STRINGS

CONTENT – REVIEW

Introduction of Strings

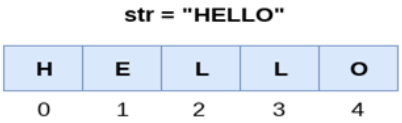
String : It is the collection of characters which is enclosed in single quotes(‘ ’) ,double quotes(“ “) or in triple quotes(“‘ “‘).Characters can be numeric,special symbol,letters,whitespaces etc.

For Example:Title,Book_Title,Address and Email are variables of string data type.

```
>>> Title='Python'
>>> Book_Title="Computer Science"
>>> Address="Hno 13"
>>> Email='''abc2gmail.com'''
```

Features of String

1. It is a sequential data type, means data is stored in sequence. For example:



1. It is immutable data type. It means we cannot change value in given string otherwise it will provide error.For Example

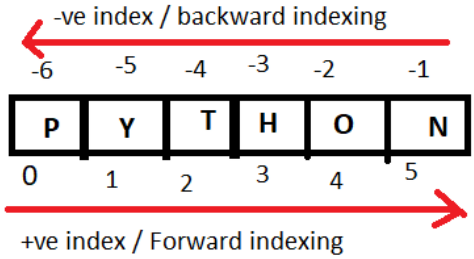
```
>>> str1="Python"
>>> str1[2]="a"
Traceback (most recent call last):
  File "<pyshell#6>", line 1, in <module>
    str1[2]="a"
TypeError: 'str' object does not support item assignment
```

How can we Access Characters from String

INDEXING:

It is a process in which we can access each and every elements individually by using index values. The first character in the string has 0 index then 1 and so on from left hand side using square bracket.

For Example:



String Operations

There are five main operations which can be performed on string:

1. Concatenation
2. Repetition
3. Membership
4. Slicing
5. Traversing

1. Concatenation operation

Concatenation means to join two strings together by using concatenation operator which is denoted by '+' symbol. The string is immutable data type so after concatenation of immutable sequence data type results in new object.
For Example:

```
>>> str1="Hello"
>>> str2="Python"
>>> str3=str1+str2
>>> str3
'HelloPython'
```

conti..

Note: Concatenation operator work for only string objects.if we try another data type with string it will produce error.

```
>>> a=10
>>> b="Hello"
>>> c=a+b
Traceback (most recent call last):
  File "<pyshell#2>", line 1, in <module>
    c=a+b
TypeError: unsupported operand type(s) for +: 'int' and 'str'
>>> a="10"
>>> c=a+b
>>> c
'10Hello'
```

Here a is integer data type

Here a is string data type

2. Repetition

The repetition operator * will make multiple copies of that specific object and combine them together. When * is used between two numeric values ,it performs multiplication but in case of string it perform repetition.

For example:

```
>>> str1="hello"
>>> print(str1*3)
hellohellohello
```

3.Membership Operators

They check whether a sequence appears in an object or not. There are two membership operators present in python. To check if any sequence is present in any object we use in and to check if a sequence is not present in any object we use not in. We get the output in the form of a boolean value that is True or False.

Operator	Description	Example
in	Evaluates to true if it finds a variable in the specified sequence and false otherwise.	x in y, here **in** results in a 1 if x is a member of sequence y.
not in	Evaluates to true if it does not finds a variable in the specified sequence and false otherwise.	x not in y, here **not in** results in a 1 if x is a member of sequence y.

Conti..

For Example:

```
>>> a="Hello Python"
>>> 'P' in a
True
>>> 'g' not in a
True
>>> 'L' in a
False
```

4. Slicing

Slicing operation is used for accessing the specific slice(subpart) of the given string.The format is used for slicing is:

string_name[start:stop:step(increment/decrement]

Note:It will automatically start at index 0, stop at the end and step by 1 unless you declare otherwise.

str = "HELLO"

H	E	L	L	O
-5	-4	-3	-2	-1

str[-1] = 'O'

str[-2] = 'L'

str[-3] = 'L'

str[-4] = 'E'

str[-5] = 'H'

str[-3:-1] = 'LL'

str[-4:-1] = 'ELL'

str[-5:-3] = 'HE'

str[-4:] = 'ELLO'

str[::-1] = 'OLLEH'

5. Traversing

The process of accessing each and every element of the given object is known as traversing . It can be performed by using for loop in sequential manner.

