Chapter 3 : Data Structures

3.1 Python Strings:

A string is a data structure in Python that represents a sequence of characters. It is an immutable data type (means you can't change it). Strings are used for storing, and manipulating text data, such as names, addresses and emails.

Examples:

"Geeks are not nerds and nerds are not boring"

Python does not have a character data type, a single character is simply a string with length 1.

3.1.1 : Creation:

Strings in Python can be created using single, double or even triple quotes.

Example:

Creations

See Strings1.ipynb

3.1.2) Accessing

In Python, individual characters of a string can be accessed by using the method of indexing. Indexing allows negative address references to access characters from back of the string, e.g. -1 refers to last character, -2 refers to second last. We can also access them using positive indexing. But the index starts from 0.

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
P	y	t	h	o	n	P	r	o	g	r	a	m	m	i	n	g
-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1

~~Accessing~~

Indexing of a string

Examples:

See String Accessing.ipynb

3.1.3: Slicing of a string:

To access a range of characters in the string, slicing is used. Slicing in a string is done by using a slicing operator (colon).

Examples:

See String slicing.ipynb

3.1.4: Reversing a string:

With accessing characters from a string and slicing we can also reverse a string. We can reverse a string by writing [::-1] and the string will be reversed.

Example:

```
#Reversing a string
stringrev = "Reverse string"
print (stringrev [::-1])
```

Output: See Reverse string.ipynb

Assignment 3.1

See Assign3.1_31.py

3.1.5 Deleting and Updating from strings

In Python, the updation and deletion of characters from a string is not allowed. This will cause an error because item assignment or deletion from a string is not supported. Deletion of entire string is possible with the use of built-in keyword "del". This is due to immutable nature of strings.

Updating:

A character of a string can be updated by first converting the string into a Python list.

Another method is using the string slicing method.

Example:

Updating and Deleting .ipynb

Deleting:

Python strings are immutable so we can not delete a single character. We can delete whole string using "del" keyword. But if we use it to delete a single element we get an error.

See error in Updating and Deleting .ipynb

However we can use string slicing for removing a single character.

Example:

See in Updating and Deleting.ipynb also study concatenation in the program.ipynb file.

3.1.6 Escape Sequencing:

When we are printing out strings with a quote or double quotes in it, it causes a syntax error because string already contain single/Double quotes. For this situation either triple quotes or escape sequences are used.

They start with a backslash.

Examples

See in Escape sequencing.ipynb

Raw Strings:

Escape sequence can be ignored using r or R, which implies a raw string.

See Escape Sequencing.ipynb