

# [1330] Creating Histograms - an In-Class Exercise

So, how can we take a List of Key/Value pairs and create a horizontal histogram from it?

In other words, how can we convert this:

One, 1  
Two, 2  
Three, 3  
Four, 4

into this:

```
One | ***** 1
Two | ***** 2
Three | ***** 3
Four | ***** 4
```

Let's do this in class now. To help you get started, here's the first part of the solution. Create a new Visual Studio project and copy/paste this into it:

```
using System;
using System.Collections.Generic;

namespace LWTech.SimpleHistogram
{
    class SimpleHistogram
    {
        static void Main(string[] args)
        {
            List<KeyValuePair<string, int>> bars = new List<KeyValuePair<string, int>>();

            bars.Add(new KeyValuePair<string, int>("One", 1));
            bars.Add(new KeyValuePair<string, int>("Two", 2));
            bars.Add(new KeyValuePair<string, int>("Three", 3));
            bars.Add(new KeyValuePair<string, int>("Four", 4));

            DrawHistogram(bars, totalWidth: 50, labelWidth: 8);
        }

        private static void DrawHistogram(List<KeyValuePair<string, int>> bars, int totalWidth = 100, int labelWidth = 10)
        {
            // YOUR CODE GOES HERE!
            // First, calculate the maximum possible width of a bar
            // Next, find the maximum value in the data that was passed in
            // For each bar in the data that was passed in
            // Add the label to a new output string (truncating/padding as necessary)
```

```
// Calculate the size of this bar
// Add the stars for this bar
// Write out the output string
}

}

}
```

Now, just add in the code for the missing DrawHistogram() method. Here are some helpful things you'll need:

To quickly create a string of "n" stars, you can use:

```
"".PadRight(n, '*');
```

The size of each bar in the histogram should be:

```
(int)((((double)bar.Value / maxBarValue) * maxBarWidth));
```

[\[1331\] SimpleHistogram.cs](https://lwtech.instructure.com/courses/1841516/pages/%5B1331%5D%20SimpleHistogram.cs?titleize=0)

[\(https://lwtech.instructure.com/courses/1841516/pages/%5B1331%5D%20SimpleHistogram.cs?titleize=0\)](https://lwtech.instructure.com/courses/1841516/pages/%5B1331%5D%20SimpleHistogram.cs?titleize=0)