



Chapter 11

Multi Forms & Dialog

11-1 MenuStrip Control Item

- Arrange buttons often used in toolboxes
- Tool bars contain graphical buttons, and each stand for a specific purpose
- C# offers tool bar control item, status bar control item and tool bar container



11-1 MenuStrip Menu Item

- MenuItem object kinds:

1. ToolStripMenuItem  新增(N) Ctrl+N

a text object, use to add functions such as check, shortcut, separate line, sub menu and so on.

2. ToolStripComboBox 

a drop-down menu, used to create listed items

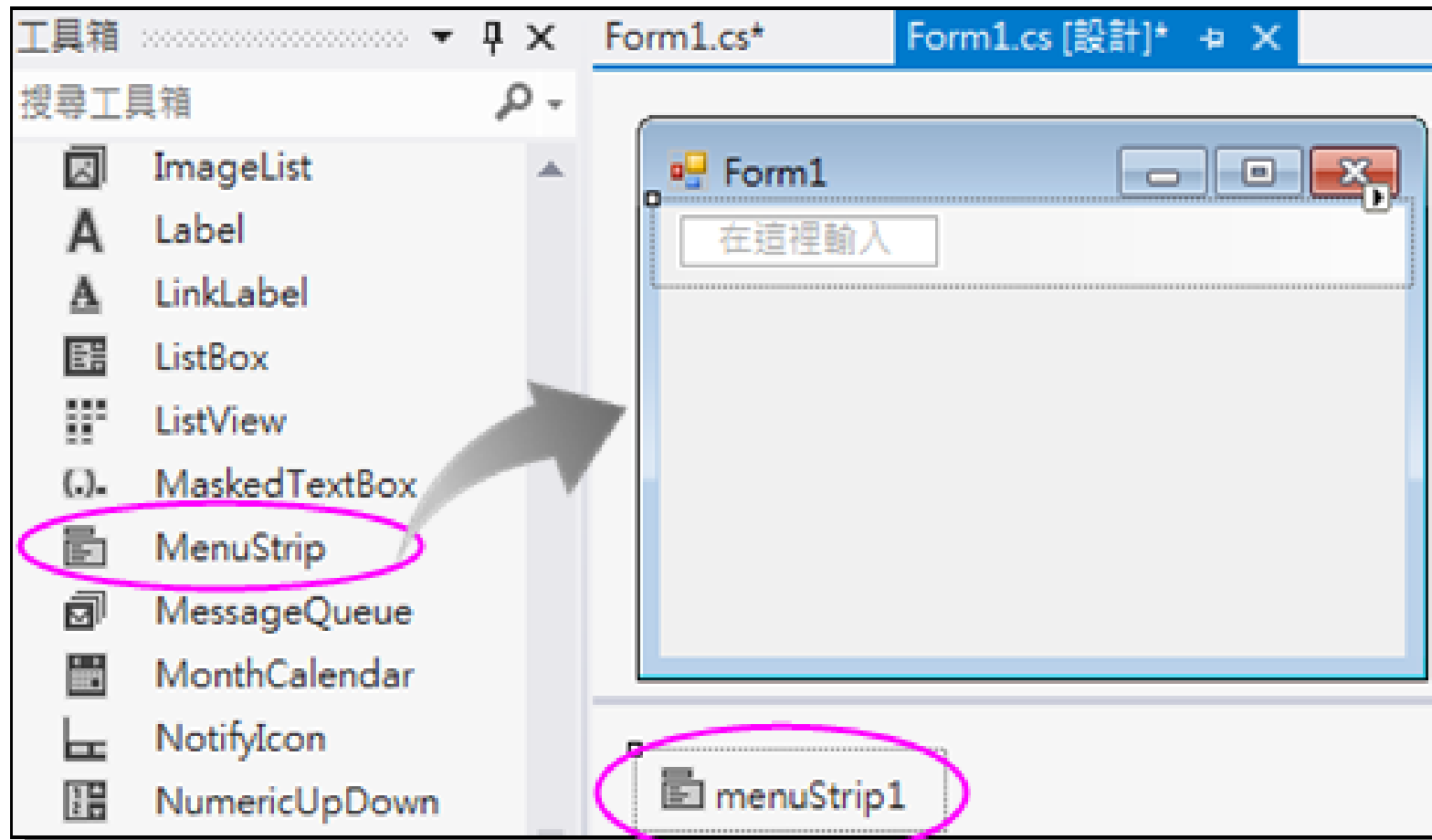
3. ToolStripTextBox 

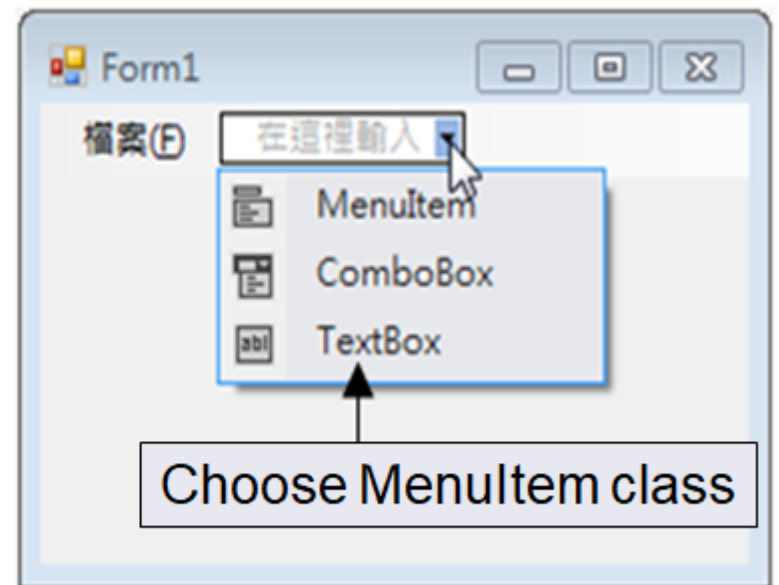
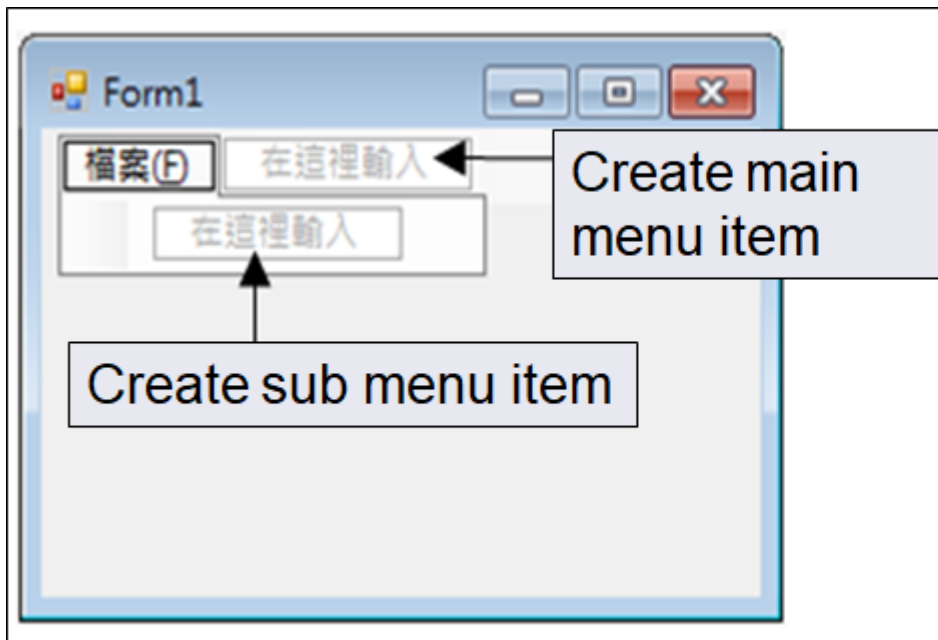
a text box object, user's input is available

4. ToolStripSeparator 

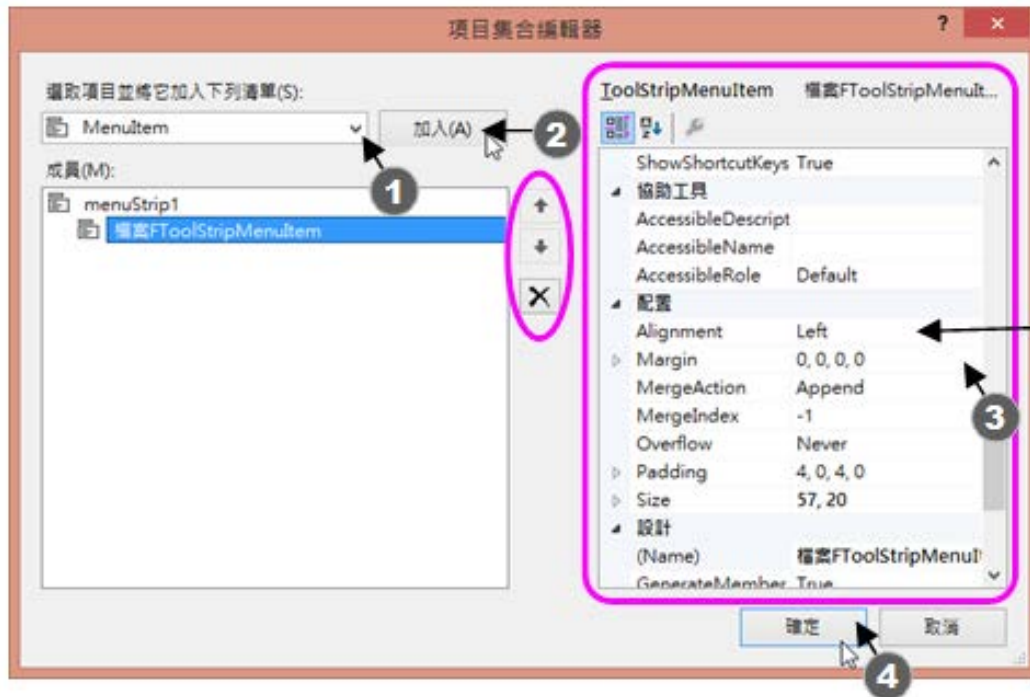
a separate line, only exists in sub menu

How to Create MenuStrip

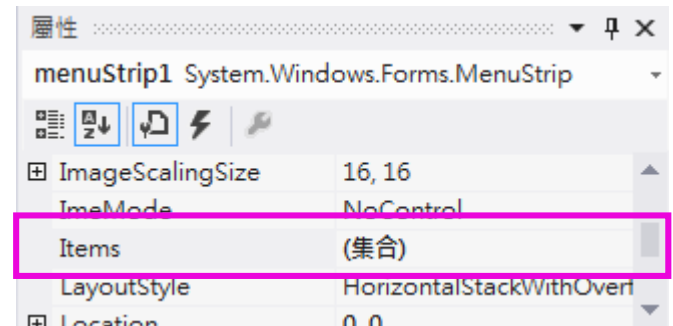




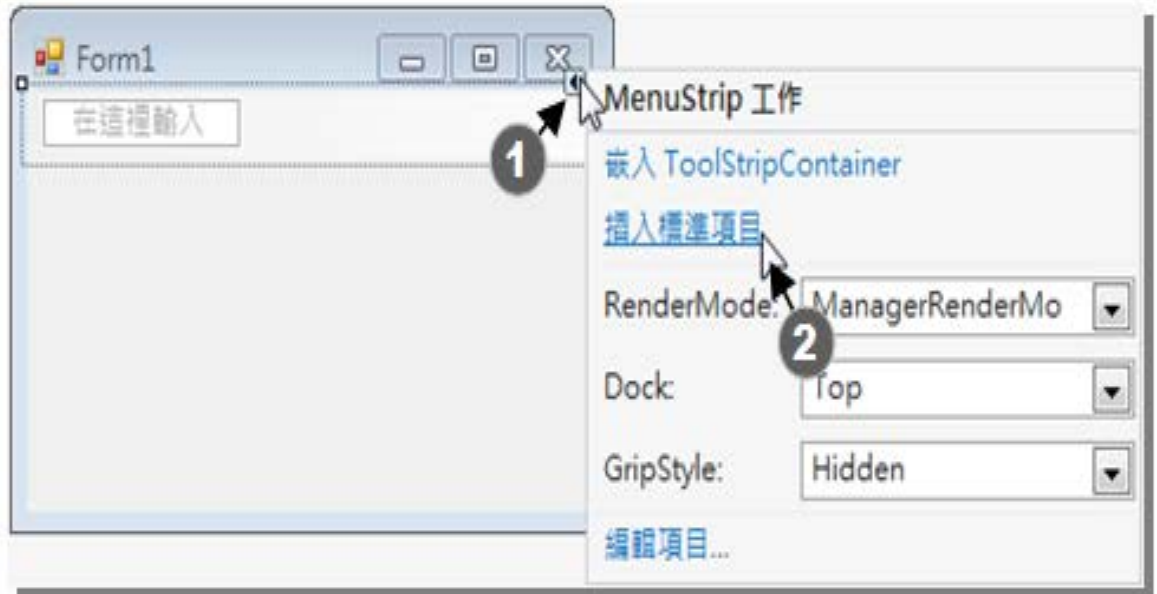
How to Add ToolStripMenuItem



Set property



How to Create Default Menu



Add Menu Item in Runtime

Declare item class

The item class has to be declared in advance if to add items of MenuStrip during runtime

Grammar

```
ToolStripMenuItem menuItem = new ToolStripMenuItem(itemText);
```

Ex: declare a text item mnuFile called “檔案”, usage:

```
ToolStripMenuItem mnuFile = new ToolStripMenuItem("檔案");
```


Add menu item

After declaration, use Add() method to add the item to the main menu items of MenuStrip

Grammar

```
MenuStrip controlItemName.Items.Add(itemName);
```

Ex: add mnuFile to the main menu items of menuStrip1, usage:

```
ToolStripMenuItem mnuFile = new ToolStripMenuItem("檔案");  
menuStrip1.Items.Add(mnuFile);
```

