Python Codes Explanations:

## 3(a): **Sum of N natural numbers**

Line 3. For loop iterate from 1 to 4 like 1,2,3,4

4.It print like 1+2+3+4+

5.sum1=10

6. Again here for loop iterate only 5 but not 5,6

7.print 1+2+3+4+5=

8.sum2=10+5=15

9.1+2+3+4+5=15

**6. Leap year or not**

year=int(input("enter year:")) Ex1: **year=2000**

if year%4==0: 2000%4==0 # it is true

if year%100==0: 2000%100==0 # it is also true

if year%400==0: 2000%400==0 # It is also true

Then it print the LINE5

EX2:

**Year=1900**

1900%4==0: # It is true

1900%100==0: #It is also true

1900%400==0: #It is not true so it is false it goes to LINE 7

**7.Prime number or not**

**Ex: n=5**

for i in range(1,n+1): range(1,5+1): 1,2,3,4,5

if n%i==0: if 5%1==0: if 5%5==0:

count=count+1 count=0+1=1 count=1+1=2

**Total count=2**

**Ex: n=6**

1. range(1,6+1): 1.range(1,6+1): 1.range(1,6+1): 1.same
2. If 6%1==0: 2.if 6%2==0: 2.if 6%3==0: 6%6==0
3. Count=0+1=1 3.count=1+1=2 3.count=2+1=3 count=4

***Total count=4***

**7(a). Prime number with in range**

**Start=2,end=20**

for i in range(start,end+1): 1.range(2,21): 1,2……20 **if i=7 here**

for j in range(2,(i//2)+1): 2. range(2,(7//2)+1)=range(2,3+1):

if i%j==0: 3.if 7%(2,3)==0:

break 4.false it goes to **LINE 8**

else:

print(i,end=" ")

for i in range(start,end+1): 1.range(2,21): 1,2……20 **if i=9 here**

for j in range(2,(i//2)+1): 2. range(2,(9//2)+1)=range(2,4+1):

if i%j==0: 3.if 9%(2,3,4)==0:

break 4.True here because 9%3==0 so break

else: 5.Similiarly we can remaining values

print(i,end=" ")

**8.Sum of given number**  **Ex: n=1234**

while(n>0): 1.while(1234>0): while(123>0):

r=n%10 2.r=1234%10(r=4) r=123%10(r=3)

sum1=sum1+r 3.sum1=0+4=4 sum1=4+3=7

n=n//10 4.n=1234//10=123 n=123//10=12

print(sum1,end=" ") similarly so on…

4+3+2+1=10

finally output=10