



Chapter 7_2

7-4 ImageList Control Item

- Can store images
- Available to control items which have ImageList property
- Non-visible control item – run in background
- Acceptable image formats:
BMP, GIF, ICO, JPG, PNG, etc.
- Control items with ImageList property:
Button, CheckBox, Label, ListView, RadioButton, etc.

Use Images of ImageList

1. The control items which have ImageList property can use images of ImageList, e.g.: Button, Label

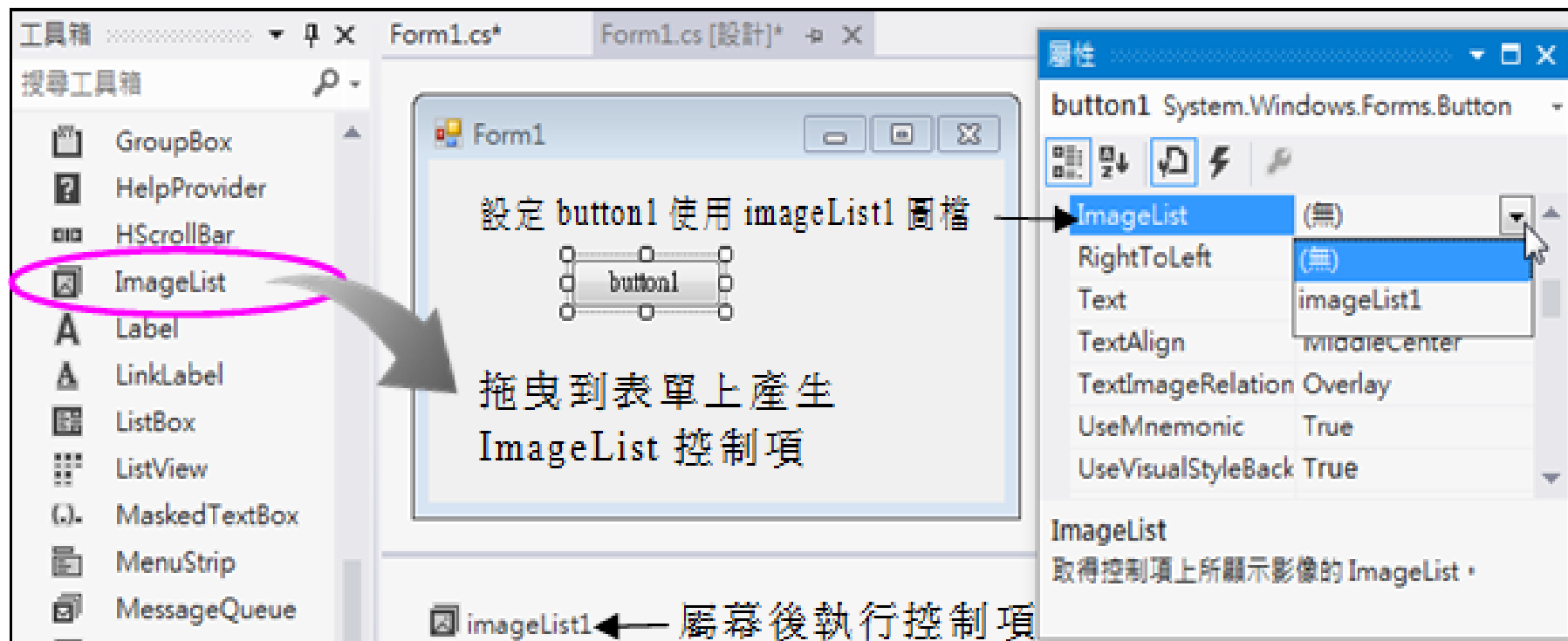
Usage:

- ① assign ImageList control item to ImageList property
- ② then assign the index of image to ImageIndex

Ex: show the 1st image of imgCars on btnCar Button

```
btnCar.ImageList=imgCars ;
```