Add sub menu items

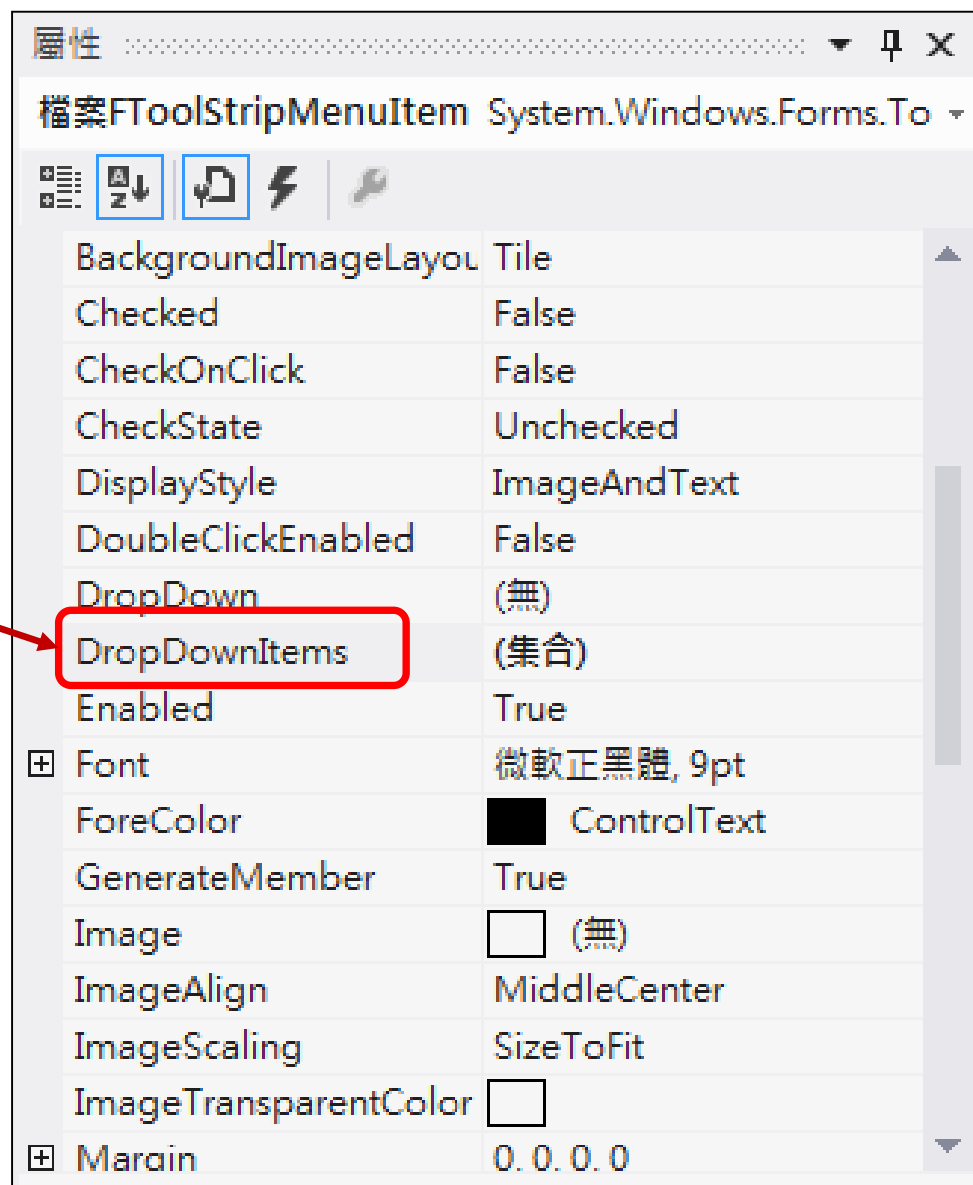
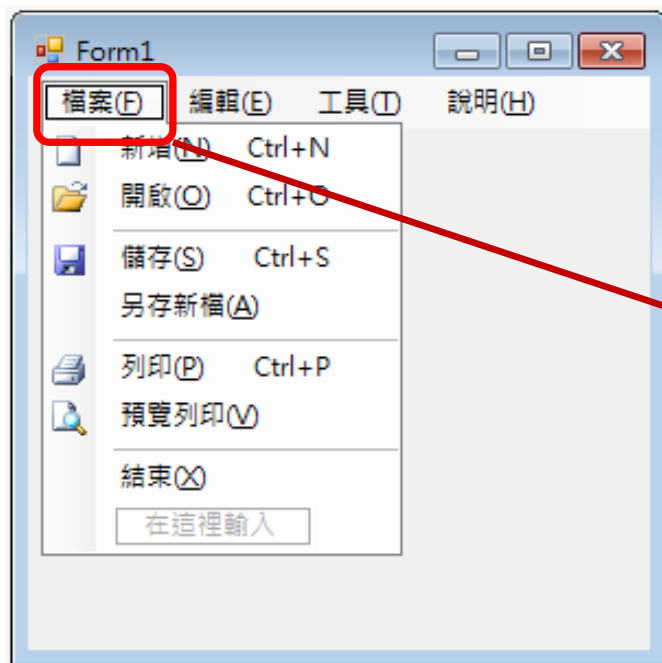
After we complete add main menu item, if we want to add sub menu item

Grammar

```
itemName.DropDownItems.AddRange(new ToolStripItem[]  
    {item1, item2, ...});
```

Ex: add sub item mnuOpen called “開檔” and mnuSave called “存檔” to DropdownItems property of mnuFile, usage:

```
ToolStripMenuItem mnuOpen = new ToolStripMenuItem("開檔");  
ToolStripMenuItem mnuSave = new ToolStripMenuItem("存檔");  
mnuFile.DropDownItems.AddRange( new ToolStripItem[] {mnuOpen, mnuSave});
```



How to Add Menu Separate Line

1. Add separate line in design phase
set the value of Text property to “-”, thus the item will transform to separate line automatically
2. Add separate line during runtime
add a separate line to menu during runtime, usage:

```
ToolStripSeparator bar = new ToolStripSeparator();  
menuStrip.Items.Add(bar);  
mnuFile.DropDownItems.Add(bar);  
mnuFile.DropDownItems.Insert(1,bar);
```

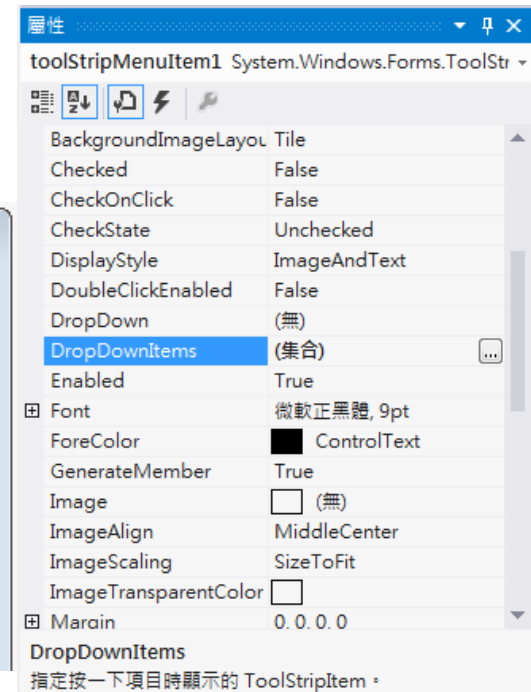
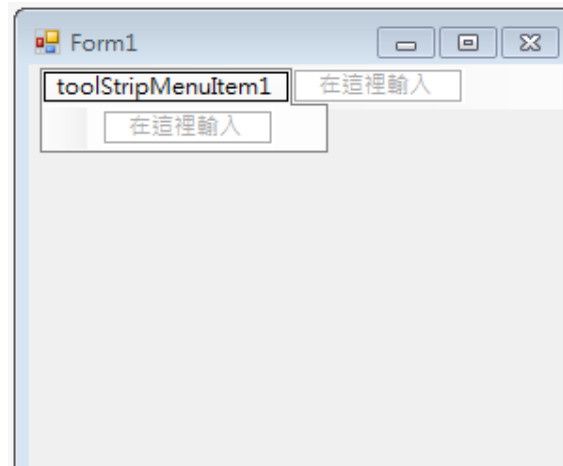
How to Set Property of Menu Control Item

1. Modify MenuStrip control item and MenuItem object property

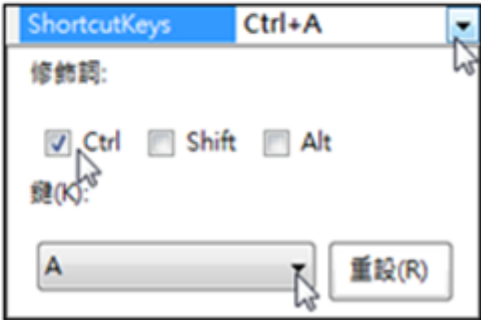
- ⇒ click on MenuStrip control item or MenuItem object
- ⇒ modify DropDownItems properties in property window


2. Use item collection editor of MenuStrip to set property

- ⇒ click on  button to open item collection editor



MenuStrip Properties

Property	Description	
Items	Set main menu item collection of MenuStrip	
DropDownItems	Set sub item collection of MenuItem, can contains ToolStripMenuItem, ToolStripComboBox, ToolStripSeparator and ToolStripTextBox	
Dock	Set the position of MenuStrip, default: Top (on the top of form)	
ShowShortcutKeys	Show shortcut keys behind the menu item or not, default: True (show shortcut keys)	
ShortcutKeys	Set shortcut keys of menu item, default: None (no shortcut keys)	

Property	Description
Text	Text content shown on the menu item
Checked	Show check symbol in front of menu item or not, default: False (not to show)
GripStyle	Show grip of MenuStrip or not, default: Hidden, set Visible to show the grip 





MenuStrip Events

1. ItemClicked Event

- Triggered when the user click on main menu item
- Click event of pressed main menu item is triggered after ItemClicked event is triggered
- ItemClicked event -> Click event


```
private void menuStrip1_ItemClicked(object sender, ToolStripItemClickedEventArgs e)
{
    switch (e.ClickedItem.ToString())
    {
        case "檔案":
            break;
        ...
    }
}
```



Menu Item Events

1. Click Event

- Triggered when the user clicks on the menu item

2. Checked/Unchecked Event

- If Checked property of menu item is True, Checked or Unchecked event is triggered when the user checks the menu item or unchecks it

Example(change):

Design a currency exchange program, requirements:

1. There is a main menu item called “功能(F)” which has shortcut keys Alt+F. This main menu item contains sub menu items called “兌換(C)” (shortcut keys: Ctrl+C) and “結束(X)” (shortcut keys: Ctrl+X)
2. Users can set these settings:
 - ① Input number of money to exchange (default: 1689)
 - ② Check 1000 dollars, 500 dollars, 100 dollars, 50 dollars, 5 dollars and 1 dollar to exchange money, default: every option is checked. 1 dollar is necessary
 - ③ Execute “功能/兌換” function to show number of selected currency exchanged
 - ④ Execute “功能/結束” to exit the program

Result:

Form1

選項(S)

- 兌換(R) Ctrl+R
- 結束(X) Ctrl+X

2768 元

STEP2. 請勾選兌換面額：

<input checked="" type="checkbox"/> 1000元	<input checked="" type="checkbox"/> 500元	<input checked="" type="checkbox"/> 100元	<input type="checkbox"/> 50元	<input checked="" type="checkbox"/> 10元	<input checked="" type="checkbox"/> 5元	<input checked="" type="checkbox"/> 1元
0	0	0	0	0	0	0

STEP 3. 執行功能表中兌換功能

Form1

選項(S)

STEP 1. 請輸入兌換金額： 2768 元

STEP2. 請勾選兌換面額：

<input checked="" type="checkbox"/> 1000元	<input checked="" type="checkbox"/> 500元	<input checked="" type="checkbox"/> 100元	<input type="checkbox"/> 50元	<input checked="" type="checkbox"/> 10元	<input checked="" type="checkbox"/> 5元	<input checked="" type="checkbox"/> 1元
2	1	2	0	6	1	3

STEP 3. 執行功能表中兌換功能

Design User Interface

Form1

選項(S) 在這裡輸入

STEP 1. 請輸入兌換金額： 元

STEP2. 請勾選兌換面額：

chk1000~chk1 → ☐ 1000元 ☐ 500元 ☐ 100元 ☐ 50元 ☐ 10元 ☐ 5元 ☐ 1元

lbl1000~lbl1 → label3 label4 label5 label6 label7 label8 label9

STEP 3. 執行功能表中兌換功能

menuStrip1 → menuStrip1

txtMoney

Establish menu items in menuStrip1

選項 SToolStripMenuItem

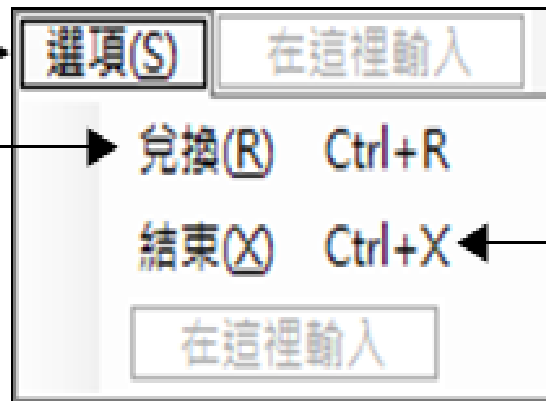
Text="選項(&S)"

ShortcutKeys=Alt+S

mnuChange

Text="兌換(&R) "

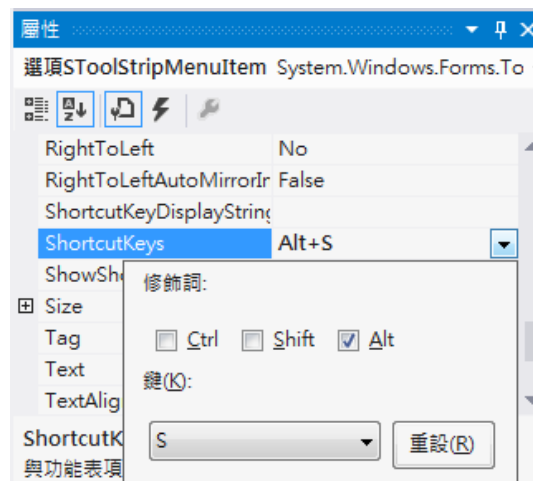
ShortcutKeys=Ctrl+R



mnuExit

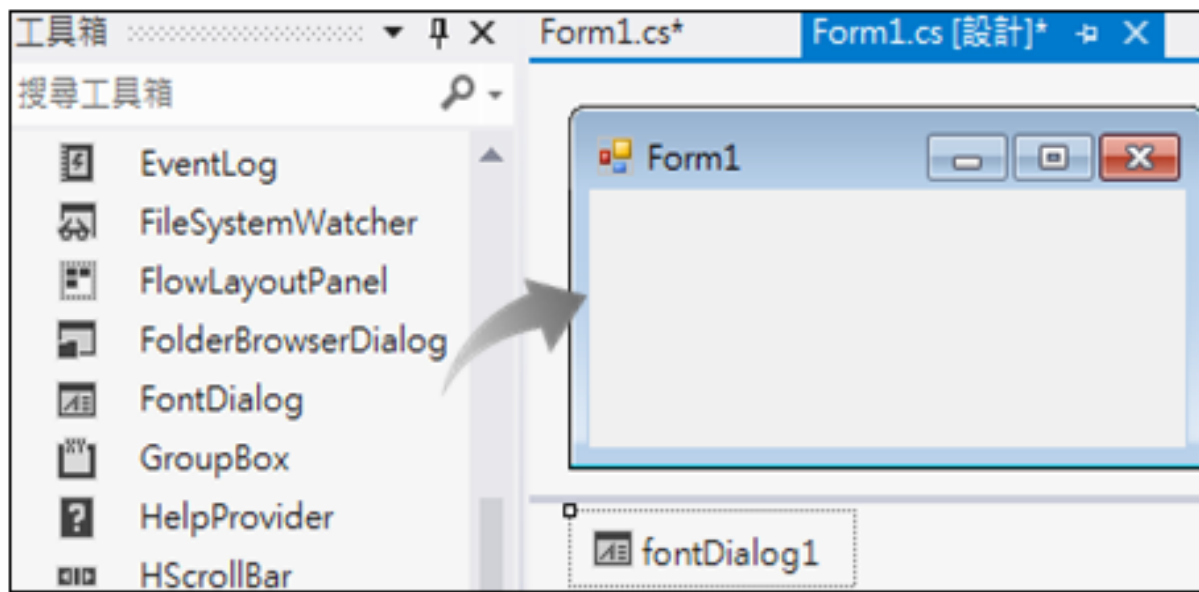
Text="結束(&X) "

