GSET - Intro to Programming with Python

Tristan Hill

Tennessee Technological University

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Module 5 - Strings

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- A different type of data
- Using Strings in Python
- Sequence Operations with Strings
- String Methods
- Example Code

A different type of data

We have learned to store and use numerical data in Python. This type of data is common to the scientist and engineer.

- Computations for Analysis
- Data Collection and Storage
- System Operation and Control

Computer systems require a different type of data which *may* be less familiar to the standard user. The _____ and the _____ data types have many uses in computer programming.

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reference:

A different type of data

ASCII - American Standard for Information Interchange - convention used for character encoding in most computer systems

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Unicode - *The Unicode Consortium is the standards body for the internationalization of the software and services*

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Using Strings in Python

Textual data in Python is handled with str objects, or strings. Strings are immutable sequences of Unicode code points. String literals are written in a variety of ways: - docs.python.org

```
string1='Single quotes are nice!'

string2="Double quotes allow 'embedded' single quotes"

string3='''Triple quote (single or double) allow for
multiple line strings'''
```

reference: docs.python.org

Using Strings in Python

A string is typically made up of multiple letters, numbers, and/or symbols.

In Python, a string behaves like a _____. This means the items in a string can be accessed using the square brackets [ ] .

```
language='Python 3'

print('The string is:', language)
print('The first item is:', language[0])
print('The last item is:', language[len(langauge)-1])
```

ref: some text

Using Strings in Python

Redefining Items in a List

```
language='Python 3'

language[7]='2'
```

Using Strings in Python

The previous line will not run. Read the error message carefully.

```
Traceback (most recent call last):
  File "../lecture5_strings.py", line 23, in <module>
    language[7]='2'
TypeError: 'str' object does not support item assignment
```

ref: python.org

Sequence Operations with Strings

Common Sequence Operations

- `x in s` - True if an item of s is equal to x, else False
- `s + t` - the concatenation of s and t
- `len(s)` - length of s

See the full list in the link below

ref: docs.python.org - common sequence operations

String Methods

The string object has many useful methods. Here are just a few.

- `str.isascii()` - Return True if the string is empty or all characters in the string are ASCII, False otherwise.
- `str.isdecimal()` - Return True if all characters in the string are decimal characters and there is at least one character, False otherwise.
- `str.split(sep=None, maxsplit=-1)` - Return a list of the words in the string, using sep as the delimiter string...

See the full list by clicking the link below.

ref: docs.python.org - string methods

Example Code

See **lecture5_strings.py** for example Python 3 code.