Lab Exercise 1

```
Q(1) Declare a python datatype list and do the following:
(a) Write a Python program to sum all the items of the list.
(b) Write a Python program to multiply all the items.
(c) Write a Python program to get the largest number from a list.
(d) Write a Python program to get the smallest number from a list.
```

In [1]:
```
l=[1,2,3,4,5]
s=sum(l)
print("Sum:",s)
```

```
Sum: 15
```

In [2]:
```
m=1
for i in range(len(l)):
    m=m*l[i]
print("Multiplication of all elements:",m)
```

```
Multiplication of all elements: 120
```

In [3]:
```
print("largest element:",max(l))
```

```
largest element: 5
```

In [4]:
```
print("Smallest element:",min(l))
```

```
Smallest element: 1
```

```
Q2.Let A=[‘abc’, ‘xyz’, ‘aba’, 1221’] be a given string, and write a Python
program that prints the string or strings and their index from the given list,
ensuring that the first and last characters of the strings to be printed are
identical.
```

In [5]:
```
A=['abc', 'xyz', 'aba', '1221']
for i in range(len(A)):
    c=A[i]
    if(c[0]==c[-1]):
        print("element:",A[i])
        print("Index:",i)


```

```
element: aba
Index: 2
element: 1221
Index: 3
```

In [24]:
```
Q3.Patterns

```

In [6]:
```


    n=6
    for i in range(rows):
        # prints spaces
        for j in range(rows - i ):
            print(' ', end="")
            k=2*i
        for k in range(1,2*i):
            print(chr(64+k),end="")
        print()
```

```
A
AB
ABC
ABCD
ABCDE
```

In [61]:
```
for i in range(0, n):
    for j in range(0, i ):
        print("* ", end="")
    print()
```

```
*
* *
* * *
* * * *
* * * * *
```

```
Q4. Write a Python program to convert the given list to a list of
dictionaries.
ListColour= ["Black", "Red", "Maroon", "Yellow"], ["000000", "FF0000",
"800000", "FFFF00"]
```

In [63]:
```
1
2 ListColour= ["Black", "Red", "Maroon", "Yellow"]
3 code= ["000000", "FF0000","800000", "FFFF00"]
4 for i in range(len(ListColour)):
5     dictt={}
6     dictt["ColorName"]=ListColour[i]
7     dictt["ColorCode"]=code[i]
8     print(dictt)
9
```

```
{'ColorName': 'Black', 'ColorCode': '000000'}
{'ColorName': 'Red', 'ColorCode': 'FF0000'}
{'ColorName': 'Maroon', 'ColorCode': '800000'}
{'ColorName': 'Yellow', 'ColorCode': 'FFFF00'}
```

In [ ]:
```
1 Q5.Write a Python program to print all the even numbers and their squares
2 within the given range.
3 (a) range(1,50)
4 (b) range(1,100)
```

In [7]:
```
for i in range(1,51):
    if(i%2==0):
        print("number:",i)
        print("square:",i*i)
```

```
number: 2
square: 4
number: 4
square: 16
number: 6
square: 36
number: 8
square: 64
number: 10
square: 100
number: 12
square: 144
number: 14
square: 196
number: 16
square: 256
number: 18
square: 324
number: 20
square: 400
number: 22
square: 484
number: 24
square: 576
number: 26
square: 676
number: 28
square: 784
number: 30
square: 900
number: 32
square: 1024
number: 34
square: 1156
number: 36
square: 1296
number: 38
square: 1444
number: 40
square: 1600
number: 42
square: 1764
number: 44
square: 1936
number: 46
square: 2116
number: 48
square: 2304
number: 50
square: 2500
```

In [8]:

```
for i in range(1,101):
    if(i%2==0):
        print("number:",i)
        print("square:",i*i)
```

```
number: 2
square: 4
number: 4
square: 16
number: 6
square: 36
number: 8
square: 64
number: 10
square: 100
number: 12
square: 144
number: 14
square: 196
number: 16
square: 256
number: 18
square: 324
number: 20
square: 400
number: 22
square: 484
number: 24
square: 576
number: 26
square: 676
number: 28
square: 784
number: 30
square: 900
number: 32
square: 1024
number: 34
square: 1156
number: 36
square: 1296
number: 38
square: 1444
number: 40
square: 1600
number: 42
square: 1764
number: 44
square: 1936
number: 46
square: 2116
number: 48
square: 2304
number: 50
square: 2500
number: 52
square: 2704
number: 54
square: 2916
number: 56
square: 3136
number: 58
```

```
square: 3364
number: 60
square: 3600
number: 62
square: 3844
number: 64
square: 4096
number: 66
square: 4356
number: 68
square: 4624
number: 70
square: 4900
number: 72
square: 5184
number: 74
square: 5476
number: 76
square: 5776
number: 78
square: 6084
number: 80
square: 6400
number: 82
square: 6724
number: 84
square: 7056
number: 86
square: 7396
number: 88
square: 7744
number: 90
square: 8100
number: 92
square: 8464
number: 94
square: 8836
number: 96
square: 9216
number: 98
square: 9604
number: 100
square: 10000
```