ShortcutKeys=Ctrl+X



11-2 FontDialog Control Item

- Create font dialog rapidly
- Use ShowDialog() method to open it
- Assign font type, font style, font size and font effects

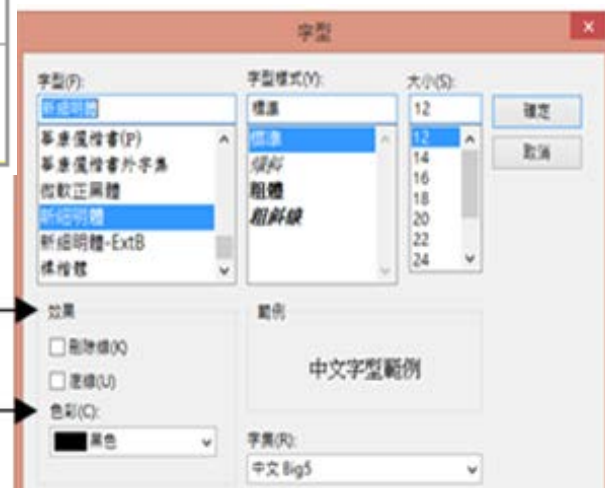


FontDialog Properties

Property	Description
Font	Get or set all font properties of fontDialog1 Ex: set font settings of textBox1 as the settings of fontDialog1: textBox1.font = fontDialog.Font;
Color	Get or set color of text. Ex: set color of textBox1 as the assigned color by fontDialog1 textBox1.ForeColor = fontDialog1.Color
MaxSize/MinSize	Get or set max and min digits behind point, default: 0
ShowColor	Set to show color list or not, default: False(no color list)
ShowEffects	Set font dialog can use effects or not, default: True(effect available)

ShowEffect →

ShowColor →



FontDialog Methods

1. ShowDialog()

- To show font dialog
- Use returned value to acquire which button is pressed:
 - ① “確定” is pressed, return DialogResult.OK
 - ② “取消” is pressed, return DialogResult.Cancel
- Ex: when the user presses “確定” button, set all font settings of textBox1 as the settings of fontDialog1:

```
if (fontDialog1.ShowDialog() == DialogResult.OK) {  
    textBox1.Font = fontDialog1.Font;  
}
```

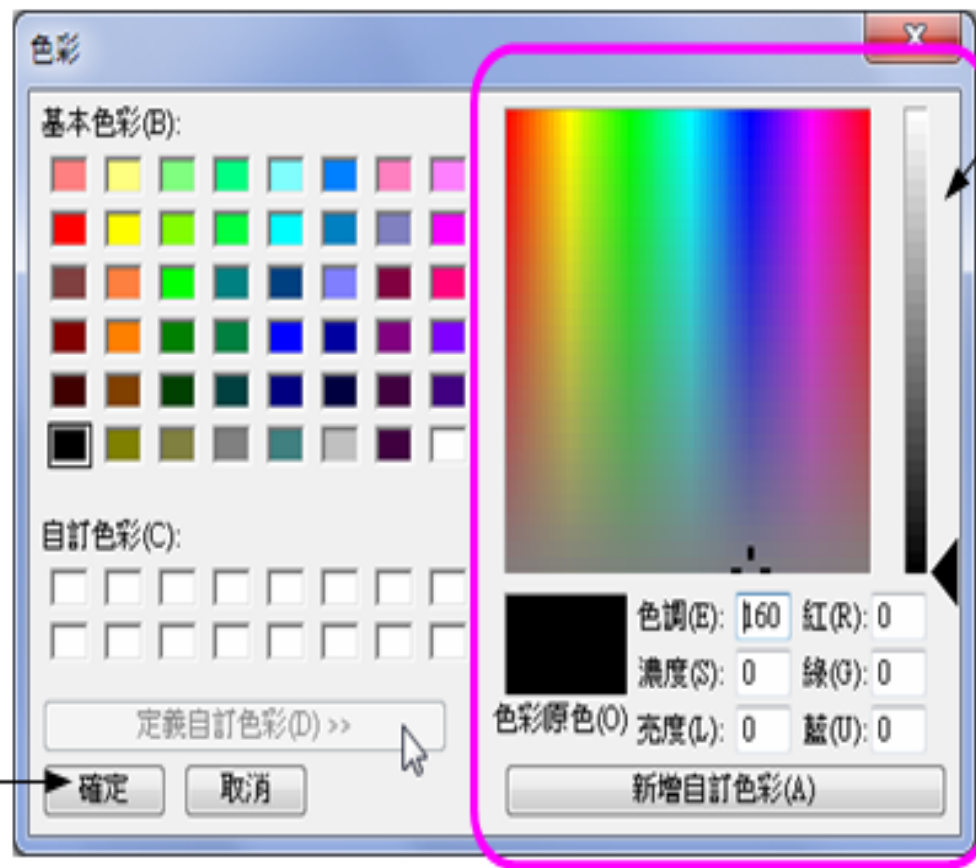


2. Reset()

- Set all properties of FontDialog back to default values
- Ex: restore all properties of fontDialog1 font dialog:
`fontDialog1.Reset();`

11-3 ColorDialog Control Item

Property	Description
Color	Get or set the assigned color by users Ex: set the background color of form as color chosen in colorDialog1 this.BackColor = colorDialog1.Color
AllowFullOpen	Set that “定義自訂色彩” button is available or not, default: True
FullOpen	Set that custom color palette is opened automatically or not, default: False(press “定義自訂色彩” to show). Only valid when AllowFullOpen is True



Custom color palette

AllowFullOpen



ColorDialog Methods

1. ShowDialog() Method

to show ColorDialog, usage is identical to FontDialog

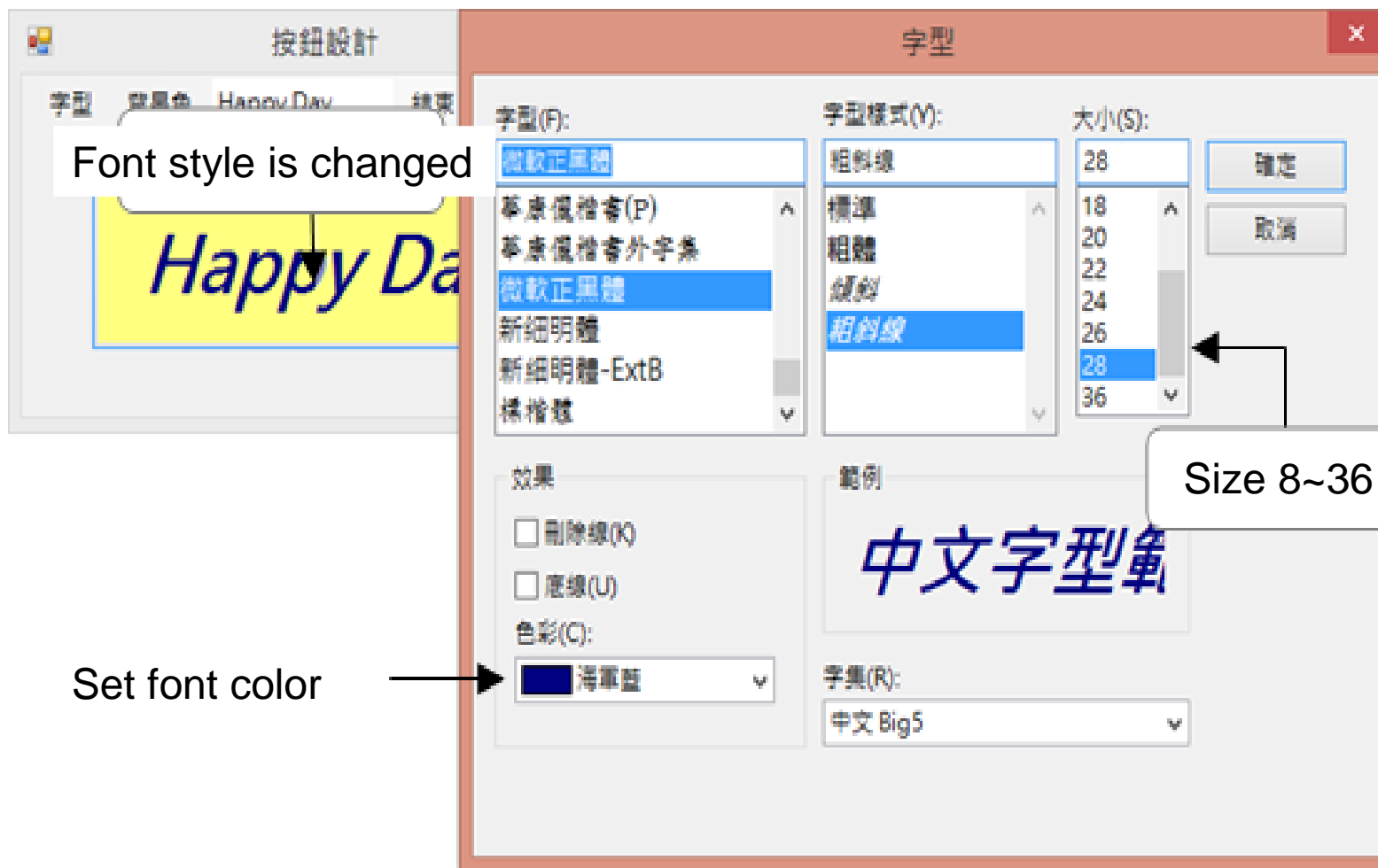
2. Reset() Method

restore all properties to default values

Example(btnDesigner):

Design a simple button design program, requirements:

1. Main menu has 3 items called “字型”, “背景色”, and “結束”. Also there is a text box with default value “Happy”
2. Press “字型” to open “字型” dialog. Users can set font size (8~36) and font color, then press “確定” to change the text box
3. Press “背景色” to open “色彩” dialog (custom color palette is available). Press “確定” to change the background color



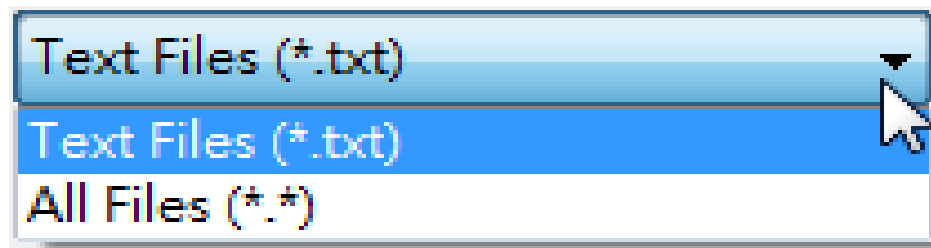
11-4 OpenFileDialog & SaveFileDialog

Property	Description
<code>AddExtension</code>	Automatically attach extension or not, default: True
<code>CheckFileExists</code>	Check the file exists before return file, default: True
<code>CheckPathExists</code>	Check the path exists before return file, default: True
<code>DefaultExt</code>	Set the default extension, default: null string
<code>FileName</code>	Get file name of chosen file in file dialog, default: null string
<code>Filter</code>	Set the filter of displaying file, default: null string

FileIndex	Set the selected item index in filter drop-down menu, default: 1
InitialDirectory	Set initial directory of file dialog, default: null string Ex: set initial directory as C:\test openFileDialog1.InitialDirectory = "C:\\test";
Multiselect	Set whether multiple selection is available or not, OpenFileDialog only, default: False
Title	Get or set the title of file dialog
RestoreDirectory	Set whether to restore the current directory or not when the file dialog is closed, default: False(not restore)

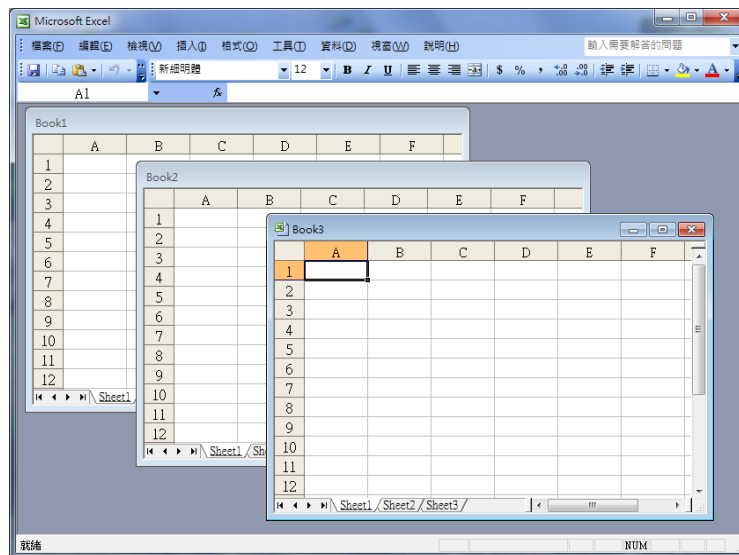
Filter Property

- Set up displaying file filter in file dialog
- Usage:
 - ① “displayWord1|filterRule1|displayWord2|filterRule2...”
 - ② ex: filter extensions for txt and all files,
openFileDialog1.Filter = "Text Files (*.txt)|*.txt|All Files (*.*)|*.*";