For Example:

```
a="Python"
for i in a:
    print(i)
```

```
P
y
t
h
o
n
```

Built-in Function

Function Name	Description	Example

len()	returns the length of given string	`>>> a=len("Hello")`
		`>>> print(a)`
		`5`

capitalize()	Returns the copy of the string with its first character capitalized and the rest of the letters are in lowercase.	`>>> a="hello"`
		`>>> b=a.capitalize()`
		`>>> print(b)`
		`Hello`

title()	Returns a string where each word starts with an uppercase character, and the remaining characters are lowercase	`>>> "computer".title()` `'Computer'`
lower()	All the characters are converted to lowercase.	`>>> "HELLO".lower()` `'hello'`
upper()	All the characters are converted to uppercase.	`>>> "hello".upper()` `'HELLO'`

conti..

Function Name	Description	Example

find()	Returns the index of the first occurence of a substring in the given string. If the substring is not found it returns -1	>>> "hello".find('e'
		1
		>>> "hello".find('p'
		-1

index()	Returns the index of the first occurence of a substring in the given string.	>>> "Python".index('o') 4

endswith()	Returns True if a string ends with the specified suffix (case-sensitive), otherwise returns False.	>>> "Python".endswith("n")
		True
		>>> "Python".endswith("g")
		False

startswith()	Returns True if a string starts with the specified suffix (case-sensitive), otherwise returns False.	>>> "Hello CS".startswith("H")
		True
		>>> "Hello CS".startswith("C")
		False

count()	Searches (case-sensitive) the specified substring in the given string and returns an integer	>>> "Hello CSCS ".count("CS") 2

conti...

Function Name	Description	Example
isalnum()	Returns True if all characters in the string are alphanumeric (either alphabets or numbers). If not, it returns False.	>>> "Hello123".isalnum() True
isalpha()	Returns True if all characters in a string are alphabetic (both lowercase and uppercase)	>>> "HelloPython".isalpha() True

isdigit()	Returns True if all characters in a string are digits or Unicode char of a digit. If not, it returns False.	>>> "Hello123".isdigit()
		False
		>>> "1356".isdigit()
		True

islower()	Return true if all the given characters are in lowercase.	>>> "Hello".islower() False

isupper()	Return true if all the given characters are in uppercase.	>>> "HELLO".isupper()
		True
		>>> "Hello".isupper()
		False

conti...

Function Name	Description	Example

isspace()	Returns True if all the characters of the given string are whitespaces.	`>>> "  ".isspace()`
		`True`
		`>>> "Hello Python".isspace()`
		`False`

lstrip()	Returns a copy of the string by removing leading characters specified as an argument.	`>>> "  Language".lstrip()` `'Language'`
rstrip()	Returns a copy of the string by removing the trailing characters specified as argument.	`>>> "Language ".rstrip()` `'Language'`
strip()	Returns a copy of the string by removing both the leading and the trailing characters.	`>>> "  Language  ".strip()` `'Language'`

conti..

Function Name	Description	Example
replace()	Returns a copy of the string where all occurrences of a substring are replaced with another substring.	`>>> "Home Work".replace("Home","School")` `'School Work'`

join()	Returns a string, which is the concatenation of the string on which it is called as an argument with specificiterable object	`>>> a="$"`
		`>>> a.join("Science")`
		`'S$c$i$e$n$c$e'`

partition()	Splits the string at the first occurrence of the specified string separator sep argument and returns a tuple containing three elements, the part before the separator, the separator itself, and the part after the separator.	`>>> a="Hello CS"`
		`>>> a.partition(' ')`
		`('Hello', ' ', 'CS')`

split()	Splits the string from the specified separator and returns a list object with string elements.	`>>> "Hello Bye".split()` `['Hello', 'Bye']`

WORKSHEETS

CLASS: XI (LEVEL 1)

1. If first= “FIRE STOP” with string values then what will be the output of first[3] and first[6].
2. Write the name of membership operators used for string data type.
3. What will be the result of following expression:
    a. len(“Papaya”)
    b. “Co” in “country
    c. “divya”>”Divya
4. Evaluate following expressions for given string :

    string1=”My work”

    a. string1[3:6]
    b. string1[: : 2]
    c. string1*2
5. Write differences between upper() and isupper() functions.
6. Asha is using Python idle and try to capitalize first character of each word and using following code:

    address= “ ram sita radha riya”

    address.upper()

But all the characters changed in uppercase , so suggest her the built in function name which can fulfill her requirements.

