

Q1 Calculate Narcissistic number / Armstrong number between 100 and 999.

$$153 = 1^3 + 5^3 + 3^3$$

$$370 = 3^3 + 7^3 + 0^3$$

$$371 = 3^3 + 7^3 + 1^3$$

$$407 = 4^3 + 0^3 + 7^3$$

For example,

Ans:

```
for i in range(100, 1000):           # iterate all from 100 to 999
    sum = 0
    temp = i
    while temp:
        sum = sum+(temp%10) ** 3      #get the power(3) of last digit
        temp //= 10                   #exclude the last digit and loop again
    if sum == i:                      #if the sum match with the original value
        print(i)                      #print the value
```

```
153
370
371
407
```

Q2 A box contains 3 red balls, 3 yellow balls and 6 green balls. 8 balls were selected randomly from the box, show all the possible combinations.

Ans:

- Red (min, max): 0,3
- Yellow (min, max): 0,3
- Green (min, max): 0,6

```
print('Red\tYellow\tGreen')
for red in range(0, 4):
    for yellow in range(0, 4):
        for green in range(0, 7):
            if red + yellow + green == 8:          # Print if total of R+Y+G = 8
                print(red, '\t', yellow, '\t', green) # \t tab
```

Red	Yellow	Green
0	2	6
0	3	5
1	1	6
1	2	5
1	3	4
2	0	6
2	1	5
2	2	4
2	3	3
3	0	5
3	1	4
3	2	3
3	3	2

Q3 A list can include all different data type:

Ans:

```
list1= [1, 3.142, 'apple', [1,2,3]]  
print(type(list1))  
list1  
  
<class 'list'>  
[1, 3.142, 'apple', [1, 2, 3]]
```

Q4 The main difference of extend() & append() & insert():

Ans:

```
list1= [1, 3.142, 'apple', [1,2,3]]  
list2= [1, 3.142, 'apple', [1,2,3]]  
list3= [1, 3.142, 'apple', [1,2,3]]  
list1.extend(['a','b'])           #extend is to add each value of list into the end of another list  
list2.append(['a','b'])          #append is to add a list to the end of another list  
list3.insert(2,['a','b'])        #insert is to add a list into any specific location  
print('list1: ',list1)  
print('list2: ',list2)  
print('list3: ',list3)  
  
list1: [1, 3.142, 'apple', [1, 2, 3], 'a', 'b']  
list2: [1, 3.142, 'apple', [1, 2, 3], ['a', 'b']]  
list3: [1, 3.142, ['a', 'b'], 'apple', [1, 2, 3]]
```

Q5 Create a list contains student name and add marks into the list by using insert() and append()

- Then, present it in this structure

```
Student A mark: 57  
Student B mark: 80  
Student C mark: 99
```

Ans:

```
student = ['A', 'B', 'C']  
  
student.insert(1,57)  
student.insert(3,80)  
student.append(99)  
print(student)  
  
x=0  
while x < 6 :  
    print('Student',student[x],"mark:",student[x + 1])  
    x += 2  
  
['A', 57, 'B', 80, 'C', 99]  
Student A mark: 57  
Student B mark: 80  
Student C mark: 99
```