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.

```
listOne = [3, 6, 9, 12, 15, 18, 21]
listTwo = [4, 8, 12, 16, 20, 24, 28]
a=listOne[1::2]
b=listTwo[0::2]
a.extend(b)
print(a)
```

```
    [6, 12, 18, 4, 12, 20, 28]
```

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

```
c=0
n=int(input('enter number'))
while n>0:
    n//=10
    c+=1
print(c)
```

```
    enter number45556
    5
```

```
n=input('enter number')
print(len(n))
```

```
    enter the number465874
    6
```

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

```
t = [4, 8,1, 12, 16, 20, 24, 28, 9,11,13]
u=[]
i=0
for i in t:
    if i%2 != 0:
        u.append(i)
print(u)
```

```
    [1, 9, 11, 13]
```

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).

```python
a=[]
for i in range (1,6):
  s=i**2
  a.append(s)
for j in range (26,31):
  h=j**2
  a.append(h)
print(a)
```

```
    [1, 4, 9, 16, 25, 676, 729, 784, 841, 900]
```

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

```python
a=[1,2,3]
b=[]
print('following are the permutations of list: ')
for i in a:
    for j in a:
        for k in a:
            if i!=j and j!=k and k!=i:
                b=[]
                b.append(i)
                b.append(j)
                b.append(k)
                print(b)
```

```
    following are the permutations of list:
    [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.

```python
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.

```
a=[0,1,2,3,4,5]
for i in range(0,len(a),2):
    a[i],a[i+1]=a[i+1],a[i]
print(a)

    [1, 0, 3, 2, 5, 4]
```

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

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

```
⤷   1 a
    2 b
    3 c
```

```
  a=[1,2,3]
b=['a','b','c']
for i in range(len(a)):
    for j in range(len(b)):
        if i==j:
            print(a[i],b[j])

    1 a
    2 b
    3 c
```

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]
b=[]
c=[]
for i in a:

    for j in a:
        if i!=j :
            b=[i]
            b.append(j)
            c.append(b)
print(c)
```
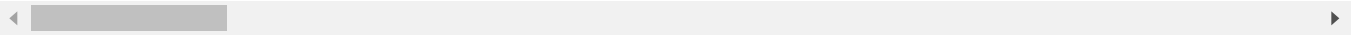
    [[1, 2], [1, 3], [1, 4], [1, 5], [1, 6], [1, 7], [1, 8], [1, 9], [2, 1], [2, 3], [2, 4],

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

```
x= [[10, 20], [40], [30, 56, 25], [10, 20], [33],[40]]
y=[]
for i in x:
    if i not in y:
        y.append(i)
print("list without duplicates are",y)
```

    list without duplicates [[10, 20], [40], [30, 56, 25], [33]]