

# GSET - Intro to Programming with Python

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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*

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```
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](https://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 [ ] .

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```
language='Python 3'
```

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

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# Using Strings in Python

Redefining Items in a List

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```
language='Python 3'
```

```
language[7]='2'
```

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## 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
```



# 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

# 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.

## Example Code

See **lecture5\_strings.py** for example Python 3 code.