App.

按專案執行鈕「Run」





Code less.
Create more.
Deploy everywhere.

Hello World - Console App.

加入主控台輸出指令

The screenshot shows the Qt Creator IDE with the following components:

- Project Explorer:** Shows a project named 'Hello' with a source file 'main.cpp'.
- Editor:** Displays the code for 'main.cpp'. The code is as follows:

```
1 #include <QCoreApplication>
2 #include <iostream>
3
4 int main(int argc, char *argv[])
5 {
6     QCoreApplication a(argc, argv);
7     std::cout << "Hello World!" << std::endl;
8     system("pause");
9
10    return a.exec();
11 }
12
```

Lines 2 and 7-8 are highlighted with blue boxes.
- Output Window:** Shows the compilation and execution output. The compilation command is:

```
DUNICODE -D_UNICODE -DWIN32 -D_ENABLE_EXTENDED_ALIGNED...
```

The execution output shows:

```
Hello World!
請按任意鍵繼續 . . .
```
- Run Button:** A green play button icon in the bottom-left toolbar is circled in red.

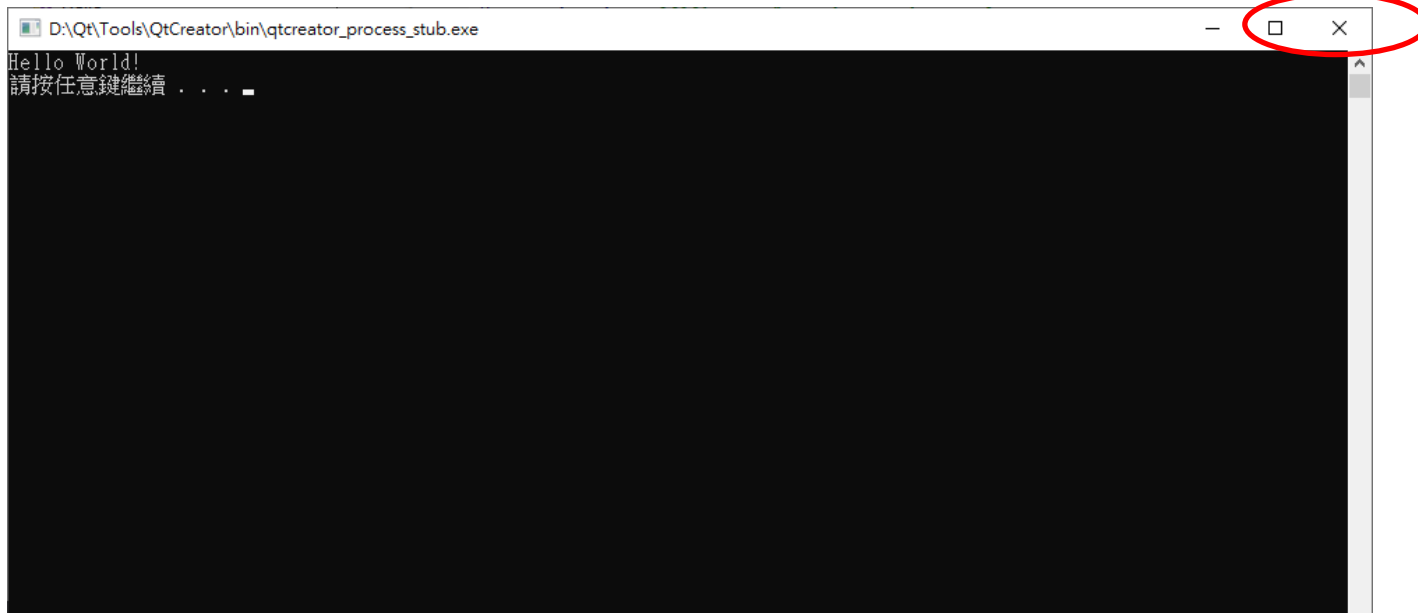




Code less.
Create more.
Deploy everywhere.

Hello World - Console App.

加入主控台輸出指令: 關閉執行程式

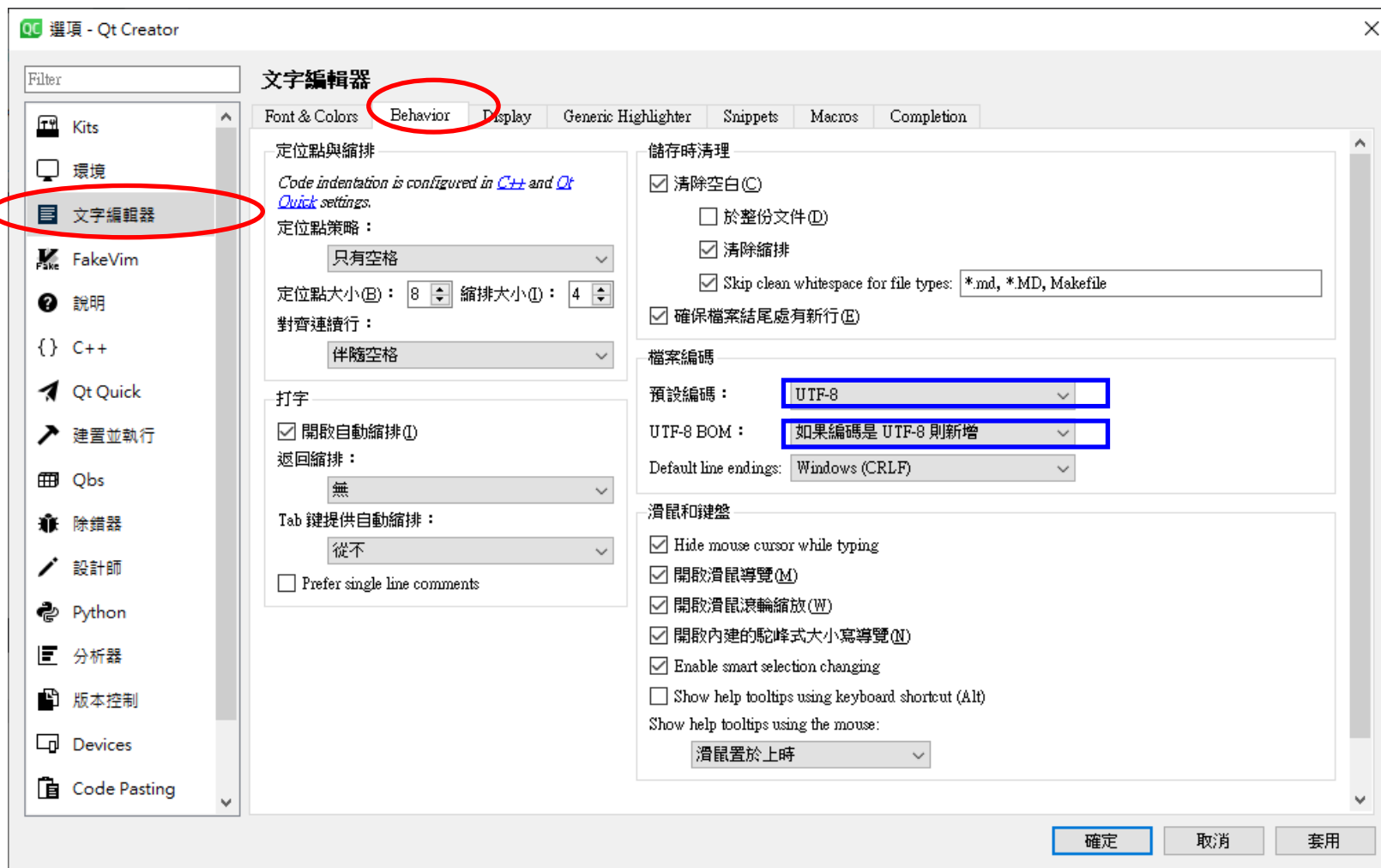




Code less.
Create more.
Deploy everywhere.

Hello World - Console App.

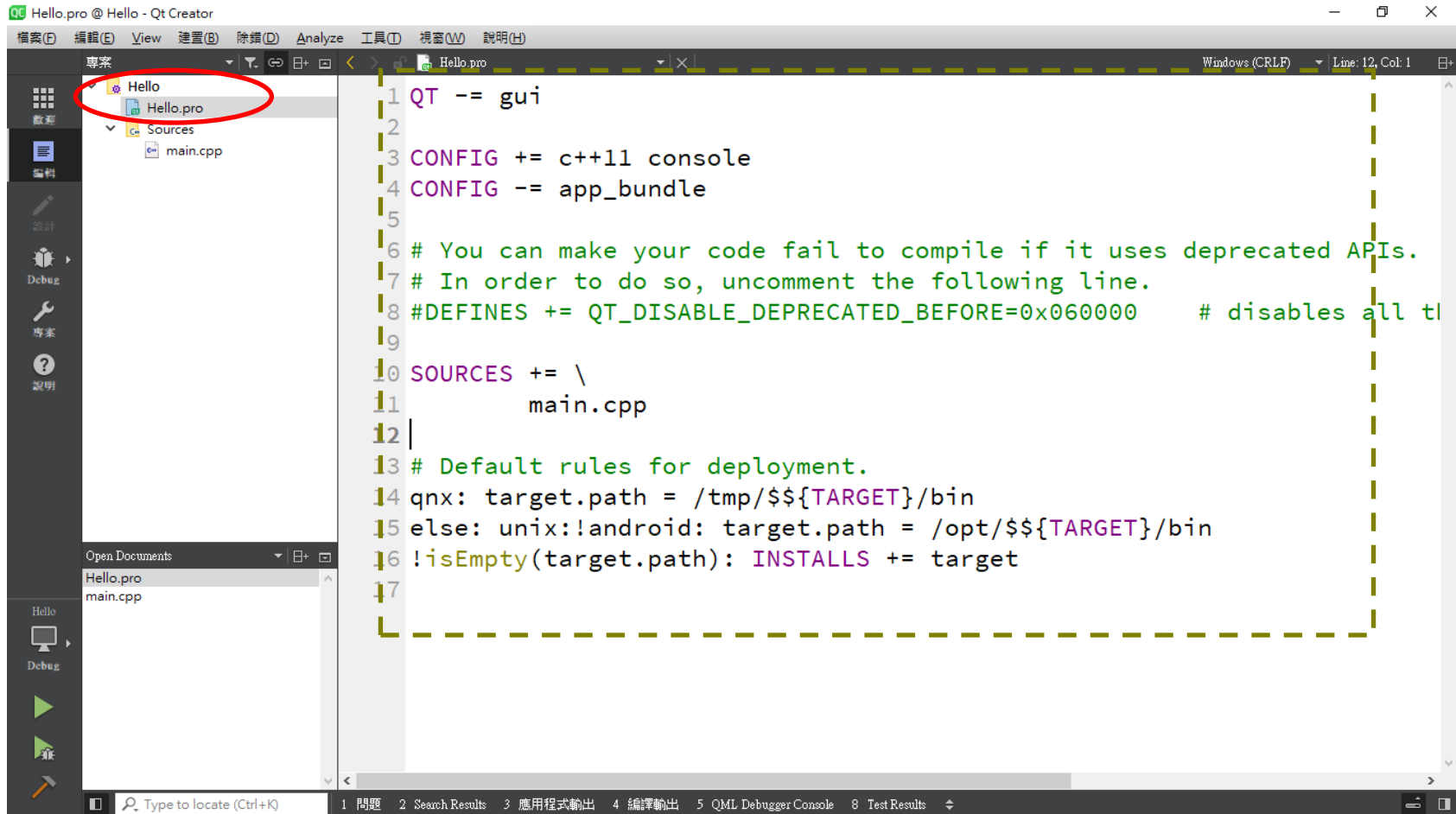
「Tools」 → 「Options」



Qt Code less. Create more. Deploy everywhere.