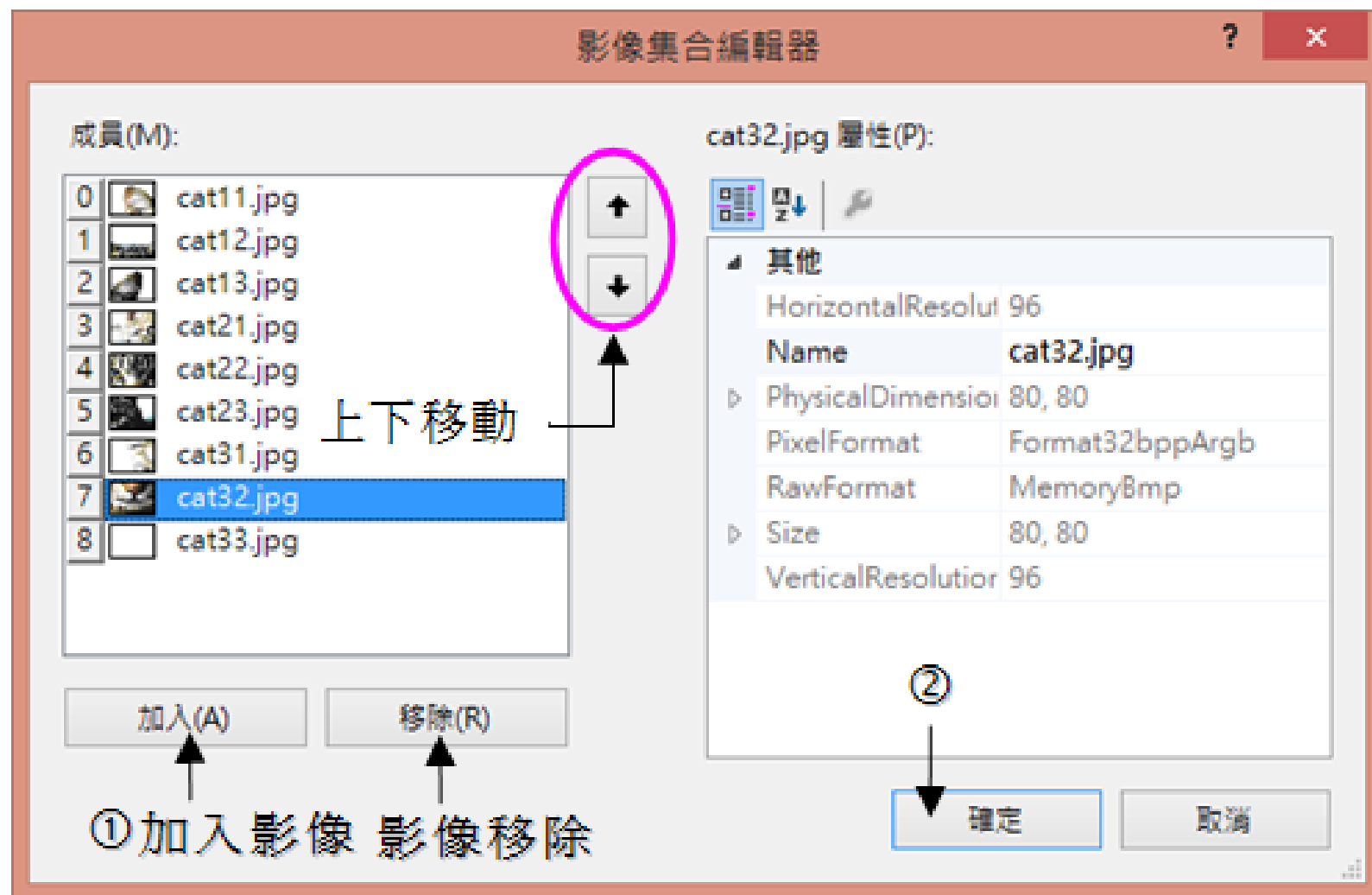
```
btnCar.ImageIndex=0 ;
```



ImageList Properties

Property	Description
Images	Save the collection of ImageList Ex: assign Image of picShow PictureBox to be the 1 st image of imgPic ImageList <code>picShow.Image = imgPic.images[0];</code>
ColorDepth	Set color bits of saved images, values: Depth4Bit, Depth8Bit(default), Depth16Bit, Depth24Bit, Depth32Bit
ImageSize	Set the width and height of saved images The maximum is 256, default is 16

Add Image in ImageList



ImageList Methods

1. Add() method

add a new image after the end of image collections

Grammar

```
controlItemName.Images.Add(new Bitmap(imageFile));
```

Ex: add C:\cat1.bmp to imgCats ImageList, usage:

```
imgCats.Images.Add(new Bitmap("c:\\cat1.bmp"));
```

2. Clear() method

remove all images from ImageList

Grammar

```
controlItemName.Images.Clear();
```

Ex: remove all images from imgCats ImageList, usage:

```
imgCats.Images.Clear();
```


3. RemoveAt() method

remove the image with the designated index

Grammar

```
controllItemName.Images.RemoveAt(index);
```

Ex: remove the 1st image from imgCats ImageList, usage:

```
imgCats.Images.RemoveAt(0);
```



2. The control items which have Image property can use Images property of ImageList to get images, e.g.: PictureBox

Ex: show the 1st image of imgCars on picCar button

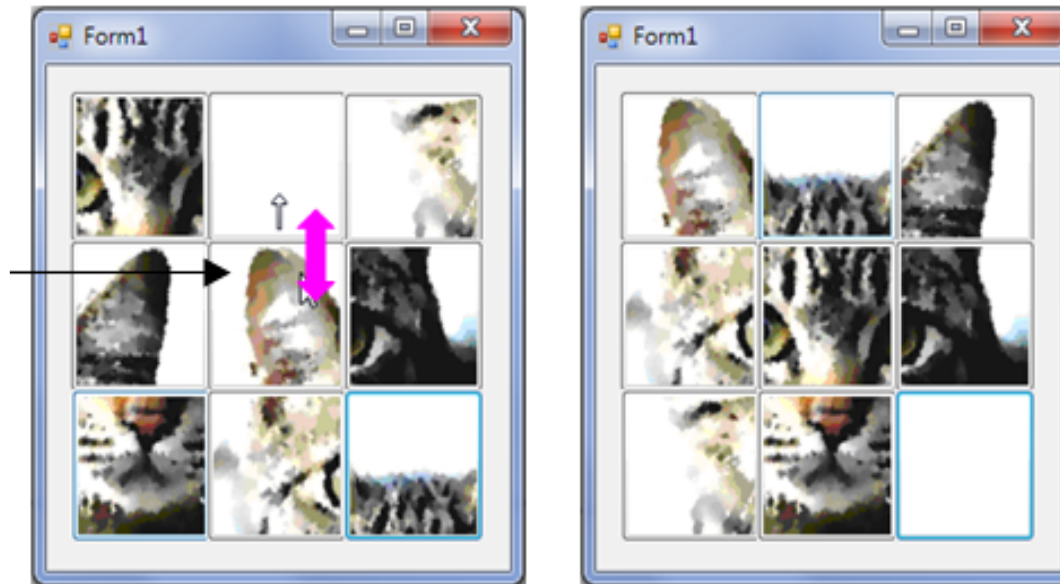
`picCar.Image=imgCars.Images[0];`

Practice(puzzle):

