In [ ]:
```
1
```

Advanced Problem Set:

- 1. Function to calculate the average of all factorials in a given range

In [8]:
```
1  def factorialRange(n):
2      fact=1
3      s=0
4      c=0
5      for i in range(1,n+1):
6          fact=fact*i
7          s+=fact
8          c+=1
9      a=s/c
10     print("Average is : ",a)
11
12 n=int(input())
13 factorialRange(n)
14
```

```
5
Average is :  30.6
```

In [ ]:
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In [ ]:
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1
```

- 2. Function to generate Multiplication table for a number in a given range
  - 10 in the range(100, 102) inclusive
  - 10 x 100 = 1000
  - 10 x 101 = 1010
  - 10 x 102 = 1020

In [16]:
```
1  def multiTable(lb,ub):
2      for i in range(lb,ub+1):
3          print(10,"x",i ,"=",10*i)
4
5  lb=int(input("Enter the Lower Bound : "))
6  ub=int(input("Enter the Upper Bound : "))
7  multiTable(lb,ub)
```

```
Enter the Lower Bound : 100
Enter the Upper Bound : 103
10 x 100 = 1000
10 x 101 = 1010
10 x 102 = 1020
10 x 103 = 1030
```

In [ ]:
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- Read all the individual scores of 10 sportspersons and display the individual name, use dictionary for this problem

In [13]:
```
1  sports={}
2
3  #Read scores and sportspersons names
4  for i in range(10):
5      name=input("Enter the sportspersons name : ")
6      score=int(input("Enter the score made by : "))
7      sports[name]=score
8  print(sports)
9
10
11 #Extract the values from the dictionary
12
13 max_score = max(sports.values())
14 #max_score
15
16 #Get the sportspersons name who has max score
17 for i in sports.items():
18     if i[1]==max_score:
19         print(i[0])
```

```
Enter the sportspersons name : abc
Enter the score made by : 10
Enter the sportspersons name : edf
Enter the score made by : 123
Enter the sportspersons name : wds
Enter the score made by : 24
Enter the sportspersons name : sdx
Enter the score made by : 34
Enter the sportspersons name : fg
Enter the score made by : 45
Enter the sportspersons name : ggg
Enter the score made by : 67
Enter the sportspersons name : hhh
Enter the score made by : 667
Enter the sportspersons name : jj
Enter the score made by : 77
Enter the sportspersons name : kl
Enter the score made by : 67
Enter the sportspersons name : kol
Enter the score made by : 76
{'abc': 10, 'edf': 123, 'wds': 24, 'sdx': 34, 'fg': 45, 'ggg': 67, 'hhh': 667,
'jj': 77, 'kl': 67, 'kol': 76}
hhh
```

In [ ]:
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1
```

In [5]:
```
#Read all the individual scores of the batsmen and print their ranking based
sports={}
r=0
#Read scores and sportspersons names
for i in range(5):
    name=input("Enter the sportspersons name : ")
    score=int(input("Enter the score made by : "))
    sports[name]=score
print(sports)
for i in sorted(sports.values(),reverse=True):
    r+=1
    for j in sports.keys():
        if sports.get(j) == i:
            print(r,":-:" ,j,":",i)


#Another way
"""l=sports.values()
l=sorted(l,reverse=True)
for i in sports.items():
    index=l.index(i[1])+1
    print(i[0],index)"""


```

```
Enter the sportspersons name : ff
Enter the score made by : 11
Enter the sportspersons name : ff
Enter the score made by : 11
Enter the sportspersons name : bb
Enter the score made by : 34
Enter the sportspersons name : fgf
Enter the score made by : 33
Enter the sportspersons name : gg
Enter the score made by : 66
{'ff': 11, 'bb': 34, 'fgf': 33, 'gg': 66}
1 :-: gg : 66
2 :-: bb : 34
3 :-: fgf : 33
4 :-: ff : 11
```

Out[5]:
```
'l=sports.values()\nl=sorted(l,reverse=True)\nfor i in sports.items():\n    ind
ex=l.index(i[1])+1\n    print(i[0],index)'
```

In [38]:
```
dir(list)
```

...