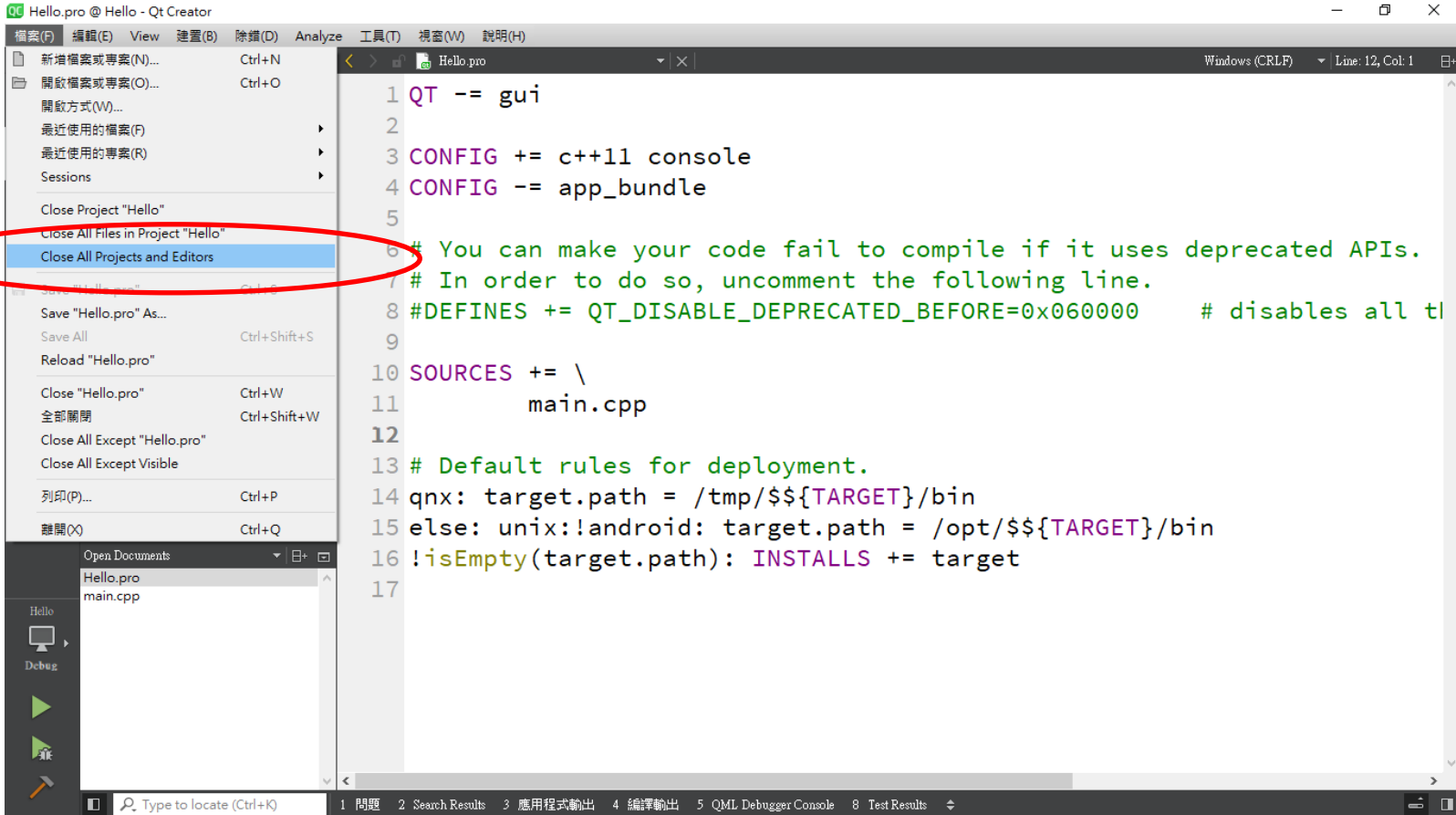
Hello World - Console App.

檢視專案檔 Hello.pro



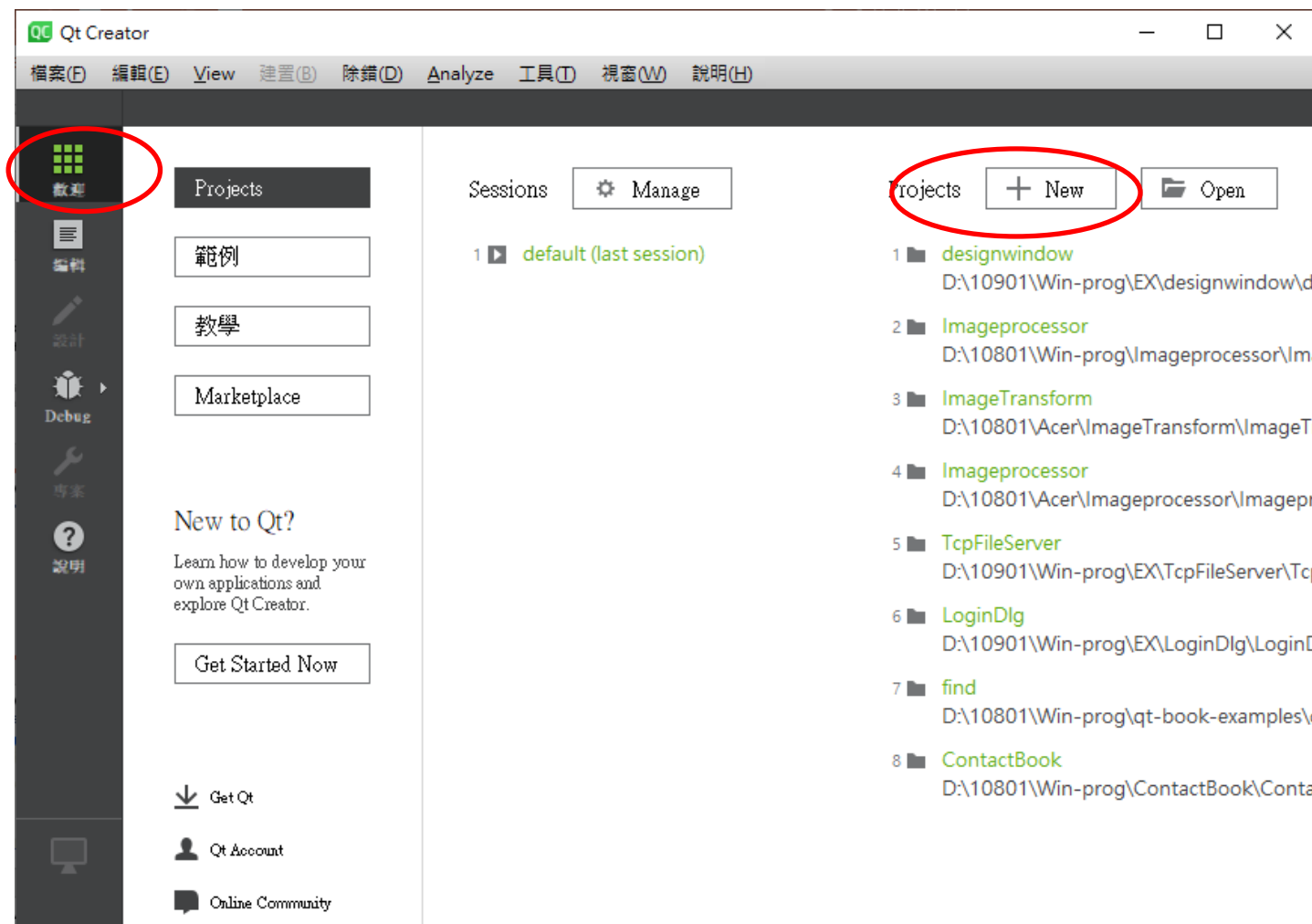
Hello World - Gui App.

選「File」→「Close All Projects and Editors」



Hello World - Gui App.

按「New Project」

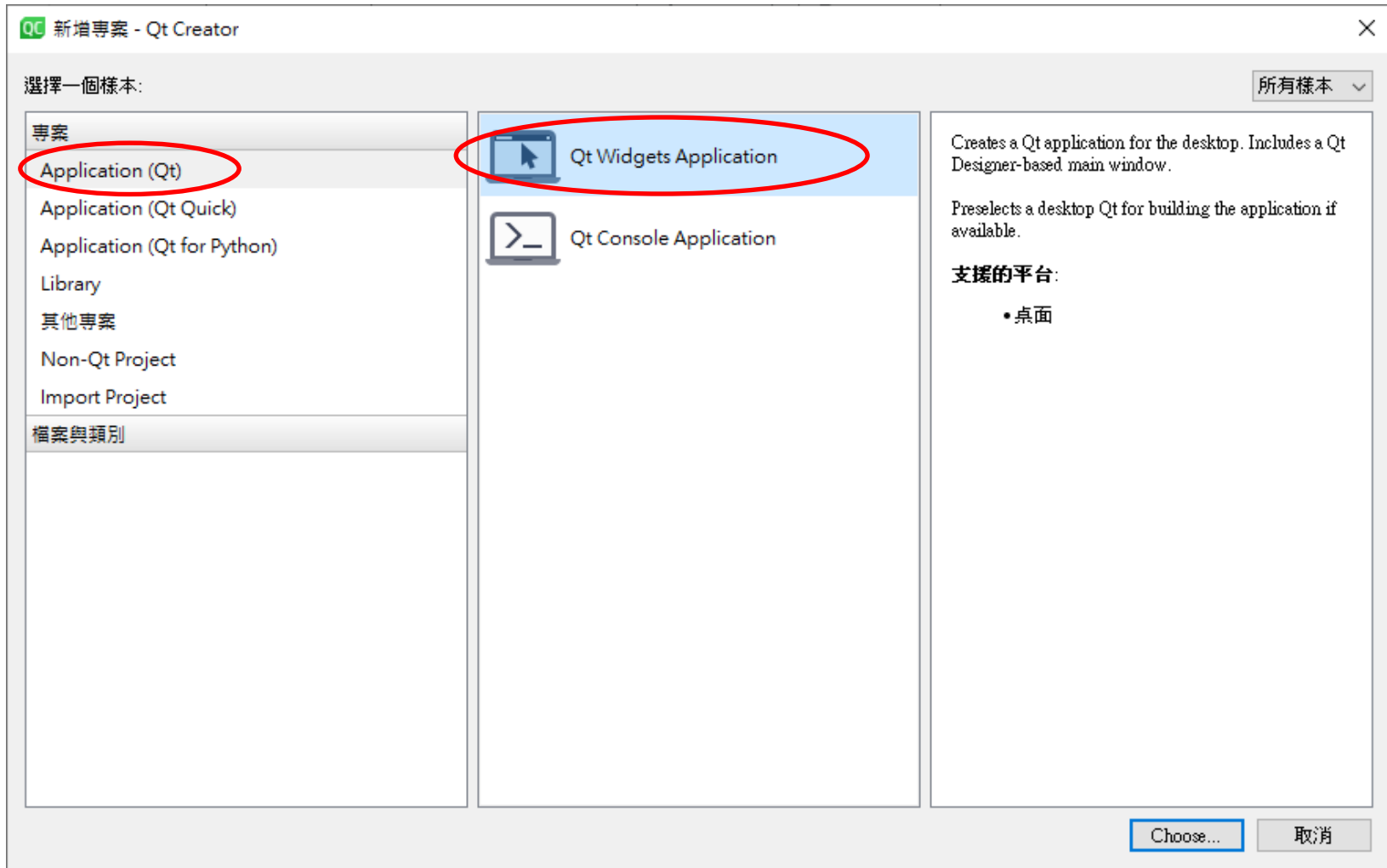




Code less.
Create more.
Deploy everywhere

Hello World - Gui App.