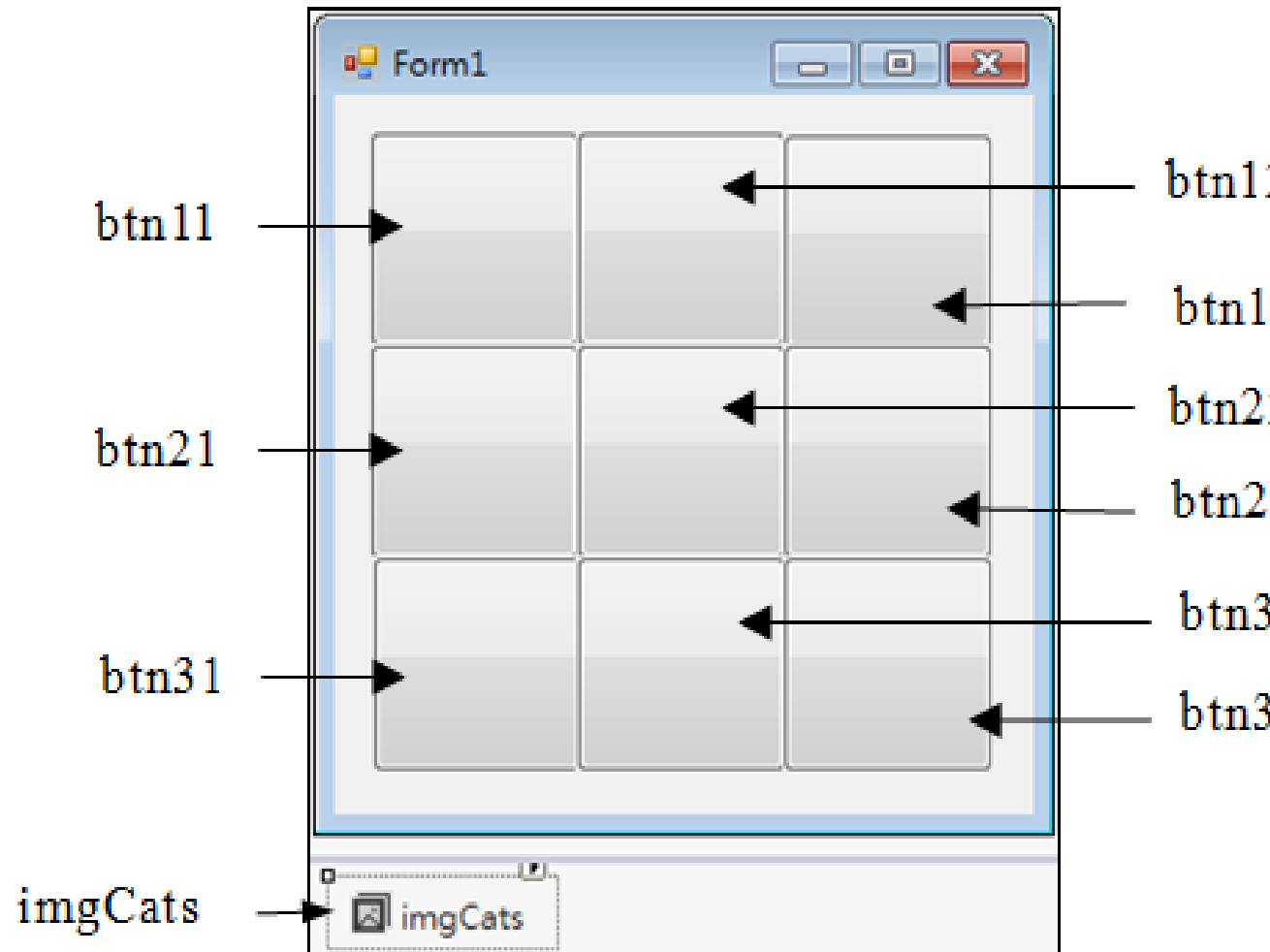
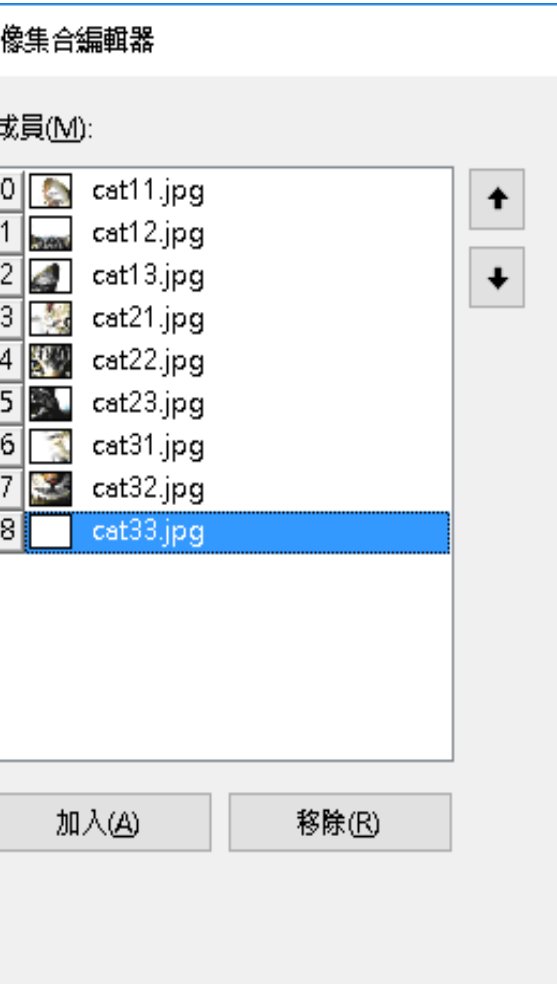
Design a movable puzzle game:

1. The picture of cat is divided into 9 parts. 8 parts are separated into 9 buttons when the program starts
2. Click on a button which has one part of cat's picture, the clicked button is exchanged with the blank button like the following figure.