In [78]:
```
#Given two integers find out the number of common factors to those integers

n=int(input())
m=int(input())
li=[]
for i in range(1,m+1):
    if n%i==0 and m%i==0:
        li.append(i)
print("The Number of Common Factors for the given integers is : " ,len(li))
```

```
15
10
The Number of Common Factors for the given integers is :  2
```

In [ ]:
```

```

- A : 1
- B : 2
- C : 3
- D : 4 .. ..
- Given a string convert it into numerical values

In [21]:
```
s=input()
m=list(map(int,s.split()))
for i in m:
    if m[i]=='A':
        print(m.replace('A',1))
    elif m[i]=='B':
         print(m.replace('B',2))

```

...

- Find the frequent element in the list
- [1,1,1,1,2,3,1,2,3,1,2,2,2,3,3]

In [40]:
```
def most_frequent(List):
    counter = 0
    num = List[0]

    for i in List:
        curr_frequency = List.count(i)
        if(curr_frequency> counter):
            counter = curr_frequency
            num = i

    return num

List = [1,1,1,1,2,3,1,2,3,1,2,2,2,3,3]
print(most_frequent(List))



#Another Way

# def highestFrequency(l):
#     d={}
#     for i in l:
#         count = l.count(i)
#         if i not in d:
#             d[i]=count
#     return d
# d = highestFrequency([1,1,1,1,1,2,2,2,2,3,3,3])
# mv=d.values()
# max_val = max(mv)
# # for i in d.items():
# #     if i[1] == max_val:
# #         print(i[0])

```

```
1
```

Type *Markdown* and LaTeX: α^2

- Find the second highest frequent element in the list
- [1,1,1,1,2,3,1,2,3,1,2,2,2,3,3]

In [14]:
```
list1 = [1, 1, 1, 1, 2, 3, 1, 2, 3, 1, 2, 2, 2, 3, 3]

# sorting the list
list1.sort()

# printing the second last element
print("Second largest element is:", list1[-5])
```

```
Second largest element is: 2
```

Type *Markdown* and LaTeX: α^2

- Find the Kth Highest Frequent element in the list
  - [1,1,1,1,2,3,1,2,3,1,2,2,2,3,3]

In [16]:
```
list1=[1,1,1,1,2,3,1,2,3,1,2,2,2,3,3]



# printing original list
print ("Original list : " + str(list1))

# using naive method to
# get most frequent element
max = 0
res = list1[0]
for i in list1:
    freq = list1.count(i)
    if freq > max:
        max = freq
        res = i
      # printing result
print ("Most frequent number is : " + str(res))

```

```
Original list : [1, 1, 1, 1, 2, 3, 1, 2, 3, 1, 2, 2, 2, 3, 3]
Most frequent number is : 1
```

Type *Markdown* and LaTeX: α^2

- Find the absolute difference of the two numbers without using the abs function

In [27]:
```
def absoluteValue(abs_value):
    if abs_value <= 0:
        return abs_value * -1
    return abs_value * 1
abs_value=int(input("Enter the number to get the Absolute value : "))
print(absoluteValue(abs_value))
```

```
Enter the number to get the Absolute value : 50
50
```

In [29]:
```
def absTwoNums(a,b):
    diff=0
    if a>b:
        diff=a-b
        print(diff)
    else:
        diff=b-a
        print(diff)

a=int(input())
b=int(input())
absTwoNums(a,b)
```

```
12
10
2
```

In [ ]:
```

```

In [44]:
```
#Printing even number which is highest and stop taking input whenever the in
max_element=0
while True:
    n = input()
    if n == "EXIT":
        break
    num = int(n)
    if num%2==0:
        print(num,end=" ")
        if max_element < num:
            max_element = num
print("\n")
print(max_element)

```

```
32
32 76
76 89
EXIT


76
```

- printing the most frequent url domain

In [50]:
```
n=int(input())
d={}
for i in range(n):
    iurl=input().split('.')
    domain= iurl[-1]
    if domain not in d:
        d[domain] = 1
    else:
        d[domain] +=1
m=max(d.values())
for i in d.items():
    if i[1]==m:
        print(i[0])

```

...

In [ ]:
```

```