

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

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

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

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

For example,  $407 = 4^3 + 0^3 + 7^3$ .

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(red, '\t', yellow, '\t', green)      # Print if total of R+Y+G = 8
                                                            # \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
```