Click and the picture is moved to the blank button

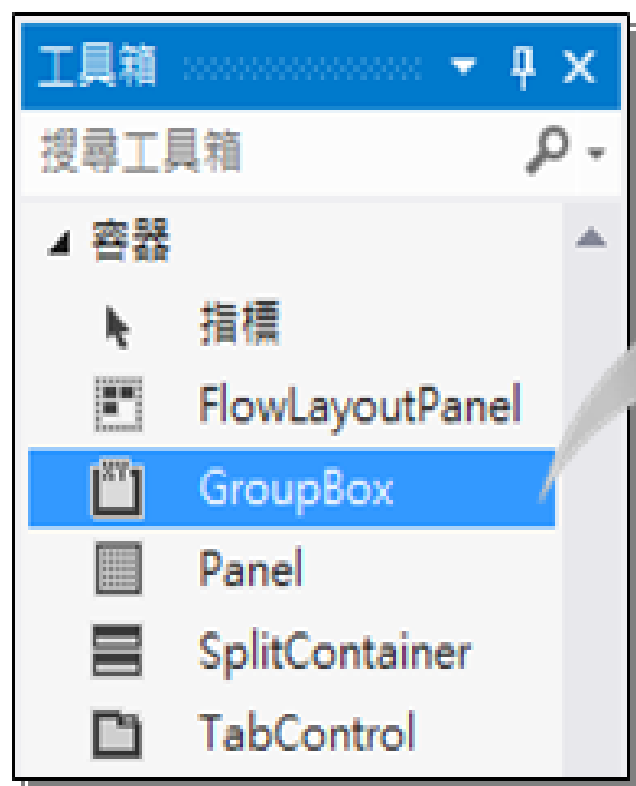


Design User Interface



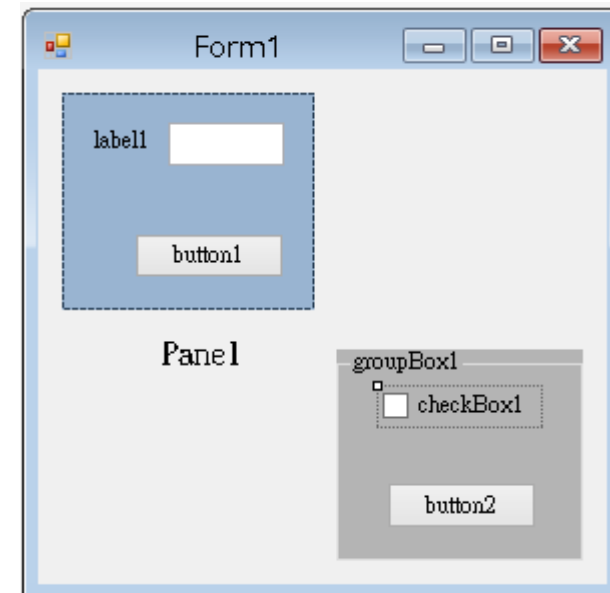
7-5 GroupBox & Panel Control Item

- The form contains control items – container
- Objects can be taken as a container in C#: Form, GroupBox, Panel, TabControl, etc.
- Characteristics of containers and included control items:
 1. container completely separates inner control items and outer control items
 2. the coordinator basis of inner control items is container
 3. inner control items move when the container is moved



Creation of the Panel

- A container can include control items
- No title text at the left-top corner of Panel
- GroupBox can have title text
- Panel can have scroll bars and include more control items, thus saving more form space than GroupBox
- AutoScroll = True,
Panel has scroll bars



Practice(GroupBox):

Design a breakfast ordering program, requirements:

1. Choose the set and input the amount, then the pay is shown automatically
2. Each set has a main meal, a side dish and a drink.
3. If the side dish is fries, 5 dollars for “薯條加大” upgrade is available
If the side dish is not fries, “薯條加大” upgrade check box is disabled and unchecked
4. Every drink has a 5-dollar upgrade “飲料加大”
5. When the program starts, default:
 - ① Main meal is “1 號餐：雞塊餐(115 元)”
 - ② Side dish is “薯條”
 - ③ Drink is “汽水”
 - ④ “薯條加大” upgrade and “飲料加大” upgrade are unchecked
6. Unit price field changes the value according the chosen items. Quantity field default value is 1. The total money field always shows the result of unit * quantity

Result:

活力早餐店

主餐

☒ A餐：雞塊餐(75元)

☐ B餐：漢堡餐(60元)

☐ C餐：三明治餐(50元)

副餐

☒ 薯條

☐ 薯餅

☐ 生菜沙拉

飲料

☒ 雪碧

☐ 可樂

☐ 鮮奶茶

☐ 冰咖啡

升級

☐ 薯條加大

☐ 飲料加大

小計 75 * 數量 1 = 75 元

活力早餐店

主餐

☐ A餐：雞塊餐(75元)

☒ B餐：漢堡餐(60元)

☐ C餐：三明治餐(50元)

副餐

☐ 薯條

☐ 薯餅

☒ 生菜沙拉

飲料

☐ 雪碧

☐ 可樂

☒ 鮮奶茶

☐ 冰咖啡

升級

☐ 薯條加大

☒ 飲料加大

小計 65 * 數量 3 = 195 元

Design User Interface

The image shows a screenshot of a Windows-style application window titled "活力早餐店" (Vital Breakfast Shop). The window contains four main sections for food selection: "主餐" (Main Course), "副餐" (Side Dish), "飲料" (Beverage), and "升級" (Upgrade). Each section has a list of items with radio buttons for selection. At the bottom, there is a calculation area with text boxes and a label. Annotations with arrows point to specific UI elements, identifying them with variable names.

