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):
    for j in range(2,(i//2)+1):
        if i%j==0:
            break
    else:
        print(i,end=" ")
```

1.range(2,21): 1,2……20 **if i=9 here**

2. range(2,(9//2)+1)=range(2,4+1):

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

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

5.Similiarly we can remaining values

8.Sum of given number

```
while(n>0):
    r=n%10
    sum1=sum1+r
    n=n//10
print(sum1,end=" ")
```

Ex: n=1234

1.while(1234>0):

2.r=1234%10(r=4)

3.sum1=0+4=4

4.n=1234//10=123

while(123>0):

r=123%10(r=3)

sum1=4+3=7

n=123//10=12

similarly so on…

4+3+2+1=10

finally output=10