11-5 MDI(Multiple Document Interface) Programming

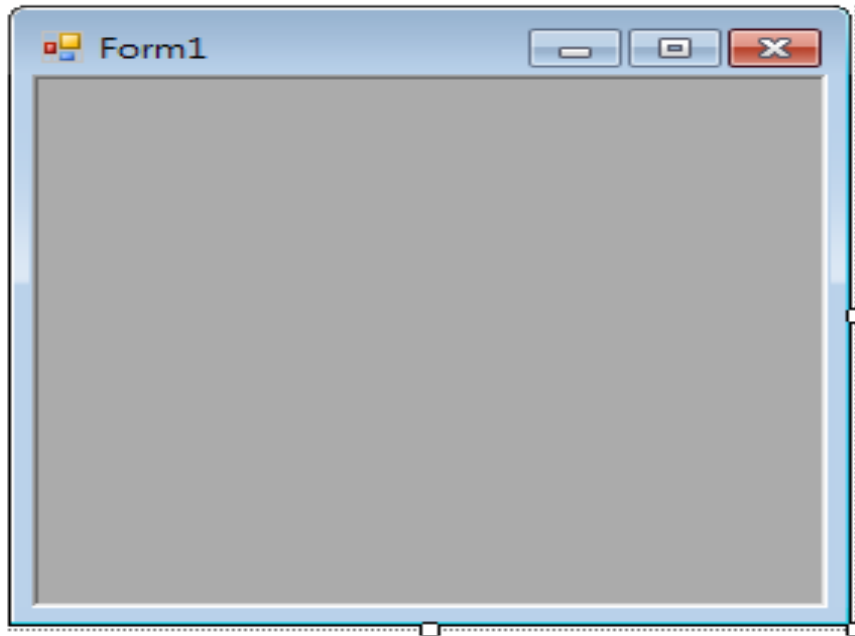
- **Single document interface**
only one form can be opened even there are many forms in the project
- **Multiple Document Interface**
open many form windows in the parent form
- **Ex: Microsoft Excel**



How to Create MDI Program

1. Assign parent form

- Set IsMdiContainer property to True so that the form is a parent form
- The content of MDI parent form is dark gray, and the BackColor property does not work



2. Assign which parent form belongs to

- Assign MdiParent property for child form of designated parent form during runtime
- Ex: show Form2 in the current parent form, usage:
`Form2 frmChild = new Form2();`
`frmChild.MdiParent = this;`
`frmChild.Show();`

MDI Form Properties

Property	Description
<code>IsMdiContainer</code>	Assign the form as a MDI container (parent form), default: False
<code>MdiChildren</code>	Get the child form array in MDI container. Ex: get the number of child forms, <code>int num = this.MdiChildren.Length;</code>
<code>ActiveMdiChild</code>	Get the current activated child form, data type is Form. Return Null if no child forms. Ex: get the current activated child form, <code>Form actForm = this.ActiveMdiChild;</code>

Ex: close all child forms in MDI program, usage:

```
int num = this.MdiChildren.Length;    // 取得子表單的數量
for (int x = 0; x < num; x++)
{
    Form frmChild = this.MdiChildren[x];
    frmChild.Close();
}
```

另一種方法

```
foreach (Form frmChild in this.MdiChildren)
{
    frmChild.Close();
}
```

MDI Form Methods

1. LayoutMdi()

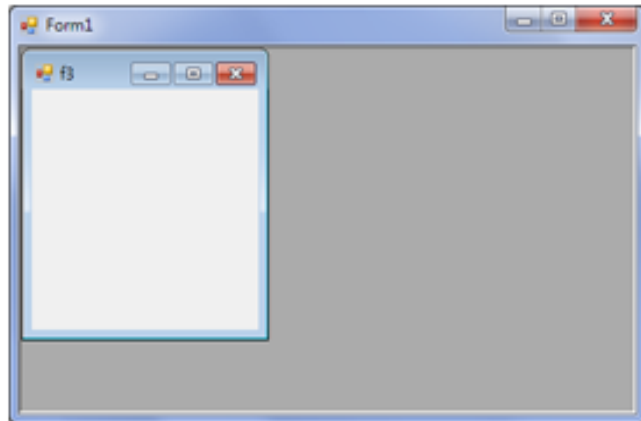
assign the arrangement of child forms in parent form,
parameters:

- ① Arrangelcons: child forms are arranged at original positions in workspace of parent form
- ② Cascade: child forms are arranged as cascade in workspace of parent form
- ③ TileHorizontal: child forms are horizontally arranged side by side
- ④ TileVertical: child forms are vertically arranged side by side

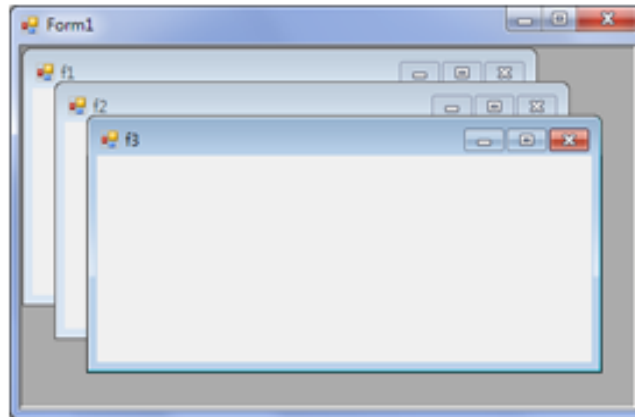
Ex: arrange child forms in current form as cascade:

```
this.LayoutMdi(MdiLayout.Cascade);
```

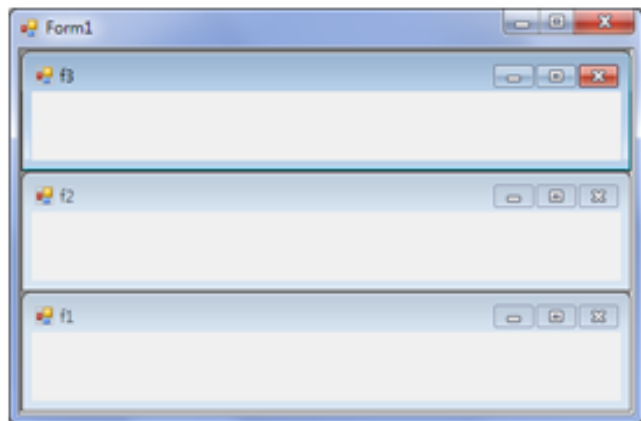

ArrangeIcons



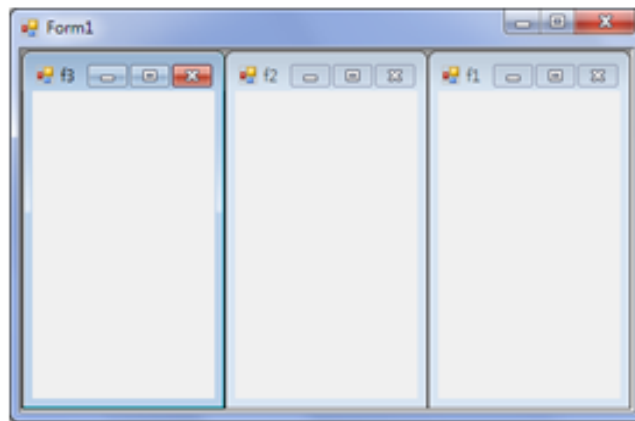
Cascade



TileHorizontal



TileVertical





ActiveMdiChild()

- Set designated child form as activated form
- Ex: set f1 form as the activated form in current parent form:

```
this.ActiveMdiChild(f1Child);
```

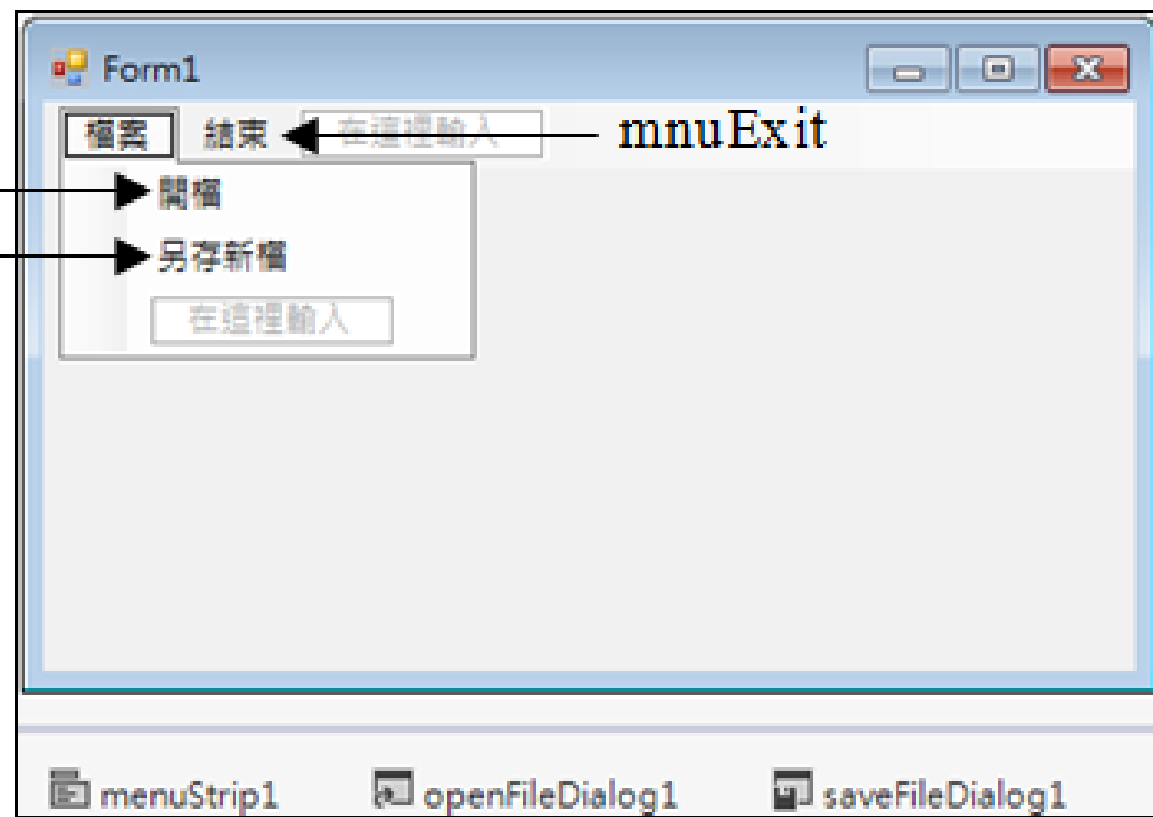
Example(picBrowse):

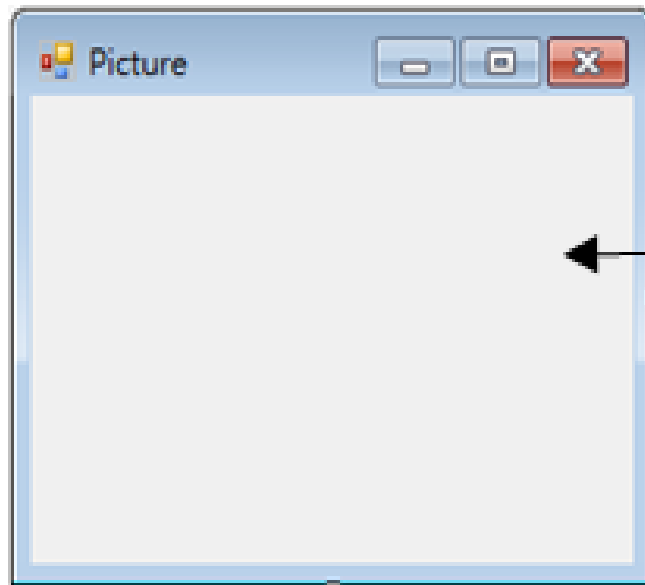
Design a picture viewer program, requirements:

1. There are 2 main menu items called “檔案” and “結束”. Under “檔案” main menu item, there are “開檔” and “另存新檔” main menu items
2. Execute “開檔” function to open “開啟舊檔” dialog, choose a .jpg, .bmp, .gif or .png file then open in a child form
3. Execute “另存新檔” function to open “另存新檔” dialog, input new file name and the picture will be saved as the new file name.







mnuOpen
mnuSave





← BackgroundImageLayout=Zoon

11-6 Print Relative Dialogs

1.  PageSetupDialog **Page setup dialog**
2.  PrintPreviewDialog **Preview dialog**
3.  PrintDialog **Print dialog**
4.  PrintDocument **Print document control item**

PrintDocument Control Item

- Set up property about print, match up with other print control item to finish printing

PrintDocument Properties

Property	Description
<code>DocumentName</code>	Get or set displaying document name when printing document, default: document
<code>DefaultPageSettings</code>	Get or set page settings of PrintDocument



2. PrintDocument Methods

① Print()

triggers PrintPage event

Ex: print the document in printDocument1

```
printDocument1.Print();
```




3. PrintDocument Events

PrintPage Event

- Often used event in PrintDocument
- Use Print() to trigger the event
- Declare a Graphics object in PrintPage event in advance in PrintPage. For example, use DrawString method to print text data

Ex: print “風調雨順” in black, 標楷體, font size = 24, coordinate position is (100, 200)

DrawString(String, Font, Brush, Single, Single)

```
Graphics g = e.Graphics ;  
Font f = new Font("標楷體", 24) ;  
g.DrawString("風調雨順", f, Brushes.Black, 100, 200) ;
```

Ex: print ok.jpg image file, coordinate position is (10, 20), width = 80, height = 120

DrawImage(Image, Int32, Int32, Int32, Int32)