主餐 (Main Course):

- ☒ A餐：雞塊餐(75元)
- ☐ B餐：漢堡餐(60元)
- ☐ C餐：三明治餐(50元)

副餐 (Side Dish):

- ☒ 薯條
- ☐ 薯餅
- ☐ 生菜沙拉

飲料 (Beverage):

- ☒ 雪碧
- ☐ 可樂
- ☐ 鮮奶茶
- ☐ 冰咖啡

升級 (Upgrade):

- ☐ 薯條加大
- ☐ 飲料加大

Calculation Area:

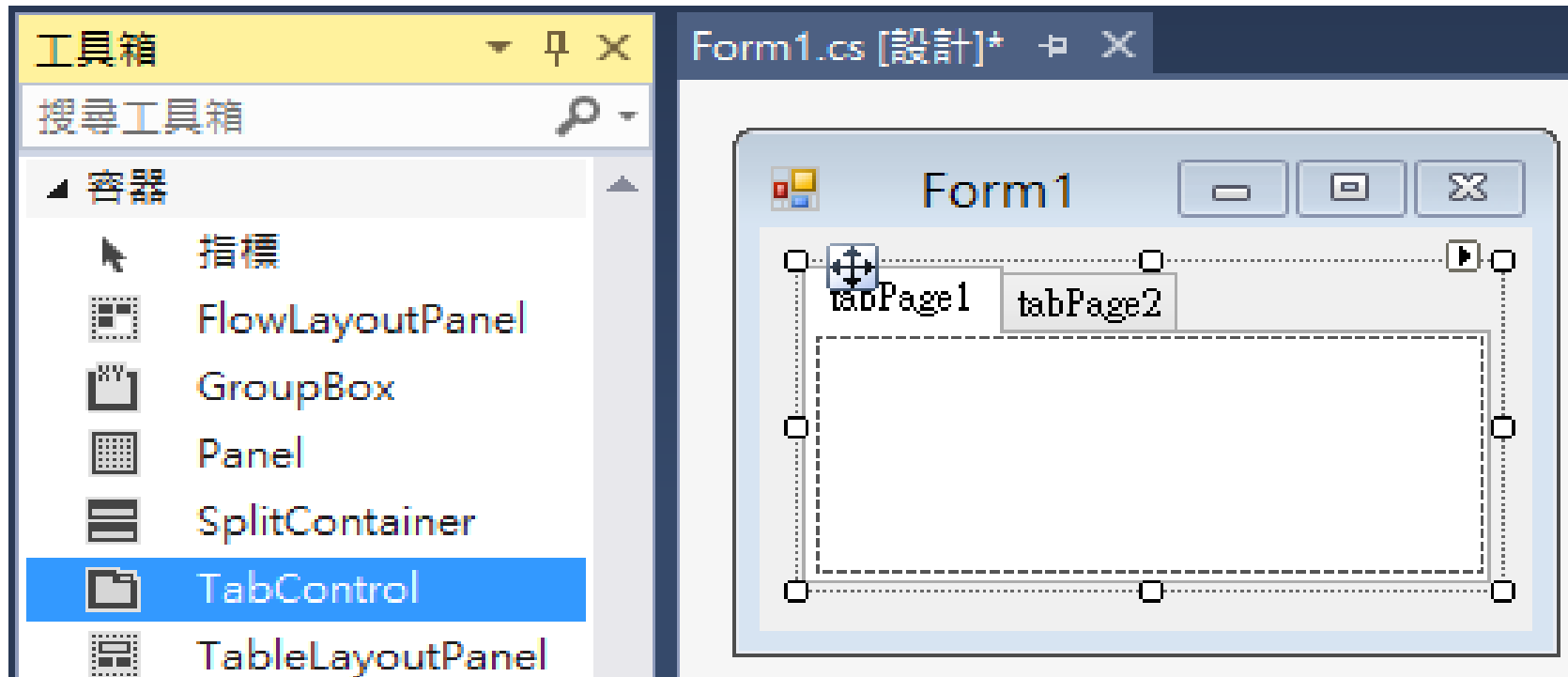
小計 * 數量 = 元

Annotations:



- rdbM1~rdbM3** points to the radio buttons for the Main Course.
- rdbS1~rdbS3** points to the radio buttons for the Side Dish.
- rdbD1~rdbD4** points to the radio buttons for the Beverage.
- Ch = kS,** points to the checkboxes in the Upgrade section.
- txtSum** points to the first text box in the calculation area.
- txtNum** points to the second text box in the calculation area.
- txtAmt** points to the result text box in the calculation area.

7-6 TabControl Control Item

- A container
- Can have many TabPage items
- Each tab can have other control items



Properties of TabControl

Property	Description
TabPages	Container of tab pages, includes every TabControls
Appearance	<p>① Normal(default) ② Buttons ③ FlatButtons</p> 
Multiline	<p>False: show tab in single line (default) True: multi lines is accepted</p> 

TabControl Methods

Method	Description
Add	Add a tab, usage: <code>TabPage myTabPage = new TabPage("Drinks");</code> <code>tabControl1.TabPages.Add(myTabPage);</code>
Remove	Remove target tab, usage: Ex1: <code>tabControl1.TabPages.Remove(myTabPage);</code> Ex2: <code>tabControl1.TabPages.Remove(tabControl1.SelectedTab);</code>
Clear	Remove all tabs, usage: <code>tabControl1.TabPages.clear();</code>

TabControl Events

Method	Description
Click	Click event of TabPage object is triggered when click on tab's main content
SelectedIndexChanged	Triggered when the user clicks on tab title to change tab



e.g.