「Application」 → 「Qt Widgets Application」



Hello World - Gui App.

專案名稱「HelloGui」

Qt Widgets Application

Location

Build System

Details

Translation

Kits

Summary

Project Location

This wizard generates a Qt Widgets Application project. The application derives by default from QApplication and includes an empty widget.

名稱: HelloGui

建立於: D:\1001\EX

☐ 做為預設的專案位置

下一個(N)

取消



Qt Widgets Application

Location

Build System

Details

Translation

Kits

Summary

Define Build System

Build system: qmake

下一個(N)

取消



Code less.
Create more.
Deploy everywhere.

Hello World - Gui App.

Base class: QWidget → Class name: MyWidget



← Qt Widgets Application

Class Information

Location

Build System

➔ Details

Translation

Kits

Summary

Specify basic information about the classes for which you want to generate skeleton source code files.

Class name: MyWidget

Base class: QWidget

Header file: mywidget.h

Source file: mywidget.cpp

☐ Generate form

Form file: mywidget.ui

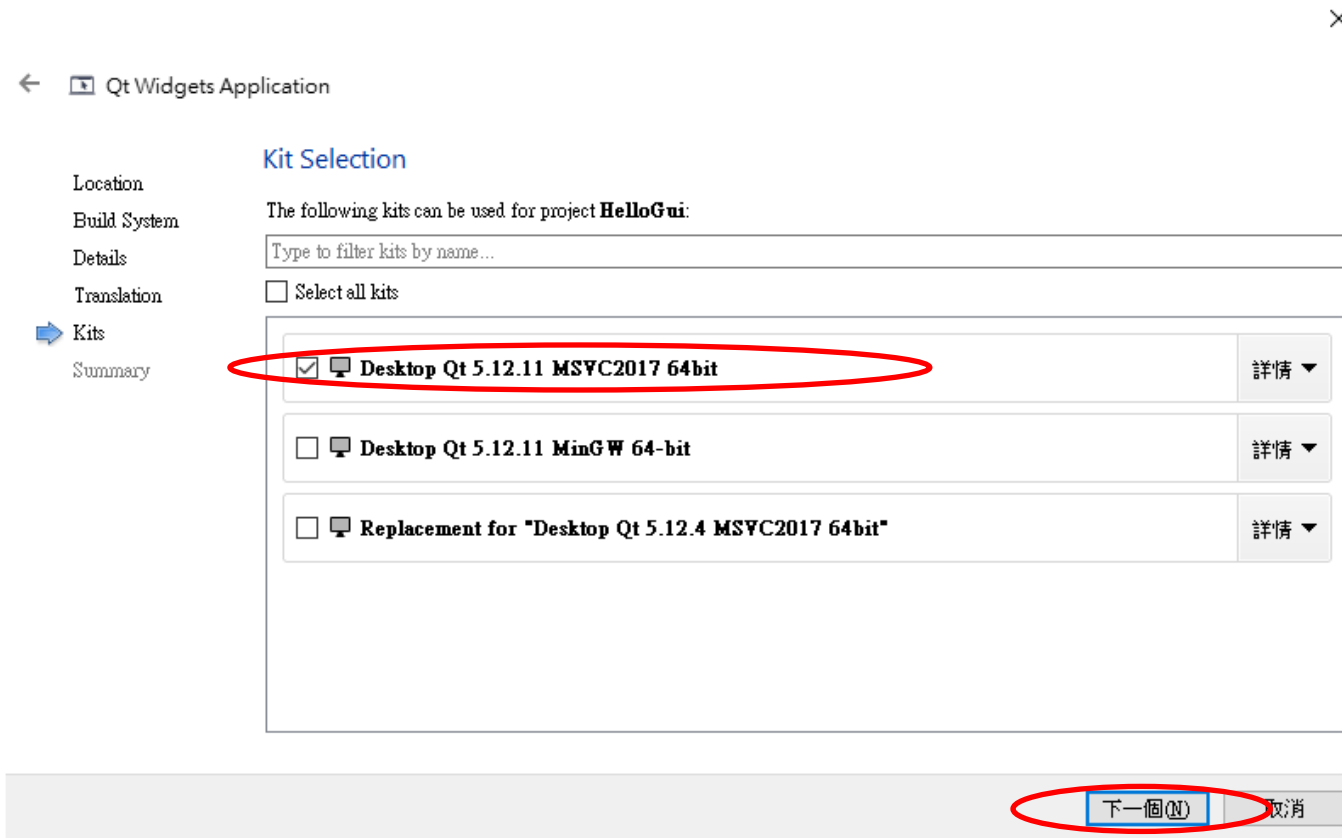
下一個(N)

取消



Hello World - Gui App.

Kit Selection → MSVC2017 64 bits

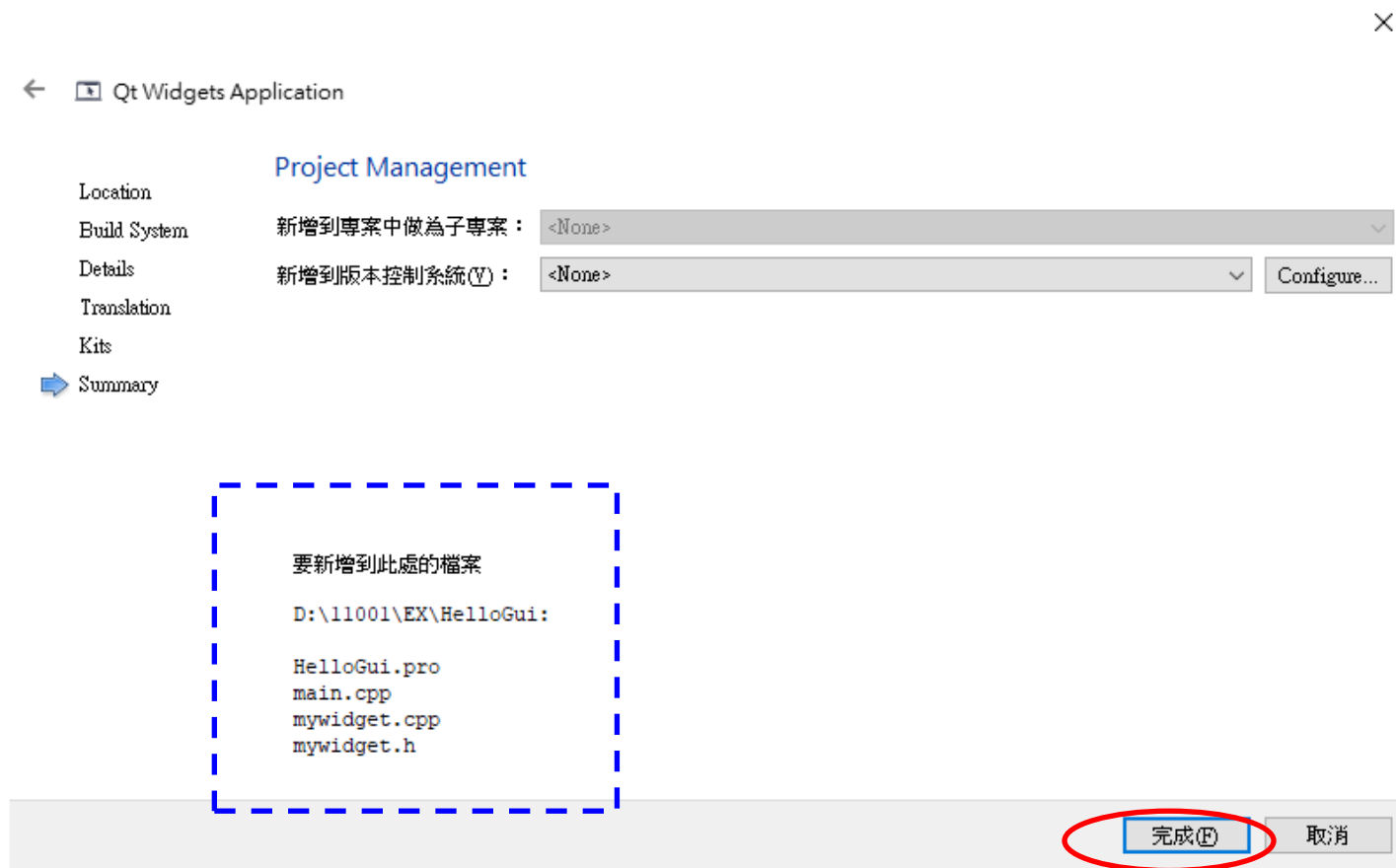




Code less.
Create more.
Deploy everywhere

Hello World - Gui App.

按「Finish」結束專案精靈



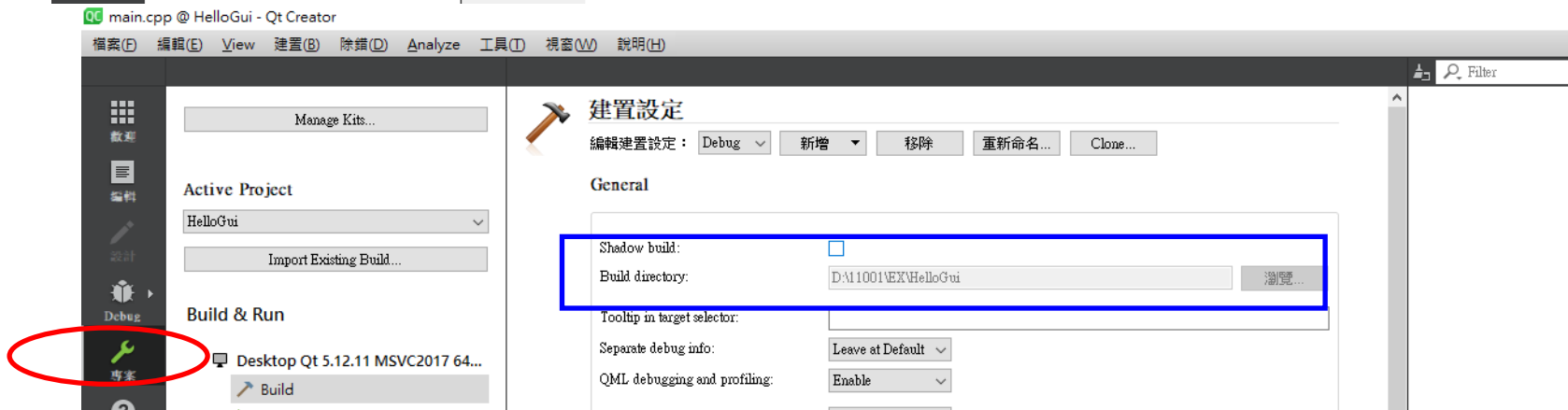
Hello World - Gui App.

