Python Training  
WEEKEND ACTIVITY ON DATA STRUCTURES

By: Utkarsh Dandwate

**Q1. Create a list of the 10 elements of four different types of Data Type like int,**

**string, complex and float.**

**🡪** x = [1,2,3.645,4.6589,"utk",5+6j, 7+8j,"utkarsh",9,"10"]

**Q2.** **Create a list of size 5 and execute the slicing structure.   
🡪** x = [1,"2","Three",4,"Five"]

print(x[0:])

print(x[0:len(x):2])

print(x[:4:1])

print(x[::-1])

**Output:**   
[1, '2', 'Three', 4, 'Five']

[1, 'Three', 'Five']

[1, '2', 'Three', 4]

['Five', 4, 'Three', '2', 1]

**Q3.** **Create a list of given structure and run**

**x=[100,200,300,400,500,[1,2,3,4,5,[10,20,30,40,50],6,7,8,9],600,700,800]**

**● Access list [1, 2, 3, 4]**

**● Access list [600, 700]**

**● Access list [100, 300, 500, 600, 800]**

**● Access list [[800, 700, 600, [1, 2, 3, 4, 5, [10, 20, 30, 40, 50], 6, 7, 8, 9], 500, 400, 300,**

**200, 100]]**

**● Access list [10]**

**● Access list [ ]**

**🡪** - x=[100,200,300,400,500,[1,2,3,4,5,[10,20,30,40,50],6,7,8,9],600,700,800]

y = x[5]

print(y[0:4])

- x=[100,200,300,400,500,[1,2,3,4,5,[10,20,30,40,50],6,7,8,9],600,700,800]

print(x[6:8])

- x=[100,200,300,400,500,[1,2,3,4,5,[10,20,30,40,50],6,7,8,9],600,700,800]

print(x[::2])

- x=[100,200,300,400,500,[1,2,3,4,5,[10,20,30,40,50],6,7,8,9],600,700,800]

print(x[::-1])

- x=[100,200,300,400,500,[1,2,3,4,5,[10,20,30,40,50],6,7,8,9],600,700,800]

y = x[5]

z= y[5]

print(z[0])

- x=[100,200,300,400,500,[1,2,3,4,5,[10,20,30,40,50],6,7,8,9],600,700,800]

print(x[-1:-2])

**Q4.** **Create a list of thousand number using range and xrange and see the difference**

**between each other.**

**Q5. How Tuple is beneficial as compare to the list?**

**Q6. Write a program in Python to iterate through the list of numbers in the range of 1,100**

**and print the number which is divisible by 3 and a multiple of 2.**

**🡪** for i in range(1,100):

if i%3==0 and i%2==0:

print(i)

**Q7.** **Write a program in Python to reverse a string and print only the vowel alphabet if**

**exist in the string with their index.**

🡪 x = list(input("Please enter a string: \n"))

print(x[::-1])

for i in range(len(x)):

if x[i]=="a" or x[i]=="e" or x[i]=="i" or x[i]=="o" or x[i]=="u":

print(i,x[i])

**Q8. Write a program in Python to iterate through the string “hello my name is abcde” and**

**print the string which has even length of word.**

**🡪** x = "hello my name is abcde"

y = list(x.split(" "))

for i in range(len(y)):

if len(y[i])%2==0:

print(y[i])

**Q9.** **Write a program in python to print the pair of numbers whose sum is equal to result**

**number that is let's say 8.**

**x=[1,2,3,4,5,6,7,8,9,-1 ]**

**🡪** x = [1, 2, 3, 4, 5, 6, 7, 8, 9, -1]

y = []

for i in range((len(x))):

for j in range((len(x) )):

if (x[i] + x[j]) == 8:

y = [(x[i], x[j])]

print(y)

**Q10. Write a program in Python to complete the following task:**

**● Create two different list as in even\_list and odd\_list**

**● Ask user to enter the number in the range of 1,50 and make sure if the entered**

**number is even append it to the even\_list and if the entered number is odd**

**append it to the odd list.**

**● Keep that in mind you can only add 5 items in each list**

**● Make sure once you entered the total 5 element calculate the sum of the list**

**and return the maximum out of the list.**

**🡪** even\_list = []

odd\_list = []

ec = 0

sum\_even = 0

oc = 0

sum\_odd = 0

while ec < 5 or oc < 5:

x = eval(input("Please enter a number between 1 to 50 \n"))

if x % 2 == 0 and ec < 5:

even\_list.append(x)

ec += 1

elif x % 2 != 0 and oc < 5:

odd\_list.append(x)

oc += 1

if x % 2 != 0 and oc >= 5:

print("Sorry the list is at maximum capacity.")

if x % 2 == 0 and ec >= 5:

print("Sorry the list is at maximum capacity.")

if len(even\_list) == 5:

for i in range(5):

sum\_even = sum\_even + even\_list[i]

print("The sum of elements in even list is: ", sum\_even)

print("The Largest number of even list is: ", max(even\_list))

if len(odd\_list) == 5:

for j in range(5):

sum\_odd = sum\_odd + odd\_list[j]

print("The sum of elements in odd list is: ", sum\_odd)

print("The Largest number of od list is: ", max(odd\_list))

**Q11.** **Write a program to find out the occurrence of a specific word from an alphanumeric**

**statement. Example: 12abcbacbaba344ab**

**Output: a=5 b=5 c=2 make sure you should avoid the numbers in you logic**

**🡪** x = input("Enter a continuous string of alphanumeric characters: \n")

count = {}

for i in range(len(x)):

if x[i].isalpha() and x[i] in count:

count[x[i]] += 1

else:

count[x[i]] = 1

print("The number of occurrences of each alphabetical character is: " + str(count))

**Q12. Generate and print another tuple whose values are even numbers in the given tuple**

**(1,2,3,4,5,6,7,8,9,10).**

**🡪**x = (1, 2, 3, 4, 5, 6, 7, 8, 9, 10)

y = []

for i in range(len(x)):

if x[i] % 2 == 0:

y.append(x[i])

z = tuple(y)

print("The new tuple consisting of only even numbers is: ", z)