

# Data Science & AI & NIC - Param

Python-For Data Science

Flow Control Statements

Lecture No.- 01

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# Recap of Previous Lecture



Topic

Operators - 02



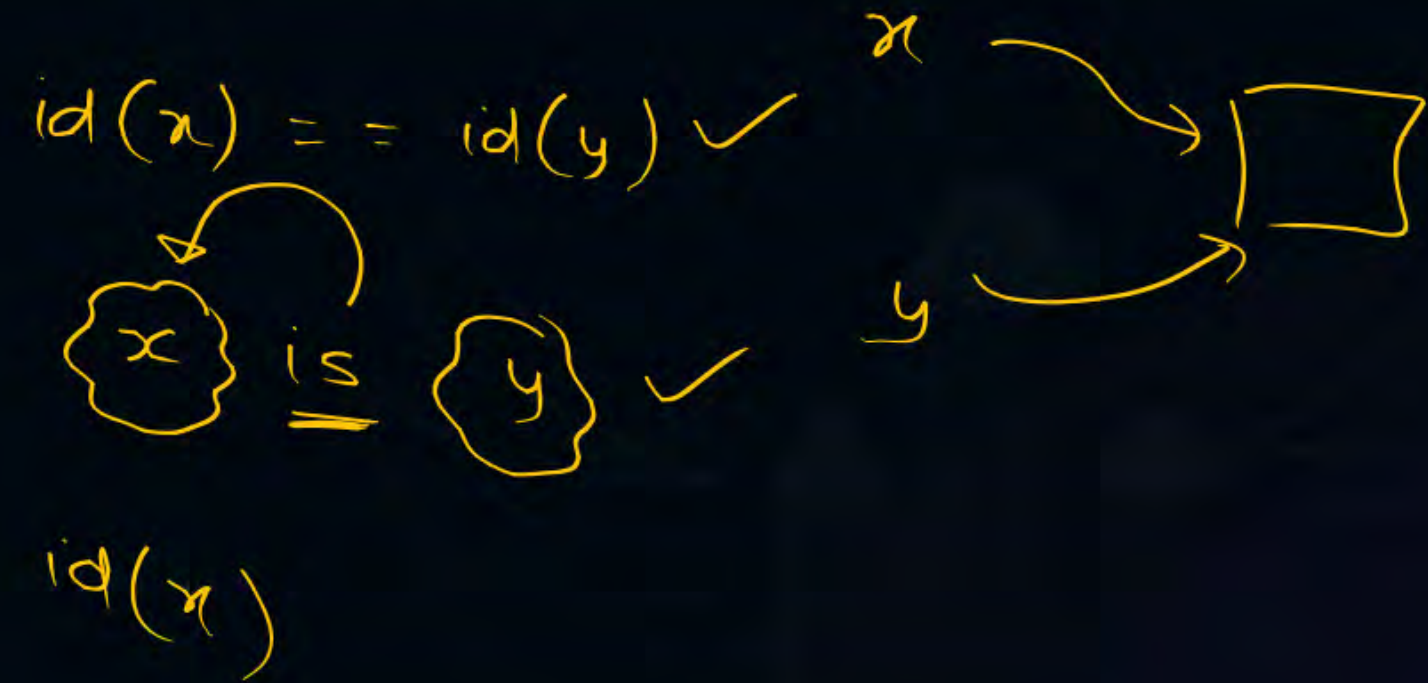


# Topics to be Covered



Topic