專案初始內容: QApplication 類別

main.cpp - Qt Creator

```

1  #include "mywidget.h"
2
3  #include <QApplication>
4
5  int main(int argc, char *argv[])
6  {
7      QApplication a(argc, argv);
8      MyWidget w;
9      w.show();
10     return a.exec();
11 }
    
```

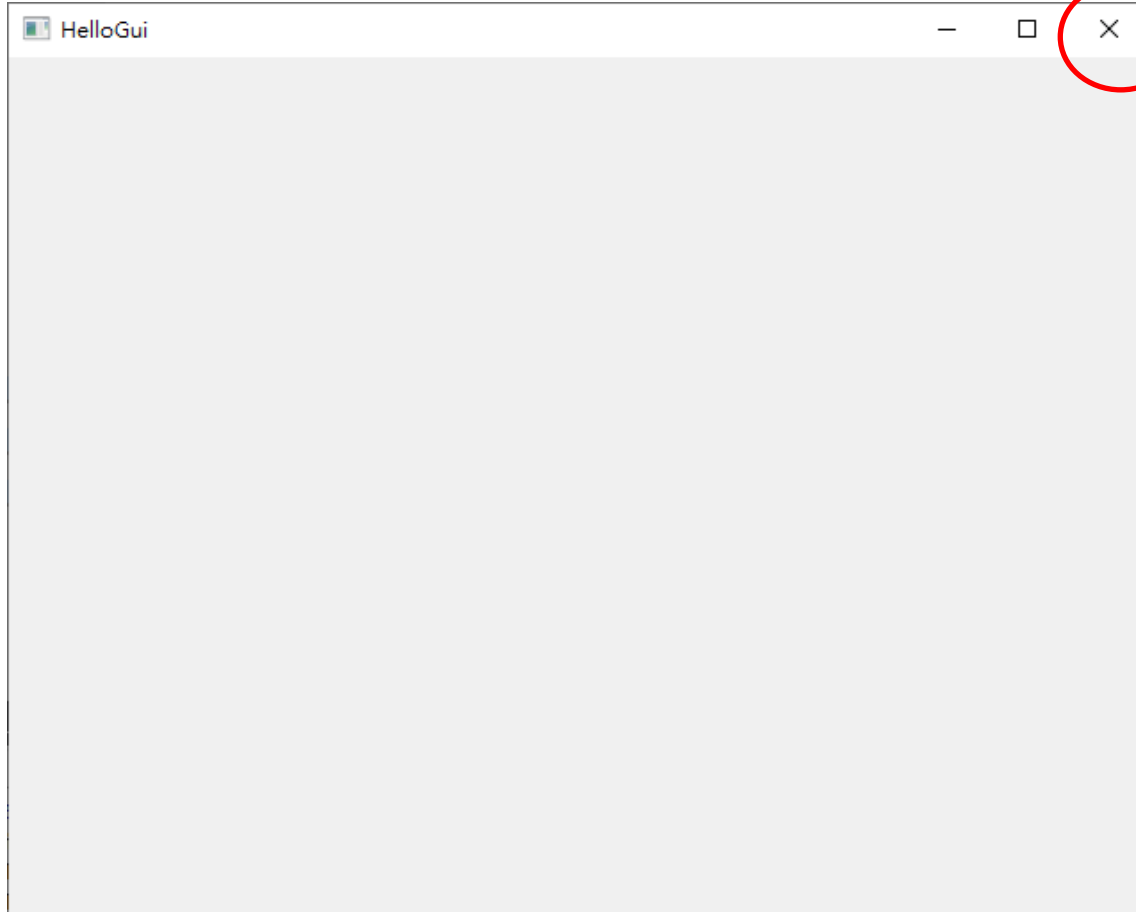




Code less.
Create more.
Deploy everywhere

Hello World - Gui App.

按「Run」專案執行鈕



關閉程式執行





Code less.
Create more.
Deploy everywhere.

Hello World - Gui App.

檢視專案檔 HelloGui.pro: QT ←gui

```
1 QT += core gui
2
3 greaterThan(QT_MAJOR_VERSION, 4): QT += widgets
4
5 CONFIG += c++11
6
7 # You can make your code fail to compile if it uses
8 # In order to do so, uncomment the following line.
9 #DEFINES += QT_DISABLE_DEPRECATED_BEFORE=0x060000
10
11 SOURCES += \
12     main.cpp \
13     mywidget.cpp
14
15 HEADERS += \
16     mywidget.h
17
18 # Default rules for deployment.
19 qnx: target.path = /tmp/`${TARGET}/bin
```





Code less.
Create more.
Deploy everywhere.

Hello World - Gui App.

檢視專案檔 mywidget.h

mywidget.h @ HelloGui - Qt Creator

```
1  #ifndef MYWIDGET_H
2  #define MYWIDGET_H
3
4  #include <QWidget>
5
6  class MyWidget : public QWidget
7  {
8      Q_OBJECT
9
10     public:
11         MyWidget(QWidget *parent = nullptr);
12         ~MyWidget();
13     };
14 #endif // MYWIDGET_H
15
```

The image shows the Qt Creator IDE interface. The left sidebar displays the project structure: HelloGui, Headers, mywidget.h, Sources, main.cpp, and mywidget.cpp. The main editor window shows the content of mywidget.h. The code defines a MyWidget class that inherits from QWidget. The line `#include <QWidget>` is highlighted with a blue box, and the class name `MyWidget` is also highlighted with a blue box. The bottom status bar shows the current file is mywidget.h.



Hello World - Gui App.

檢視專案檔 mywidget.h: 加入按鈕元件之宣告

Qt mywidget.h @ HelloGui - Qt Creator

檔案(F) 編輯(E) View 建置(B) 除錯(D) Analyze 工具(T) 視窗(W) 說明(H)

專案 mywidget.h*

HelloGui
 HelloGui.pro
 Headers
 mywidget.h
 Sources
 main.cpp
 mywidget.cpp

```
1  #ifndef MYWIDGET_H
2  #define MYWIDGET_H
3
4  #include <QWidget>
5  class QPushButton;
6
7  class MyWidget : public QWidget
8  {
9      Q_OBJECT
10
11  public:
12      MyWidget(QWidget *parent = nullptr);
13      ~MyWidget();
14  private:
15      QPushButton *helloButton;
16  };
17  #endif // MYWIDGET_H
18
```

Open Documents
HelloGui.pro
main.cpp
mywidget.h*

HelloGui
Debug



Code less.
Create more.
Deploy everywhere.

Hello World - Gui App.

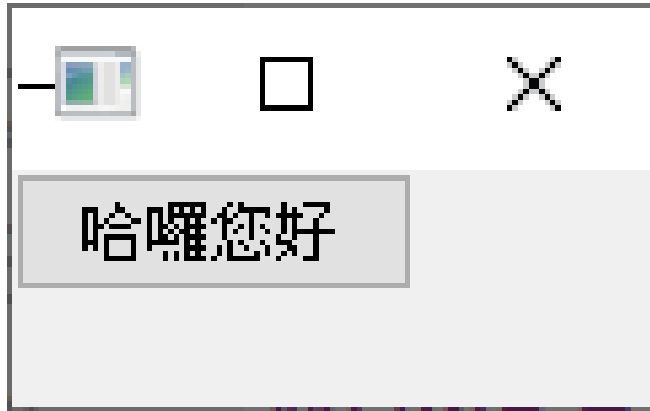
檢視專案檔 mywidget.cpp: 新增按鈕元件之實作

```
1 #include "mywidget.h"
2 #include <QPushButton>
3
4 MyWidget::MyWidget(QWidget *parent)
5     : QWidget(parent)
6 {
7     helloButton = new QPushButton(QStringLiteral("哈囉您好"), this);
8 }
9
10 MyWidget::~MyWidget()
11 {
12 }
13
```



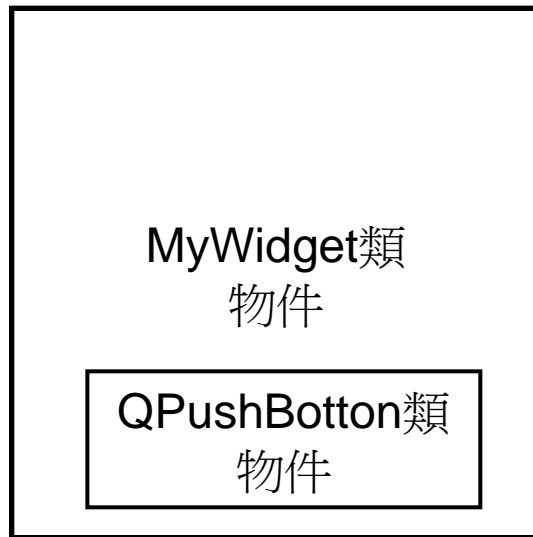
Hello World - Gui App.

執行專案



Hello World - Gui App.

物件關係





Code less.
Create more.
Deploy everywhere.

Hello World – Gui-Design App.

選「File」→「Close All Projects and Editors」

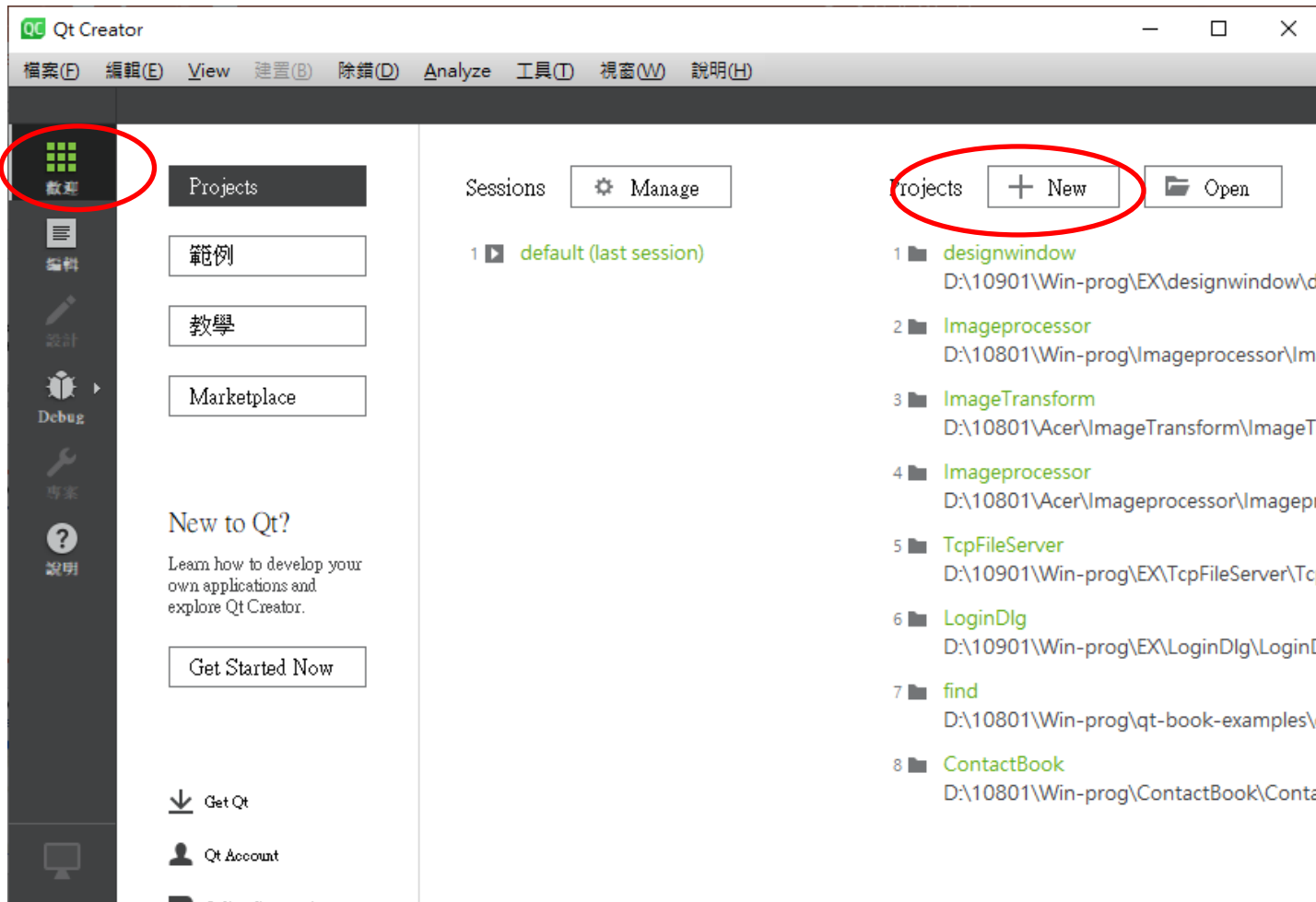




Code less.
Create more.
Deploy everywhere.

