GANPAT UNIVERSITY
U. V. PATEL COLLEGE OF ENGINEERING
B.Tech CE/IT Semester IV
2CEIT404: Python Programming

Practical-4: Lists and Tuples

1. Explain difference between insert, append and extend operations on list. Write a program to create and initialize list with your name, enrollment number, age, branch and result. Perform insert, remove, update, append and extend operation on list.

Code:

```
l1 = ["Vandan Patel",20012011130,19,"CE",]
print("List")
print(l1)
l1.insert(1,'Hello')
print("Insert Value")
print(l1)
l1.remove("CE")
print("remove")
print(l1)
l1.append("code")
print("append")
print(l1)
l1.extend("india")
print("Extend")
print(l1)
l1[3]="Computer Eng."
print("Update value")
print(l1)
```

Output:

```
PROBLEMS    OUTPUT    DEBUG CONSOLE    TERMINAL

eRunnerFile.py"
List
['Vandan Patel', 20012011130, 19, 'CE']
Insert Value
['Vandan Patel', 'Hello', 20012011130, 19, 'CE']
remove
['Vandan Patel', 'Hello', 20012011130, 19]
append
['Vandan Patel', 'Hello', 20012011130, 19, 'code']
Extend
['Vandan Patel', 'Hello', 20012011130, 19, 'code', 'i', 'n', 'd', 'i', 'a']
Update value
['Vandan Patel', 'Hello', 20012011130, 'Computer Eng.', 'code', 'i', 'n', 'd', 'i', 'a']
PS C:\Users\Vandan\Desktop\Practical of python>
```

2. Write a program to search an element, find maximum & minimum value from the list.
    1. Using inbuilt function
    2. Using for loop

Code:

```
l1 = [12,34,5,65,2,4,99,41]
maximun_value = max(l1)
print("Maximum:",maximun_value)
minimum_value = min(l1)
print("Minimum:",minimum_value)
```

Output:

```
PROBLEMS    OUTPUT    DEBUG CONSOLE    TERMINAL

Maximum: 99
Minimum: 2
PS C:\Users\Vandan\Desktop\Practical of python>
```

3. Create a program that asks the user for a number and then prints out a list of all the divisors of that number.

Code:

```
n = int(input("Enter number:"))
```

```
l1 = []
for i in range(1,n):
    if(n % i == 0):
        l1.append(i)

        print(f"Divisor of number {n} is {l1}")
```

Output:

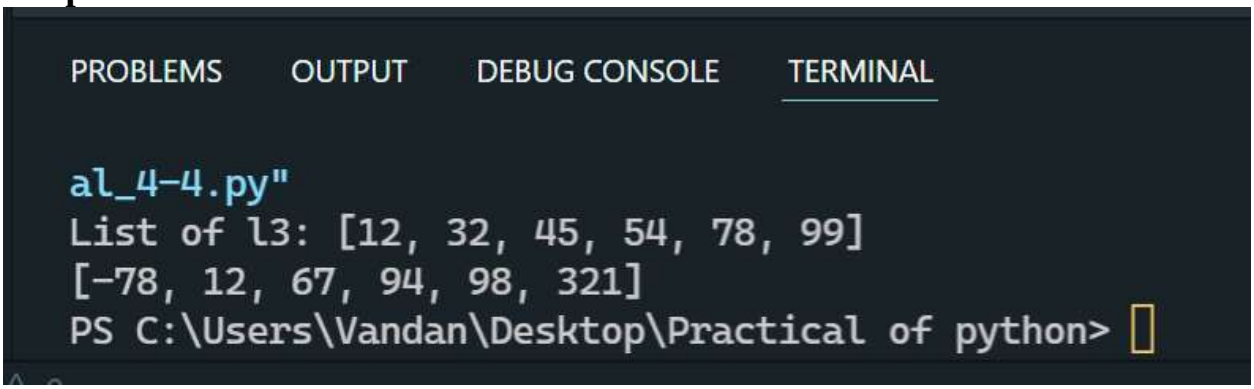
```
PROBLEMS    OUTPUT    DEBUG CONSOLE    TERMINAL

Enter number:10
Divisor of number 10 is [1]
Divisor of number 10 is [1, 2]
Divisor of number 10 is [1, 2, 5]
PS C:\Users\Vandan\Desktop\Practical of python>
```

4. WAP to sort element in list
    1. In same list
    2. Create sorted copy of original list & print both.
    3. Sort without any built-in function

Code:

```
l2 = [45,12,78,32,54,99]
l3 = l2
l3.sort()
print("List of l3:",l3)
my_list= [12,321,98,-78,67,94]
new_list = []
while my_list:
    min = my_list[0]
    for x in my_list:
        if x < min:
            min = x
    new_list.append(min)
    my_list.remove(min)
print(new_list)
```

Output:



5. Take two lists, say for example these two:
   a = [1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89]
   b = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13]
   and write a program that returns a list that contains only the elements that are common between the lists (without duplicates). Make sure your program works on two lists of different sizes.