7. Which of the following operator is used for concatenation of two strings?

    a. - b. * c. + d. /

8. Which function will remove leading space from the given string?
9. Find out the errors and write the correct code :

    a= “hello”

    b=a* ”2”

    c=a+b

10. Write a program which can check whether the given character is uppercase or lowercase letter

CLASS: XI (LEVEL 2)

1. Which of the following function is used for checking whether the given value is number or not:
   a. isalpha() b. isdigit() c. isalnum() d. None of the above
2. How is capitalize() function different from upper() function?
3. What will be the output of following code:

```
str= “Hello India”
p=2 * str + 2* “wow”
print(p)
```

4. Write down the output after performing given function:
   a. ”Very good”.title()
   b. “ Bye Bye”.rstrip()
   c. “favourite.index(‘u’)
5. What is the use of endswith() function?
6. Pooja is writing a program for entering mobile number of her friends and try to check whether the given input is number and writing following code:

```
a= int(input(“enter phone no.”))
If a.isalnum()==True:
    print(“valid number”)
 else:
    print(“not valid”)
```

   So suggest her the correct function for getting her desired output and write correct code.
7. Find out the error in the given code and write the reason :

```
name=”priyanshi”
name[4]=a
```

8. Write the difference between endswith() and endswith()

9. Define slicing and explain with examples.
10. Write a program which replaces all vowels in the string with '*' .

WORKSHEET FOR COMPUTER SCIENCE

CLASS: XI (LEVEL 3)

1. What is the use of join () function and write one example?
2. Write the output of following code:

```
first=" Programming Language Learning work"
first.partition("Language")
```

3. What is the difference between join and partition?
4. Evaluate the following expression :
   a. "$$".join("My", "Godness")
   b. "No need ".rstrip()
   c. "Going For walk".split(" ")
5. Find the output of following statements:

```
str1= "Interesting"
print(str1[2:7])
print(str1[-1:-5:-1])
print(str1[: : 2])
print(str1[-5:0:1])
```

6. Function…… raises an exception if the substring is not found.
7. s= ' ' (single space).Then s.isalnum() will return .
   a. True b. False c. Error d. None
8. Ravi wanted to search the index of the word "work" in his program and wrote the following code in Python but it produced a value error. He did not understand what was wrong with the code .

"My School work".index(" Work")

Suggest him the code(other function name) which will not produce errors.

9. Write a program to input a string and calculate the length of each word present in string and print length along with the word.

10.a Write a program to input a string and print the total number of uppercase and lowercase letters in a given string.

COMPETENCY BASED

CASE BASED QUESTIONS

1. Asha is using Python idle and try to capitalize first character of each word and using following code:

   address= " ram sita radha riya"

   address.upper()

   But all the characters changed in uppercase , so suggest her the built in function name which can fulfill her requirements.

2. Pooja is writing a program for entering mobile number of her friends and try to check whether the given input is number and writing following code:

```
a= int(input("enter phone no."))
If a.isalnum()==True:
    print("valid number")
else:
    print("not valid")
```

   So suggest her the correct function for getting her desired output and write correct code.

3. Ravi wanted to search the index of the word "work" in his program and wrote the following code in Python but it produced a value error. He did not understand what was wrong with the code .

```
"My School work".index(" Work")
```

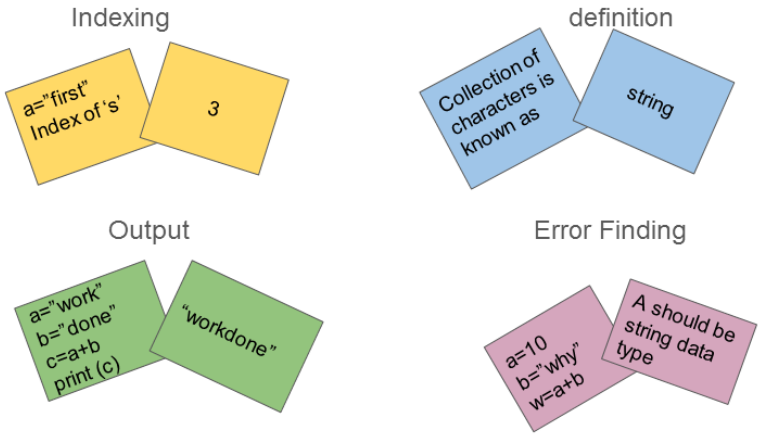
   Suggest him the code(other function name) which will not produce errors.

COMPETENCY BASED QUESTION

1. Write a program to input a string and calculate the length of each word present in string and print length along with the word.
2. Write a program to input a string and print the total number of uppercase and lowercase letters in a given string.
3. A string is given of three or more words, now the task is to write a Python program to check whether a specific word is present in that given string.
4. program to read a string and display it in reverse order- display one character per line.

FLASH CARDS

Flash card of introduction of String



Flash card of string built in function