Assignment 3

CS321 Winter 2023, Professor Christopher Diggins

Create an ASCII String Class

Create a class that stores data inside using an array of bytes and an ASCII internally. Call this class AsciiString. This project can be implemented entirely within a single NUnit test project.

For reference see the Vector2 class here: https://github.com/cdiggins/cs321/tree/main/code-examples/VectorDemo.

This class should have:

- A constructor that accepts a byte[] argument
- Another constructor that accepts a string argument
- An implicit conversion operator to string
- An implicit conversion operator from string
- A "IEnumerable<char> GetChars()" function written as an "iterator method"
- A "AsciiString Substring(int start, int count)" function
- An operator overload for the + operator that accepts two AsciiString
- A read-only property Count that returns the number of characters (same as number of bytes)
- A read-only indexing operator that returns the nth character (not byte)

Submission

1. A source file containing the tests (AsciiStringTests.cs)
2. A source file containing the implementation (AsciiString.cs)
3. The project file (AsciiProj.cs)
4. A screenshot of the test-explorer window (tests.png)

Documentation and Helpers

- https://learn.microsoft.com/en-us/dotnet/csharp/fundamentals/coding-style/coding-conventions
- https://learn.microsoft.com/en-us/dotnet/api/system.text.encoding.ascii?view=net-6.0
- https://learn.microsoft.com/en-us/dotnet/api/system.text.asciiencoding?view=net-6.0
- https://learn.microsoft.com/en-us/dotnet/api/system.text.asciiencoding.getbytes?view=net-6.0
- https://learn.microsoft.com/en-us/dotnet/api/system.text.asciiencoding.getstring?view=net-6.0

Grading Criteria

This assignment will be graded out of 10.

1. **0.5 point for each function/property (total 4)**
2. **0.5 point for a test function with at least one assert for each function/property (total 4)**
3. **1 point for good coding style**
4. **1 point for making the GetChars() function an iterator method**