

Data Science & AI & NIC - Param

Python-For Data Science

Flow Control Statements

Lecture No.- 02

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Recap of Previous Lecture



Topic

Control Flow Statement - 01



Topics to be Covered



Topic

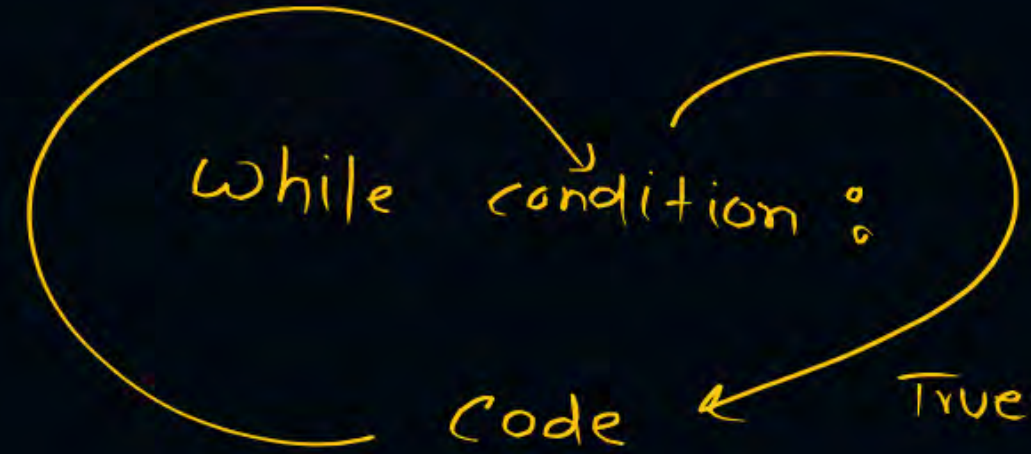
Control Flow Statement - 01



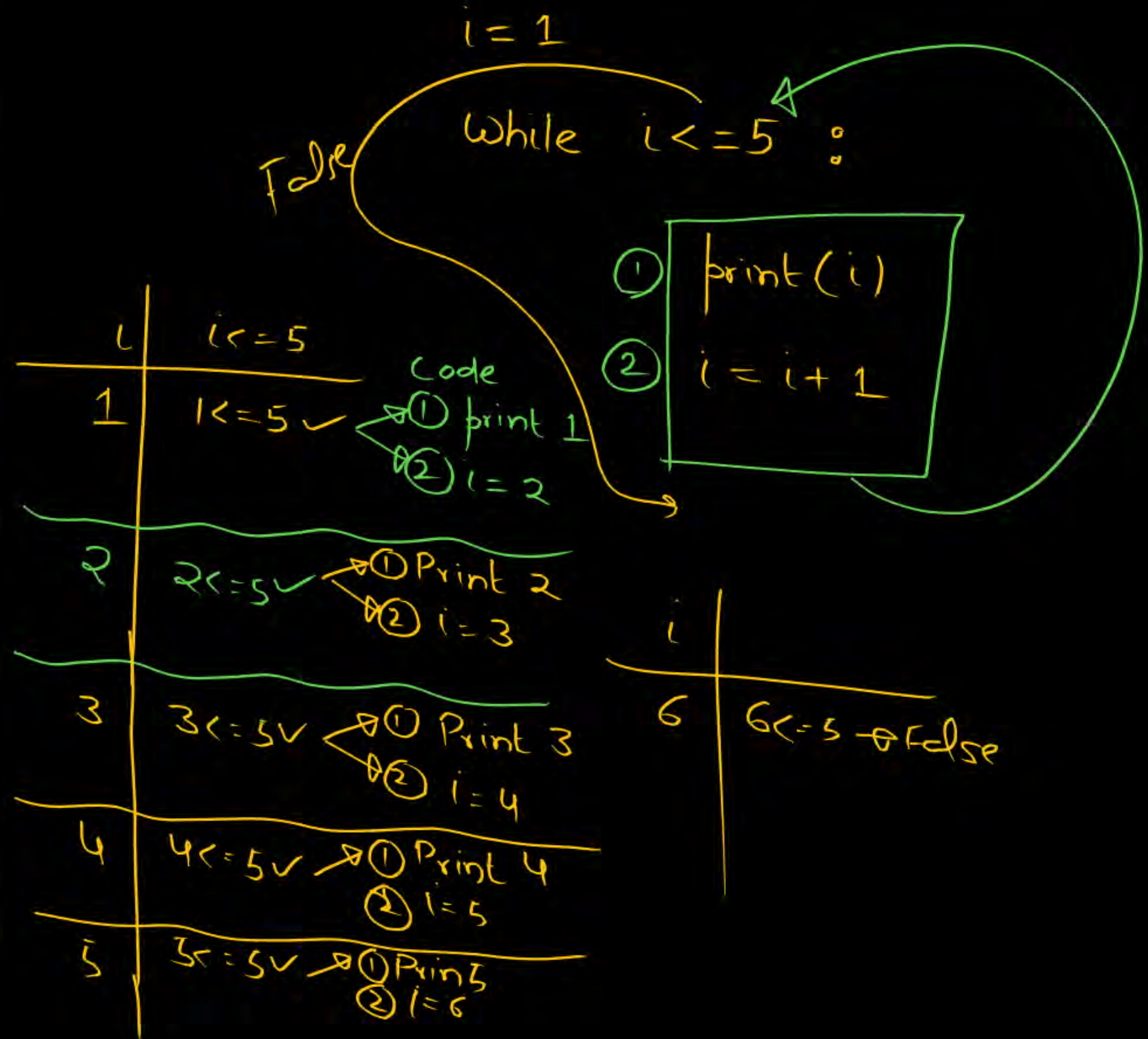


Topic : Control Flow Statements

While loop



```
for i in range(1, 6):  
    print(i)
```



$$n = 1234$$

$$\downarrow n = n // 10 \checkmark$$

$$n = 123$$

$$\downarrow n = n // 10 \checkmark$$

$$n = 12$$

$$\downarrow n = n // 10 \checkmark$$

$$n = 1$$

$$\downarrow n = n // 10 \checkmark$$

$$n = 0$$

$$1234 // 10$$
$$(123)$$

$$123 // 10$$
$$12$$

$$n = 935$$

$$\downarrow n = n // 10 \checkmark$$

$$n = 93$$

$$\downarrow n = n // 10 \checkmark$$

$$n = 9$$

$$\downarrow n = n // 10 \checkmark$$

$$n = 0$$

i/p: n

$(n > 0)$

O/P: The no. of digits in n

$c = 0;$

$n = \text{int}(\text{input}(\text{"Enter number"}))$

while $n \neq 0$:

$n = n // 10$ ✓

$c = c + 1$ ✓

print(c)

$n \geq 0$

i/p: $n = 0$



```
c = 0
n = int(input("Enter any number"))
if n == 0:
```

```
    c = 1
```

```
else:
```

```
    while n != 0:
```