**To make tabPage2 the working panel, use the following
grammar: `tabControl1.SelectedTab = tabPage2`**

Practice(TabControl):

Use tab pages to design a breakfast ordering program, the function is identical to the previous practice.

1. TabControl has 4 tab panels, the titles are “主餐”, “附餐”, “飲料” and “升級”
2. There are 3 check box items called “A餐：雞塊餐(75 元)”, “B餐：漢堡餐(60 元)”, “C餐：三明治餐(50 元)” in the “主餐” tab panel.
3. There are 3 check box items called “薯條” and “薯餅”, “生菜沙拉” in the “附餐” tab panel
4. There are 4 check box items called “雪碧”, “可樂”, “鮮奶茶” and “冰咖啡” in the “飲料” tab panel
5. There are 2 check box items called “薯條加大” and “飲料加大” in the “升級” tab panel

Result:

活力早餐店

主餐 副餐 飲料 升級

☒ A餐：雞塊餐(75元) ☐ B餐：漢堡餐(60元)
☐ C餐：三明治餐(50元)

小計 75 * 數量 1 = 75 元

活力早餐店

主餐 副餐 飲料 升級

☒ 薯條 ☐ 薯餅 ☐ 生菜沙拉

小計 75 * 數量 1 = 75 元

活力早餐店

主餐 副餐 飲料 升級

☒ 雪碧 ☐ 可樂 ☐ 鮮奶茶 ☐ 冰咖啡

小計 75 * 數量 1 = 75 元

活力早餐店

主餐 副餐 飲料 升級

☒ 薯條加大 ☒ 飲料加大

小計 85 * 數量 2 = 170 元

User Interface

活力早餐店

主餐 副餐 飲料 升級

☒ A餐：雞塊餐(75元) ☐ B餐：漢堡餐(60元)
☐ C餐：三明治餐(50元)

小計 * 數量 = 元

txtSum txtNum txtAmt

rdbM1~rdbM2

活力早餐店

主餐 副餐 飲料 升級

☒ 薯條 ☐ 薯餅 ☐ 生菜沙拉

小計 * 數量 = 元

rdbS1~rdbS3

活力早餐店

主餐 副餐 飲料 升級

☒ 雪碧 ☐ 可樂 ☐ 鮮奶茶 ☐ 冰咖啡

小計 * 數量 = 元

rdbD1~rdbD4

活力早餐店

主餐 副餐 飲料 升級

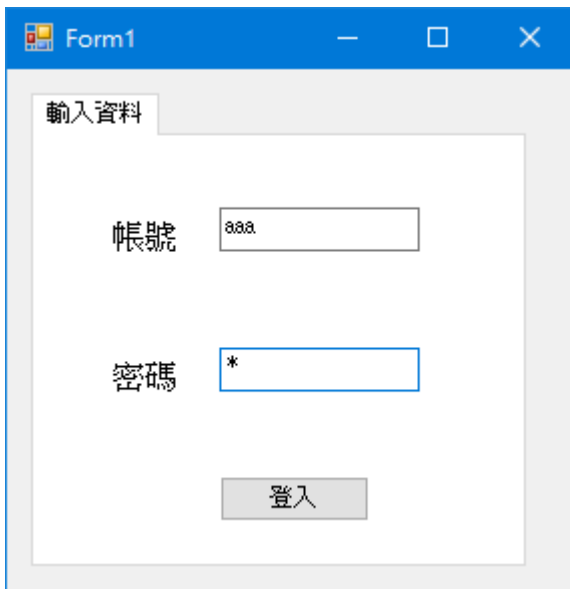
☐ 薯條加大 ☐ 飲料加大

小計 * 數量 = 元

chkS chkD

Practice_tabpage

- Use tabcontrol item to finish this practice
- Create a login page and grade English, Chinese show tabpage.



