[LAB TASK NO-6]

[KABEER AHMED (SE-28)]

DATE

Program 1: Write a program to copy a list.

INPUT:

```
list1=[10,22,44,23,4]
list2=list(list1)
print(list1)
print(list2)
```

OUTPUT:

[10, 22, 44, 23, 4]

[10, 22, 44, 23, 4]

Program 2: Using the following interactive session as an aid, explain in your own words what the list methods extend(), copy(), and clear() do.

INPUT:

```
list=[2,3,4]
list.extend([5,6])
print(list)
list1=list.copy()
print(list1)
list.clear()
print(list)
print(list1)
```

OUTPUT:

[2, 3, 4, 5, 6]

[2, 3, 4, 5, 6]

[]

[2, 3, 4, 5, 6]

Program 3: Write a Python function which takes no argument and generate and print a list of first and last 6 elements where the values are cube of numbers between 1 and 30 (both included).

INPUT:

```
def cubevalue():
    list1=list()
    for i in range(1,31):
        list1.append(i**3)
    print(list1[:6])
    print(list1[-6:])
cubevalue()
```

OUTPUT:

[1, 8, 27, 64, 125, 216]

[15625, 17576, 19683, 21952, 24389, 27000]

Program 4: Use of Extend method with list

INPUT:

```
list1=[2,1,3,5]
list2=[6,4,3]
list1.extend(list2)
list3=sorted(list1)
print ("List elements after extending are : ", end="")
for i in range(0, len(list3)):
    print(list3[i], end=" ")
print("\r")
```

OUTPUT:

List elements after extending are : 1 2 3 3 4 5 6

PROGRAMMING EXERCISE

1.Take a sample list [2, 1, 3, 5, 4, 3, 8]Apply del(), remove(), sort(), insert(), pop(), extend()…)

INPUT:

```
list=[1,2,3,7,5,6]
list1=[9,10,11]
list.remove(3)
print(list)
list.sort()
print(list)
list.insert(4,8)
print(list)
list.pop()
print(list)
list.extend(list1)
print(list)
```

OUTPUT:

[1, 2, 7, 5, 6]

[1, 2, 5, 6, 7]

[1, 2, 5, 6, 8, 7]

[1, 2, 5, 6, 8]

[1, 2, 5, 6, 8, 9, 10, 11]

KABEER

2.A ladder put up right against a wall will fall over unless put up at a certain angle less than90 degrees. Given variables length and angle storing the length of the ladder and the angle that it forms with the ground as it leans against the wall, write a Python expression involving length and angle that computes the height reached by the ladder. Evaluate the expression for these values of length and angle:

(a)16 feet and 75 degrees

INPUT:

```
from math import*
length=16#feet
angle=75#degrees
radians=pi*angle/180
height=length*sin(radians)
print("The Height Of Ladder is",round(height,2))
```

OUTPUT:

The Height of Ladder is 15.45

(b)20 feet and 0 degrees

INPUT:

```
from math import*
length=20#feet
angle=0#degrees
radians=pi*angle/180
height=length*sin(radians)
print("The Height Of Ladder is",round(height,2))
```

OUTPUT:

The Height Of Ladder is 0.0

(c)24 feet and 45 degrees

INPUT:

```
from math import*
length=24#feet
angle=45#degrees
radians=pi*angle/180
height=length*sin(radians)
print("The Height Of Ladder is",round(height,2))
```

OUTPUT:

The Height Of Ladder is 16.97

(d)24 feet and 80 degrees

INPUT:

```
from math import*
length=24#feet
angle=80#degrees
radians=pi*angle/180
height=length*sin(radians)
print("The Height Of Ladder is",round(height,2))
```

OUTPUT:

The Height Of Ladder is 23.64

3.Write the relevant Python expression or statement, involving a list of numbers list and using list operators and methods for these specifications:

(a)An expression that evaluates to the index of the middle element of list

(b)An expression that evaluates to the middle element of list

(c)A statement that sorts the list in descending order

(d)A statement that removes the first number of list and puts it at the end

PYHTON EXPRESSIONS:

```
list=[1,2,3,4,5]
middle=int(len(list)/2)
list[middle]
list.sort(reverse=(True))
list=[1,2,3,4,5]
list.append(list[0])
del list[0]
```

KABEER AHMED

4.Start by assigning to variables monthsL and monthsT a list and a tuple, respectively, both containing strings 'Jan', 'Feb', 'Mar', and 'May', in that order. Then attempt the following with both containers:
(a)Insert string 'Apr' between 'Mar' and 'May'.
(b)Append string 'Jun'.
(c)Pop the container.
(d)Remove the second item in the container.
(e)Reverse the order of items in the container.
(f)Sort the container.

FOR LIST

INPUT:

```
monthl=["Jan","Feb","Mar","May"]
monthl.insert(2,"Apr")
print(monthl)
monthl.append("Jun")
print(monthl)
monthl.pop()
print(monthl)
monthl.remove("Feb")
print(monthl)
monthl.reverse()
print(monthl)
monthl.sort()
print(monthl)
```

OUTPUT:

```
['Jan', 'Feb', 'Apr', 'Mar', 'May']
['Jan', 'Feb', 'Apr', 'Mar', 'May', 'Jun']
['Jan', 'Feb', 'Apr', 'Mar', 'May']
['Jan', 'Apr', 'Mar', 'May']
['May', 'Mar', 'Apr', 'Jan']
['Apr', 'Jan', 'Mar', 'May']
```

FOR TUPLE

INPUT:

```
monthl=("Jan","Feb","Mar","May")
monthl.insert(2,"Apr")
print(monthl)
monthl.append("Jun")
print(monthl)
monthl.pop()
print(monthl)
monthl.remove("Feb")
print(monthl)
monthl.reverse()
print(monthl)
monthl.sort()
print(monthl)
```

OUTPUT:

```
File "C:/Users/fc/.PyCharmCE2019.2/config/scratches/scratch_4.py", line 2, in
<module>
   monthl.insert(2,"Apr")
AttributeError: 'tuple' object has no attribute 'insert
```

KABEER AT

5. Write the corresponding Python assignment statements:
(a)Assign 6 to variable a and 7 to variable b.
(b)Assign to variable c the average of variables a and b.
(c)Assign to variable inventory the list containing strings 'paper', 'staples', and 'pencils'.
(d)Assign to variables first, middle and last the strings 'John', 'Fitzgerald', and 'Kennedy'.
(e)Assign to variable full name the concatenation of string variables first, middle, and last.

PYHTON EXPRESSIONS:

```
a=6
b=7
c=(a+b)/2
list1=['paper','staples','pencils']
first='John'
middle='Fitzferald'
last='Kennedy'
fullname=first+"\t"+middle+"\t"+last
```