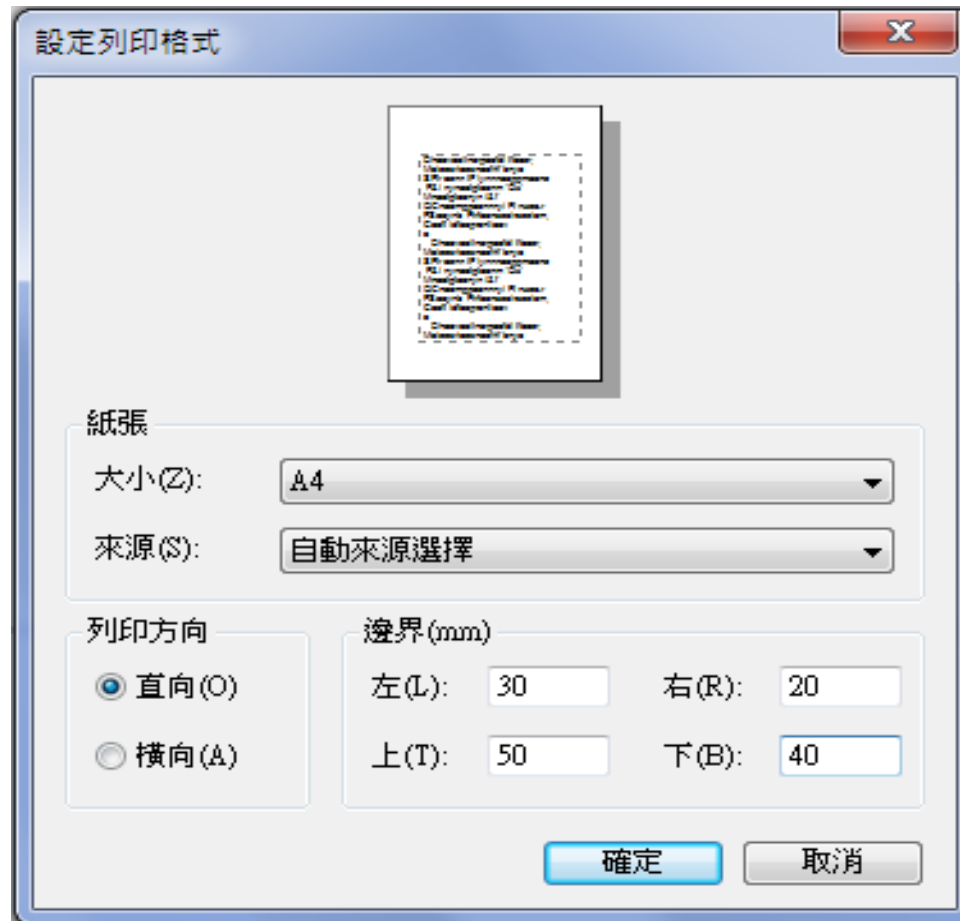
```
Graphics g = e.Graphics ;  
Image img = Image.FromFile("ok.jpg");  
g.DrawImage(img, 10, 20, 80, 120);
```

DrawString: Draws the specified text string at the specified location with the specified Brush and Font objects

DrawImage: Draws the specified Image at the specified location and with the specified size

PrintSetupDialog Control Item

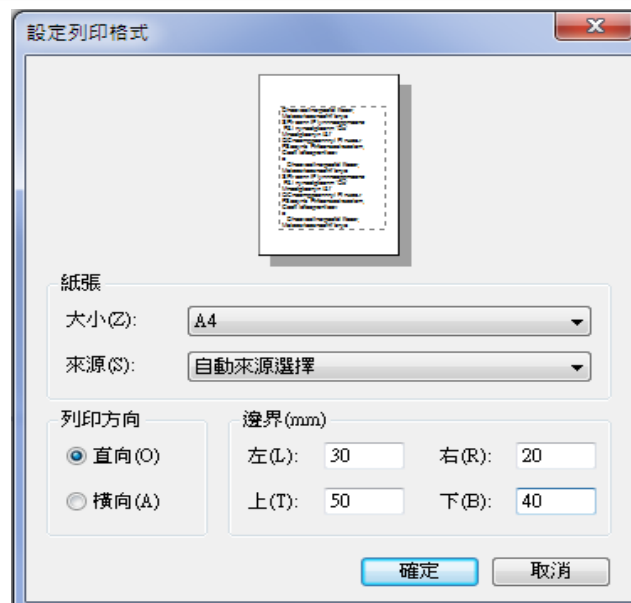
- Set up the paper size 、 boundary 、 direction and so on



PageSetupDialog Properties

Property	Description
Document	Set up which PrintDocument to deal with, default: null. This property has to be set for avoid errors
PageSettings	Get or set page setup, the property during runtime. Ex: set PrintDocument's page settings as PageSetupDialog's page settings <code>printDocument1.DefaultPageSettings = pageSetupDialog1.PageSettings</code>
PrinterSettings	Get or set which printer is chosen when the user presses “印表機” button. This property is in runtime
AllowMargins	Set to provide border customization for users or not, default: True

Property	Description
AllowOrientation	Sets to provide printing direction customization for users or not, default: True
AllowPaper	Sets to provide page customization for users or not, default: True
MinMargins	Sets the smallest border value, the unit is 0.01 inch, default: (0, 0, 0, 0)





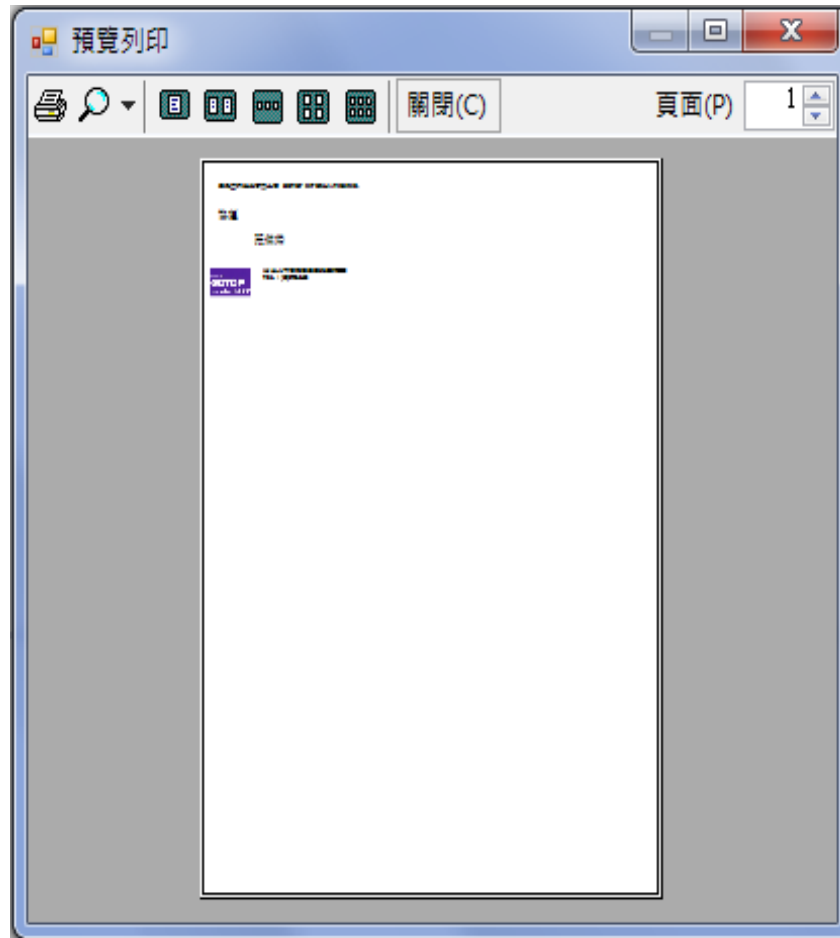
PageSetupDialog Method

① ShowDialog()

- background control item
- Usually do not appear unless use ShowDialog() to show up

PrintPreviewDialog Control Item

- Provide previewing document when printing



1. PrintPreviewDialog Properties

Property	Description
Document	Sets up which PrintDocument to deal with, default: null. This property has to be set to avoid errors
UseAntiAlias	Sets whether anti-alias function is enabled or not when previewing, default: False

2. PrintPreviewDialog Methods

① ShowDialog()

PrintPreviewDialog runs in background, it is required that to use ShowDialog() to open

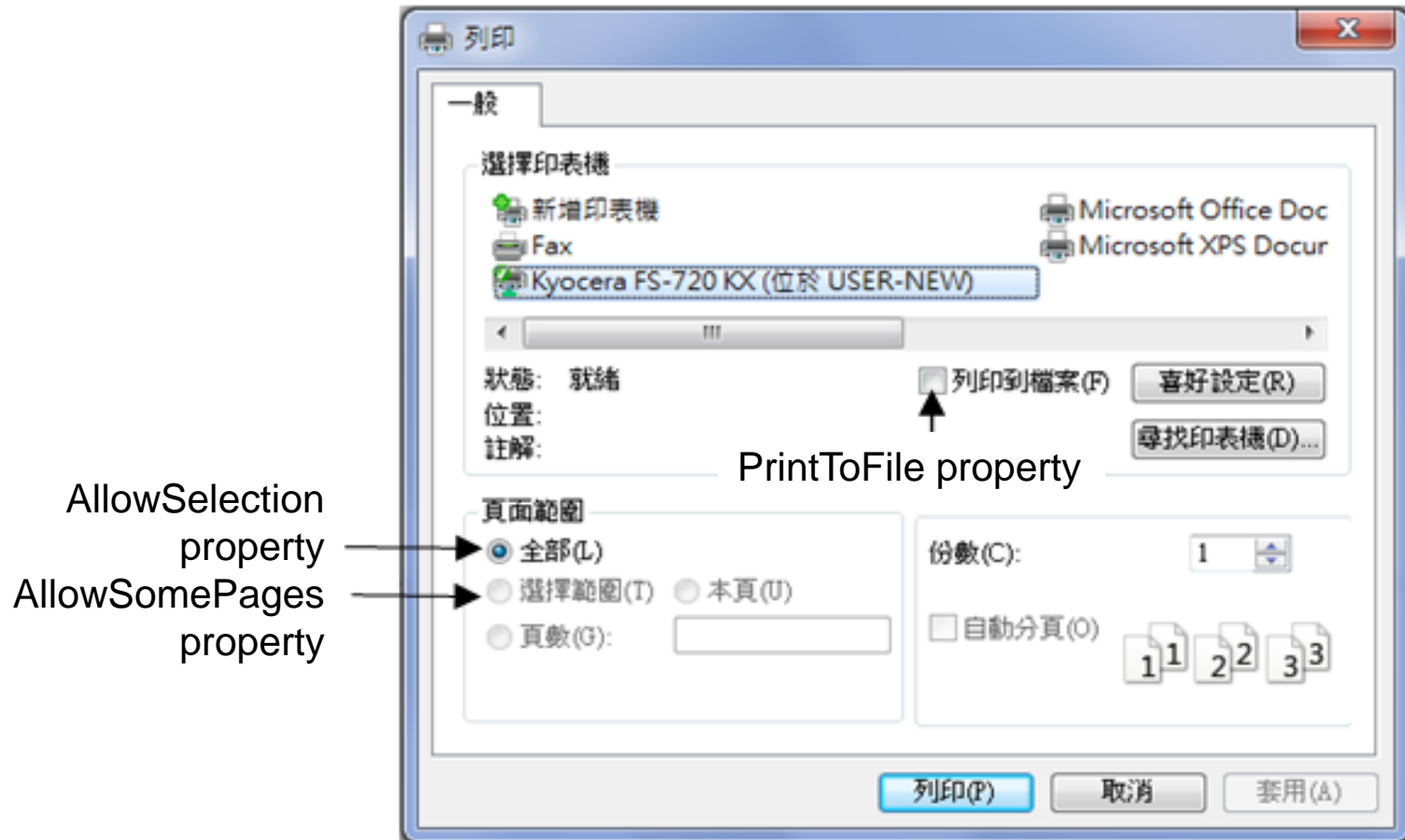


PrintDialog Properties

Property	Description
Document	Sets up which PrintDocument to deal with, default: null. This property has to be set to avoid errors
AllowSelection	Sets to show page scope or not, default: False
AllowSomePages	Sets to show page numbers or not, default: False
PrintToFile	Sets to show “print to file” check box, default: False

PrintDialog Control Item

- Set the setting of print





PrintDialog Methods

① ShowDialog()

background control item, use ShowDialog() to show up

② Reset()

restore every setting in PrintDialog to default value

ex: restore property values in printDialog1

```
printDialog1.Reset();
```



Example(card):

Design a simple business card design and print program, requirements:

1. There are 3 main menu items called “字型”, “列印” and “結束”. “列印” main menu item has “列印格式”, “預覽列印” and “列印” sub menu items
2. There are 4 text boxes called “公司”, “職稱”, “姓名” and “地址”, and a picture box
3. Users can modify every text box content. Press “字型” main menu item to open “字型” dialog to set up font style in text box
4. Execute “列印格式” sub menu item to open “設定列印格式” dialog.
Execute “預覽列印” sub menu item to open “預覽列印” dialog. Execute “列印” sub menu item to open “列印” dialog to print business card

Form1

字型 列印 結束

〇〇〇〇股份有限公司 〇〇〇〇〇〇〇〇

協理

張傑瑞

Com

〇〇〇〇〇市〇〇區〇〇路
TEL : (00)0000-0000

字型

字型(F): 華康儷粗黑

華康儷粗黑
華康儷粗黑(P)
華康儷粗黑外字集
華康儷楷書
華康儷楷書(P)
華康儷楷書外字集

字型樣式(Y): 標準

標準
傾斜
粗體
粗斜線

大小(S): 28

22
24
26
28
36
48
72

確定

取消

效果

☐ 刪除線(K)
☐ 底線(U)