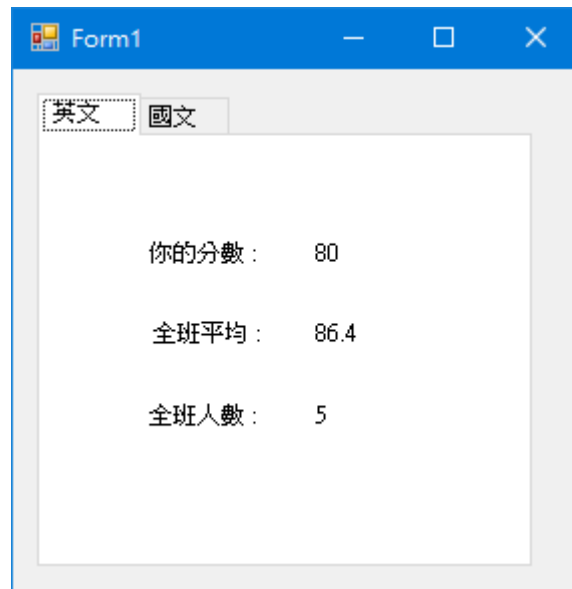
Form1

輸入資料

帳號

密碼

登入



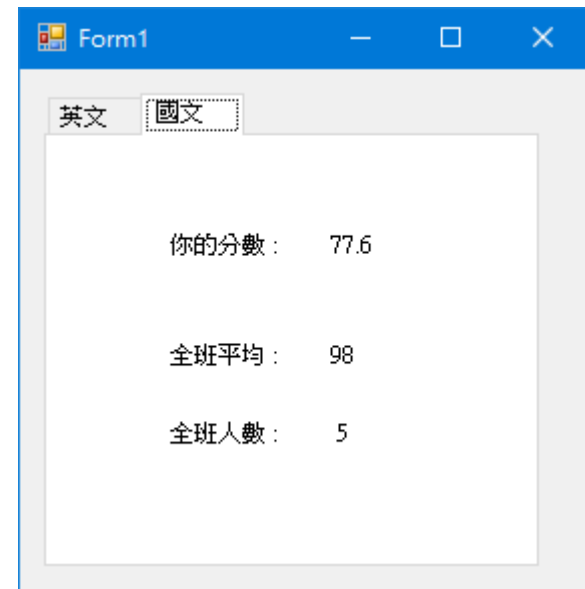
Form1

英文 國文

你的分數 : 80

全班平均 : 86.4

全班人數 : 5



Form1

英文 國文

你的分數 : 77.6

全班平均 : 98

全班人數 : 5

7-7 ProgressBar Control Item

Properties

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

Methods

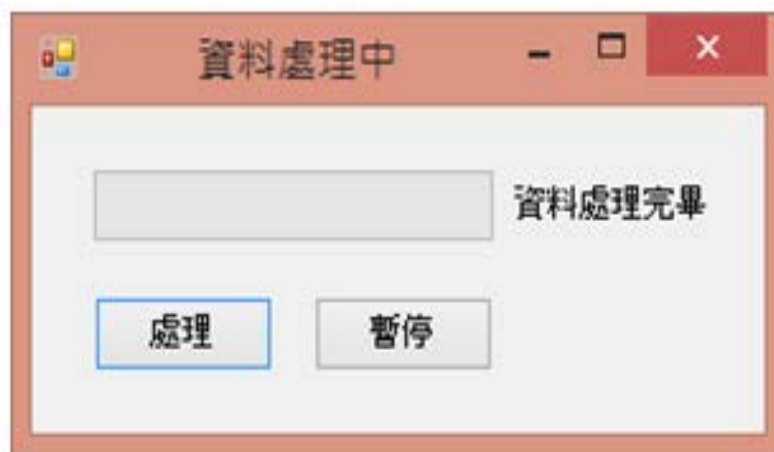
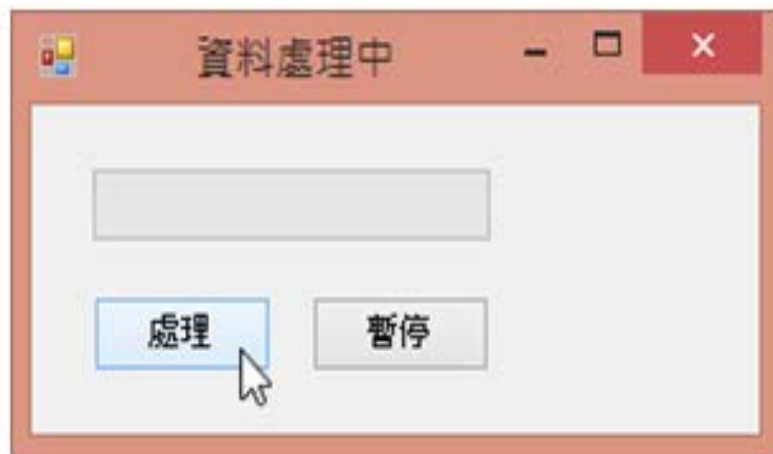
Method	Description
PerformStep	Increase the value of the progress bar by the value of Step

Practice(ProgressBar):

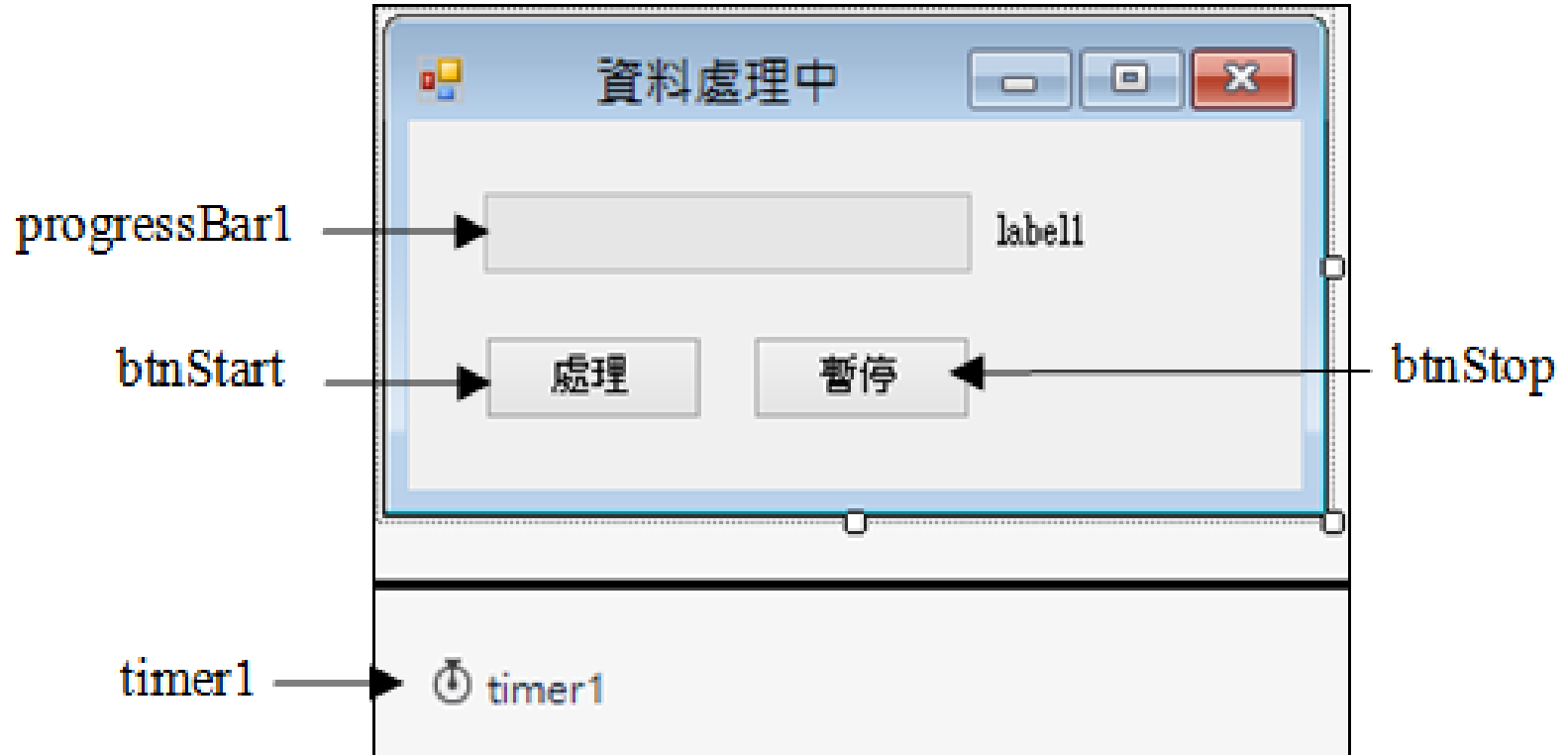
Use timer to simulate the waiting for data process, requirement:


