```
1  /*****************************************************************
2   * Develop by Jimmy Hu                                           *
3   * This program is licensed under the Apache License 2.0.        *
4   * QueueDataGraphic.cs                                           *
5   * 本檔案用於佇列資料繪圖功能                                    *
6   *****************************************************************
7   */
8
9  using System;
10 using System.Collections.Generic;
11 using System.Linq;
12 using System.Text;
13 using System.Threading.Tasks;
14 using System.Drawing;
15 using System.Windows.Forms;
16
17 namespace QueueDataGraphic.CSharpFiles
18 {
       //    namespace start, 進入命名空間
19     class
         QueueDataGraphic                                          //
           QueueDataGraphic class, QueueDataGraphic類別
20     {
           //    QueueDataGraphic class start, 進入QueueDataGraphic類別
21         private List<DataQueue>
             DataQueueList;                                  //  DataQueueList
             object, DataQueueList物件
22
23         /// <summary>
24         /// Width is the width of graph.
25         /// </summary>
26         private int
             Width;                                                  //
             Width variable, Width變數
27
28         /// <summary>
29         /// Height is the height of graph.
30         /// </summary>
31         private int Height;
                 //  Height variable, Height變數
32
33         /// <summary>
34         /// QueueDataGraphic constructor, QueueDataGraphic建構子
35         /// </summary>
36         /// <param name="DataQueueNames">DataQueue通道名稱集合</param>
37         public QueueDataGraphic(List<string>
             DataQueueNames)                    //   QueueDataGraphic
             constructor, QueueDataGraphic建構子
38
   {                                                                  //
   QueueDataGraphic constructor start, 進入QueueDataGraphic建構子
39             DataQueueList = new List<DataQueue>
                 ();                                // initialize DataQueueList, 初
```

```
            始化DataQueueList物件
40          foreach (string item in                                    ➲
              DataQueueNames)                          //  get each name of ➲
               DataQueueNames
41                                                                     ➲
    {                                                          //      ➲
    foreach statement start, 進入foreach敘述
42              DataQueueList.Add(new DataQueue                        ➲
                  (item));                        // add DataQueue, 新增 ➲
                  DataQueue
43                                                                     ➲
    }                                                          //      ➲
    foreach statement end, 結束foreach敘述
44                                                                     ➲
    }                                                              //  ➲
    QueueDataGraphic constructor end, 結束QueueDataGraphic建構子
45
46          /// <summary>
47          /// SetWidth method would update Width variable.
48          /// SetWidth方法用於更新Width變數
49          /// </summary>
50          /// <param name="NewWidth">Width更新值</param>
51          public void SetWidth(int                                   ➲
              NewWidth)                                //   SetWidth method, ➲
               SetWidth方法
52                                                                     ➲
    {                                                              //  ➲
    SetWidth method start, 進入SetWidth方法
53              if (NewWidth > 0)
54              {
55                  this.Width =                                       ➲
                    NewWidth;                                  //      ➲
                    Update Width, 更新Width資料
56              }
57                                                                     ➲
    }                                                              //  ➲
    SetWidth method end, 結束SetWidth方法
58
59          /// <summary>
60          /// SetHeight method would update Height variable.
61          /// SetHeight方法用於更新Height變數
62          /// </summary>
63          /// <param name="NewHeight">Height更新值</param>
64          public void SetHeight(int                                  ➲
              NewHeight)                               //    SetHeight   ➲
              method, SetHeight方法
65                                                                     ➲
    {                                                              //  ➲
    SetHeight method start, 進入SetHeight方法
66              if (NewHeight > 0)
67              {
68                  this.Height =                                      ➲
                    NewHeight;                                 //      ➲
```

```
                    Update Height, 更新Height資料
69              }
70
    }                                                                   //
    SetHeight method end, 結束SetHeight方法
71
72          /// <summary>
73          /// AddData method would add data to queue.
74          /// AddData方法用於新增資料至Queue
75          /// </summary>
76          /// <param name="DataQueueName">欲新增資料之Queue名稱</param>
77          /// <param name="InputData">欲新增至Queue之資料</param>
78          public void AddData(string DataQueueName, object
              InputData)            //   AddData method, AddData方法
79
    {                                                                   //
    AddData method start, 進入AddData方法
80              foreach (DataQueue item in
                  DataQueueList)                        // search DataQueue in
                  DataQueueList
81
    {                                                                   //
    foreach statement start, 進入foreach敘述
82                  if (item.GetDataQueueName() ==
                      DataQueueName)                    // if item name is as same
                      as DataQueueName, 若搜尋得相同名稱
83
    {                                                                   //  if
    statement start, 進入if敘述
84                      item.AddData(InputData);
                            //  add data to queue, 新增資料至對應佇列
85
    }                                                                   //  if
    statement end, 結束if敘述
86
    }                                                                   //
    foreach statement end, 結束foreach敘述
87
    }                                                                   //
    AddData method end, 結束AddData方法
88
89          public void DrawGraph(object sender, PaintEventArgs e)
                //  DrawGraph method, DrawGraph方法
90
    {                                                                   //
    DrawGraph method start, 進入DrawGraph方法
91              Graphics Graph1 = e.Graphics;
92              foreach (DataQueue DataQueueItem in
                  DataQueueList)                //  get each DataQueue, 依序取出
                  各DataQueue
93
    {                                                                   //
    foreach statement start, 進入foreach敘述
```

```
94                  Point GraphPointTemp = new Point(0,0);
95                  int Loopnum =
                      0;                                                    //
                      initialize Loopnum variable, 初始化Loopnum變數
96                  foreach (int Data in DataQueueItem.GetGraphicData
                      ())            //   get each data in DataQueue, 從DataQueue
                      取出資料
97
    {                                                                 //  foreach
    statement start, 進入foreach敘述
98                      if (Loopnum ==
                        0)                                             // if run
                        first loop, 若Loopnum變數為0
99
    {                                                               //  if statement
    start, 進入if敘述
100                         GraphPointTemp = new Point((
101                             (int)(Loopnum * this.Width /
                        DataQueueItem.GetGraphicDataQueueMax())),
102                             (int)(this.Height - (Data * this.Height / 4096)));
103
    }                                                               //  if statement
    end, 結束if敘述
104                     else
105
    {                                                               //  else statement
     start, 進入else敘述
106                         Graph1.DrawLine(new Pen(Color.Black), GraphPointTemp,
107                             new Point((
108                             (int)(Loopnum * this.Width /
                        DataQueueItem.GetGraphicDataQueueMax())),
109                             (int)(this.Height - (Data * this.Height /
                        4096))));
110
    }                                                               //  else statement
     end, 結束else敘述
111                     Loopnum = Loopnum +
                        1;                                          //  increase
                        Loopnum variable, 遞增Loopnum變數
112
    }                                                                 //  foreach
    statement end, 結束foreach敘述
113
    }                                                                     //
    foreach statement end, 結束foreach敘述
114             Graph1.Flush();
115
    }                                                                         //
    DrawGraph method end, 結束DrawGraph方法
116
117     }
            //    QueueDataGraphic class end, 結束QueueDataGraphic類別
118 }
```

```
        //    namespace end, 結束命名空間
119
```