Q1. Given a two list. Create a third list by picking an odd-index element from the first list and even index elements from the second.

```
list1 = [1,2,3,4,5,6,7]
list2 = [8,9,10,11,12,13,14]
list3 = []
odd_index = list1[1::2]
print("Element at odd-index positions from list1")
print(odd_index)
even_index = list2[0::2]
print("Element at even-index positions from list2")
print(even_index)
list3.extend(odd_index)
list3.extend(even_index)
print("Final third list")
print(list3)
```

```
Element at odd-index positions from list1
[2, 4, 6]
Element at even-index positions from list2
[8, 10, 12, 14]
Final third list
[2, 4, 6, 8, 10, 12, 14]
```

Q2.Given a number count the total number of digits in a number

```
a = input("Enter the number: ")
print(len(a))
```

```
Enter the number: 123456987
9
```

Q3. Write a Python program to print the numbers of a specified list after removing even numbers from it.

```
x = [1,2,3,4,5,6,7,8,9,10]
print("x=",x)
for i in x:
    if (i%2==0):
        x.remove(i)
print("After removing even numbers:")
print("x=",x)
```

```
x= [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]
After removing even numbers:
x= [1, 3, 5, 7, 9]
```

Q4. Write a Python program to generate and print a list of first and last 5 elements where the values are square of numbers between 1 and 30 (both included).

```
a=[]
for i in range(1,31):
    a.append(i**2)
print(a)
print(a[:5])
print(a[25:31])
```

```
[1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144, 169, 196, 225, 256, 289, 324, 361,
400, 441, 484, 529, 576, 625, 676, 729, 784, 841, 900]
[1, 4, 9, 16, 25]
[676, 729, 784, 841, 900]
```

Q5.Write a Python program to generate all permutations of a list in Python

```
list1=[1,2,3]
print("\nOriginal list: ",list1)
list2=[]
for i in list1:
    for j in list1:
        for k in list1:
            if [i]!=[j] and [i]!=[k] and [j]!=[k] and [j]!=[i] and [k]!=[i] and [k]!=[j
                list2.append([i]+[j]+[k])
print("All poissible permutations: ",list2)
```

```
Original list:  [1, 2, 3]
All poissible permutations:  [[1, 2, 3], [1, 3, 2], [2, 1, 3], [2, 3, 1], [3, 1, 2],
[3, 2, 1]]
```

Q6.Write a python program to check whether two lists are circularly identical.

```
a=[1,1,0,0]
b=[0,0,1,1]
e=0
while True:
    c=a[0]
    a.pop(0)
    a.append(c)
    d=len(b)
    e+=1
    if a==b:
        print("Identical")
        break

    if e==d:
        print("Not Identical")
        break
```

```
Identical
```

Q7. Write a Python program to change the position of every n-th value with the (n+1)th in a list. Sample list: [0,1,2,3,4,5]

```
a=[]
while True:
    d=input("Enter data:")
    if d=='':
        break
    a.append(int(d))
print(a)
for i in range(0,len(a),2):
    a[i],a[i+1]=a[i+1],a[i]
print(a)
```

```
Enter data:11
Enter data:22
Enter data:33
Enter data:44
Enter data:55
Enter data:66
Enter data:
[11, 22, 33, 44, 55, 66]
[22, 11, 44, 33, 66, 55]
```

Q8.Write a Python program to iterate over two lists simultaneously

```
a=[1,2,3,4,5]
b=['a','b','c','d','e']
c=0
for i in a:
    print(i,b[c])
    c+=1
```

```
1 a
2 b
3 c
4 d
5 e
```

Q9.Write a Python program to generate the combinations of n distinct objects taken from the elements of a given list. Original list: [1, 2, 3, 4, 5, 6, 7, 8, 9] Combinations of 2 distinct objects: [1, 2] [1, 3] [1, 4] [1, 5] .... [7, 8] [7, 9] [8, 9]

```
a=[1,2,3,4,5,6,7,8,9]
ab=[]
for i in a:
    for j in a:
        if i==j:
            continue
```

```
        else:
            ab.append([i,j])
print(ab)
```

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

Q10.Write a Python program to remove duplicates from a list of lists.

Sample list : [[10, 20], [40], [30, 56, 25], [10, 20], [33], [40]]

```
a=[[10,20],[40],[30,56,25],[10,20],[33],[40]]
b=[]
for i in a:
    if i not in b:
        b.append(i)
print(a)
print(sorted(b))
```

```
[[10, 20], [40], [30, 56, 25], [10, 20], [33], [40]]
[[10, 20], [30, 56, 25], [33], [40]]
```