

Programming Assignment #8

Due Nov 26 by 3pm **Points** 100 **Submitting** a file upload
Available Nov 19 at 8pm - Dec 5 at 12pm 16 days

This assignment was locked Dec 5 at 12pm.

Real-Time Airplane Statistics via JSON

Using what we learned about in class and in the "[1300]" Modules, create a Console application that uses real-time data from the Internet to display a histogram of all Boeing and Airbus airliners currently in the sky by plane type.

1.) The URL of the feed you need to use for this assignment is:

<https://stockcharts.com/dev/chipa/airplanes.json> (<https://stockcharts.com/dev/chipa/airplanes.json>)

(Note: This file is updated infrequently by me every day or so.)

Start by pasting that URL into (<http://jsonlint.com>) <http://jsonlint.com> and examining the results. Make sure you understand the organization of the JSON data from that feed. What are the fields in the top-level object?

2.) Create a new Visual Studio solution that reads in the data from that URL and displays it on your screen.

3.) Modify your program so that it uses String parsing functions that find the "Type:" field in each line of the JSON file and then extracts the 4 letter type code for each airplane into a List. Display the list.

4.) Add the Histogram code from the Modules to your program. Use it to create a histogram from your airplane "Type" list. Run your program. Whoa, that's a LOT of types!

5.) Let's assume we are only interested in Boeing and Airbus airliners. Boeing planes have type codes that start with "B7" and Airbus planes have type codes that start with "A3". Have your program discard other planes. Re-run your program. We have fewer bars, but it is still too many.

6.) Let's now assume that we don't care about the sub-models of Boeing and Airbus airplanes. That means that we need to convert the last digit of the type field into a '7' (if it is a Boeing plane) or a '0' (if it is an Airbus plane). Have your program change the type value accordingly before adding the type to your List. This should reduce the number of Histogram bars to a manageable number.

7.) Call the Histogram's Sort() function to sort the bars so that the most common plane type is at the top and the least common is at the bottom.

Extra Credit:

Get this same program working using JSON.net parsing instead of String parsing.

Sample Output:

Currently Flying Boeing/Airbus Airplanes:

```
=====
B737 | *****
***** 1404
A320 | ***** 977
A310 | ***** 234
B777 | ***** 204
A330 | ***** 165
B757 | ***** 136
B767 | ***** 126
B787 | ***** 103
B747 | ***** 68
B717 | ***** 46
A380 | * 29
A350 | * 24
A340 | * 19
A300 | 10
B727 | 1
+-----
-----
```

Important Notes:

- Before starting, be sure to review the information in
- Be sure to read, understand and follow [\[0070\] Our C# Coding Standards](#)

My Grading Guidelines:

40% Does the program compile and run?

40% Does the program generate correct results?

10% Does the program have a well thought out Object model and POJOs?

5% Does the program have descriptive variable, parameter and method names?

5% Does the program follow the C# style guide rules