

作業：直方圖

- 100*100 的方陣中，隨機產生 0~15 的數字，並統計個別數字有幾個。

```
C:\Windows\system32\cmd.exe
Matrix A:
0有638個
1有637個
2有630個
3有604個
4有639個
5有630個
6有626個
7有587個
8有667個
9有644個
10有608個
11有624個
12有590個
13有626個
14有618個
15有632個
請按任意鍵繼續 . . .
```

```
namespace 數值統計
{
    class Program
    {
        static void Main(string[] args)
        {
            int[,] aMatrix = new int[100, 100];

            CreateMatrix(ref aMatrix);
            Console.WriteLine("Matrix A:");
            //PrintMatrix(aMatrix);
            Countnum(aMatrix);
        }
        static void CreateMatrix(ref int[,] matrix)
        {
            int i, j;
            Random randomNum = new Random();
            for (j = 0; j <= matrix.GetUpperBound(0); ++j)
            {
```

```
        for (i = 0; i <= matrix.GetUpperBound(1); ++i)
        {
            matrix[j, i] = randomNum.Next(16);
        }
    }
}

static void PrintMatrix(int[,] matrix)
{
    int i, j;
    for (j = 0; j <= matrix.GetUpperBound(0); ++j)
    {
        for (i = 0; i <= matrix.GetUpperBound(1); ++i)
        {
            Console.Write("{0:d2} ", matrix[j, i]);
        }
        Console.WriteLine();
    }
    Console.WriteLine();
}

static void Countnum(int[,] matrix)
{
    int i, j, k;
    int[] numlist = new int[16];

    for (j = 0; j <= matrix.GetUpperBound(0); ++j)
    {
        for (i = 0; i <= matrix.GetUpperBound(1); ++i)
        {
            for (k = 0; k <= 15; k++)
            {
                if (matrix[j, i] == k)
                {
                    numlist[k]++;
                }
            }
        }
    }
}
```

```
    }  
    for (i = 0; i <= numlist.GetUpperBound(0); i++)  
    {  
        Console.WriteLine("{0}有{1}個", i, numlist[i]);  
    }  
}  
}
```