# Basic Python

1. Write a Python program which accepts the user's first and last name and prints them inreverse order with a space between them.

a = str(input('Enter first name: '))

b = str(input('Enter last name: '))

print(b,a)

1. Write a Python program which accepts a sequence of comma-separated numbers from theuser and generates a list and a tuple with those numbers. Sample data : 3, 5, 7, 23 Output :

List : ['3', ' 5', ' 7', ' 23']

Tuple : ('3', ' 5', ' 7', ' 23')

values = input("Enter numbers:").split(",")

print("List:",values)

print("Tuple :",tuple(values))

1. Write a Python program to display the first and last colours from the following list.color\_list = ["Red","Green","White" ,"Black"]

- color\_list = ["Red","Green","White" ,"Black"]

print( "%s %s"%(color\_list[0],color\_list[3]))

1. Write a Python program to print the documents (syntax, description etc.) of Python built-infunction(s).

Sample function : abs() Expected Result : mat abs(number) -> number

Return the absolute value of the argument.

1. Write a Python program to print the calendar of a given month and year.Note : Use 'calendar' module.
2. Write a Python program to calculate number of days between two dates.

Sample dates : (2014, 7, 2), (2014, 7, 11)

Expected output : 9 days

1. Write a Python program to check whether a specified value is contained in a group of values.Test Data :

3 -> [1, 5, 8, 3] : True

-1 -> [1, 5, 8, 3] : False

1. Write a Python program to create a histogram from a given list of integers.
2. Write a Python program to concatenate all elements in a list into a string and return it.
3. Write a Python program to print out a set containing all the colors from color\_list\_1 which arenot present in color\_list\_2.

Test Data : color\_list\_1 = set(["White", "Black", "Red"]) color\_list\_2 = set(["Red", "Green"]) Expected Output :

{'Black', 'White'}

1. Write a Python program to check whether a file exists.
2. Write a python program to call an external command in Python.
3. Write a Python program to find out the number of CPUs using.
4. Write a Python program to list all files in a directory in Python.
5. Write a python program to access environment variables.
6. Write a Python program to get the current username
7. Write a program to get execution time for a Python method.
8. Write a Python program to get an absolute file path.
9. Write a Python program to get file creation and modification date/times.
10. Write a Python program to sort three integers without using conditional statements andloops.
11. Write a Python program to sort files by date.
12. Write a Python program to get the command-line arguments (name of the script, the numberof arguments, arguments) passed to a script.
13. Write a Python program to find the available built-in modules.
14. Write a Python program to get the size of an object in bytes.
15. Write a Python program to get the current value of the recursion limit.
16. Write a Python program to count the number occurrence of a specific character in a string.
17. Write a Python program to get the system time.
18. Write a Python program to clear the screen or terminal.
19. Write a Python program to get the name of the host on which the routine is running.
20. Write a Python program to access and print a URL's content to the console.

# Python Data Structure

## Array

1. Write a Python program to create an array of 5 integers and display the array items.Access individual element through indexes.

from array import \*

array\_num = array('i', [1,3,5,7,9])

for i in array\_num:

print(i)

print("Access first three items individually")

print(array\_num[0])

print(array\_num[1])

print(array\_num[2])

1. Write a Python program to reverse the order of the items in the array.

from array import \*

array\_num = array('i', [1, 3, 5, 3, 7, 1, 9, 3])

print("Original array: "+str(array\_num))

array\_num.reverse()

print("Reverse the order of the items:")

print(str(array\_num))

1. Write a Python program to get the number of occurrences of a specified element in anarray.

from array import \*

array\_num = array('i', [1, 3, 5, 3, 7, 9, 3])

print("Original array: "+str(array\_num))

print("Number of occurrences: "+str(array\_num.count(3)))

1. Write a Python program to remove the first occurrence of a specified element from anarray.

## Dictionary

1. Write a Python script to sort (ascending and descending) a dictionary by value.

import operator

d = {1: 2, 3: 4, 4: 3, 2: 1, 0: 0}

print('Original dictionary : ',d)

sorted\_d = sorted(d.items(), key=operator.itemgetter(1))

print('Dictionary in ascending order by value : ',sorted\_d)

sorted\_d = dict( sorted(d.items(), key=operator.itemgetter(1),reverse=True))

print('Dictionary in descending order by value : ',sorted\_d)

1. Write a Python script to add a key to a dictionary.

Sample Dictionary : {0: 10, 1: 20}

Expected Result : {0: 10, 1: 20, 2: 30}

d = {0:10, 1:20}

print(d)

d.update({2:30})

print(d)

1. Write a Python script to concatenate following dictionaries to create a newone.

Sample Dictionary : dic1={1:10, 2:20} dic2={3:30, 4:40} dic3={5:50,6:60}

Expected Result : {1: 10, 2: 20, 3: 30, 4: 40, 5: 50, 6: 60}

dict1={1:10, 2:20}

dict2={3:30, 4:40}

dict3={5:50,6:60}

dict4 = {}

for d in (dict1, dict2, dict3): dict4.update(d)

print(dict4)

1. Write a Python program to iterate over dictionaries using for loops.
2. Write a Python script to generate and print a dictionary that contains anumber (between 1 and n) in the form (x, x\*x).