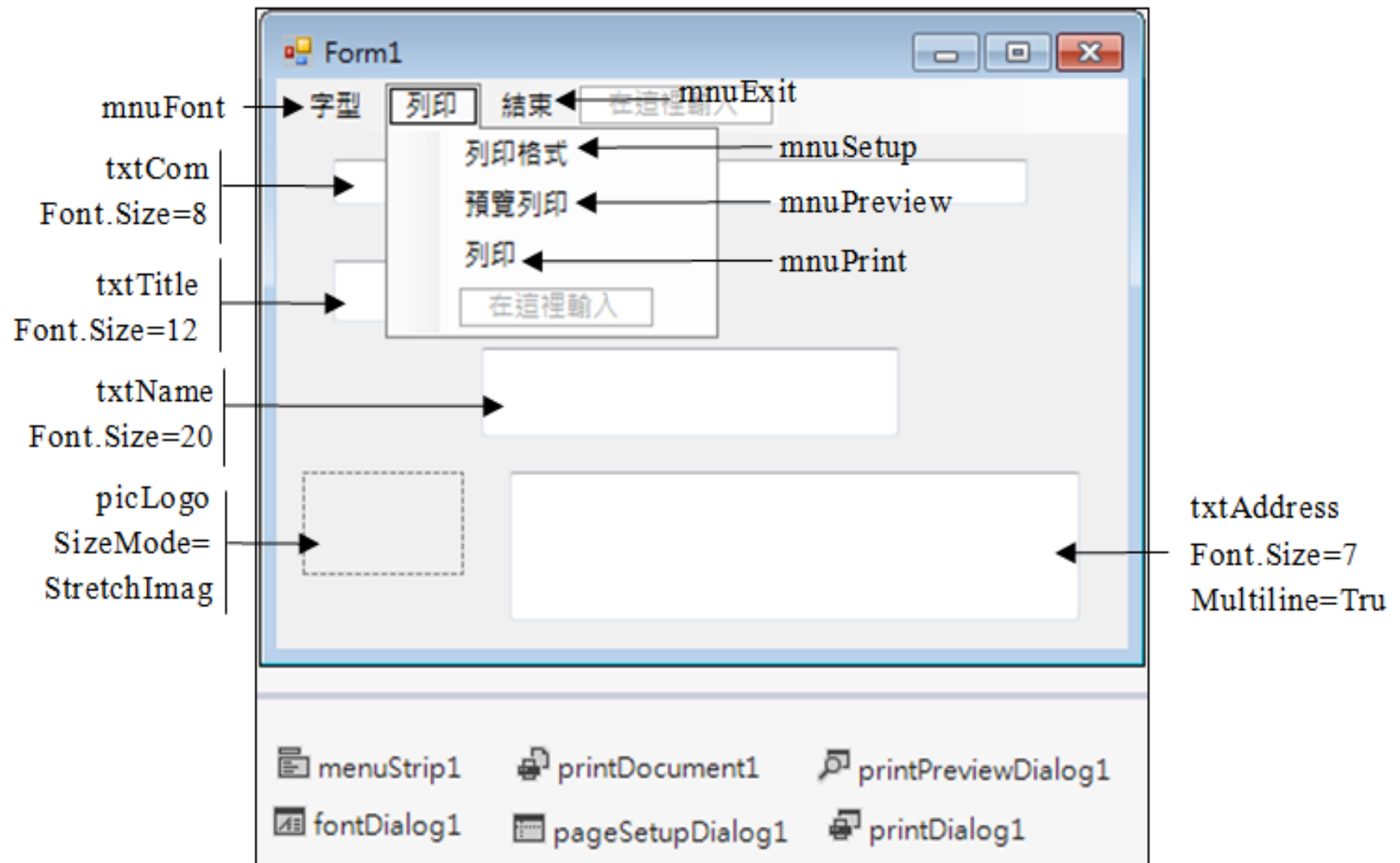
色彩(C): 黑色

範例

中文字型範

字集(R): 中文 Big5

Design User Interface



11-7 ProgressBar Control Item

Properties

Property	Description
Maximum	Get or set the maximum value of the progress bar, default: 100 Get or set
Minimum	the minimum value of the progress bar, default: 0
Value	Get or set the current position of the progress bar Set
Step	the increment of the progress bar, default: 10

Methods

Method	Description
PerformStep	Increase the value of the progress bar by the value of Step

Example(ProgressBar):

Use timer to simulate the waiting for data process, requirement:

- 1.The maximum value of progress bar control item is 100, the minimum value is 0, the increment is 10. If the progress bar is full, label1 shows “資料處理完畢” and the progress bar is reset.
- 2.Timer is triggered every 0.1 sec.
- 3.Press “處理” button to start data process, label1 shows the progress from 0% ~ 100%. Suspend the process when “暫停” button is pressed.

Result:



Design User Interface





11-8 Multi-form Programming

- A larger Windows program may require many forms to present user interface
- Multi-form application contains many forms in the project
- These forms many share member variables, member methods and so on. These variables and methods can be defined in class file



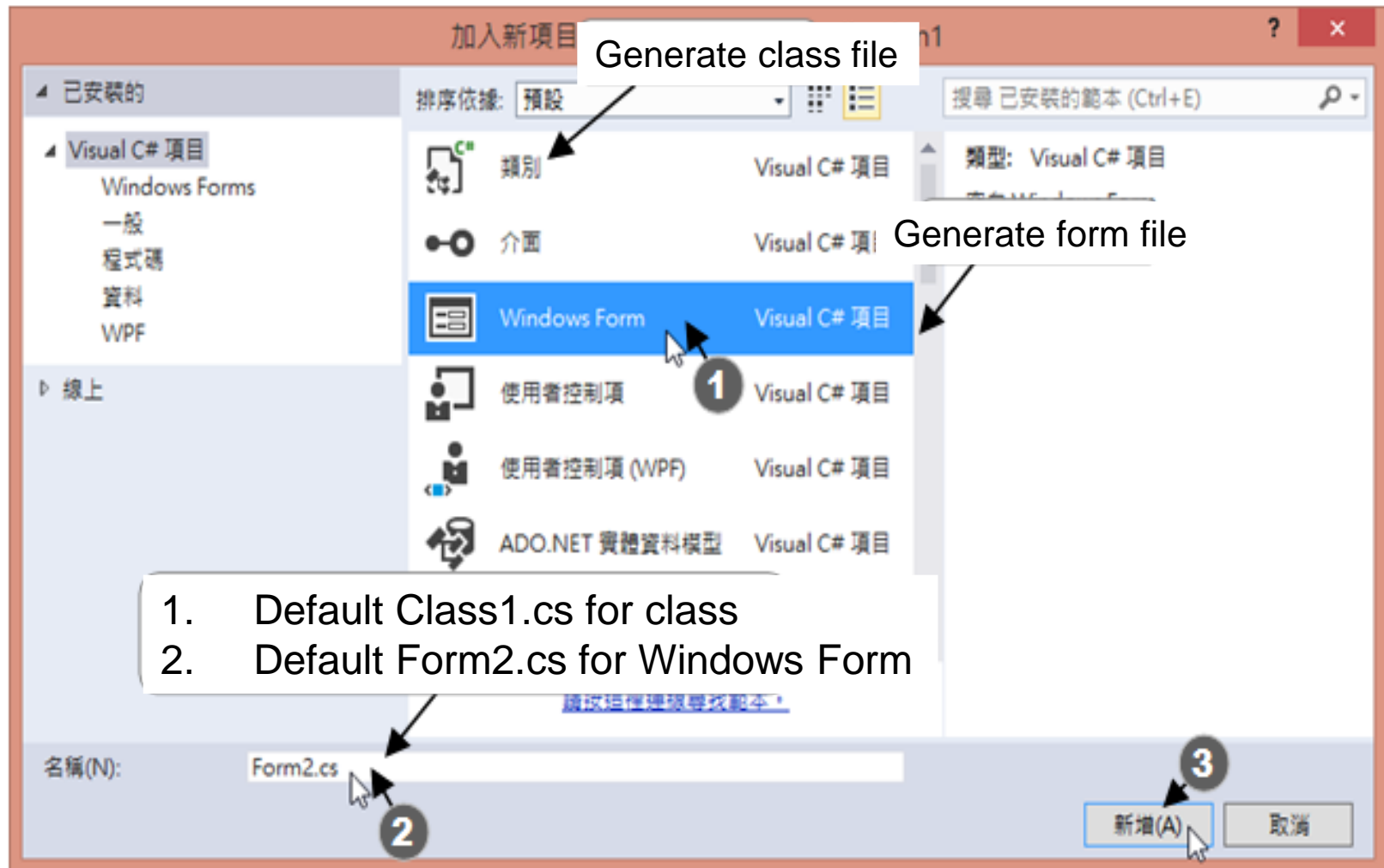
How to Add New Form and Class

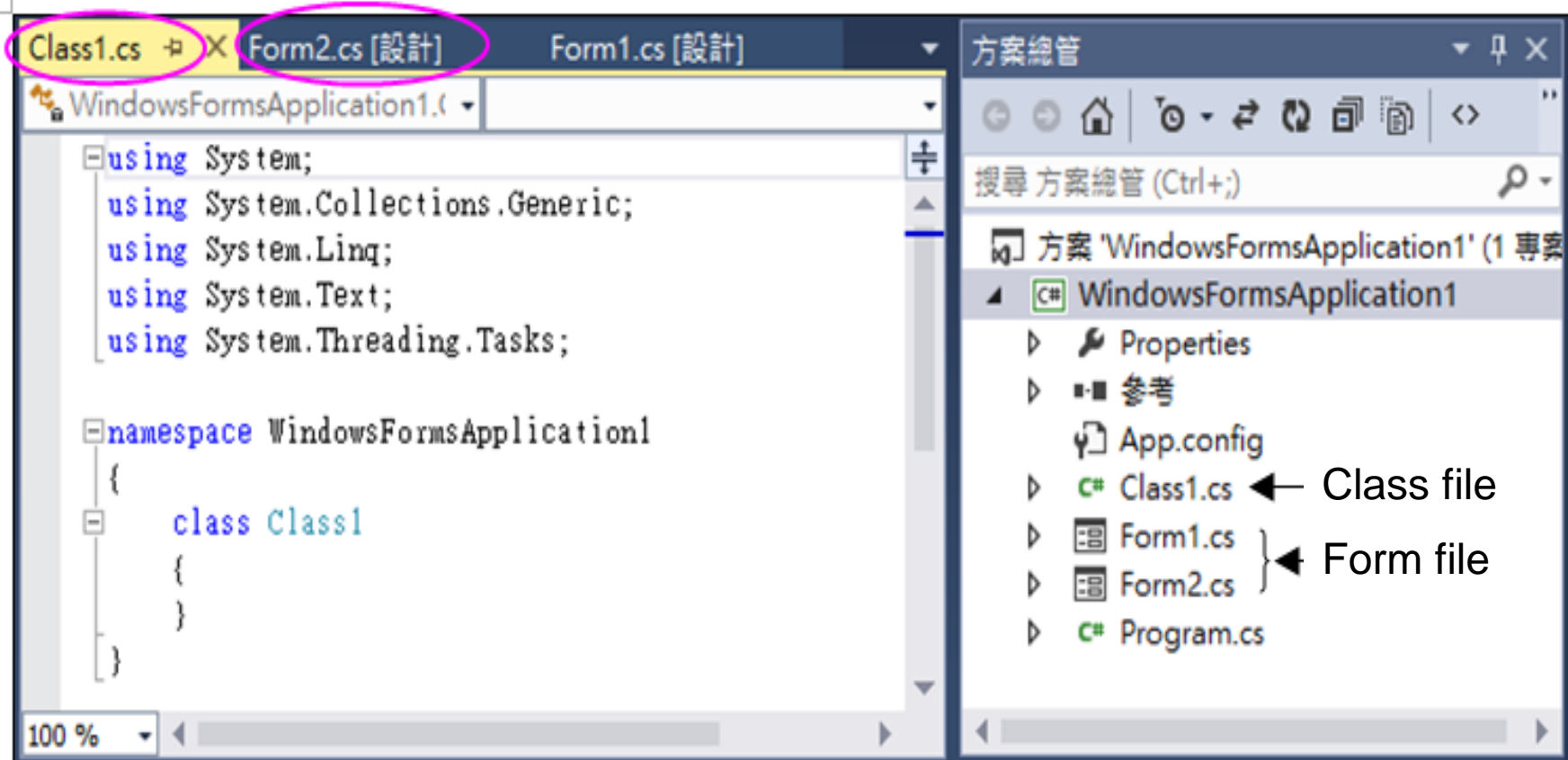
1. Add new form

Run command **【專案(P)/加入新項目(W)...】** in the main menu

2. Add new class

Run command **【專案(P)/加入新項目(W)...】** in the main menu





How to Create Form Object

Grammar

```
formClass formName = new formClass();
```

Ex: create a Form2 object called f2, usage:

```
Form2 f2 = new Form2();
```



Multi-form Methods

1. Show()

display designated form, ex: `f2.Show();`

2. ShowDialog()

display designated form by dialog, ex:
`f2.ShowDialog();`

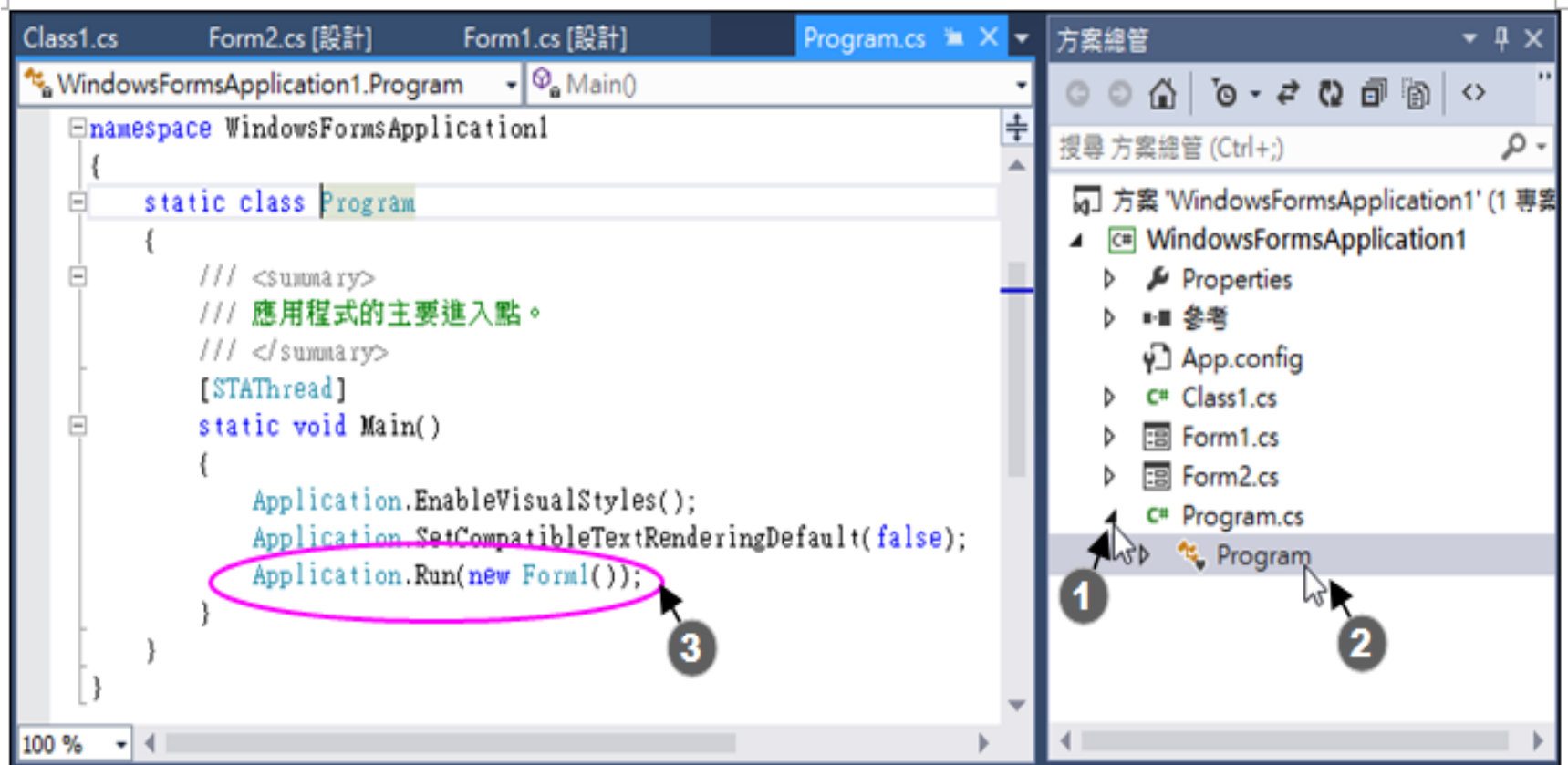
3. Hide()

