Pune University

....T.Y.B.Sc (Comp Sci)....

M.C.E Society – Pune

Abeda Inamdar Senior College

Secc – 1

CS – 3510

PYTHON PROGRAMMING

Semester - V

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Presented By – Mohammed Naved & Shahnoor

.....Introducing a Pybook.....

We are always grateful to Namita Mam for giving us this opportunity.

In this file we have given only and only questions and also answers to those questions.

But while creating this file, we realized that with the answers to the questions, we should create a file for the students to practice the code, for which we created a pybook.

In that file we have written all the information in great detail. There is also a code that allows you to practice the code or change the code.

If anyone wants that file please contact us and we will definitely give you that file.

...Set A List...

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

Source Code -

```
a = [11,22,33,44,55,66,77,88,99]
n=0
for i in a:
    n += i
    #n = n + i
print(" List is : ", a, "\n Sum all the items in a list is : ", n)

print("\n\t OR \n")

a=[10,20,30,40,50,60,70,80,90]
b=sum(a)
print(" List is : ",a)
print(" Sum all the items in a list is : ",b)

print("\n\t OR \n")

a=[1,2,3,4,5,6,7,8,9,0]
print(" List is : ",a,"\n Sum all the items in a list is : ",sum(a))
```

Output –

List is : [11, 22, 33, 44, 55, 66, 77, 88, 99]
Sum all the items in a list is : 495

OR

List is : [10, 20, 30, 40, 50, 60, 70, 80, 90]
Sum all the items in a list is : 450

OR

List is : [1, 2, 3, 4, 5, 6, 7, 8, 9, 0]
Sum all the items in a list is : 45

Q 2. Write a Python program to multiplies all the items in a list.

Source Code –

```
a=[1,2,3,4,5,6,7,8,9]
n=1
for i in a:
    n *= i
    #n = n * i
print("\t List is : ", a, "\n\t Multiplication all the items in a list is : ", n)
```

Output –

List is : [1, 2, 3, 4, 5, 6, 7, 8, 9]
Multiplication all the items in a list is : 362880

Q 3. Write a Python program to get a list, sorted in increasing order by the last element in each tuple from a given list of non-empty tuples.

Source Code –

...Set A Tuple...

Q 1. **Write a Python program to create a tuple.**

Source Code –

```
a=(1,2,3,4,5,6,7,8,9)
print(" This Is an example of tuple : ",a)
print(" Type is : ",type(a))

print("\n\t OR \n")

b=()
print(" This is an example of empty tuple :
",type(b))

print("\n\t OR \n")

c=(1,2,(3,4,5,(6,7,8,),(9,10)),11)
print(" This is an example of nested tuple : ",c)
print(" Type is : ",type(c))

print("\n\t OR \n")

d=tuple([5,4,6,2,1,8])
print(" This is an example of tuple with typecasting
: ", d)
print(" Type is : ", type(d))
```

Output –

This Is an example of tuple : (1, 2, 3, 4, 5, 6, 7, 8, 9)
Type is : <class 'tuple'>

OR

This is an example of empty tuple : <class 'tuple'>

OR

This is an example of nested tuple : (1, 2, (3, 4, 5, (6, 7, 8), (9, 10)), 11)
Type is : <class 'tuple'>

OR

This is an example of tuple with typecasting : (5, 4, 6, 2, 1, 8)
Type is : <class 'tuple'>

Q 2. Write a Python program to create a tuple with different data types

Source Code –

```
a=(1,1.5,3+5j,True,"Hello World",[1,2,3],{1 :
"Hello",2 : "World"},{1,2,3})
print(" Answer : ",a)
print(" Type is : ",type(a))

print("\n\t OR \n")

a=(1,1.5,2+5j,True,[1,2,3,4,5],{6,7,8,9},{1 :
"Hello",2 : "World"},(8,5,2))
print("\n Tuple is : ",a)
print("\n Type of 'a' : ",type(a))
for i in range(0, len(a)):
    print("\t Type of a[",i,"]",type(a[i]))
```

Output –

Answer : (1, 1.5, (3+5j), True, 'Hello World', [1, 2, 3], {1: 'Hello', 2: 'World'}, {1, 2, 3})

Type is : <class 'tuple'>

OR

Tuple is : (1, 1.5, (2+5j), True, [1, 2, 3, 4, 5], {8, 9, 6, 7}, {1: 'Hello', 2: 'World'}, (8, 5, 2))

Type of 'a' : <class 'tuple'>

Type of a[0] <class 'int'>
Type of a[1] <class 'float'>
Type of a[2] <class 'complex'>
Type of a[3] <class 'bool'>
Type of a[4] <class 'list'>
Type of a[5] <class 'set'>
Type of a[6] <class 'dict'>
Type of a[7] <class 'tuple'>

Q 3. Write a Python program to check whether an element exists within a tuple.