Sample Dictionary ( n = 5) :

Expected Output : {1: 1, 2: 4, 3: 9, 4: 16, 5: 25}

1. Write a Python program to remove a key from a dictionary.

myDict = {'a':1,'b':2,'c':3,'d':4}

print(myDict)

del myDict['b']

print(myDict)

1. Write a Python program to print all unique values in a dictionary.

Sample Data : [{"V":"S001"}, {"V": "S002"}, {"VI": "S001"}, {"VI": "S005"},

{"VII":"S005"}, {"V":"S009"},{"VIII":"S007"}]

Expected Output : Unique Values: {'S005', 'S002', 'S007', 'S001', 'S009'}

1. Write a Python program to create a dictionary from a string.

Note: Track the count of the letters from the string.

Sample string : 'w3resource'

Expected output: {'3': 1, 's': 1, 'r': 2, 'u': 1, 'w': 1, 'c': 1, 'e': 2, 'o': 1}

1. Write a Python program to print a dictionary in table format.
2. Write a Python program to count the values associated with key in adictionary.

Sample data: = [{'id': 1, 'success': True, 'name': 'Lary'}, {'id': 2, 'success':

False, 'name': 'Rabi'}, {'id': 3, 'success': True, 'name': 'Alex'}]

Expected result: Count of how many dictionaries have success as True

1. Write a Python program to convert a list into a nested dictionary of keys.
2. Write a Python program to check multiple keys exists in a dictionary.
3. Write a Python program to count number of items in a dictionary value

that is a list.

## Sets

1. Write a Python program to create a set.

n = {0, 1, 2, 3, 4}

print(n)

1. Write a Python program to iteration over sets.

num\_set = {0, 1, 2, 3, 4, 5}

for n in num\_set:

print(n, end=' ')

1. Write a Python program to add member(s) in a set.

color\_set = {"blue","black"}

print("\nAdd single element:")

color\_set.add("Red")

print(color\_set)

4.Write a Python program to remove an item from a set if it is present in the set.

num\_set = {0, 1, 3, 4, 5}

print("Original set:")

print(num\_set)

num\_set.pop()

print("\nAfter removing the first element from the said set:")

print(num\_set)

1. Write a Python program to create an intersection of sets.
2. Write a Python program to create a union of sets.
3. Write a Python program to create set difference.
4. Write a Python program to create a symmetric difference.
5. Write a Python program to clear a set.
6. Write a Python program to use of frozensets.
7. Write a Python program to find maximum and the minimum value in a set.

## List

1. Write a Python program to sum all the items in a list.

def sum\_list(items):

sum\_numbers = 0

for x in items:

sum\_numbers += x

return sum\_numbers

print(sum\_list([1,2,8]))

1. Write a Python program to multiplies all the items in a list.

def multiply\_list(items):

tot = 1

for x in items:

tot \*= x

return tot

print(multiply\_list([1,2,8]))

1. Write a Python program to get the smallest number from a list.

def smallest\_num\_in\_list( list ):

min = list[ 0 ]

for a in list:

if a < min:

min = a

return min

print(smallest\_num\_in\_list([1, 2, 8, 0]))

## Tuple

1. Write a Python program to create a tuple.

tup = (1,2,3,4,5)

print(tup)

1. Write a Python program to create a tuple with different data types.

tup = ("tuple", False, 3.2, 1)

print(tup)

1. Write a Python program to unpack a tuple in several variables.

tup = (1,"abc",1.1)

(integer,string,floating)=tup

print(integer)

print(string)

print(floating)

print(tup)

1. Write a Python program to create the colon of a tuple.
2. Write a Python program to find the repeated items of a tuple.

tup = 2, 4, 5, 6, 2, 3, 4, 4, 7

print(tup)

count = tup.count(4)

print(count)

1. Write a Python program to check whether an element exists within a tuple.

tup = ("w", 3, "r", "e", "s", "o", "u", "r", "c", "e")

print("r" in tup)

print(5 in tup)

## Strings

1. Write a Python program to calculate the length of a string.

str = input("Enter a string: ")

counter = 0

for s in str:

counter = counter+1

print("Length of the input string is:", counter)

1. Write a Python program to count the number of characters (character frequency) in astring.

Sample String : google.com

Expected Result : {'o': 3, 'g': 2, '.': 1, 'e': 1, 'l': 1, 'm': 1, 'c': 1}

test\_str = "Data science bootcamp 001"

all\_freq = {}

for i in test\_str:

if i in all\_freq:

all\_freq[i] += 1

else:

all\_freq[i] = 1

print (str(all\_freq))

1. Write a Python program to get a string from a given string where all occurrences of itsfirst char have been changed to '$', except the first char itself.

Sample String : 'restart'

Expected Result : 'resta$t'

str = "Data Science bootcamp 001."

modified\_str = ''

for char in range(0, len(str)):

if(str[char] == 'a'):

modified\_str += '$'

else:

modified\_str += str[char]

print("Modified string : ")

print(modified\_str)

1. Write a Python script that takes input from the user and displays that input back inupper and lower cases.

input = input("Enter input")

print("My favourite language is ", input.upper())

print("My favourite language is ", input.lower())

1. Write a Python program to count occurrences of a substring in a string.

str1 = 'Data Science bootcamp 001.'

print()

print(str1.count("Data"))

print()

1. Write a Python program to reverse a string.

def string\_reverse(str1):

rstr1 = ''

index = len(str1)

while index > 0:

rstr1 += str1[ index - 1 ]

index = index - 1

return rstr1

print(string\_reverse('Data Science'))

1. Write a Python program to lowercase first n characters in a string.

str1 = 'DATA SCIENCE'

print(str1[:4].lower() + str1[4:])