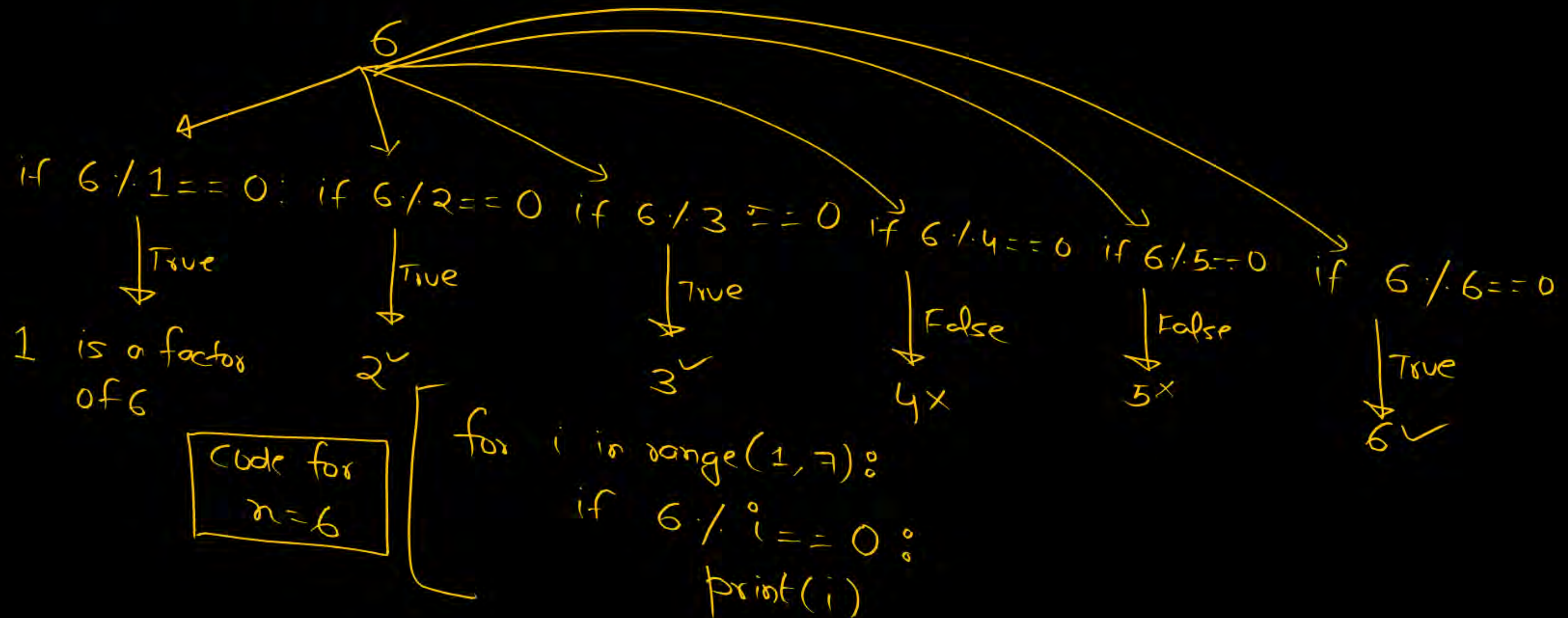
```
        n = n // 10
```

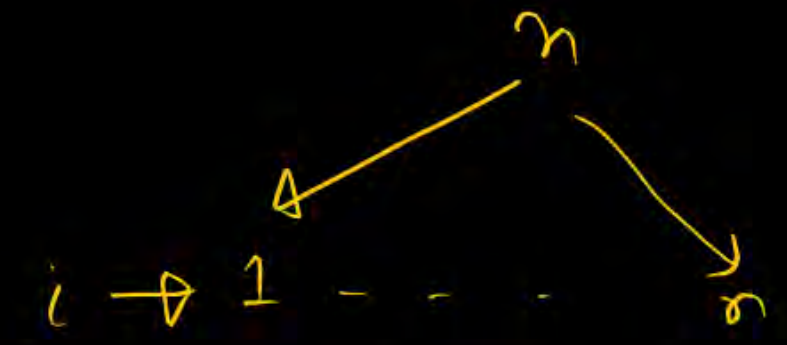
```
        c = c + 1
```

```
print(c)
```


I/P: $n > 0$

O/P: Print all its factors





```
n = int(input("Enter a number"))
for i in range(1, n+1):
    if n/i == 0:
        print(i)
```

