```python
import re

def phoneNumberValidator(number):
    pattern = '^[6-9][0-9]{9}$|^[0][6-9][0-9]{9}|^[+][9][1][6-9][0-9]{9}$'
    if re.match(pattern, str(number)):
        return True
    return False

def emailValidator(email):
    pattern = "^[0-9a-z][0-9a-z_.]{4,13}[0-9a-z][@][a-z0-9]{3,18}[.][a-z]{2,
    if re.match(pattern, email):
        return True
    return False
```

```python
def highestFrequency(li):
    unique = []
    for n in li:
        if n not in unique:
            unique.append(n)
    unique = sorted(unique,reverse = True)
    highest = unique[0]
    c = 0
    for i in range(0,len(li)):
        if li[i] == highest:
            c+=1
    #c = unique.count(unique[0])
    return c
highestFrequency([22,34,55,80,80,20,80,45,65,90])
```

Out[3]: 1

```
In [1]:    1  def secondLargest(li):
           2      # Convert the list into a unique list
           3      # O(n)
           4      unique = []
           5      for n in li:
           6          if n not in unique:
           7              unique.append(n)
           8
           9      unique = sorted(unique, reverse=True)
          10      if len(unique) > 1:
          11          return unique[1]
          12      return -1
          13
          14  secondLargest([1])
          15
          16  # def fifthLeast(li)
          17
          18  # def kLargest(li, k)
          19
          20  def kSmallest(li, k):
          21      # Extract Unique elements in the list
          22      unique = []
          23      for i in li:
          24          if i not in unique:
          25              unique.append(i)
          26
          27
          28       # Sort the Unique list in ascending order
          29      unique = sorted(unique)
          30
          31      #Check if length of unique list is greater than k
          32      if len(unique) >= k:
          33          return unique[k-1]
          34      return -1
          35
          36  kSmallest([], 1)
```

Out[1]: -1

In [2]:
```python
# Function to identify the element with highest frequency in a list
# If many elements have the have the highest frequency, return the smallest
# highestFrequencyElement([1,2,3,9,8,7,3,4,2,1]) -> 1
def highestFrequencyElement(li):
    #Extracting unique elements with frequencies
    unique = {}
    for n in li:
        if n in unique:
            unique[n] += 1
        else:
            unique[n] = 1
    # unique = {1:2, 2:2, 3:2, 9:1, 8:1, 7:1, 4:1}
    maxfreq = max(unique.values())

    #Extract all keys with maxfreq in a list
    maxfreqkeys = []
    for item in unique.items():
        #item -> (key, value)
        # item[1]
        if item[1] == maxfreq:
            maxfreqkeys.append(item[0])

    return min(maxfreqkeys)

highestFrequencyElement([1,2,3,9,8,7,3,4,2,1])
```

Out[2]: 1

In [1]:
```python
#Fumction to find second largest number in a list
#o(n)

def secondLargest(li):
    #convert the list into a unique list
    unique=[]
    for n in li:
        if n not in unique:
            unique.append(n)
    unique=sorted(unique,reverse=True)
    return unique[1]
secondLargest([1,2,4,7,8])



#ef fifthLeast(li):

#def KLargest(li,k)

#def KSmallest(li,k)
```

Out[1]: 7

In [2]:
```python
##Write a function to find 5th least number in a list

def fifthLeast(li):
    #convert the list into a unique list
    unique=[]
    for n in li:
        if n not in unique:
            unique.append(n)
    unique=sorted(unique,reverse=True)
    return unique[-5]
fifthLeast([1,2,3,4,5,6,7,8,9])
```

Out[2]: 5

In [3]:
```python
##Write a function to KLargest in a list

def KLargest(li):
    #convert the list into a unique list
    unique=[]
    for n in li:
        if n not in unique:
            unique.append(n)
    unique=sorted(unique,reverse=True)
    if len(unique)>k:
        return unique[k-1]
    else:
        return -1
k=int(input())

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

3

Out[3]: 7

In [4]:

```python
####Write a function to KSmallest in a list

def KSmallest(li):
    #convert the list into a unique list
    unique=[]
    for n in li:
        if n not in unique:
            unique.append(n)

    ##Sort the unique list in ascending order
    unique=sorted(unique)

    ##Check if length of unique list is greater
    if len(unique)>k:
        return unique[k-1]
    else:
        return -1
k=int(input())

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

5

Out[4]: 5

In [5]:

```python
###Write a function to identify the element with highest frequency in a list
#If any elements have the the highest frequency element

##highestFrequency([1,2,3,9,8,7,3,4,2,1])---->1

def HighestFrequency(li):
    #Extracting unique elements with
    unique={}
    for n in li:
        if n in unique.keys():
            unique[n] += 1
        else:
            unique[n]=1


            #UNIQUE={1:2, 2:2, 3:2, 9:1, 8:1, }

    #Getting all frequencies into a list
    freq=unique.values()
    maxfreq=max(freq)
    maxfreqE=[]

    ##Identify the keys with maximum frequency
    for item in unique.items():
        if item[1]==maxfreq:
            maxfreqE.append(item[0])
    #select the minimum from the keys with maximum
    return min(maxfreqE)
HighestFrequency([1,2,3,1,1,2])
```

Out[5]: 1

```
In [6]:    1  ###Write a function to identify the element with second highest frequency in
           2  #If any elements have the the second highest frequency element
           3
           4  ##secondhighestFrequency(1,2,3,2,1,4,4,9)-->9
           5
           6  def SecondHighestFrequency(li):
           7      #Extracting unique elements with
           8      unique={}
           9      for n in li:
          10          if n in unique.keys():
          11              unique[n] += 1
          12          else:
          13              unique[n]=1
          14      print(unique)
          15      un=sorted(unique.values())
          16      print(un)
          17      unique2=[]
          18      for n in un:
          19          if n not in unique2:
          20              unique2.append(n)
          21      uv=unique2[-k]
          22      maxkeys=[]
          23      for item in unique.items():
          24          if item[1]==uv:
          25              maxkeys.append(item[0])
          26      return max(maxkeys)
          27  k=int(input())
          28  SecondHighestFrequency([1,2,3,2,1,4,4,9])
```

```
2
{1: 2, 2: 2, 3: 1, 4: 2, 9: 1}
[1, 1, 2, 2, 2]
```

Out[6]:   9

```
In [7]:    1  s=int(input())
           2  c=0
           3  while(s!=0):
           4      rem=s%10
           5      s=s//10
           6      c=c+1
           7  print(c)
```

```
756
3
```

In [8]:

```python
#write a function to find highest frequency in a list

def KHighestFrequency(s,k):
    unique={}
    for c in s:
        if c not in unique:
            unique[c]=1
        else:
            unique[c]+=1
    uniqfreq=[]
    for value in unique.values():
        if value not in uniqfreq:
            uniqfreq.append(value)

    uniqfreq=sorted(uniqfreq,reverse=True)
    kfreq=uniqfreq[k-1]
    kfreqchar=[]
    for key in unique.items():
        if key[1]==kfreq:
            kfreqchar.append(key[0])
    return kfreqchar
KHighestFrequency([9,8,7,6,5,2,3,4,9,6,7,7,7,6,7,6],3)
```

Out[8]: [9]

In [ ]:

```python

```