Hello World – Gui-Design App.

按「New Project」

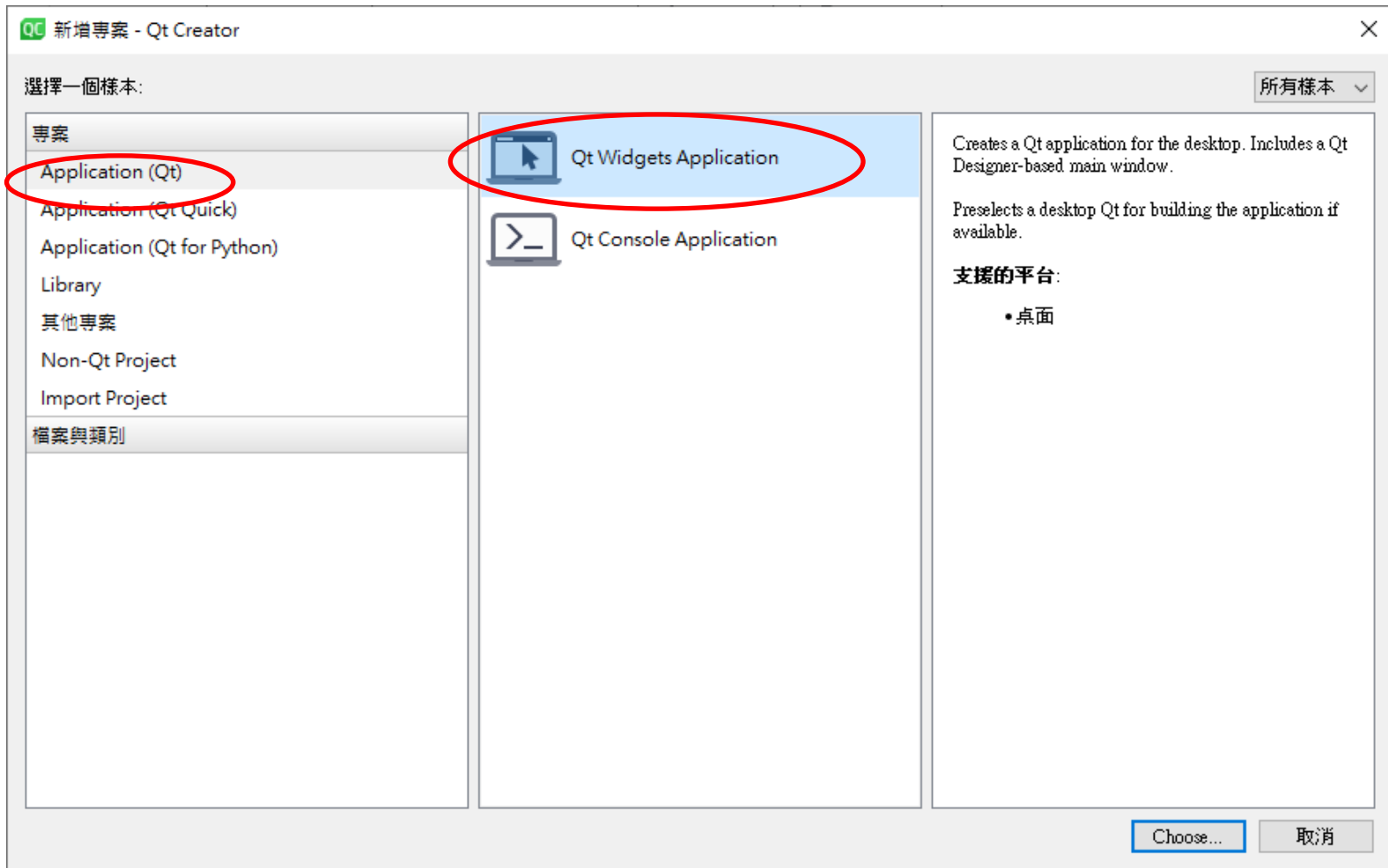




Code less.
Create more.
Deploy everywhere.

Hello World – Gui-Design App.

「Application」 → 「Qt Widgets Application」





Code less.
Create more.
Deploy everywhere.

Hello World – Gui-Design App.

專案名稱「HelloGuiDesign」

Qt Widgets Application

×

Location

Build System

Details

Translation

Kits

Summary

Project Location

This wizard generates a Qt Widgets Application project. The application derives by default from QApplication and includes an empty widget.

名稱: HelloGuiDesign

建立於: D:\11001\EX

瀏覽...

☐ 保持預設的專案位置

下一個(N)

取消

Qt Widgets Application

Define Build System

Location

Build System

Details

Translation

Kits

Summary

Build system: make

下一個(N)

取消





Code less.
Create more.
Deploy everywhere.

Hello World – Gui-Design App.

Base class: QWidget → Class name: DesignWidget



← Qt Widgets Application

Class Information

Location

Build System

Details

Translation

Kits

Summary

Specify basic information about the classes for which you want to generate skeleton source code files.

Class name: DesignWidget

Base class: QWidget

Header file: designwidget.h

Source file: designwidget.cpp

☒ Generate form

Form file: designwidget.ui

下一個(N)

取消





Code less.
Create more.
Deploy everywhere.

Hello World – Gui-Design App.

Kit Selection

×

← Qt Widgets Application

Location

Build System

Details

Translation

➔ Kits

Summary

Kit Selection

The following kits can be used for project **HelloGuiDesign**:

☐ Select all kits

<input checked="" type="checkbox"/> Desktop Qt 5.12.11 MSVC2017 64bit	詳情 ▼
<input type="checkbox"/> Desktop Qt 5.12.11 MinGW 64-bit	詳情 ▼
<input type="checkbox"/> Replacement for "Desktop Qt 5.12.4 MSVC2017 64bit"	詳情 ▼

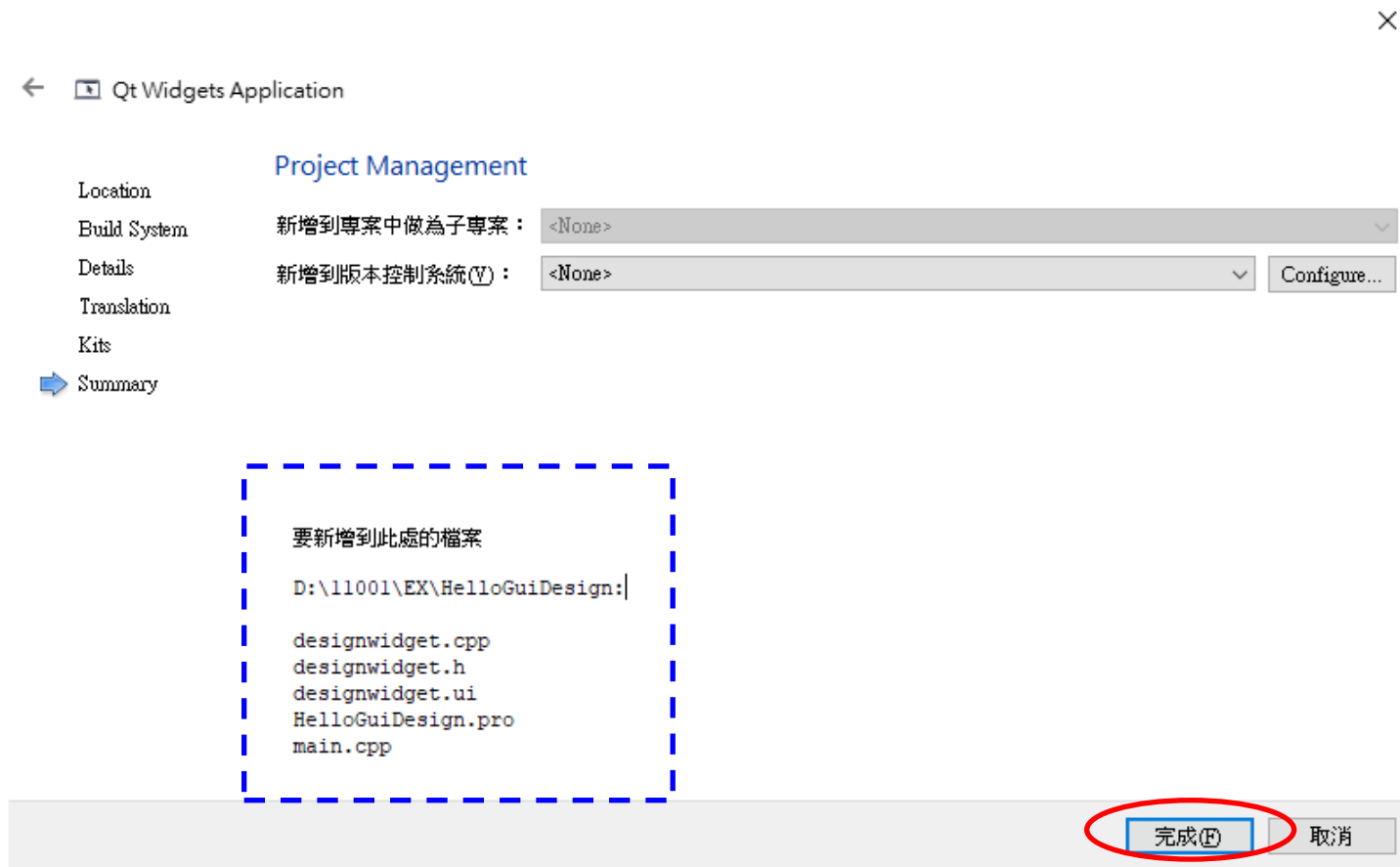
下一個(N)

取消



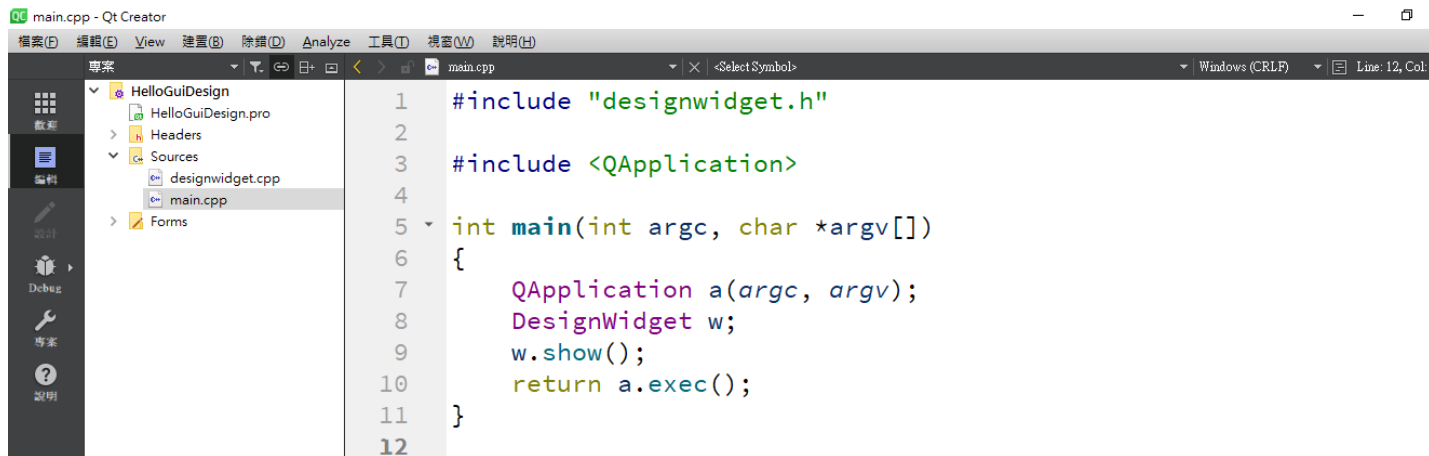
Qt Code less. Create more. Deploy everywhere. Hello World – Gui-DesignApp.