Source Code –

```
a=(8,5,4,6,7,1,9,2)
b=eval(input(" Enter Any Element : "))
if(b in a):
    print("\t ",b," is present in tuple : ",a)
else:
    print("\t ",b," is not present in tuple : ",a)
```

Output –

Enter Any Element : 3
3 is not present in tuple : (8, 5, 4, 6, 7, 1, 9, 2)

...Set A Sets...

Q 1. Write a Python program to create a set.

Source Code –

```
a = {1,5,7,9,4,"Hello",'A',2.5}
print(" Set is : ",a)
print(" Type of 'a' is : ",type(a))

print("\n\t OR \n")

b = (1,7,5,6,4,8)
c = set(b)
print(" Creating Set By using typecasting : ", c)
print(" Type of 'a' is : ", type(c))
```

Output –

Set is : {1, 2.5, 4, 5, 7, 9, 'A', 'Hello'}
Type of 'a' is : <class 'set'>

OR

Creating Set By using typecasting : {1, 4, 5, 6, 7, 8}
Type of 'a' is : <class 'set'>

Q 2. Write a Python program to iterate over sets.

Source Code –

```
a = set("Hello World")
print(" Iterating Using For Loop : ")
for i in a :
    print("\t\t",i,end=' ')
```

Output –

Iterating Using For Loop :

d r W H l e o

Q 3. **Write a Python program to create set difference**

Source Code –

```
a = {5,7,6,1,2,3,4}
b = {8,5,2,1,4,6,9}
print(" Difference By using '-' Sign ( a - b ) = ", a
- b)
print(" Difference By using '-' Sign ( b - a ) = ", b
- a)

print("\n\t OR \n")

print(" Difference By using b.difference(a) function
= ", b.difference(a))
print(" Difference By using a.difference(b) function
= ", a.difference(b))
```

Output –

Difference By using '-' Sign (a - b) = {3, 7}
Difference By using '-' Sign (b - a) = {8, 9}

OR

Difference By using b.differance(a) function = {8, 9}
Difference By using a.differance(b) function = {3, 7}

...Set A Dictionary...

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

Source Code –

```
a = {1 : "Hello",3 : "World",4 : "Welcome",2 : "Patience"}
print(" Dictionary Before Sorting is : ",a)
b = sorted(a.items())
print("\n Dictionary After Sorting in Ascending Order : ", b)
print("\n Dictionary After Sorting in Descending Order : ", b[: : -1])
```

Output –

Dictionary Before Sorting is :
{1: 'Hello', 3: 'World', 4: 'Welcome', 2: 'Patience'}

Dictionary After Sorting in Ascending Order :
[(1, 'Hello'), (2, 'Patience'), (3, 'World'), (4, 'Welcome')]

Dictionary After Sorting in Descending Order :
[(4, 'Welcome'), (3, 'World'), (2, 'Patience'), (1, 'Hello')]

Q 2. Write a Python script to add a key to a dictionary

Source Code –

```
a = {1: "Hello", 3: "World", 4: "Welcome", 2: "Patience"}
print(" Dictionary is : ",a)
a.update({5: "Pybook"})
print("\n New Updated Dictionary is : ",a)
```

Output –

Dictionary is :
{1: 'Hello', 3: 'World', 4: 'Welcome', 2: 'Patience'}

New Updated Dictionary is :
{1: 'Hello', 3: 'World', 4: 'Welcome', 2: 'Patience', 5: 'Pybook'}

Q 3. Write a Python program to iterate over dictionaries using for loops.

Source Code –

```
a = {1: "Hello", 3: "World", 4: "Welcome", 2:
"Patience"}
print(" Iterating Using For Loop : ")
for i in a.items():
    print("\t",i)
```

Output –

Iterating Using For Loop :
(1, 'Hello')
(3, 'World')
(4, 'Welcome')
(2, 'Patience')

...Set B List...

Q 1. Write a Python program to remove duplicates from a list.

Source Code –

```
a = [1,2,3,2,1,5,6,3,5,4,7,8]
b = set(a)
c = list(b)
print(" List With Duplicate Elements : ",a)
print(" Removing Duplicate Elements : ",c)
```

Output –

List With Duplicate Elements : [1, 2, 3, 2, 1, 5, 6, 3, 5, 4, 7, 8]

Removing Duplicate Elements : [1, 2, 3, 4, 5, 6, 7, 8]

Q 2. **Write a Python program to check a list is empty or not.**

Source Code –

```
a = [5,2,4,6,8,4,6]
if(len(a)==0):
    print("\t\tList is Empty : ",a)
else:
    print("\t\tList is Not empty : ",a)

print("\n\t\t\t OR \n")

a = [ ]
if (len(a) == 0):
    print("\t\tList is Empty : ",a)
else:
    print("\t\tList is Not empty : ",a)
```

Output –

List is Not empty : [5, 2, 4, 6, 8, 4, 6]

OR

List is Empty : [ ]

...Set B Tuple...

Q 1. Write a Python program to convert a list to a tuple.