Code:

```
l1 = [10,54,21,34,61,87,94]
l2 = [65,24,21,87,32,54,67,18,97]
l3 = []
for i in l2:
    if(i in l1 and i not in l3):
        l3.append(i)
print(l3)
```

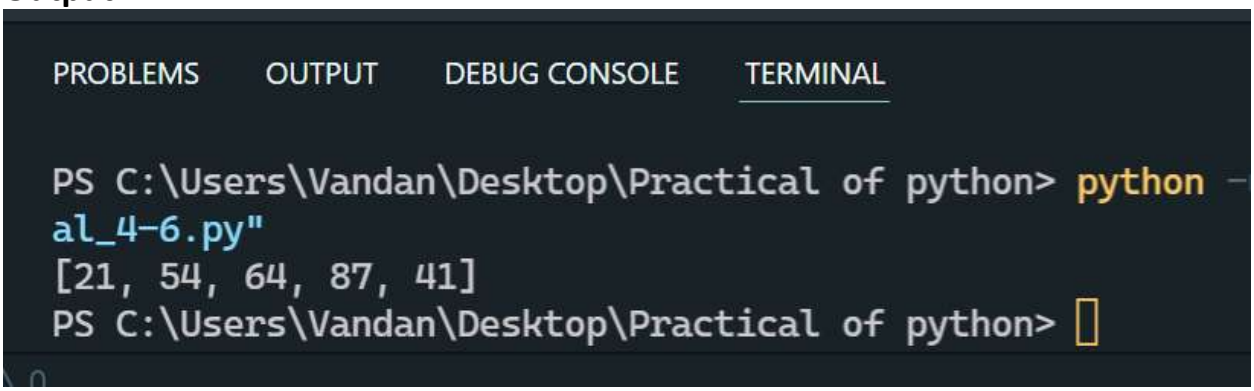
Output:

6. Write a Python program which takes a list and returns a list with the elements "Shifted left by one position" so [1, 2, 3] yields [2, 3, 1].
   Example: [11, 12, 13] → [12, 13, 11]

Code:

```
l1 = [41,21,54,64,87]
l2 = []
for i,j in enumerate(l1):
    l2.insert(i-1,j)

print(l2)
```

Output:



7. Write a program which takes a comma separated string from user & store each string which separated by comma in list & display list.

Code:

```
print("20012011130_Patel Vandan")
st= "Hello,Good morning"
sep=st.split(",")
print(sep)
```

Output:

```
PROBLEMS    OUTPUT    DEBUG CONSOLE    TERMINAL

eRunnerFile.py"
20012011130_Patel Vandan
['Hello', 'Good morning']
PS C:\Users\Vandan\Desktop\Practical of python>
```

8. Write a program to create and initialize the tuple. Also remove 3rd element from tuple.

Code:

```
print("20012011130_Patel Vandan")
t1=[1,2,3,4,5,8]
t1=t1[0:2]+t1[3:]
print(t1)
```

Output:

```
PROBLEMS    OUTPUT    DEBUG CONSOLE    TERMINAL

al_4-8.py"
20012011130_Patel Vandan
[1, 2, 4, 5, 8]
PS C:\Users\Vandan\Desktop\Practical of python>
```

9. Create a tuple with name courses and initialize it with JAVA, PHP, C#, Android. Insert two items HTML and Python at the 3rd position in tuple.

Code:

```
print("20012011130_Patel Vandan")
t1=["JAVA","PHP","C#","Android"]
t1=t1[0:3]+['HTML','Python']+t1[3:]
print(t1)
```

Output:


PROBLEMS
OUTPUT
DEBUG CONSOLE
TERMINAL
eRunnerFile.py"
20012011130_Patel Vandan
['JAVA', 'PHP', 'C#', 'HTML', 'Python', 'Android']
PS C:\Users\Vandan\Desktop\Practical of python>