DataTable.Compute()方法對資料欄位做數值計算

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EX :

```
int x = (int)dt_auList.Compute("Count(num)", "auDepID=4");

//Count "dt_List"  Datable 裡面  NUM 的數量
// audept的數值需要等於4
```

1.前言:

如果要對DataTable中的特定欄位做資料分析，在不使用其他第三方函式庫的情況下，可以用Compute方法來做基本的數值計算。

2.說明:

用法: DataTable.Compute(string expression, string filter)

支援以下聚合函數:

•Sum (Sum)

•Avg (Average)

•Min (Minimum)

•Max (Maximum)

•Count (Count)

•StDev (Statistical standard deviation)

•Var (Statistical variance)

使用上要注意的是欄位的型態需要是數值型態，如果是字串型態，可以簡單定義一個新欄位為數值型，再複製要計算的欄位資料做資料分析，否則會出現彙總函式和型別的無效用法: String錯誤訊息。

有關DataTable.Compute()的說明可參考:

http://msdn.microsoft.com/en-us/library/system.data.datatable.compute(v=vs.100).aspx

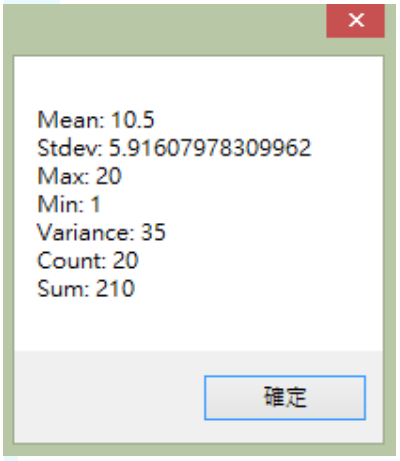
程式碼:

?

```
1  private void btCalc_Click(object sender, EventArgs e)
2  {
3      double mean, stdev, max, min, variance, count, sum;
4      DataTable dt = TxtConvertToDataTable(@"d:\tmp\dt.csv", "tmp", ",");//讀取資料
5
6      dt.Columns.Add("tmpColumn", typeof(double), "Convert(data, 'System.Double')");//加入暫
7  存欄位，將資料中string的型態轉為double型態
8
9      mean = (double)dt.Compute("Avg(tmpColumn)", string.Empty);
10     stdev = (double)dt.Compute("Stdev(tmpColumn)", string.Empty);
11     max = (double)dt.Compute("Max(tmpColumn)", string.Empty);
12     min = (double)dt.Compute("Min(tmpColumn)", string.Empty);
13     variance = (double)dt.Compute("Var(tmpColumn)", string.Empty);
14     count = (int)dt.Compute("Count(tmpColumn)", string.Empty);
15     sum = (double)dt.Compute("Sum(tmpColumn)", string.Empty);
16
17     dt.Columns.Remove("tmpColumn");//移除暫存欄位
18
19     MessageBox.Show("Mean: "+mean+"\r\n"
20         + "Stdev: " + stdev + "\r\n"
21         + "Max: " + max + "\r\n"
22         + "Min: " + min + "\r\n"
23         + "Variance: " + variance + "\r\n"
24         + "Count: " + count + "\r\n"
25         + "Sum: " + sum + "\r\n"
26         );
27 }
```

```
}

public DataTable TxtConvertToDataTable(string File, string TableName, string delimiter)
{
    DataTable dt = new DataTable();
    DataSet ds = new DataSet();
    StreamReader s = new StreamReader(File, System.Text.Encoding.Default);
    string[] columns = s.ReadLine().Split(delimiter.ToCharArray());
    ds.Tables.Add(TableName);
    foreach (string col in columns)
    {
        bool added = false;
        string next = "";
        int i = 0;
        while (!added)
        {
            string columnname = col + next;
            columnname = columnname.Replace("#", "");
            columnname = columnname.Replace("'", "");
            columnname = columnname.Replace("&", "");

            if (!ds.Tables[TableName].Columns.Contains(columnname))
            {
                ds.Tables[TableName].Columns.Add(columnname.ToUpper());
                added = true;
            }
            else
            {
                i++;
                next = "_" + i.ToString();
            }
        }
    }

    string AllData = s.ReadToEnd();
    string[] rows = AllData.Split("\n".ToCharArray());

    foreach (string r in rows)
    {
        string[] items = r.Split(delimiter.ToCharArray());
        ds.Tables[TableName].Rows.Add(items);
    }

    s.Close();

    dt = ds.Tables[0];

    return dt;
}
```

圖例:



來自 <http://einboch.pixnet.net/blog/post/279208343-c%23%E4%B8%AD%E5%88%A9%E7%94%A8datatable.compute()%E6%96%B9%E6%B3%95%E5%B0%8D%E8%B3%87%E6%96%99%E6%AC%84%E4%BD%8D%E5%81%9A%E6%95%B8%E5%80%BC>