hide designated form, ex: `f2.Hide();`

4. Close() 、 Dispose()

close designated form, ex: `f2.Close();` or `f2.Dispose();`

How to Set Up Initial Form

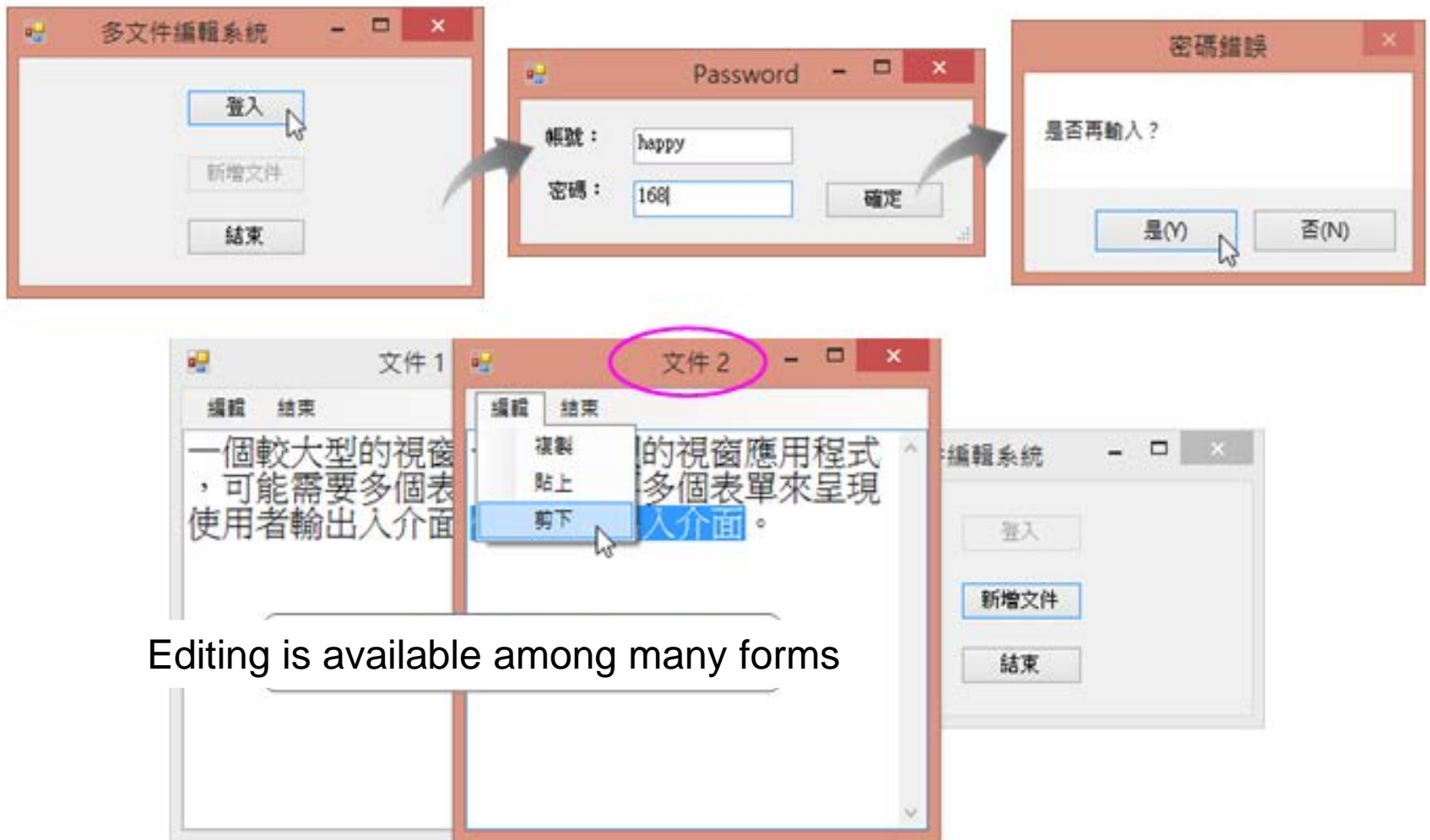


Example(multiText):

Design a multi-document editing program, requirements:

1. Open “多文件編輯系統” window when the program starts. There are 3 buttons called “登入”, “新增文件” and “結束”. The “新增文件” button is disabled when the program starts
2. Press “登入” button to open log “Password” window, and “多文件編輯系統” window is not available
3. If the inputted account and password are correct (happy and 168), return to “多文件編輯系統” window. The “新增文件” button is enabled but “登入” button is disabled at this time. The program questions about trying again or not. The program terminates if the wrong passwords are inputted 3 times.
4. Press “新增文件” once to open a “Text” window. This window has “編輯” and “結束” main menu items. Press “結束” button to close this window
5. There are 3 sub menu items called “複製”, “貼上” and “剪下” in “編輯”. These functions can process “複製”, “貼上” and “剪下” among many “Text” windows

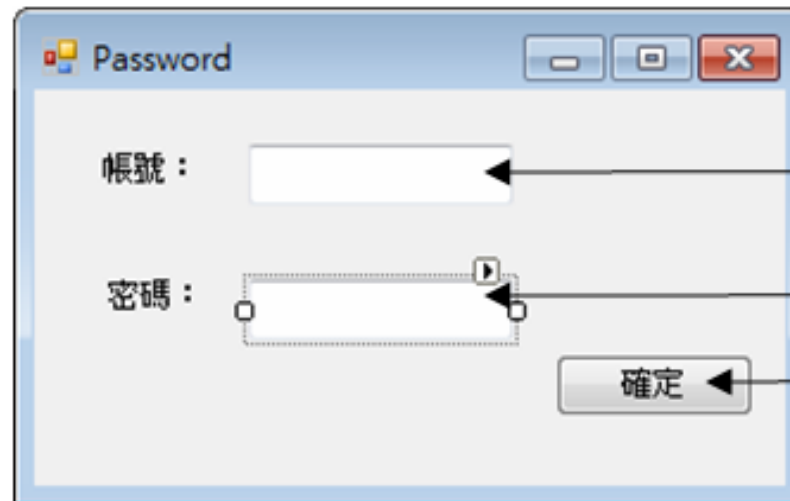
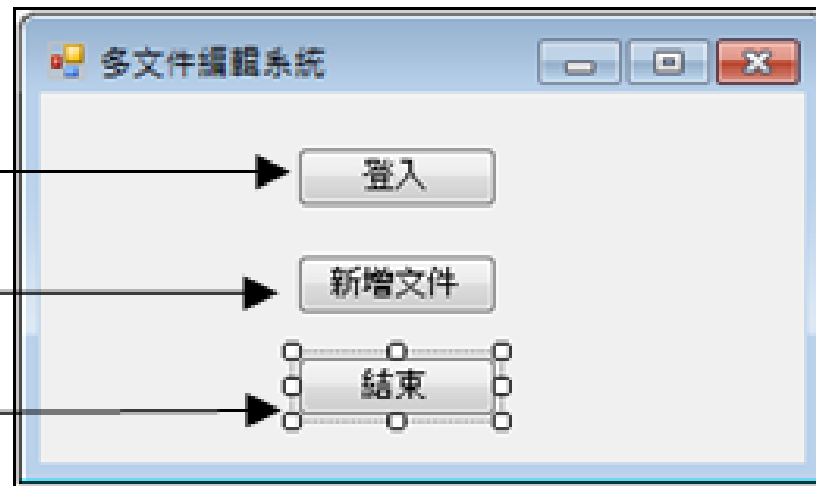
Result



btnPassword

btnAdd

btnExit

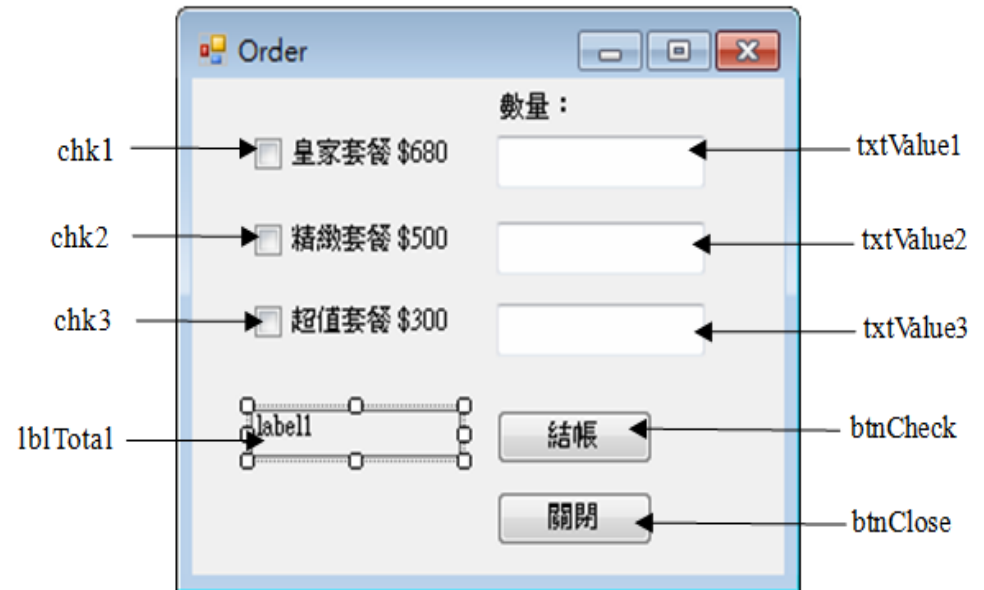
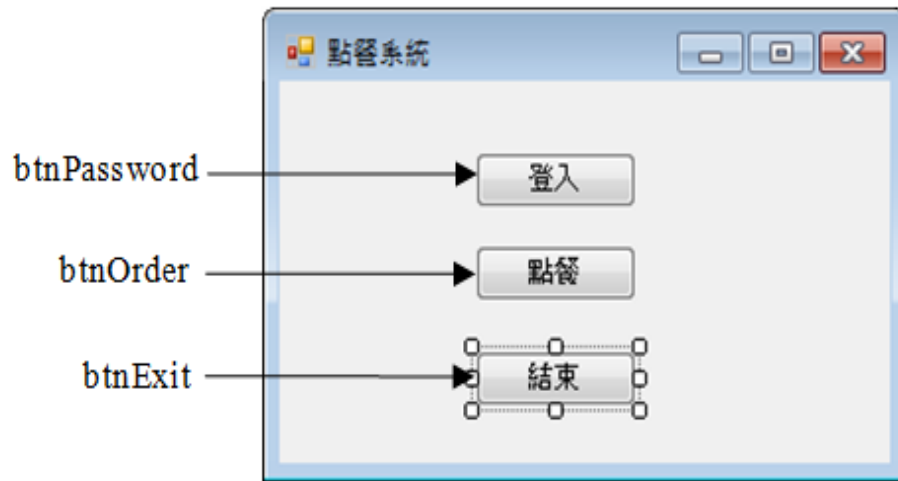