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



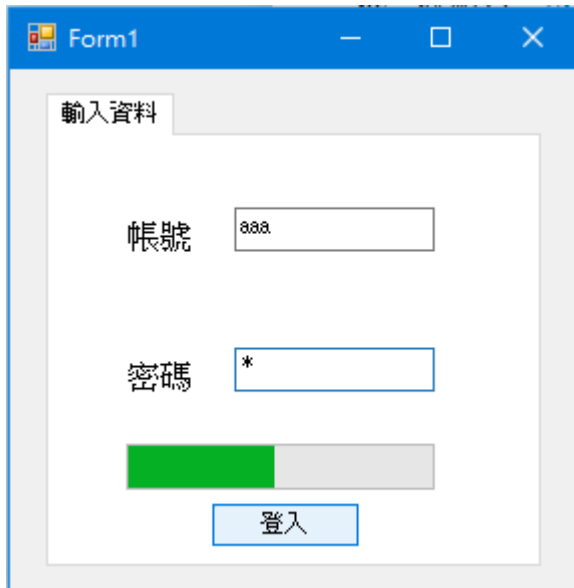


Suspend the executive order (Thread.Sleep)

- Suspend the current thread for the specified number of milliseconds.
- EX : Thread.Sleep(2000)// Suspend at 2000 milliseconds (2 seconds)

TabControl and progress bar

- Use Practice_tabpage to finish this practice.
- Add progress bar when you login.



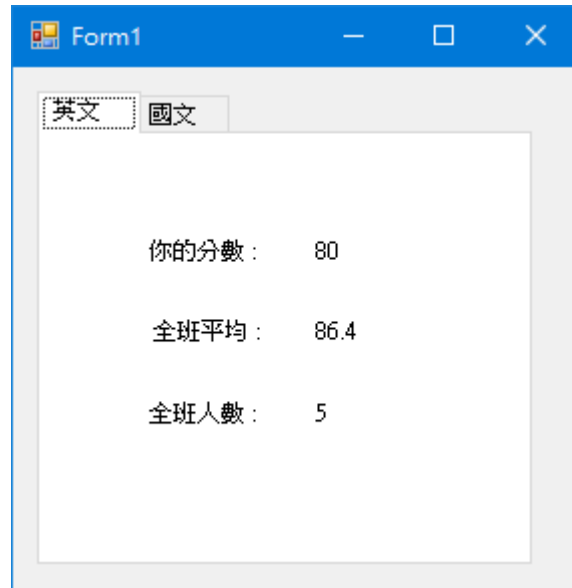
Form1

輸入資料

帳號: aaa

密碼: *

登入



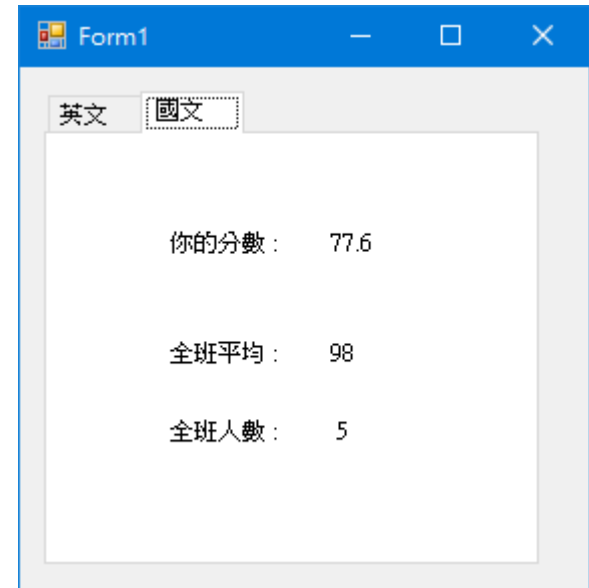
Form1

英文 國文

你的分數: 80

全班平均: 86.4

全班人數: 5



Form1

英文 國文

你的分數: 77.6

全班平均: 98

全班人數: 5



The End

Take a Break ...