"""

#List Data type:

if we want to represent a group of values as a single entity

->Insertion order is preserved

->Heterogeneous objects are allowed

->Duplicates are allowed

=>List is dynamic because based on our requirement we can increase the size and decrease the size

=>In list the elements will be placed within square brackets[]

=>list objects are mutable, i.e., we can change the content.

[10,"a","B",20,30,40]

#creation of list objects:

->we can create empty list object as follows...

list=[]

print(list,type(list))

->if we know elements already then we can

create list as follows

list=[10,20,30,40]

=>With list() function:

l=list(range(20,30,3))

print(l,type(l))

-> with dynamic input:

list=eval(input("Enter the list:"))

print(list,type(list))

eg:

```
s="twinkle"
l=list(s)
print(l)

#traversing the elements of list:
#Example:
#how to read the list values
z=eval(input("Enter teh list values"))
print(z,type(z))
y=[10,20,30,40,50,30,60]
x=list()
print(x,type(x))
print(y,type(y))
```

```
print(y,end='',sep=',')

#by using the indexing
for i in range(len(y)):
print(y[i])
print()
#by using value wise
for ele in y:
print(ele,end=' ')
print()
i=0
while i print(y[i],end=' ')
i+=1
print()
```

```
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#by using the indexing
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i+=1
print()
```

print(*y)

#Accesing Elements of list:

=> We can access elements of the list either by using index or by using slice operator(:)

eg:

list=[10,20,30,40]

list[0]

list[-1]

list[1:3]

list[0]=100

print(l)

print(list[10]) #IndexError:list index out of range

NOTE: Sometimes we can take list inside another list, such type of list are called nested lists.add()

l=[10,20,[30,40]]

print(l[0])

print(l[1])

print(l[2]) [30,40]

print(l[2][0]) 30

print(l[2][1]) 40

#By using the slice operator:

syntax:list2=list1[start:stop:step]

```
n=[1,2,3,4,5,6,7,8,9,10]
print(n[2:7:2])
print(n[4::2])
print(n[3:7])
print(n[8:2:-2])   [9,7,5]
print(n[4:100])   [5,6,7,8,9,10]
```

NOTE:

->Mutablitiy:

Once we creates a list object, we can modify its content. Hence list objects are mutable

#IMPORTANT FUNCTIONS OF LIST:

=>To get information about list:

1.len():Returns the number of elements present in the list

```
n=[10,20,30,40]
print(len(n))
```

2.index():Returns the index of first occurence of the specified item.

ex:

```
n=[1,2,2,2,2,3,3]
print(n.index(1))
print(n.index(2))
print(n.index(4))    Value Error: 4 is not in list
```

3.count():It returns the number of occurences of specified item in the list

ex:

```
n=[1,2,2,2,2,3,,3]
print(n.count(1))
print(n.count(2))
print(n.count(4))//0
"""
#Example:
#how to read the list values
z=eval(input("Enter teh list values"))
print(z,type(z))
y=[10,20,30,40,50,30,60]
x=list()
print(x,type(x))
print(y,type(y))
print(y,end='',sep=',')
```

```
#by using the indexing
for i in range(len(y)):
print(y[i])
print()
#by using value wise
for ele in y:
print(ele,end=" ")
print()
i=0
while i print(y[i],end=" ")
i+=1
print()
print(*y)
```