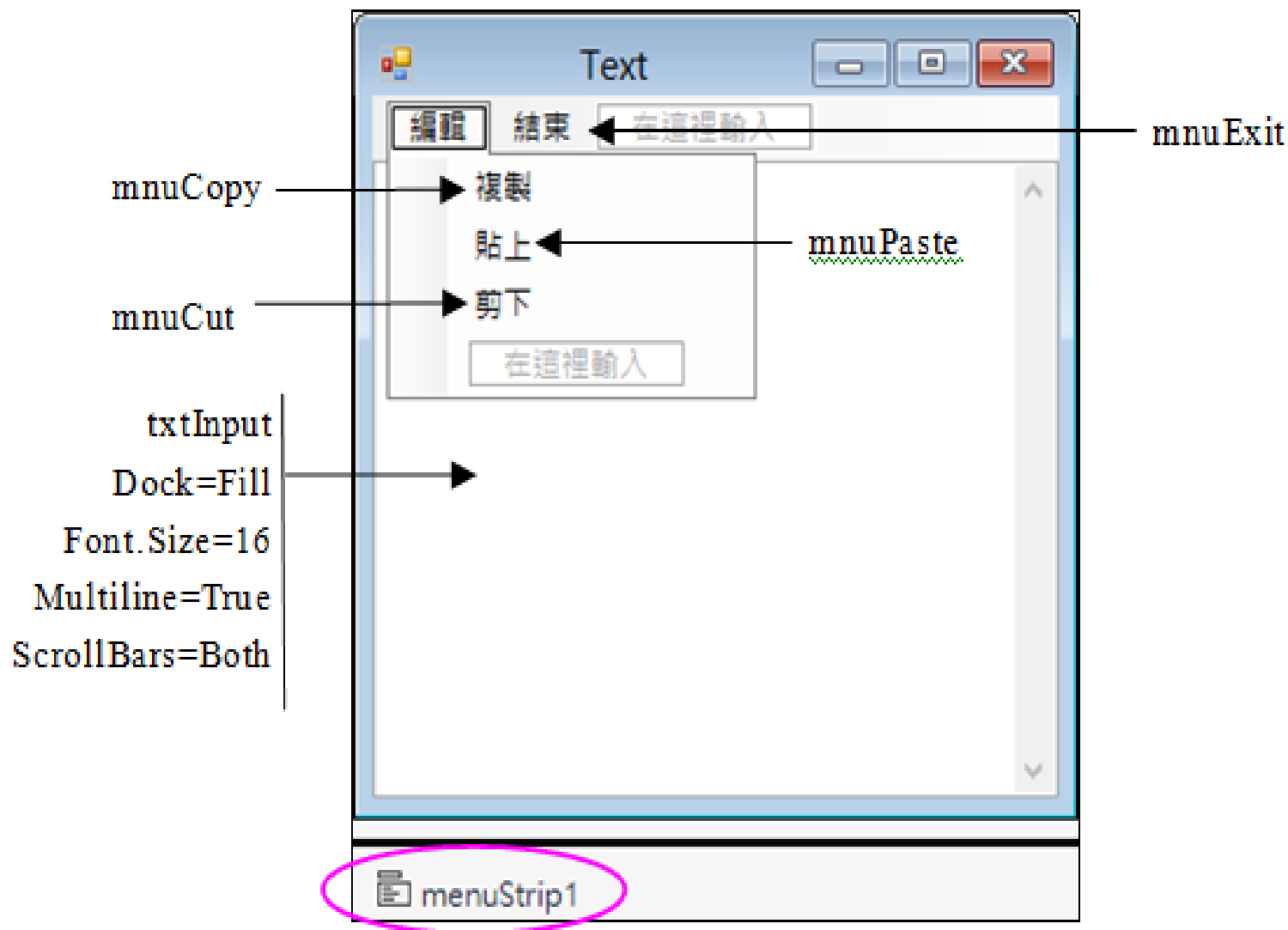
txtID

txtPassword

btnOk

Design User Interface



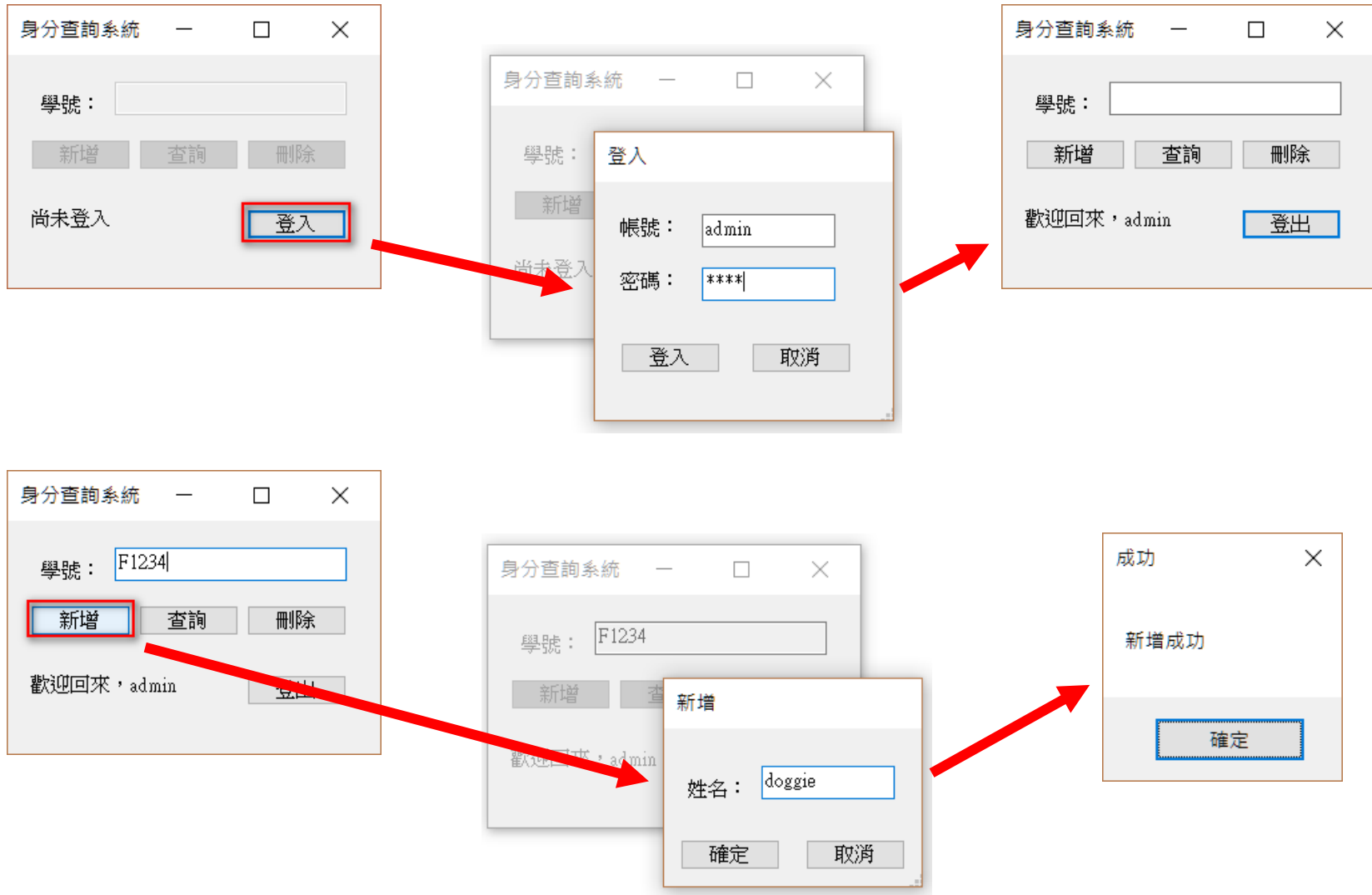


Example(multiFormList):

Design a multi-form program, requirements:

1. A main form which contains 4 buttons (“新增”, “查詢”, “刪除”, “登入”) and 1 textbox for ID input.
2. When “登入” is pressed, a new form should show up and ask user for login. A user should login first to do further operation. (default: “admin”/“0000”. If you use a different setting, please attach a readme file to let TAs know what's yours)
3. When “新增” is pressed, a new form should show up and ask for the name which will be associated to the ID.
4. When “查詢” is pressed, print the name which has been associated to the ID.
5. When “刪除” is pressed, delete the data set of the ID.

Example(multiFormList):



Example(multiFormList):



MenuStrip in MDI Form

- In MDI program, if it is required that MenuStrip of parent form shows name of child form, MdiWindowListItem property can be used.
- System automatically manages name list of child form after the property is set
- Ex: set MdiWindowListItem property of menuStrip1 as mnuFile, the mnuFile sub menu will list all the name of child forms, usage:
`menuStrip1.MdiWindowListItem = mnuFile;`

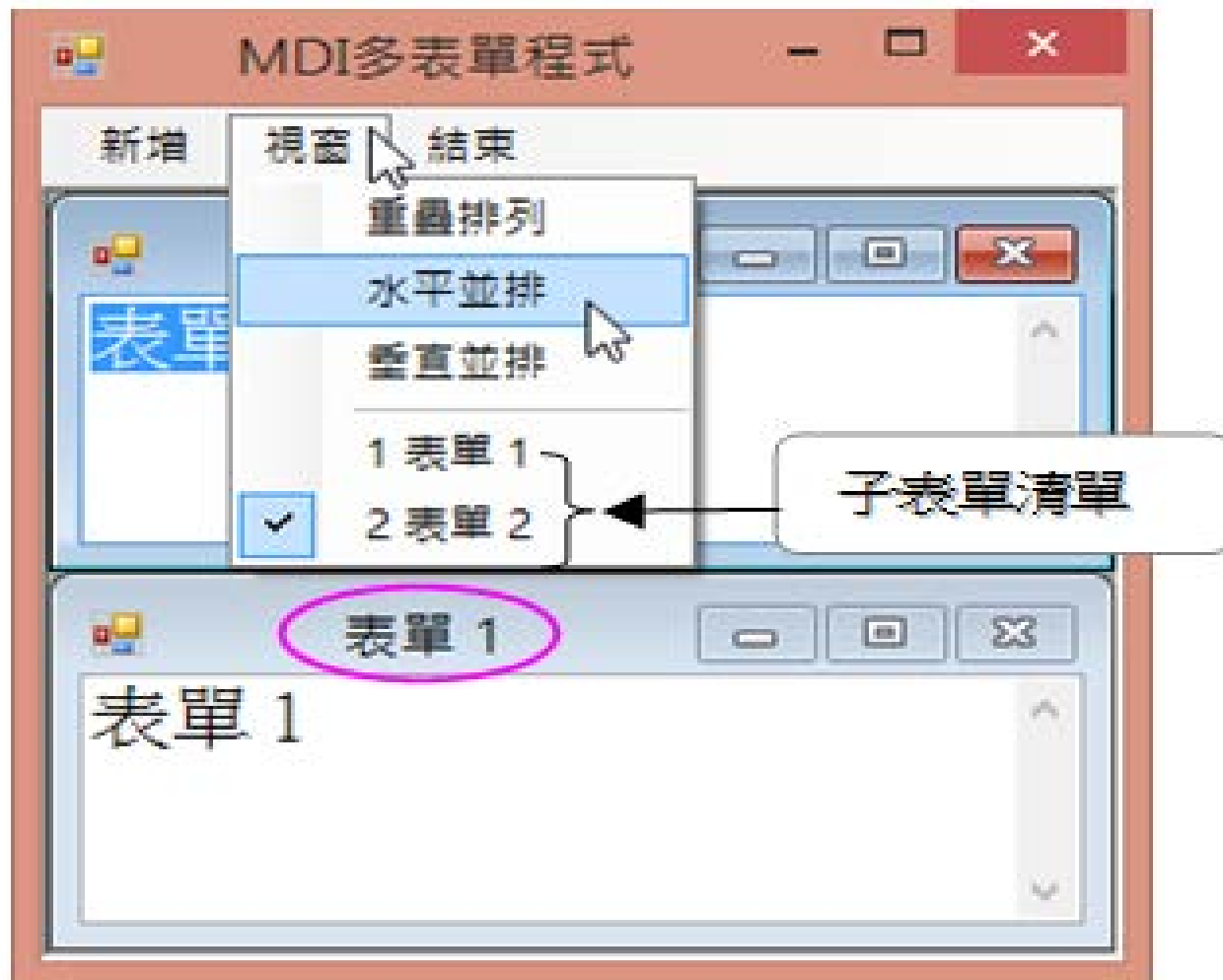


Practice(mdiForm):

Design a MDI program, requirements:

1. Open “MDI多表單程式” window when the program starts, and there are 3 main menu item called “新增”, “視窗” and “結束”.
2. The parent form creates a new child form when press “新增” once. The new child form has the title and the text box with “表單1”, “表單2”, ... or “表單n”. All child forms are shown in “視窗” main menu item.
3. Press “結束” main menu item to end the program.
4. There are 3 sub menu items called “重疊排列”, “水平並排” and “垂直並排” under “視窗” main menu item for arranging child forms in relative order.

Result



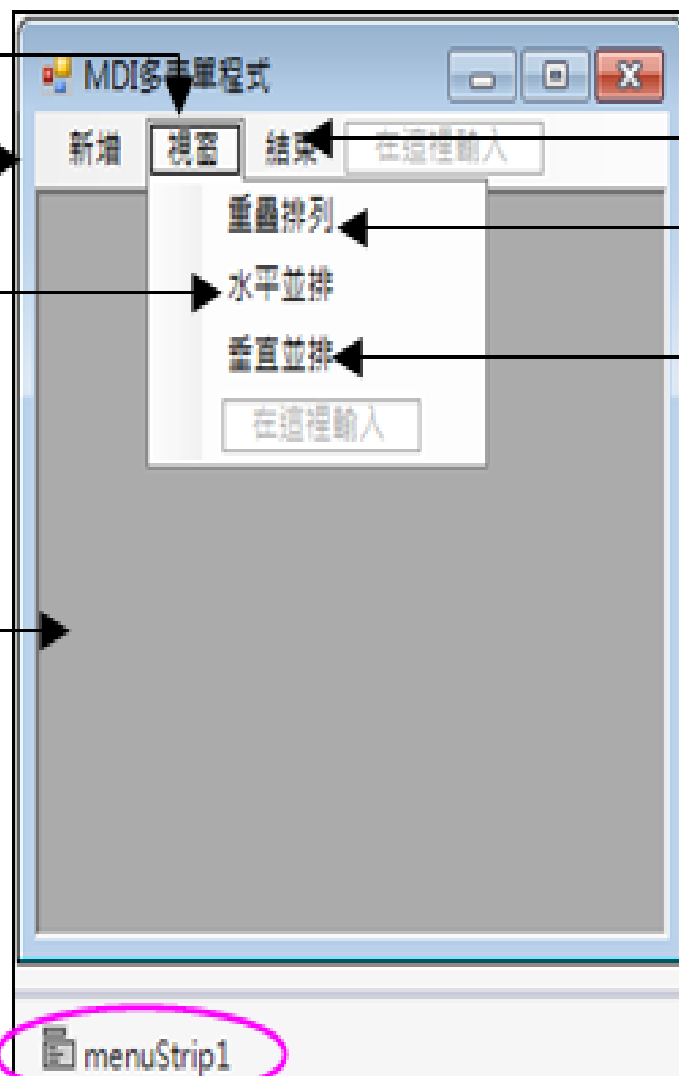
mnuWindow

mnuAdd

mnuHorizontal

Form1

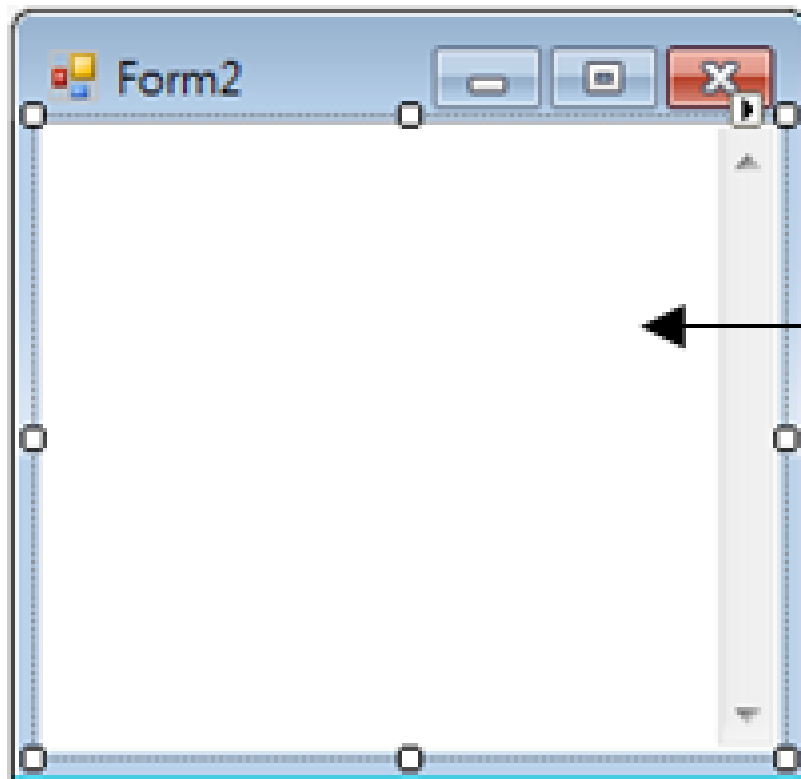
IsMdiContainer = True



mnuExit

mnuCascade

mnuVertical



Name=txtInput

Dock=Fill

Font.Size=16

Multiline=True

ScrollBars=Both



The End

Take a Break