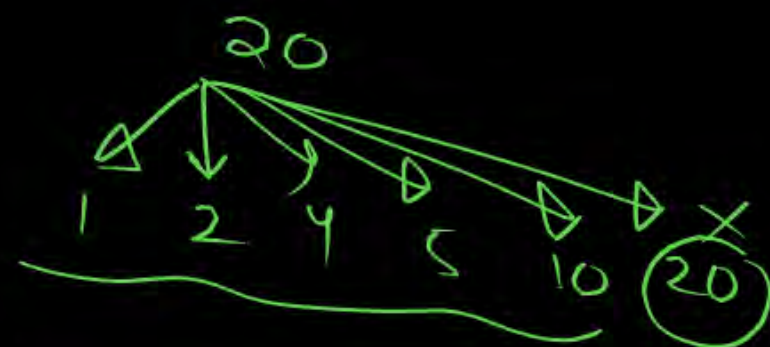
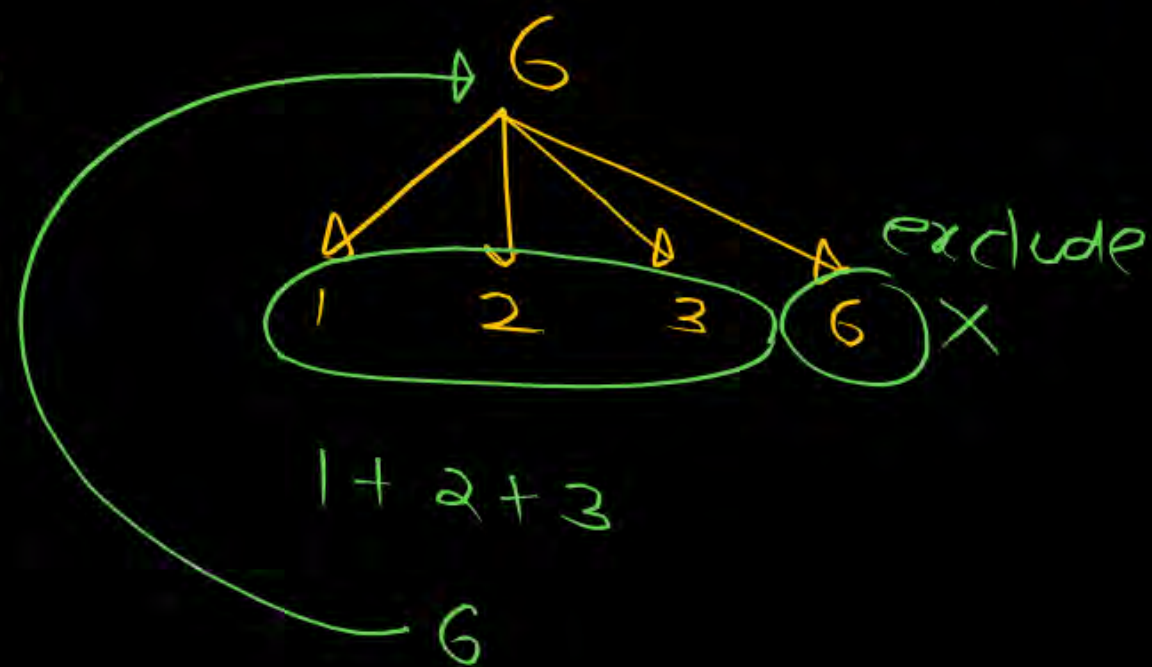
list = [] ← factors

```
n = int(input("Enter a no"))
l = [] # Empty list
for i in range(1, n+1):
    if n/i == 0:
        l.append(i)
print(l)
```

Perfect number

n is called as a perfect number if the sum of all factors of n excluding itself is equal to n .

6 is a perfect no



22
20 is not a perfect no.


```
n = int(input("Enter a no"))  
sum = 0
```

```
for i in range(1, n):
```

i is a factor of n

```
if n / i == 0:
```

```
    sum = sum + i
```

```
if sum == n:
```

```
    print("Perfect")
```

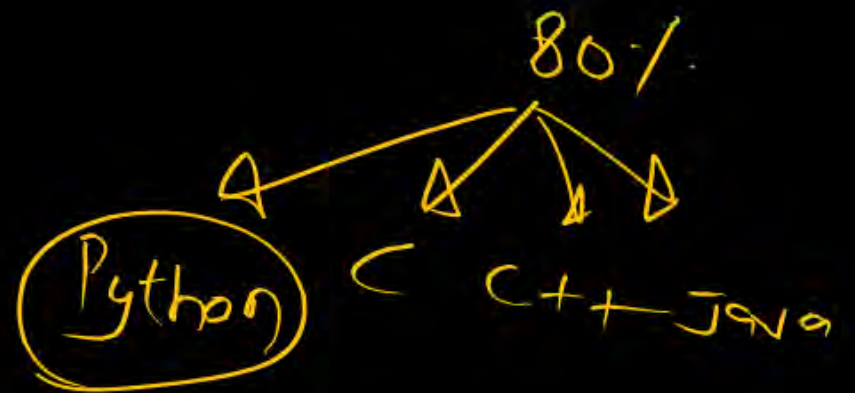
```
else:
```

```
    print("Not Perfect")
```

```
sum = 0
```

```
for
```

```
    sum = sum + 0
```



I/P : $n > 0$

I/P : 15

O/P : 6

I/P : 234

O/P : 9

I/P : 1

O/P : 1

I/P : 31921

O/P : 16

I/P : 999

O/P : 27

1234

//

जय

%

वैश्व

$n = \boxed{1234}$

$1234 / 10$

(4)

