PYTHON PROGRAMMING

MODULE 4 – PART 1

STRING AND STRING OPERATIONS

OUTLINE

- **Standard Data Types**
- **Strings**
- **Create and Assign Strings**
- **Access**
- **Slice**
- **Escape Sequence**
- **Deletion**
- **Operators**
- **Functions**
- **String Traversal and Searching**

STANDARD DATA TYPES IN PYTHON

- Numbers

- Boolean

- String

- List

- Tuple

- Dictionary

- Set

Strings

- Contiguous set of characters surrounded by single, double or triple quotation marks.

- Immutable (unchangeable).

- Follows zero-based indexing (for accessing single or more characters).

Assigning strings to variables (creating strings)

```
#single quotes
a='python'

#double quotes
a="python"

#multiline strings are assigned using triple quotes or triple double quotes ( """……""")
a='''python
    is
    amazing'''
```

Accessing String and its elements

```
a= "python is amazing"
print(a)
print(a[1])

#negative indexing starts from -1 to access characters starting from end of a string
print(a[-1])

Output
python is amazing
y
g
```

Accessing subsets of strings using slicing operation

```
a= "python is amazing"
print(a[2:8])
print(a[:17])
print(a[0:])

#print(a[-2:-5]) gives empty string
print(a[-5:-2])

#string reverse
print(a[::-1])

Output
thon i
python is amazing
python is amazing
azi
gnizama si nohtyp
```

Escape Sequences

Escape sequence is a combination of characters that has different meaning than the literal characters in them. It allows including special characters which has a predefined meaning into a string. Characters are escaped using backslash(\).

\n – linefeed
\t – tab
\\ – backslash
\' – displays single quotes in the output screen
\" – displays double quotes in the output screen

```
print("Python \n Programming")
print("Language \t Python")

Output
Python
Programming
Language          Python
```

Alternatively, to display single quote use double quotes as delimiter and vice versa.

```
print("She said 'hello' and left")
print('She said "hello" and left')

Output
She said 'hello' and left
She said "hello" and left
```

Deleting a string

```
del(a)
```

Some operators used with strings

```
a="py"
b="program"

#concatenation
print(a+b)

#repetition
print(a*2)

#membership operators
print('y' in a)
print('t' in a )
print('t' not in a)

#string formatting operator %
print("%s is my %d st preference" %('python',1))
```

Output

pyprogram
pypy
True
False
True
python is my 1 st preference

Functions Discussed

1) len(string)
2) capitalize()
3) title()
4) count(value, start, end)
5) find(value, start, end)
6) index(value, start, end)
7) casefold()
8) lower()
9) islower()
10) startswith(value, start, end)
11) partition(value)
12) strip(value)
13) replace(oldval, newval, count)
14) split(separator, maxsplit)
15) format(value1, value2,…)

Some string functions

```
a="python is amazing"
b="PYTHON programming"
c="python;java;c;are programming languages"

print(len(a))

#capitalizes first character
print(a.capitalize())

#capitalizes first character of each word
print(a.title())

'''2nd and 3rd arguments are optional. Default values are zero and
end of string'''
print(a.count("is",5,16))

'''2nd and 3rd arguments are optional. Default values are zero and
end of string'''
print(a.find("is",5,16))

'''2nd and 3rd arguments are optional. Default values are zero and
end of string'''
print(a.index("is",5,16))
```

Output

17
Python is amazing
Python Is Amazing
1
7
7

10

```python
#converts to lower case
print(b.casefold())
print(b.lower())

print(b.islower())

'''checks whether substring from index 2 to 5 starts
with T.2nd and 3rd arguments optional'''
print(b.startswith("T",2,5))

#split string into 3 based on given substring
print(a.partition("is"))

'''removes leading & trailing characters of given
type. Default is space.'''
d="**@python@**"
print(d.strip("*"))

'''3rd argument optional. Represents how many
occurrences must be replaced'''
print(a.replace("amazing", "fantastic", 1))

'''optional arguments, defaults to space(separator)
and -1(all occurance of given separator)'''
print(c.split(';',1))

print("{} and {} are alphabets".format("a","b"))
```

```
python programming
python programming
False
True
('python ', 'is', ' amazing')
@python@
python is fantastic
['python', 'java;c;are programming languages']
a and b are alphabets
```

String Traversal

String Search

```
var="hello"
for i in var:
    print(i)
```
Output
h
e
l
l
o

```
var="hello"
i=0
while i < len(var):
    letter=var[i]
    print(letter)
    i=i+1
```
Output
h
e
l
l
o

```
def searchstr(str,ch):
        index=0
        while index < len(str):
                if str[index]==ch:
                        return index
                index=index+1
return -1
a=searchstr("hello","e")
print(a)
```
Output
1

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