按「Finish」結束專案精靈



Hello World – Gui-Design App.

專案初始內容

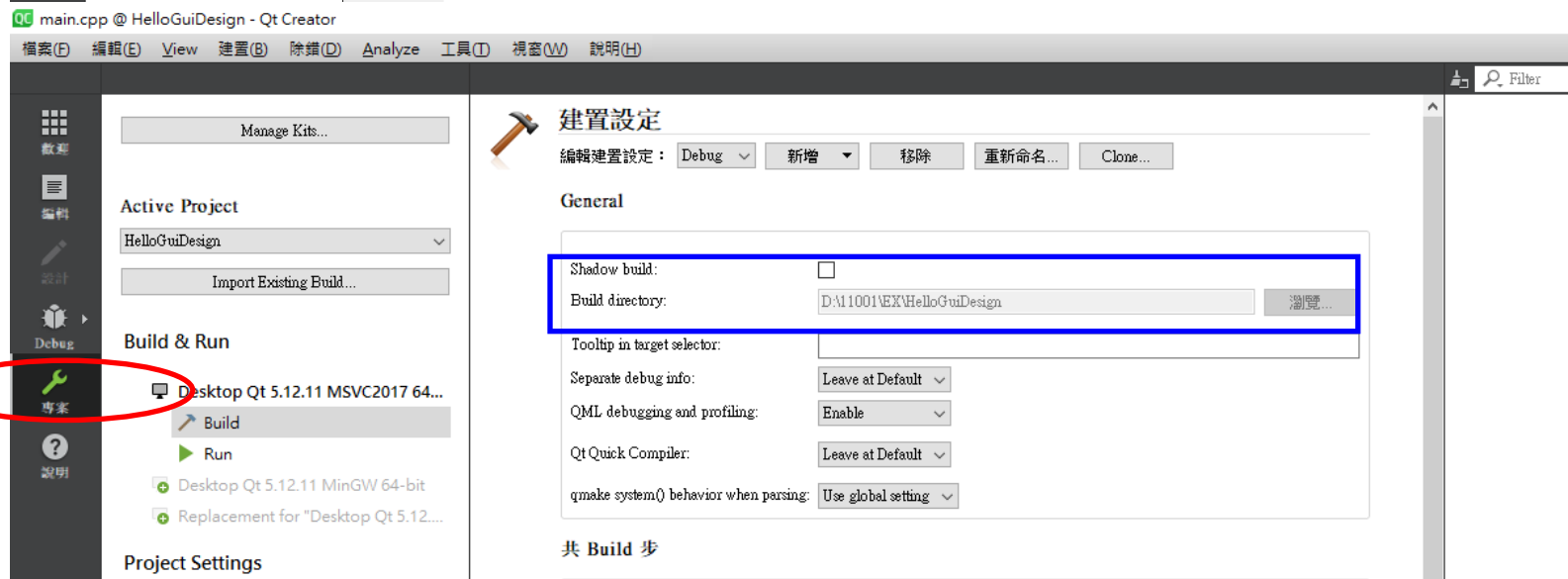


main.cpp - Qt Creator

```

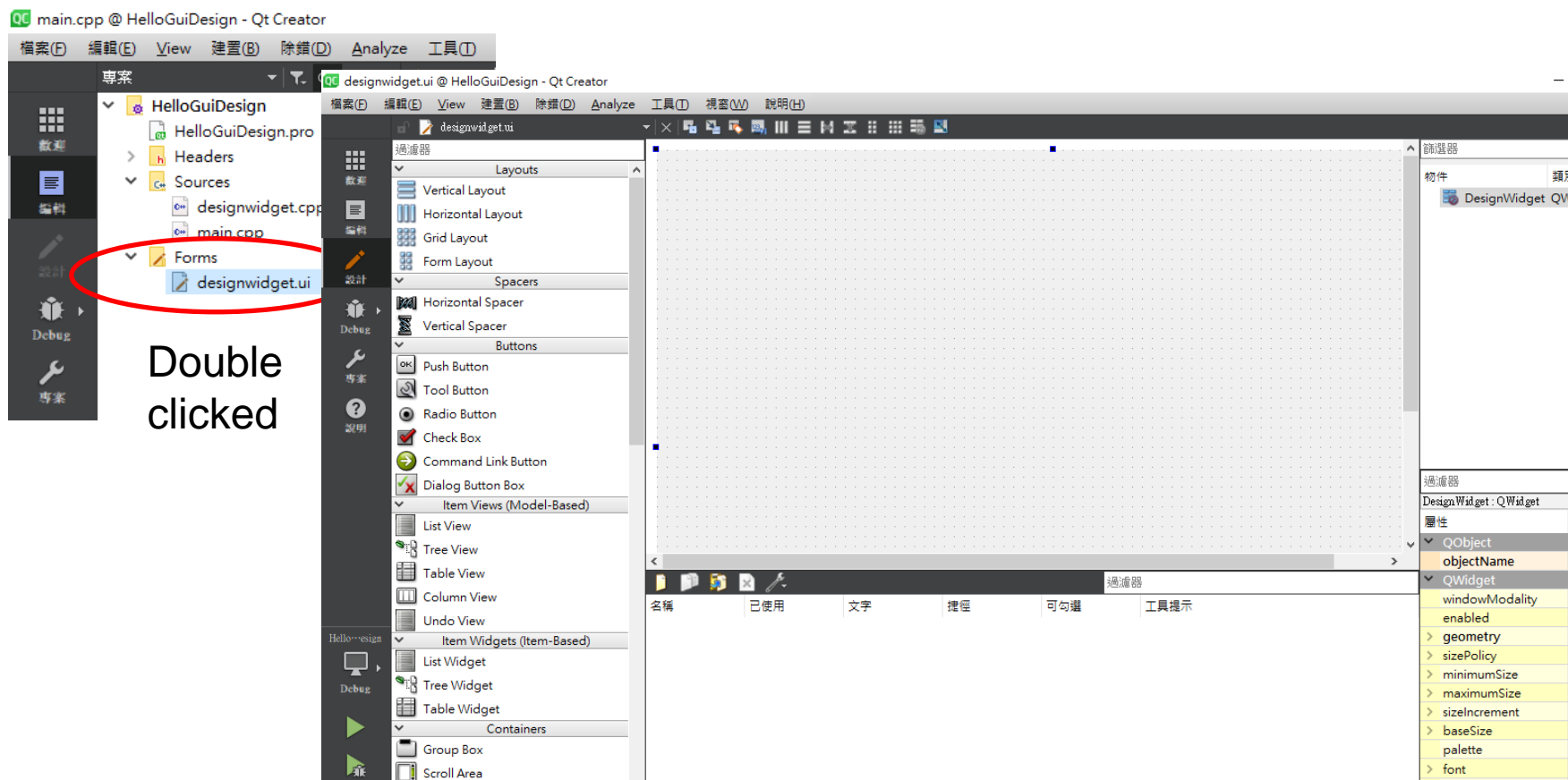
1  #include "designwidget.h"
2
3  #include <QApplication>
4
5  int main(int argc, char *argv[])
6  {
7      QApplication a(argc, argv);
8      DesignWidget w;
9      w.show();
10     return a.exec();
11 }
12

```



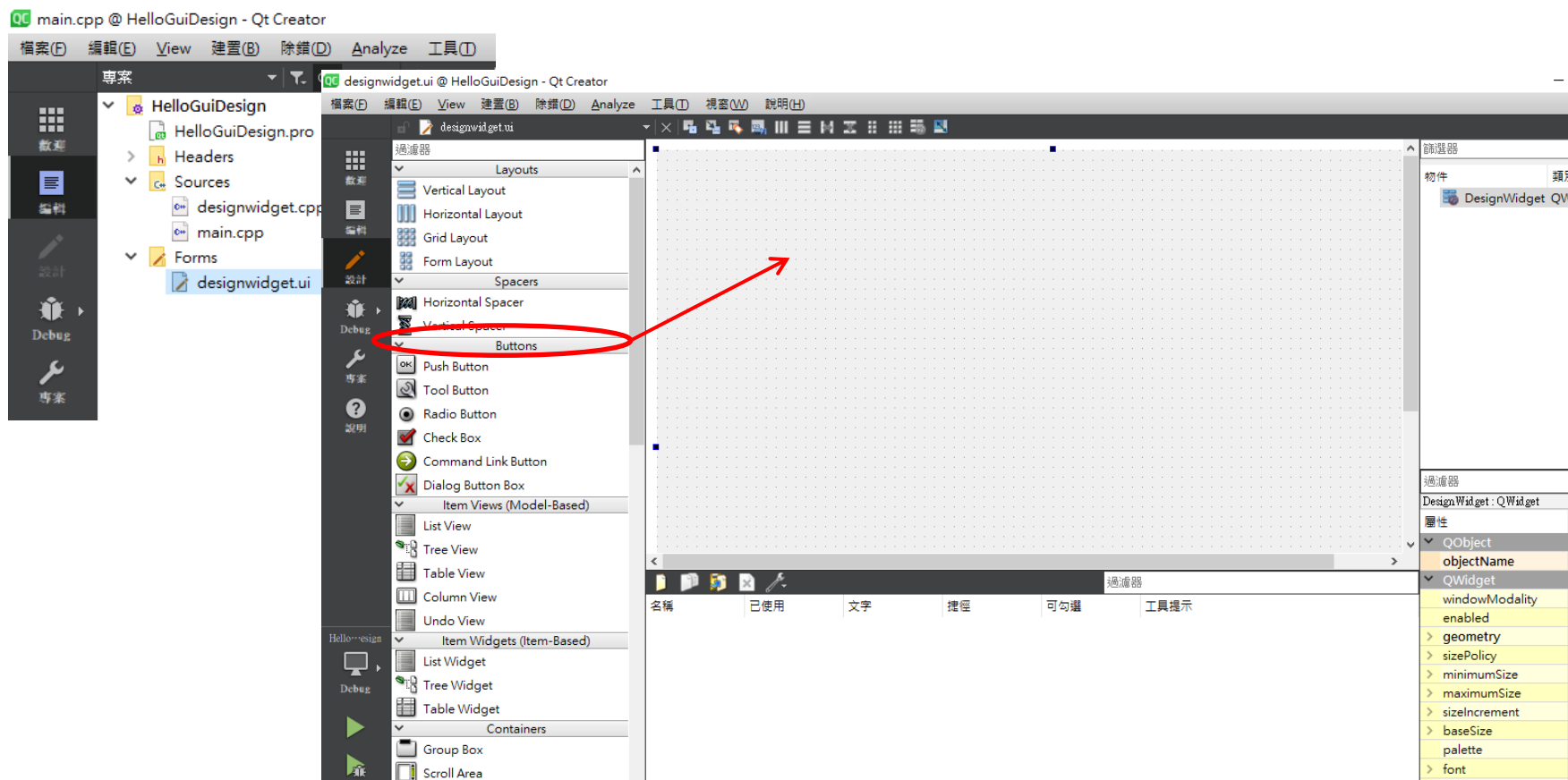
Hello World – Gui-Design App.

使用Qt Designer建立使用者介面: 「Double Click on designwidget.ui」



Hello World – Gui-Design App.

