Strings

CS 133N/ CS 161N

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Objectives

- String and Char datatypes

- Strings are immutable

- Introduce char methods and string methods and the documentation for char and string

- Practice with several examples

String and Char

- C# has 2 datatypes for character data
  - char – is a value type (like int) that stores one (Unicode) character. A character literal must be delimited with '
  - string – is a reference type (like array) that stores a set of characters. A string literal must be delimited with ". String and string can be used interchangeably in C#.

Things You Can Do With a char

- The Char page at microsoft.com gives a good list of Char methods.
  - https://docs.microsoft.com/en-us/dotnet/api/system.char?view=netframework-4.8#methods
  - Most of these are static methods.
  - Lots of them can operate on both a single character and a string and an index.
  - Let's look at some of these together and "play" a little on dotnetfiddle.com.

A String is Immutable

- Which means the state of a string can't be changed after is has been created.
  - If we try to change the value of a string by concatenation (using + operator) it actually results in creation of a new string object to hold a reference to the newly generated string.
  - It might seem that we have successfully altered the existing string. But behind the scenes, a new string reference is created, which points to the newly created string.

Things You Can Do With a String

- The Strings page at tutorialspoint.com gives a good list of string methods. BUT please remember that none of these methods CHANGES the original string. Strings are immutable!
  - https://www.tutorialspoint.com/csharp/csharp_strings.htm
  - Let's look at some of these together and "play" a little on dotnetfiddle.com.

Now that we're warmed up

- The first 4 questions in the lab ask you to improve on the first 2 versions of PigLatin.
  - Version 3 – multiple consonants
  - Version 4 – first letter is capitalized
  - Version 5 – last letter is punctuation
  - Version 6 – multiple words separated by whitespace
- For each version, I'll get you started and then let you try to write the code in small groups. We'll review as a large group and then move to the next version.

What's Next

- Don't forget
  - Reading Quiz 7
  - Programming Quiz 7
  - Lab 7 – Due Sunday. Just the problems we did together in class!
- Final is optional
  - As long as labs 5, 6 and 7 are done.
  - Don't show up for the final and I'll give you your midterm score for your final.

A Word About 233N

- Unlike 133N, when 233N starts, I will expect you to have MASTERED the material in 133N.

  - If you get an A in 133N … relax … but review.

  - If you get a B- to an A- … you're missing at least 10% of the content of the course and most likely it's the content from the end of the term. Over the break, redo the last couple of labs, concentrating on the content that you know you're weakest in.

  - If you get less than a B- … we should have a private conversation about your choices for next term.