Python Lab Experiment-3

Topics to be covered : List, Tuples, Set, Dictionaries

Exercise based on above Topics:

1. Write a program to demonstrate list in python
2. Write a program to demonstrate tuples in python
3. Write a program to demonstrate Set in python
4. Write a program to demonstrate Dictionaries in python
5. Write a program to check number is Armstrong or not
6. Write a program to check number is palindrome or not
7. Write a program to check number is prime or not

1) Write a program to demonstrate list in python

```
#Create a List:

thislist = ["apple", "banana", "cherry"]

print(thislist)

Print the number of items in the list:

thislist = ["apple", "banana", "cherry"]

print(len(thislist))

#Print the second item of the list:

thislist = ["apple", "banana", "cherry"]

print(thislist[1])

#Return the third, fourth, and fifth item:

thislist = ["apple", "banana", "cherry", "orange", "kiwi", "melon"]

print(thislist[2:5])
```

2)Write a program to demonstrate tuples in python

```
#Example

#Tuples allow duplicate values:

thistuple = ("apple", "banana", "cherry", "apple", "cherry")

print(thistuple)

#Example

#Print the number of items in the tuple:
```

```
thistuple = ("apple", "banana", "cherry")

print(len(thistuple))

#Example

#One item tuple, remember the commma:

thistuple = ("apple",)

print(type(thistuple)) #NOT a tuple

thistuple = ("apple")

print(type(thistuple))

#Example

#A tuple with strings, integers and boolean values:

tuple1 = ("abc", 34, True, 40, "male")

print(tuple1)

#Example

#Print the second item in the tuple:

thistuple = ("apple", "banana", "cherry")

print(thistuple[0])

#Example

#Print the last item of the tuple:

thistuple = ("apple", "banana", "cherry")

print(thistuple[-2])

#Example

#Convert the tuple into a list to be able to change it:

x = ("apple", "banana", "cherry")

y = list(x)

y[1] = "kiwi"

x = tuple(y)

print(x)
```

3) Write a program to demonstrate Set in python

```
#Example

#Create a Set:

thisset = {"apple", "banana", "cherry"}

print(thisset)

#Example

#Get the number of items in a set:

thisset = {"apple", "banana", "cherry"}

print(len(thisset))

#Example

#String, int and boolean data types:

set1 = {"apple", "banana", "cherry"}

set2 = {1, 5, 7, 9, 3}

set3 = {True, False, False}

print(set1)

print(set2)

print(set3)

thisset = set(("apple", "banana", "cherry")) # note the double round-brackets

print(thisset)

#Example

#Loop through the set, and print the values:

thisset = {"apple", "banana", "cherry"}

for x in thisset:

  print(x)

#Example

#Add an item to a set, using the add() method:

thisset = {"apple", "banana", "cherry"}
```

```
thisset.add("orange")

print(thisset)
```

4) Write a program to demonstrate Dictionaries in python

```
#Create and print a dictionary:

thisdict = {

  "brand": "Ford",

  "model": "Mustang",

  "year": 1964

}

print(thisdict)

#Print the "brand" value of the dictionary:

thisdict = {

  "brand": "Ford",

  "model": "Mustang",

  "year": 1964

}

print(thisdict["brand"])

#There is also a method called get() that will give you the same result:

thisdict = {

  "brand": "Ford",

  "model": "Mustang",

  "year": 1964

}

x = thisdict.get("model")

print(x)

#String, int, boolean, and list data types:

thisdict = {
```

```
  "brand": "Ford",
  "electric": False,
  "year": 1964,
  "colors": ["red", "white", "blue"]
}
print(thisdict)
#Get a list of the keys:
thisdict = {
  "brand": "Ford",
  "electric": False,
  "year": 1964,
  "colors": ["red", "white", "blue"]
}
x = thisdict.keys()
print(x)
#Example
#Get a list of the values:
car = {
"brand": "Ford",
"model": "Mustang",
"year": 1964
}
x = car.values()
print(x)
#Example
#Loop through both keys and values, by using the items() method:
for x, y in thisdict.items():
```

```
  print(x, y)
#Create three dictionaries, then create one dictionary that will contain the other three dictionaries:
child1 = {
  "name" : "Emil",
  "year" : 2004
}
child2 = {
  "name" : "Tobias",
  "year" : 2007
}
child3 = {
  "name" : "Linus",
  "year" : 2011
}
myfamily = {
  "child1" : child1,
  "child2" : child2,
  "child3" : child3
}
print(myfamily)
```

5) Write a program to check number is Armstrong or not

```
# take input from the user
num = int(input("Enter a number: "))

# initialize sum
sum = 0
```

```
# find the sum of the cube of each digit
temp = num
while temp > 0:
   digit = temp % 10
   sum =sum+digit ** 3
   temp=temp//10
   print(temp)


# display the result
if num == sum:
   print(num,"is an Armstrong number")
else:
   print(num,"is not an Armstrong number")
```

output:

Enter a number: 121

12

1

0

121 is not an Armstrong number

6) Write a program to check number is palindrome or not

```
num = int(input("Enter a value:"))
temp = num
rev = 0
while(num > 0):
    dig = num % 10
```

```
    rev = rev * 10 + dig
    num = num // 10
if(temp == rev):
    print("This value is a palindrome number!")
else:
    print("This value is not a palindrome number!")
```

output:

Enter a value:121

This value is a palindrome number!

7) Write a program to check number is prime or not

```
# To take input from the user
num = int(input("Enter a number: "))

# define a flag variable
flag = False

# prime numbers are greater than 1
if num > 1:
    # check for factors
    for i in range(2, num):
        #print(i)
        if (num % i) == 0:
            # if factor is found, set flag to True
            flag = True
            # break out of loop
            break
```

```
# check if flag is True
if flag:
    print(num, "is not a prime number")
else:
    print(num, "is a prime number")
```

Output:

Enter a number: 11

11 is a prime number