使用Qt Designer建立使用者介面: 「加入一個PushButton」

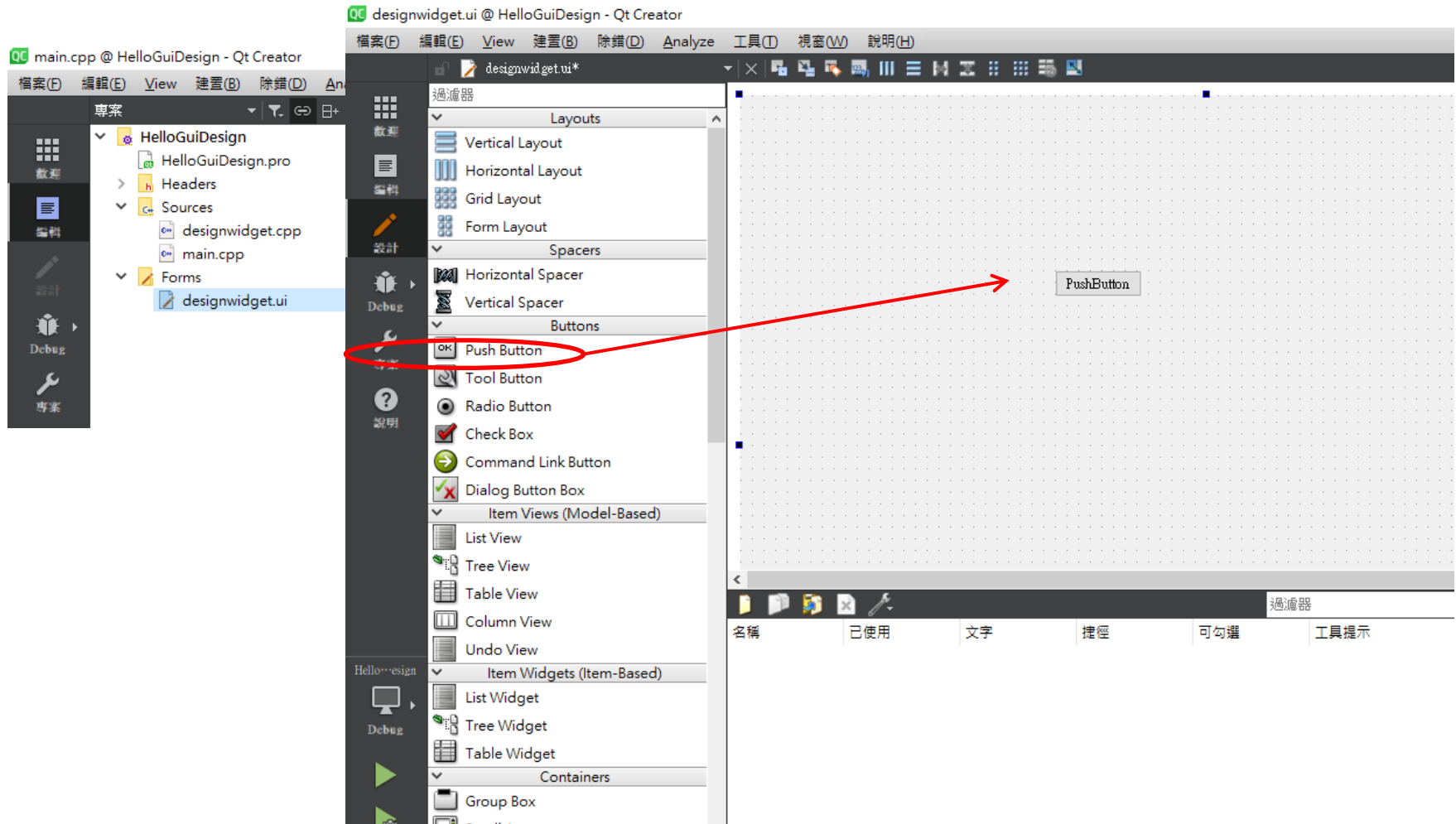




Code less.
Create more.
Deploy everywhere.

Hello World – Gui-Design App.

使用Qt Designer建立使用者介面: 「加入一個PushButton」





Code less.
Create more.
Deploy everywhere.

Hello World – Gui-Design App.

檢視designwidget.cpp建構函數:

```
designwidget.cpp @ HelloGuiDesign - Qt Creator
檔案(F) 編輯(E) View 建置(B) 除錯(D) Analyze 工具(T) 視窗(W) 說明(H)
專案
  HelloGuiDesign
    HelloGuiDesign.pro
    Headers
      designwidget.h
    Sources
      designwidget.cpp
      main.cpp
    Forms
      designwidget.ui
Open Documents
  designwidget.cpp
  designwidget.h
  designwidget.ui*
  main.cpp

1  #include "designwidget.h"
2  #include "ui_designwidget.h"
3
4  DesignWidget::DesignWidget(QWidget *parent)
5      : QWidget(parent)
6      , ui(new Ui::DesignWidget)
7  {
8      ui->setupUi(this);
9  }
10
11 DesignWidget::~DesignWidget()
12 {
13     delete ui;
14 }
15
16 |
```





Code less.
Create more.
Deploy everywhere.

Hello World – Gui-Design App.

檢視designwidget.h標頭檔:

Qt designwidget.h @ HelloGuiDesign - Qt Creator

檔案(F) 編輯(E) View 建置(B) 除錯(D) Analyze 工具(T) 視窗(W) 說明(H)

專案 designwidget.h

歡迎 散列 編輯 設計 Debug 專案 說明

Open Documents

designwidget.cpp
designwidget.h
designwidget.ui*
main.cpp

```
1  #ifndef DESIGNWIDGET_H
2  #define DESIGNWIDGET_H
3
4  #include <QWidget>
5
6  QT_BEGIN_NAMESPACE
7  namespace Ui { class DesignWidget; }
8  QT_END_NAMESPACE
9
10 class DesignWidget : public QWidget
11 {
12     Q_OBJECT
13
14 public:
15     DesignWidget(QWidget *parent = nullptr);
16     ~DesignWidget();
17
18 private:
19     Ui::DesignWidget *ui;
20 };
21 #endif // DESIGNWIDGET_H
22
```

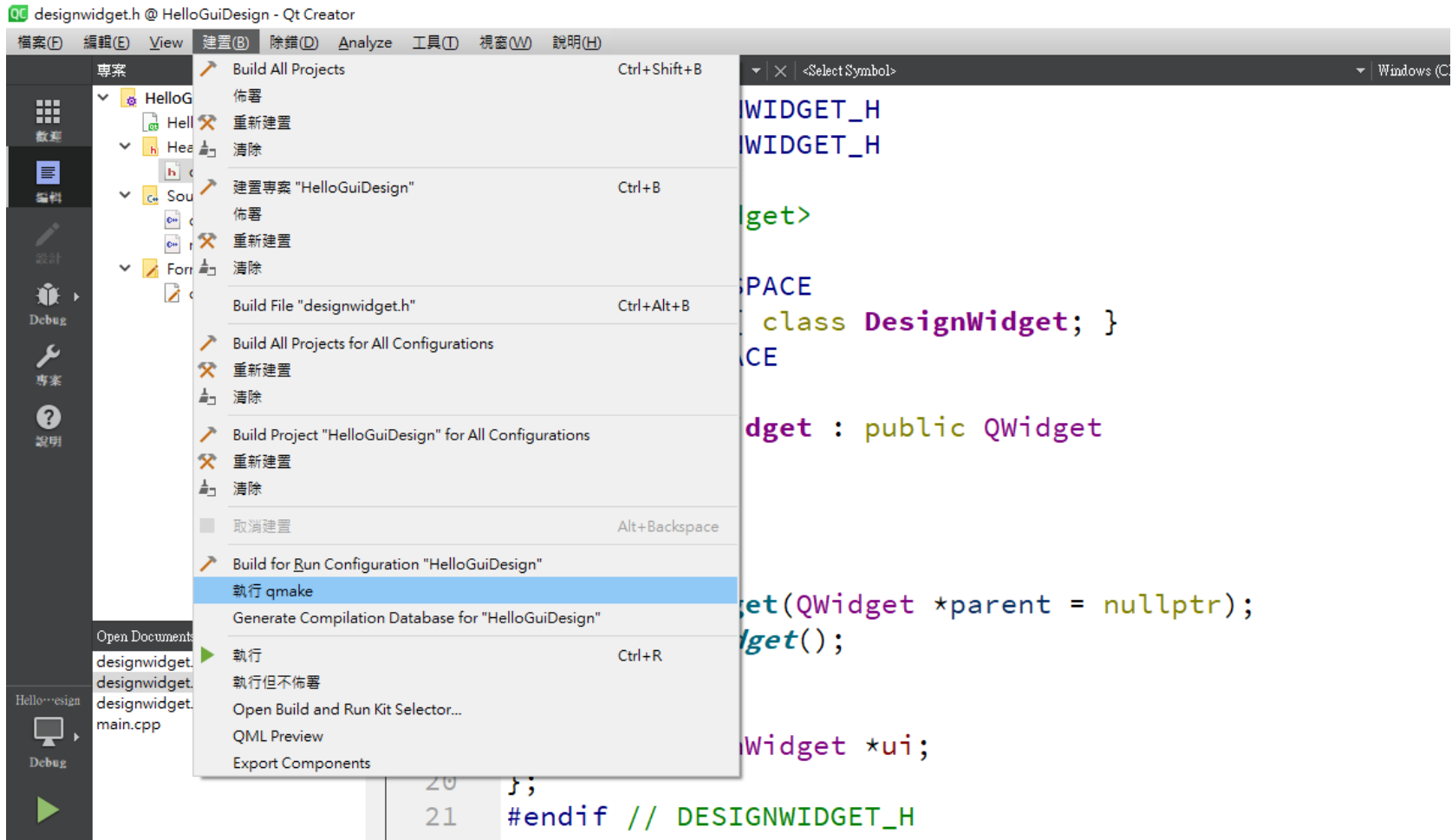




Code less.
Create more.
Deploy everywhere.

Hello World – Gui-Design App.

執行qmake工具程式:

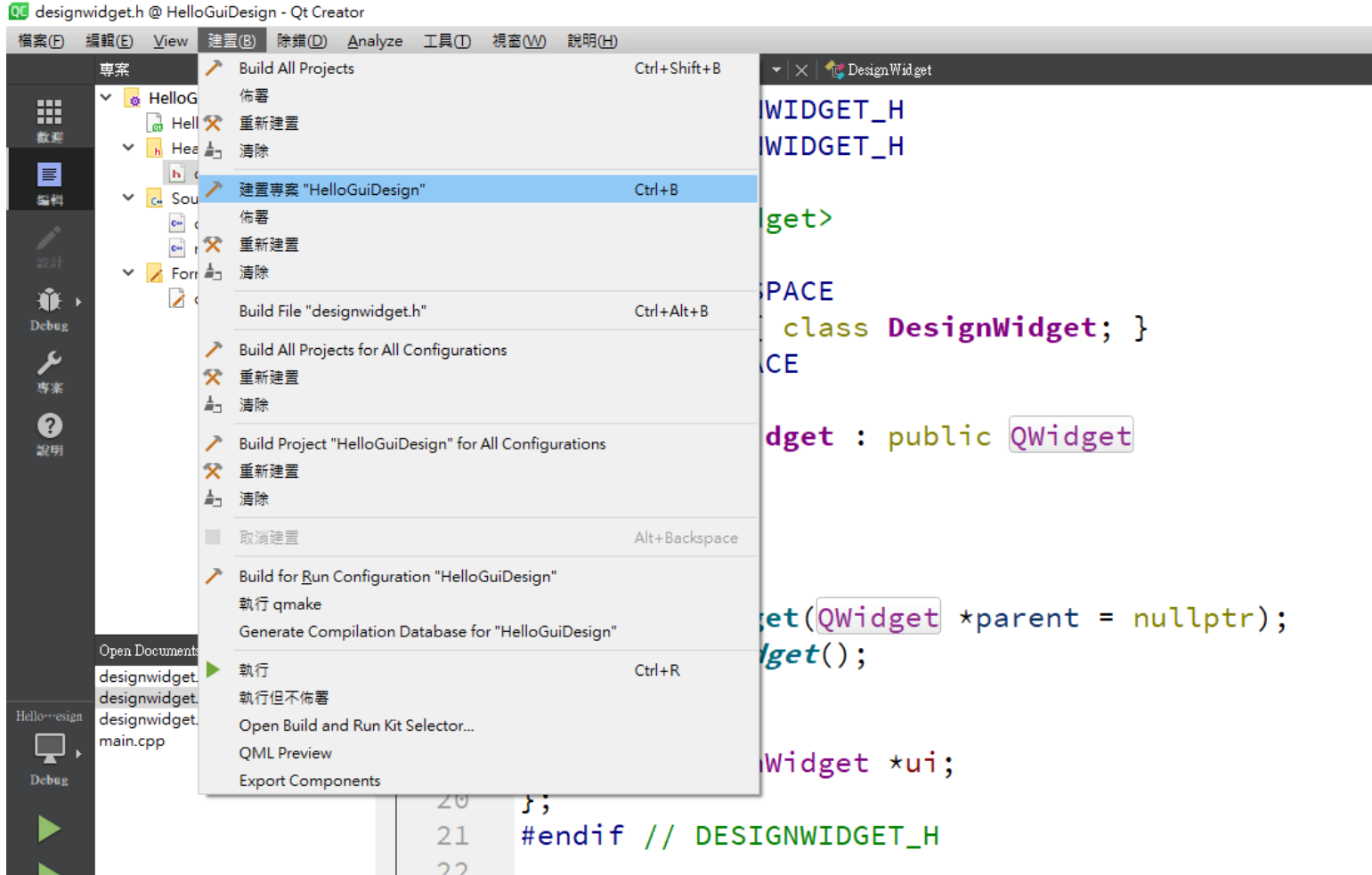




Code less.
Create more.
Deploy everywhere.

