Python programming

Features of python

- Easy to learn
- Easy to read
- High level language
- Multithreading, multiprocess
- Garbage collector
- Interpreter→runs the program line by line. It coverts every line into machine language, and executes in the memory
- GUI -→Graphical user interface→tkinter, QtPy
- Networking -→socket programming
- If you know python then you may design --→ single user, web application(Django,Flask), ML,AI(Scikit-learn)
- Interactive—allows to accept i/p from user
- Python dynamically typed.
  s=34
  s="Kishori"
  s=56.7

  Variable
- Variable name should start with alphabet, can use combination of alphabet and digits
- It cannot contain special character
- Do no use keywords as variable

Structure of python program

1. Semicolon is not mandatory
2. No {} , () begin and end curly braces for loops, functions are not needed , () for condtion declaration is not needed.

Download python from python.org

To check python version

Open cmd prompt

C:\system32>python –version

To open python shell or REPL (Read evaluate print loop>

C:\system32>python

Operators in python

<mark>Arithmetic operators</mark>

+, -, *, /, %, //(integer division),   :=(walrus)

a=4

b=3

C=a//b

==Ternary operator in python==

C=a>b?a:b   #java

C=a if a>b else b #pythonic

==There is no ++ and - - operator==

==Logical operator==

and , or, not

==relational operators==

>, < , >=, <=, ==, !=

Bitwise opearators

& , | , >>, <<, ^

Loops in python

2 loops in python

1. For loop
   a. If you know number of iterations in advance
2. While loop
   a. If the number of iterations are not known, then we use while loop

  For----else

  While----else

==Strings in python==
Internally the string is list of characters

T	H	I	S		I	S		S	T	R	I	N	G
0	1	2	3	4	5	6	7	8	9	10	11	12	13
-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1

To find last character	S[-1]	G		
To display 2 to 7 characters	S[2:9]	IS IS S		
To display string from 2 nd index till end	S[2:]	IS IS STRING	S	I
To display string from THE BEGINNING TILL 8 index POSITION	S[:9]			
To display all characters at even index position	S[::2]			
To display all characters at even index position	S[1::2]			
To display string in reverse order	S[::-1]			

String.find(substr,[start,end])	The position of the first occurrence of the substr, and returns -1 if not found. Start and end are optional, if you specify then searching will be done only in that portion , otherwise it searches the whole string
String.rfind(substr, ,[start,end])	The position of the last occurrence of the substr, and returns -1 if not found Start and end are optional, if you specify then searching will be done only in that portion, otherwise it searches the whole string
String.index(substr)	The position of the first occurrence of the substr, and throws exception if not found Start and end are optional, if you specify then searching will be done only in that portion , otherwise it searches the whole string
String.rindex(substr)	The position of the last occurrence of the substr, and throws exception if not found Start and end are optional, if you specify then searching will be done only in that portion , otherwise it searches the whole string
String.upper()	Convert string in uppercase
String.lower()	Convert the string into lowercase
String.startswith("xxx")	Returns true if string starts with xxx, else it returns false
String.endswith("xxx")	Returns true if string ends with xxx, else it returns false
String.split(":")	"abc:pqr:xyz".split(":") , it will break the string into 3 parts, and store it in the list
"delimiter".join(lst)	All the values of lst will be concatenated by delimiter and generate a string
String.replace(oldstr,newstr,[count])	If count is not given the all occurrences of oldstr will be replaced by new str
String.count(substr)	It prints the number of occurrence of the substr in the string
String.strip(list of characters)	This function will delete all occurrence of characters from left and right side of the string
String.lstrip(list of characters)	This function will delete all occurrence of characters from left side of the string

String.rstrip(list of characters)	This function will delete all occurrence of characters from right side of the string

Basic data types are:

Number

String

Boolean

All basic data types are immutable.

Data structure
1. List
2. Tuple
3. Set
4. Frozenset
5. Dictionary

List:

1. It is dynamically growable and shrinkable

2. heterogeneous data can be stored

3. ordered list, it maintains the order of insertion, it means that we can retrieve the data randomly by using index

1,4,23,10

4. it allows duplicate values.

5. to represent lists we use []

6. lists are mutable

List.index(val,[start,end])	Returns index position of the first occurrence of the number if found, else it throws exception if not found If start and end values are given then it searches in the given range, otherwise search in entire list
List.append(data)	It adds one element at the end of the list
List.extend([d1,d2,d3])	It adds multiple elements at the end of the list
List.insert(pos,data)	It add data at the given position
List.pop([num])	If num is not given, then by default pop will delete the values from the end of the list, but id=f num is given, then it deletes from the num position
List.remove(data)	If deletes the first occurrence of data from the list if exists, otherwise it will generate exception
List.reverse()	It reverse the list, it changes the original list
List.sort()	If the list contains homogeneous values then only it will sort in ascending order, to arrange it in descending order Lst.sort(reverse=True), it changes the original list
List.count(val)	It returns number of occurrences of the given values
List.clear()	It removes all the values from the list

| List.copy() | It will create a shallow copy of the list |