String Parsing

Your program should continue until the user enters “Q”.

Your program should be capable of handling both part 1 and part 2. Write part 3 (extra credit) as a separate program.

Part 1

Create an input parser that can take a string and convert it to the appropriate data type. Use the following syntax to determine the appropriate conversion.

`I:123` should convert to an integer with the value of 123.

`F:3.14` should convert to an float with the value of 3.14.

`D:352.92834` should convert to a double with the value of 352.92834.

`S:Hello World` should convert to a string with a value of “Hello World”

Allow multiple conversions to be given at the same time. Use the character given immediately after the ‘Y’ character to determine how to parse the string. For example:

`Y~I:43~F:21.3~I:34~S:Wow!`

This should parse into an integer of 43, a float of 21.3, and integer of 34, and a string of “Wow!”. For output display:

```
Delimiter: '~'
Integer:   43
Float:     21.3
Integer:   34
String:    "Wow!"
```

Be sure to line up all the output correctly.

Part 2

Implement a string parser to handle the following input.

`I` is for input

`F is for find.`
Example `I:Hello my fine feathered friends:F:feathered` should print out:
`feathered found at position 14`

`R` is for replace
Example `I:Hello world:R:world:people` should print out `Hello people`

`C` is for concatenate
Example `I:Jacob:C: Christensen` should print out `Jacob Christensen`

`S` is for substring
Example `I:CS 1410:S:3:2` should print out “14”

You program should be able to handle series of commands.

Example `I:Jacob:R:Jacob:Christensen:R:C:Dr. C` which should output `Dr. Christensen`

Part 3 (20 points extra credit)

XML is now as important for the Web as HTML was to the foundation of the Web. XML is the most common tool for data transmissions between all sorts of applications. Parse an XML file and display a tree. Make the output exactly as shown below.

```
<library name='USU Library'>
      <book title='Moby Dick' author='Herman Melville'>A man hunts a whale.</book>
      <book title='Ender's Game' author='Orson Scott Card'>Cool space fights.</book>
      <book title='Chronicles of Narnia' author='C. S. Lewis'>
            <book title='The Magician's Nephew'>A boy travels with a girl.</book>
            <book title='The Lion, the Witch, and the Wardrobe'>Roar!</book>
      </book>
</library>
```

Should display as:

```
Library
|   name: USU Library
+--- Book
|       title: Moby Dick
|       author: Herman Melville
|       content: A man hunts a whale.
=--- End Book
+--- Book
|       title: Ender's Game
|       author: Orson Scott Card
|       content: Cool space fights.
=--- End Book
+--- Book
|       title: Chronicles of Narnia
|       author: C. S. Lewis
|       content:
+--- --- Book
|           title: The Magician's Nephew
|           content: A bot travels with a girl.
=--- --- End Book
+--- --- Book
|           title: The Lion, the Witch, and the Wardrobe
|           content: Roar!
=--- --- End Book
=--- End Book
End Library
```