$1234 // 10$

123

$100 \sqrt{1234}^{12}$
 $\frac{1200}{34}$

$1234 // 100$

$n = 1234$ (1234)

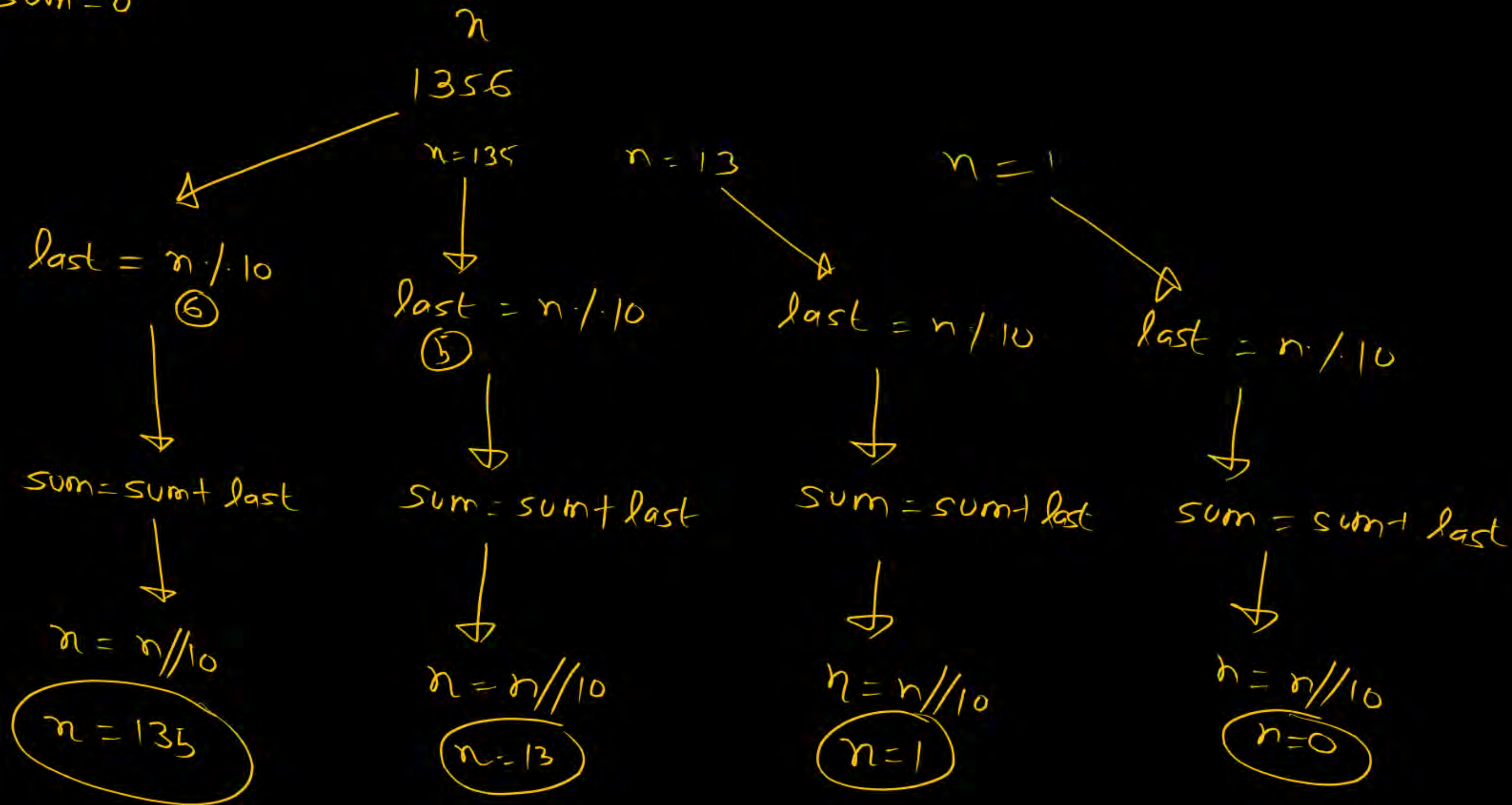
$n / 100$

$n // 100$

34

12

sum = 0




```
n = int(input("Enter a number"))  
a = n  
sum = 0
```

```
while n != 0 :
```

```
    last = n // 10
```

```
    sum = sum + last
```

```
    n = n // 10
```

```
print("The sum of digits in", a, "is", sum)
```

