Day 5

41. Roman number to decimal numbers

```
def value(r):
    if r=='I':
        return 1
    if r=='V':
        return 5
    if r=='X':
        return 10
    if r=='L':
        return 50
    if r=='C':
        return 100
    if r=='D':
        return 500
    if r=='M':
        return 1000
    return -1
str=input()
def romantodec(str):
    res=0
    i=0
    while(i<len(str)):
        s1=value(str[i])

        if(i+1<len(str)):
```

S1: We first define the value(r):

and initial with roman numbers like I =1 and V=5…

S2: Initialise another function for conversion

romantodec(str) function

str=MCIV

```
while(0<len(4):
s1=value(str[0])=M

 if (1<4):
```

```
        s2=value(str[i+1])
        if(s1>s2):
            res=res+s1
            i=i+1
        else:
            res=res+s2-s1
            i=i+2
    else:
        res=res+s1
        i=i+1
  return res
print("decimal value:")
print(romantodec(str))
```

```
s2=value(str[1])=C
if (1000>100):
res=0+1000=1000
i=0+1=1
S3: while(1<4):
    s1=value(str[1])=C
   if (2<4):
  s2=value(str[2])=I
if (100>1):
res=1000+100=1100
i=1+1=2
Similarly so on to get final result…
```

42. Frequency of the given character

```
str=input()
char1=input()
count=0
for i in str:
  if char1==i:
     count=count+1
print(count)
```

```
S1:str=you are awesome
char1=a
count=0
for i in “you are awesome”:
 if a==a: means..
 count increments…
 print output.. here
```

43. How to get sum and product of the given number

```
n=int(input("enter number"))
sum1=0
product=1
while(n>0):
   r=n%10
   sum1=sum1+r
   product=product*r
   n=n//10
print("sum=%d,product=%d"%(sum1,product))
```

s1:n=74323

sum1=0

product=1

while(74323>0):

r=74323%10=3

sum1=0+3=3

product=1*3=3

n=74323//10=7432

s2:

while(7432>0):

r=7432%10=2

sum1=3+2=5

product=3*2=6

n=7432//10=743

Similarly remaining steps

44. How make the binary search of number in an array

```
n=10
array=[]
for i in range(10):
   array.append(int(random()*100))
array.sort()
print(array)
k=int(input("enter key for search:"))
mini=0
maxi=n-1
while mini<=maxi:
   mid=(mini+maxi)//2
   if k<array[mid]:
      maxi=mid-1
   elif k>array[mid]:
      mini=mid+1
   else:
```

```
[2, 5, 9, 25, 27, 60, 65, 71, 71, 84]
enter key for search:27
 Final key value is  4
```

we get the random 10 values here

Then we sort that obtained array elements

then we make a print array elements

suppose k=27

mini=0

maxi=9

while 0<=9:

mid=(0+9)//2=4

array[4]=27

if 27<27:

false

else:

```
        print("Final key value is ",mid)          print values as 4…
    break
else:
   print("no roots")
```

45. 1,-0.5,0.25,-0.125..... series...

x=int(input("enter number:"))	**s1**:x=2		
z=0	z=0		
y=1	y=1	**s2:**	
sum1=0	sum1=0		
while z<x:	while 0<2:	while 1<2:	while 2<2:
sum1=sum1+y	sum1=0+1=1	sum1=1-0.5=0.5	loop fails….
y=y/-2	y=1/-2=-0.5	y=-0.5/-2=0.25	
z=z+1	z=0+1=1	z=1+1=2	
print(y,end=" ")	y=-0.5	y=0.25	

46. Factorial of given number..(using for looop and while loop)

n=int(input("enter number:"))	S1:n=5	S2:	
temp=1	temp=1		
z=1	z=1		
while(z<=n):	while(1<=5):	while(2<=5);	**Similiarly so on to get 120**
temp=temp*z	temp=1*1=1	temp=1*2=2	when n=5
z=z+1	z=1+1=2	z=2+1=3	**Similiarly for loop ..**
print(temp,end=" ")			

47. How to get the maximum value of floating point number¶

```
x=float(input("enter floating number:"))
y=str(x)
maxi=-1
for i in range(len(y)):
    if y[i]=='.':
        continue
    elif maxi<int(y[i]):
        maxi=int(y[i])
print(maxi,end=" ")
```

x=27.32

y=str(27.32)

for i in range(5)

if y[0]=='.': false -1<2: maxi=2

if y[1]=='.' false 2<7: maxi=7

If y[2]=='.' true (continue)

similiarly so on….

48. How to get the prime and complex numbers

```
import math
x=int(input("enter number:"))
if x==2:
    print("It is prime enter more than 2")
if x<2:
    print("enter more than 2")
    quit()
y=2
num=math.sqrt(x)
while y<=num:
    if (x%y==0):
        print("It is complex number")
        break
    y=y+1
else:
    print("It is prime number")
```

x=97

y=2

num=sqrt(97)=9

2<=9:

97%2==0:

false

similiarly loop iterate upto 9 get false in every loop and terminates and get the print the prime number as output.

49. How to expand the strings of alphabets

```
str1=(input('enter str1:'))
str2=input("enter str2:")
while str1<=str2:
    print(str1,end=" ")
    str1=chr(ord(str1)+1)
print()
```

str1=a

str2=e

a<=e:

a

str1=a+1=b

b<=e:

b

str1=b+1=c

Similiarly we the remaining alphabets

a b c d e..