Source Code –

```
a = [1,5,7,8,9,6,4,2,3]
print(" List is : ",a)
print("\t", type(a))
b = tuple(a)
print(" Converting Above List to Tuple : ",b)
print("\t", type(b))
```

Output –

```
List is :  [1, 5, 7, 8, 9, 6, 4, 2, 3]
 <class 'list'>

Converting Above List to Tuple :  (1, 5, 7, 8, 9, 6, 4, 2, 3)
 <class 'tuple'>
```

Q 2. Write a Python program to remove an item from a tuple

Source Code –

```
a = (1,2,5,4,8,9,6,)
b = a[:3] + a[4:]
print(" Tuple Before Change : ",a)
print(" ",type(a))
print(" Updated Tuple is : ",b)
print(" ",type(b))
```

Output –

Tuple Before Change : (1, 2, 5, 4, 8, 9, 6)
<class 'tuple'>

Updated Tuple is : (1, 2, 5, 8, 9, 6)
<class 'tuple'>

Q 3. **Write a Python program to slice a tuple.**

Source Code –

```
a = (8,5,2,4,"Hello",[5,6,2],{8,5})
print(" Tuple Before Slicing is : ",a)
b = a[:5]
c = a[5:]
d = a[::-1]
print(" Slicing elements from 0 to 5 : ",b)
print(" Slicing elements from 5 to end : ", c)
print(" Reverse The Tuple by Using Slicing : ", d)
```

Output –

Tuple Before Slicing is : (8, 5, 2, 4, 'Hello', [5, 6, 2], {8, 5})
Slicing elements from 0 to 5 : (8, 5, 2, 4, 'Hello')
Slicing elements from 5 to end : ([5, 6, 2], {8, 5})
Reverce The Tuple by Using Slicing : ({8, 5}, [5, 6, 2], 'Hello', 4, 2, 5, 8)

Q 4. Write a Python program to find the length of a tuple.

Source Code –

```
a = (4,5,3,"Hello","Welcome")
print(" Tuple is : ",a)
print(" Length of Above Tuple is : ",len(a))
```

Output –

Tuple is : (4, 5, 3, 'Hello', 'Welcome')

Length of Above Tuple is : 5

...Set B Sets...

Q 1. Write a Python program to check if a set is a subset of another set.

Source Code –

```
a = {8,5,2,1,4,6,7,}
b = {1,2,3,4,5,6,7,8,9}
c = a.issubset(b)
print("\t", a)
print("\t", b)
if (c == True):
    print("\n A is Subset of B")
else:
    print("\n A is Not a Subset of B")
```

Output –

{1, 2, 4, 5, 6, 7, 8}

{1, 2, 3, 4, 5, 6, 7, 8, 9}

A is Subset of B

Q 2. Write a Python program to find maximum and the minimum value in a set.

Source Code –

```
a = {1,5,6,4,7,8,9,2,3,1}
print(" Set : ",a)
print("\n Maximum Element of The Set A is : ",max(a))
print("\n Minimum Element of The Set A is : ",min(a))
```

Output –

Set : {1, 2, 3, 4, 5, 6, 7, 8, 9}

Maximum Element of The Set A is : 9

Minimum Element of The Set A is : 1

Q 3. **Write a Python program to find the length of a set.**

Source Code –

```
a = {8,4,6,2,1,7,3}
print("\t\t Set is : ",a)
print("\n\t\t Length of Above Set is : ",len(a))
```

Output –

Set is : {1, 2, 3, 4, 6, 7, 8}

Length of Above Set is : 7

...Set B Dictionary...

Q 1. Write a Python script to generate and print a dictionary that contains a number (between 1 and n) in the form (x, x*x).

Source Code –

```
a = int(input(" Enter Number Between (1 - 10) : "))
b = dict()
for i in range(0, a + 1):
    b[i] = i * i
print(" Dictionary is : ",b)
```

Output –

Enter Number Between (1 - 10) : 4

Dictionary is : {0 : 0, 1 : 1, 2 : 4, 3 : 9, 4 : 16}

Q 2. Write a Python script to merge two Python dictionaries

Source Code –

```
a = {1 : "Hello", 2 : "World", 3 : "Welcome"}
b = {4 : "How", 5 : "Are", 6 : "You"}
a.update(b)
print(" Merged Dictionary is : ",a)
```

Output –

Merged Dictionary is :

{1: 'Hello', 2: 'World', 3: 'Welcome', 4: 'How', 5: 'Are', 6: 'You'}

Q 3. **Write a Python program to get a dictionary from an object's fields.**

Source Code –

```
#i am not learn object so i get this program from the
net
class dictObj(object):
    def __init__(self):
        self.x = 'Hello'
        self.y = 'World'
        self.z = 'Welcome'

    def do_nothing(self):
        pass
test = dictObj()
print("\t\tDictionary is : ",test.__dict__)
```

Output –

```
        Dictionary is : {'x': 'Hello', 'y': 'World', 'z': 'Welcome'}
```