In [ ]:

```
Q6. Write a Python program to read a four-digit number and find its
(a) Sum of digits
(b) Reverse
```

In [9]:

```
l=[]
for i in range(4):
    n=int(input("enter a number"))
    l.append(n)
print("sum:",sum(l))

for i in range(4):
    s=""
    b=l[i]
    while(b!=0):
        r=b%10
        s=s+str(r)
        b=b//10
    print("Reverse of",l[i],"is",s)
```

```
enter a number12
enter a number34
enter a number45
enter a number67
sum: 158
Reverse of 12 is 21
Reverse of 34 is 43
Reverse of 45 is 54
Reverse of 67 is 76
```

In [ ]:

```
Q7. Write a program to find the area of a triangle. Then find the area of
arbitrary triangles by entering the three sides both using the input funct
(input()). Print the total area enclosed by both triangles and each triang
contribution (%) towards it.
Hint: area of a triangle:
A =
p
s(s - a)(s - b)(s - c) s =

a + b + c
2
```

In [15]:

```
import math


def area(a, b, c):
    s = (a + b + c) / 2
    area = math.sqrt(s * (s - a) * (s - b) * (s - c))
    return area


l, m, n = input("Enter the sides of the first triangle (separated by space
a1, b1, c1 = int(l), int(m), int(n)

l1, m1, n1 = input("Enter the sides of the second triangle (separated by s
a2, b2, c2 = int(l1), int(m1), int(n1)



ar1 = area(a1, b1, c1)
ar2 = area(a2, b2, c2)


total = ar1 + ar2


per1 = (ar1 / total) * 100
per2 = (ar2 / total) * 100


print(f"Area of the first triangle: {ar1:.2f}")
print(f"Area of the second triangle: {ar2:.2f}")
print(f"Total area: {total:.2f}")
print(f"First triangle's contribution to the total area: {per1:.2f}%")
print(f"Second triangle's contribution to the total area: {per2:.2f}%")



```

```
Enter the sides of the first triangle (separated by space): 3 3 3
Enter the sides of the second triangle (separated by space): 2 2 2
Area of the first triangle: 3.90
Area of the second triangle: 1.73
Total area: 5.63
First triangle's contribution to the total area: 69.23%
Second triangle's contribution to the total area: 30.77%
```

In [ ]:

```
Q8. Given a dictionary containing the following information about 10 diffe
people:

Write a Python program that prints each person's name, age, and blood
group in a formatted manner. Each person's information should be separated
by a line of dashes (-).
```

In [90]:

```
p=[{"name":"John Doe", "age":30,"blood_group":"A+"},{"name":"Jane smith",
{"name":"Emily Davis", "age":40,"blood_group":"O+"},
{"name":"Michael Brown", "age":35,"blood_group":"AB-"},
{"name":"william Johnson", "age":28,"blood_group":"A-"},
{"name":"Sneha", "age":30,"blood_group":"A+"},
{"name":"Tanya", "age":32,"blood_group":"o+"}]

```

In [94]:

```
for i in range(len(p)):
    dictt=p[i]
    print("name:",dict['name'])
    print("age:",dict['age'])
    print("blood_group:",dict['blood_group'])
    print("\n")
    print("----------------------------------")
```

```
name: dict['name']
age: dict['age']
blood_group: dict['blood_group']


----------------------------------
name: dict['name']
age: dict['age']
blood_group: dict['blood_group']


----------------------------------
name: dict['name']
age: dict['age']
blood_group: dict['blood_group']


----------------------------------
name: dict['name']
age: dict['age']
blood_group: dict['blood_group']


----------------------------------
name: dict['name']
age: dict['age']
blood_group: dict['blood_group']


----------------------------------
name: dict['name']
age: dict['age']
blood_group: dict['blood_group']


----------------------------------
name: dict['name']
age: dict['age']
blood_group: dict['blood_group']


----------------------------------
```

In [ ]:
```
Q9. Write a Python program to extract the rear elements from a tuple strin
depicted in the following figure:
```

In [102]:
```
a=input("enter the input:")

out = tuple(map(str, a.split(",")))
l=[]
for i in range(len(out)):
    l.append(out[i][-1])
print(l)

```

```
enter the inputpython,learn,help
['n', 'n', 'p']
```

```
Q10. Declare a list/tuple containing all the twelve months. Write a
Python program
that converts a month name entered via the Python console to the number
of days in that month (Consider leap year as well the code):
```

In [23]:
```
import calendar
month=input("enter the month:")
l = list(calendar.month_name)[1:]
if(month=='January' or month=='March' or month=='May' or month=='July' or
    print("the number of days in",month,"is 31 days")
elif(month=='April' or month=='June' or month=='September' or month=='Nove
    print("the number of days in",month,"is 30 days")
elif(month=="February"):
    year=int(input("enter the year"))
    if(year%4==0 or year%100==0 or year%400==0):
        print("the number of days in",month,"is 29 days")
    else:
        print("the number of days in",month,"is 28 days")


```

```
enter the month:February
enter the year2024
the number of days in February is 29 days
```

In [ ]:
```

```