Hello World – Gui-Design App.

執行Build Project:

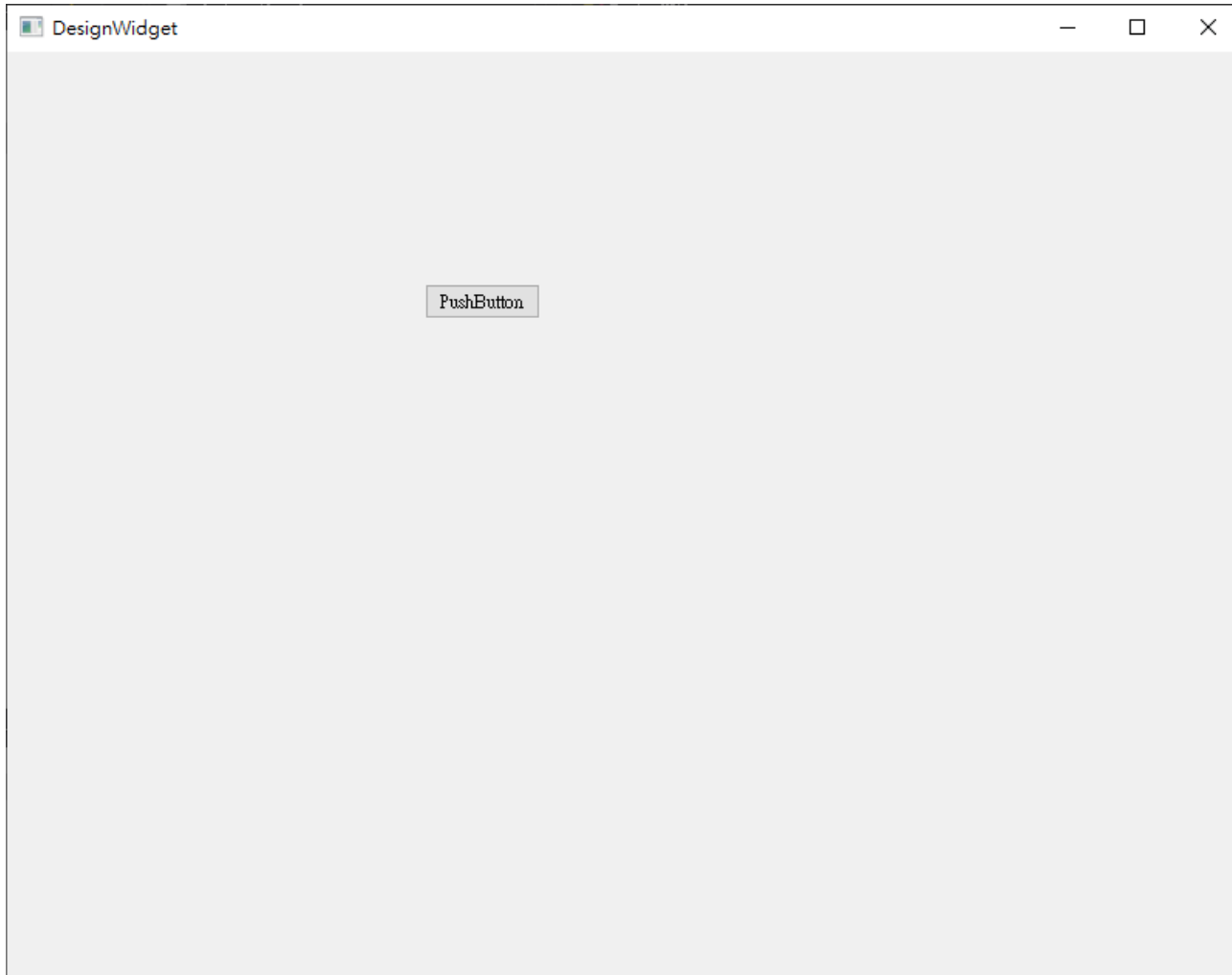




Code less.
Create more.
Deploy everywhere.

Hello World – Gui-Design App.

按「Run」執行專案：





Code less.
Create more.
Deploy everywhere.

Hello World – Gui-Design App.

加入ui_designwidget.h標頭檔:

The screenshot shows the Qt Creator IDE with the 'HelloGuiDesign' project open. The 'Project' pane on the left shows the project structure. The 'Sources' pane on the right shows the files in the project. The 'ui_designwidget.h' file is highlighted in the 'Sources' pane. The 'Project' pane shows the 'HelloGuiDesign' project with the 'ui_designwidget.h' file listed under the 'Sources' section. The 'Sources' pane shows the files in the project, including 'ui_designwidget.h'.

新增現有檔案

名稱	修改日期	類型
release	2021/9/20 下午 10:40	檔案資料夾
.qmake.stash	2021/9/20 下午 10:40	STASH 檔案
designwidget	2021/9/20 下午 10:26	C++ Source
designwidget	2021/9/20 下午 10:26	C++ Heade
designwidget	2021/9/20 下午 10:40	Qt UI file
HelloGuiDesign	2021/9/20 下午 10:26	Qt Project fil
HelloGuiDesign.pro.user	2021/9/20 下午 10:28	Per-User Pro
main	2021/9/20 下午 10:26	C++ Source
Makefile	2021/9/20 下午 10:40	檔案
Makefile.Debug	2021/9/20 下午 10:40	DEBUG 檔案
Makefile.Release	2021/9/20 下午 10:40	RELEASE 檔
ui_designwidget	2021/9/20 下午 10:42	C++ Heade

檔案名稱(N): ui_designwidget

所有檔案

開啟(O) 取消



Hello World – Gui-Design App.

檢視ui_designwidget.h標頭檔:

Qt ui_designwidget.h @ HelloGuiDesign - Qt Creator

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專案: HelloGuiDesign

- HelloGuiDesign.pro
- Headers
 - designwidget.h
- Sources
 - designwidget.cpp
 - main.cpp
- Forms
 - designwidget.ui

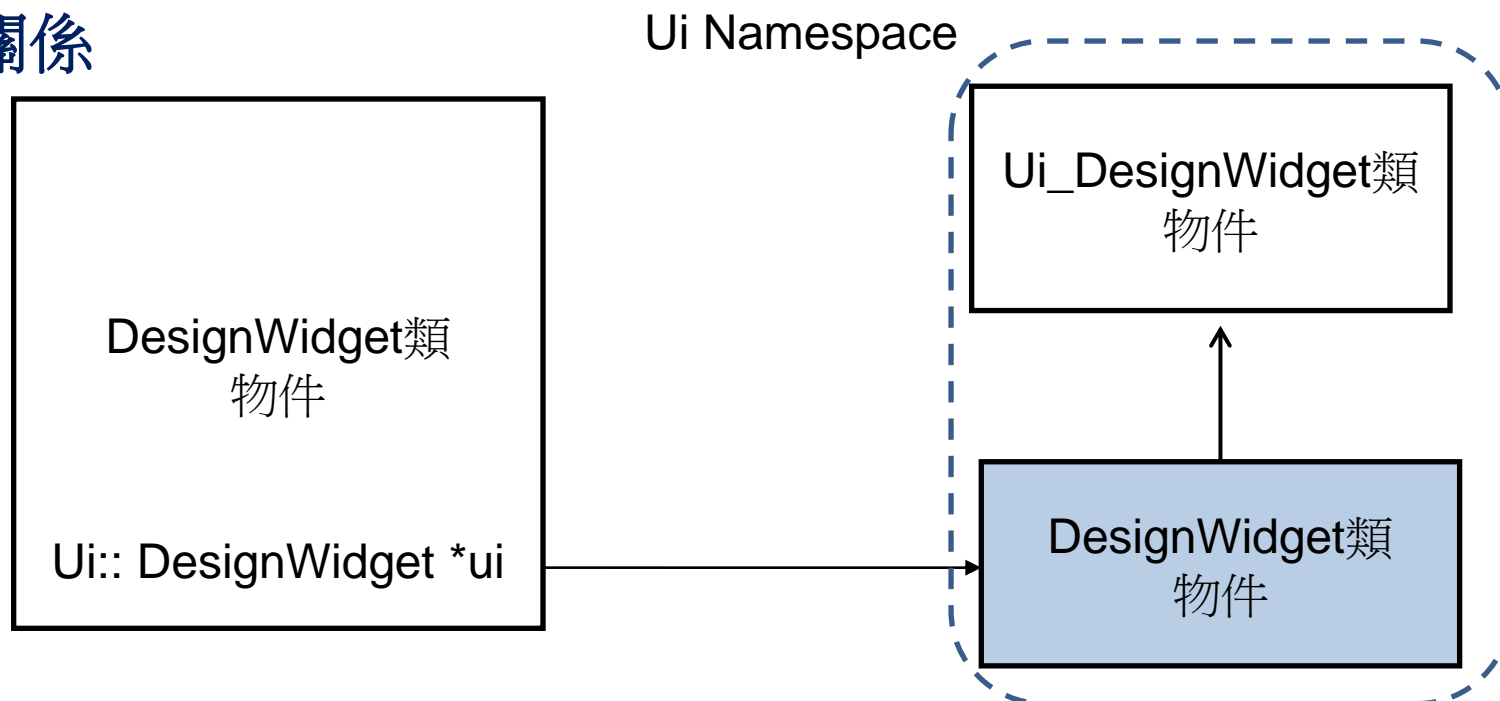
→

```

32
33     retranslateUi(DesignWidget);
34
35     QMetaObject::connectSlotsByName(DesignWidget);
36 } // setupUi
37
38 void retranslateUi(QWidget *DesignWidget)
39 {
40     DesignWidget->setWindowTitle(QApplication::tra
41     pushButton->setText(QApplication::translate("D
42 } // retranslateUi
43
44 };
45
46 namespace Ui {
47     class DesignWidget: public Ui_DesignWidget {};
48 } // namespace Ui
49
50 QT_END_NAMESPACE
51
52 #endif // UI_DESIGNWIDGET_H
53
  
```

Hello World - Gui App.

物件關係



`ui= new Ui::DesignWidget;`



`ui->setupUI(this)`