While True :

print("1")

∞ times

(∞ loop)

Notes

→ X

→ Practice

→ Notebook → write the logic/code

→ Jupyter Notebook

While 1 :

print("*")

While 12.5 :

print("*")

While True :

print("*")

i = 1

while i :

print("*")

i = 12.5

while i :

print("*")

i = True

while i :

print("*")

Poince

Shubham

while True ✓

for loop i cnt inc

start

1, 2, 3, -

range(1, 10):



Programming in Python

+ me/PWpankajsirP

Review \Rightarrow

Complaint \Rightarrow

$$n = 145$$

$$1! = 1$$

$$4! = 24$$

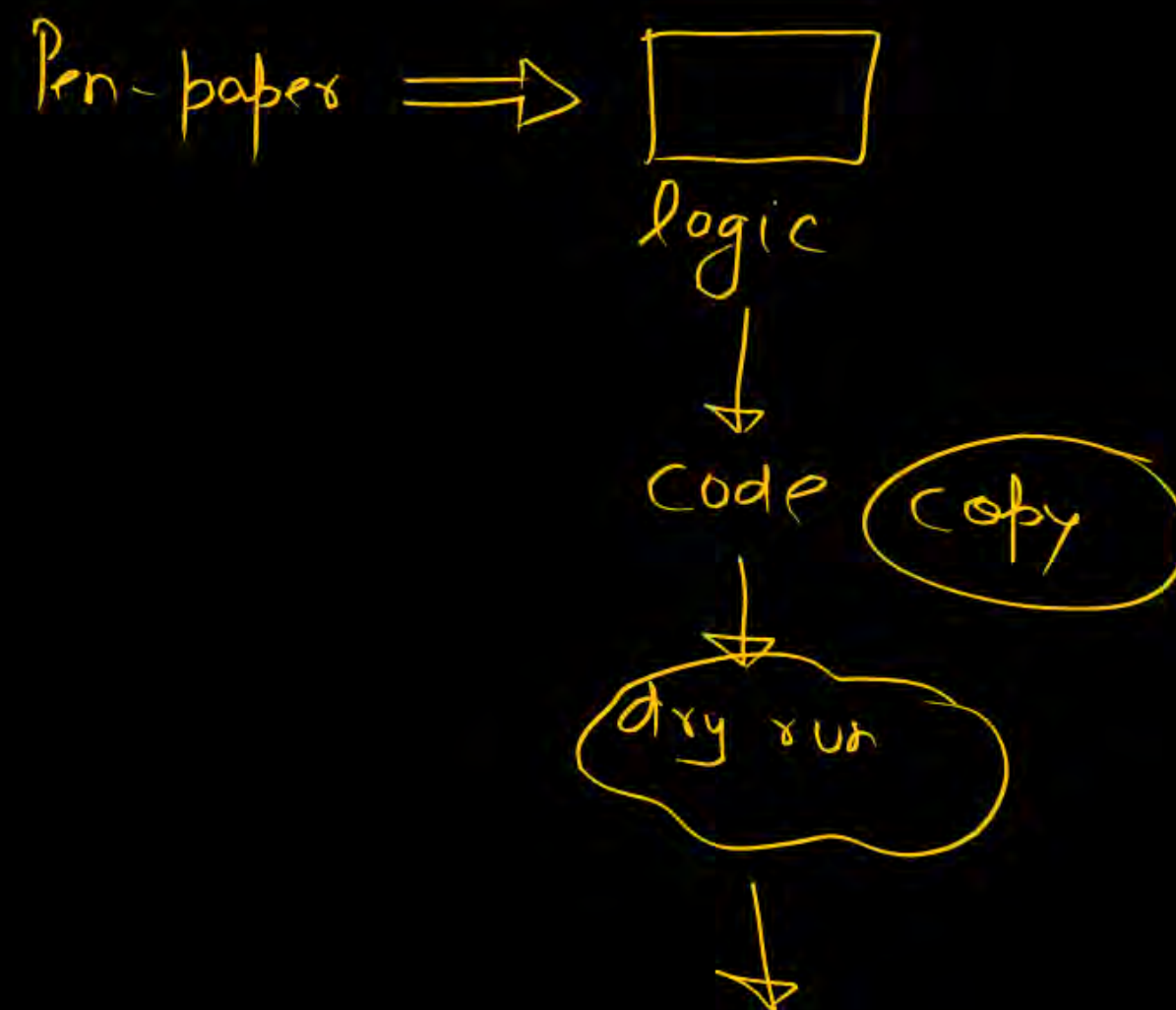
$$5! = 120$$

$$1! + 4! + 5! = 1 + 24 + 120$$

$$= 145$$

Strong no

\Rightarrow A no. n is said to be strong if the sum of factorial of digits in the no. is equal to no. itself



Day 7

```
In [1]: i=1
while i<=5 :
    print(i)
    i=i+1
```

1
2
3
4
5

```
In [2]: i=1
prod=1
while i<=5:
    prod=prod *i
    i=i+1
print(prod)
```

120

```
In [3]: n=int(input("Enter the number"))
i=1
prod=1
while i<=n :
    prod=prod *i
    i=i+1
print(prod)
```

Enter the number5
120

```
In [4]: n=int(input("Enter the number"))
i=1
prod=1
while i<=n :
    prod=prod *i
    i=i+1
print(prod)
```

Enter the number10
3628800

```
In [5]: #to print the number of digits in a positive number entered by user
n=int(input("Enter a number"))
c=0
while n!=0 :
    n=n//10
    c=c+1
print("The number of digits is ",c)
```

Enter a number3562
The number of digits is 4

```
In [6]: #to print the number of digits in a positive number entered by user
n=int(input("Enter a number"))
c=0
while n!=0 :
    n=n//10
    c=c+1
print("The number of digits is ",c)
```

Enter a number6598760987
The number of digits is 10

```
In [7]: #program to print all the factors of a number n>0
n=int(input("Enter the number"))
for i in range(1,n+1):
    if n%i==0 :
        print(i)
```

Enter the number6
1
2
3
6

```
