TASK 2 GOEDUHUB

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1.Is a list mutable? Yes, alist is mutable.

2.Does a list need to be homogeneous? No, a list need not be homogenous

3.What is the difference between a list and a tuple? A list is mutable and size is not fixed while a tuple is immutable and has fixed size.

4.How to find the number of elements in the list? The number of elements in the list can be found usinh len().

5.How to check whether the list is empty or not? if len()=0,the list is empty.

6.How to find the first and last element of the list? first element has index assigned as 1 while last element has index assigned as -1

7.How to find the largest and lowest value in the list?

```
list=[]
n=int(input("enter the number of elements in th list"))
for i in range(1,n+1):
 a=input("enter the elements for the list")
 list.append(a)
list.sort()
print("The largest element in the list is",max(list))
print("The smallest element in the list is",min(list))
```

```
enter the number of elements in th list5
enter the elements for the list78
enter the elements for the list45
enter the elements for the list12
enter the elements for the list98
enter the elements for the list65
The largest element in the list is 98
The smallest element in the list is 12
```

8.How to access elements of the list? We use the square brackets with the index or indices to access the element.

```
l=[23,31,45,37,87,24,9]
l[1:3]
```

```
[31, 45]
```

9.Remove elements in a list before a specific index?

```
list=[]
n=int(input("enter the number of elements in th list"))
for i in range(1,n+1):
 a=input("enter the elements for the list")
 list.append(a)
del list[n-2]         ]
print(list)
```

```
enter the number of elements in th list3
enter the elements for the list21
enter the elements for the list23
enter the elements for the list25
['21', '25']
```

10.Remove elements in a list between 2 indices

```
list=[]
n=int(input("enter the number of elements in th list="))
for i in range(1,n+1):
 a=input("enter the elements for the list=")
 list.append(a)
del list[1:4]
print(list)
```

```
enter the number of elements in th list=5
enter the elements for the list=25
enter the elements for the list=84
enter the elements for the list=75
enter the elements for the list=96
enter the elements for the list=42
['25', '42']
```

11.Return every 2nd element in a list between 2 indices

```
list=[]
```

```
n=int(input("enter the number of elements in th list="))
for i in range(1,n+1):
 a=input("enter the elements for the list=")
 list.append(a)
print(list[0:6:2])
```

12.Get the first element from each nested list in a list

```
n_list = [[23,2021],[1,2,3],["a","b","c"]]
for i in n_list :
  print(i[0])
```

```
23
1
a
```

13.How to modify elements of the list?

```
list=[1,3,5]
list [2]= 2
print("after modification",list)
```

```
after modification [1, 3, 2]
```

14.How to concatenate two lists?

```
list1=[1,3,5,7]
list2=[2,4,6]
list3=list1+list2
print(list3)
```

```
[1, 3, 5, 7, 2, 4, 6]
```

15.How to add two lists element-wise in python?

```
L1 = [1,2,3]
L2 = [2,4,9]
sumlist = [i + j for i,j in zip(L1, L2)]
print("Added list: ",sumlist)
```

```
Added list:  [3, 6, 12]
```

16.Difference between del and clear? del() method can delete a particular item with specified index as well as delete the entire list,but clear() method clears the entire list.

17.Difference between remove and pop? pop() method removes element at the specified position and returns value while remove() method removes the item with specified value but does not returns value.

18.Difference between append and extend? append() adds only one element to the list while extend() concatenates two lists i.e can add multiple elements.

19.Difference between indexing and Slicing? Indexing is used to access a single element while slicing is used to access a sequence of elements.

20.Difference between sort and sorted? sorted() sorts the list and returns the sorted list without making any changes to the original list while sort() sorts the lists and never returns the list but makes changes to the original list.

21.Difference between reverse and reversed? reverse() reverses the elements in the list while reversed() processes the items in the list in reverse order and returns the iterator.

22.Difference between copy and deepcopy?A deep copy constructs a new compound object and recursively, inserts copies into it of the objects found in the original while copy() returns copy of the list.

23.How to remove duplicate elements in the list?

```
test_list = [1, 3, 5, 6, 3, 5, 6, 1]
print ("The original list is : " +  str(test_list))
new= []
for i in test_list:
    if i not in new:
        new.append(i)
print("list after removing duplicates",new)
```

```
The original list is : [1, 3, 5, 6, 3, 5, 6, 1]
list after removing duplicates [1, 3, 5, 6]
```

24.How to find an index of an element in the python list? To find index of an elemnt we use index() method.

```
list = [1, 3, 5, 6, 3, 5, 6, 1]
list.index(3)
```

```
1
```

25.How to find the occurrences of an element in the python list? To find the number of occurences of an element in the list, we use count() method.

```
list = [1, 3, 5, 6, 3, 5, 6, 1]
list.count(5)
```

```
2
```

26.How to insert an item at a given position?To insert a element we can use insert() method.

```
list = [1, 3, 5, 6, 3, 5, 6, 1]
list.insert(0,0)
print(list)
```

```
[0, 1, 3, 5, 6, 3, 5, 6, 1]
```

Double-click (or enter) to edit

27.How to check if an item is in the list?

```
list = [1, 3, 5, 6, 3, 5, 6, 1]
print(3 in list)
print(2 in list)
```

```
True
False
```

28.How to flatten a list in python?

```
list=[[1,2,3,4,5],[6,7],[8,9,0]]
flattenlist=[]
for i in list:
 flattenlist+=i
print(flattenlist)
```

```
[1, 2, 3, 4, 5, 6, 7, 8, 9, 0]
```

29.How to convert python list to other data structures like set, tuple, dictionary?

```
list = [1,2,3,4,5,6,7,8,9]
t=tuple(list)
print("list converted to tuple",t)
s=set(list)
print("list converted to set",s)
l1=list[1::2]
l2=list[2::2]
l3=zip(l1,l2)
d=dict(l3)
print("list converted to dictionary",d)
```

```
list converted to tuple (1, 2, 3, 4, 5, 6, 7, 8, 9)
list converted to set {1, 2, 3, 4, 5, 6, 7, 8, 9}
list converted to dictionary {2: 3, 4: 5, 6: 7, 8: 9}
```

30.How to apply a function to all items in the list?

```
list=["amit","vidya","arya"]
newlist =[]
for i in list:
    newlist.append(i.upper())
print(newlist)
```

```
['AMIT', 'VIDYA', 'ARYA']
```

31.How to filter the elements based on a function in a python list? Elements in a list can be filtered using filter()

32.How python lists are stored in memory?Instead of storing values in the memory space reserved by the variable,Python refer to values (or objects) stored somewhere in memory. .

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