In [8]: #program to print all the factors of a number n>0
n=int(input("Enter the number"))
for i in range(1,n+1):
    if n%i==0 :
        print(i)
```

Enter the number20
1
2
4
5
10
20

```
In [9]: n=int(input("Enter a number"))
l=[]#empty list
for i in range(1,n+1):
    if n%i==0 :
        l.append(i)
print(l)
```

Enter a number6
[1, 2, 3, 6]

```
In [10]: n=int(input("Enter a number"))
l=[]#empty list
for i in range(1,n+1):
    if n%i==0 :
        l.append(i)
print(l)
```

Enter a number20
[1, 2, 4, 5, 10, 20]

```
In [12]: n=int(input("Enter a number"))
sum=0
for i in range(1,n):
    if n%i==0:
```

```

        sum=sum+i
    if sum==n:
        print("The number",n,"is perfect")
    else :
        print("The number",n,"is not perfect")

```

Enter a number6
The number 6 is perfect

```

In [13]: n=int(input("Enter a number"))
sum=0
for i in range(1,n):
    if n%i==0:
        sum=sum+i
if sum==n:
    print("The number",n,"is perfect")
else :
    print("The number",n,"is not perfect")

```

Enter a number28
The number 28 is perfect

```

In [14]: n=int(input("Enter a number"))
sum=0
for i in range(1,n):
    if n%i==0:
        sum=sum+i
if sum==n:
    print("The number",n,"is perfect")
else :
    print("The number",n,"is not perfect")

```

Enter a number20
The number 20 is not perfect

```

In [16]: #to print sum of digits in a positive number n>0
n=int(input("Enter a number"))
a=n
sum=0
while n!=0 :
    last=n%10
    sum=sum+last
    n=n//10
print("The sum of digits in",a,"is",sum)

```

Enter a number12344
The sum of digits in 12344 is 14

```

In [17]: #to print sum of digits in a positive number n>0
n=int(input("Enter a number"))
a=n
sum=0
while n!=0 :
    last=n%10
    sum=sum+last
    n=n//10
print("The sum of digits in",a,"is",sum)

```

Enter a number9999999999
The sum of digits in 9999999999 is 90

In []:

THANK - YOU