Control Flow Statement - 01

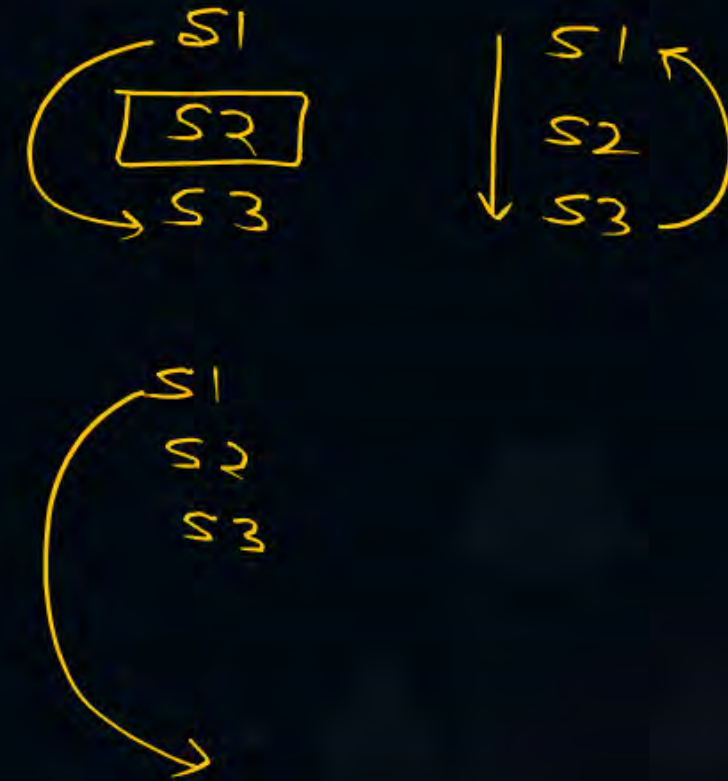




# Topic : Control Flow Statements

```
print("Pankaj")  
print("Sharma")  
print("Sir")
```

seq



## Control flow statement

### ① Selection/conditional

if condition : statement

if condition :



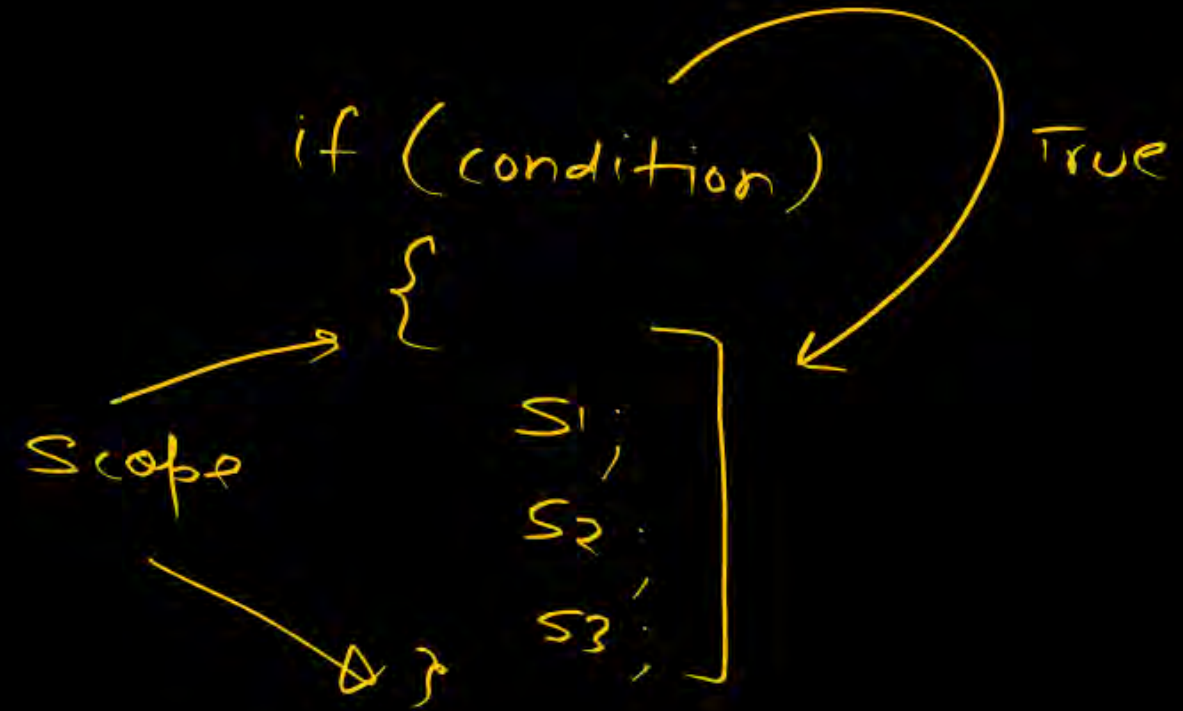
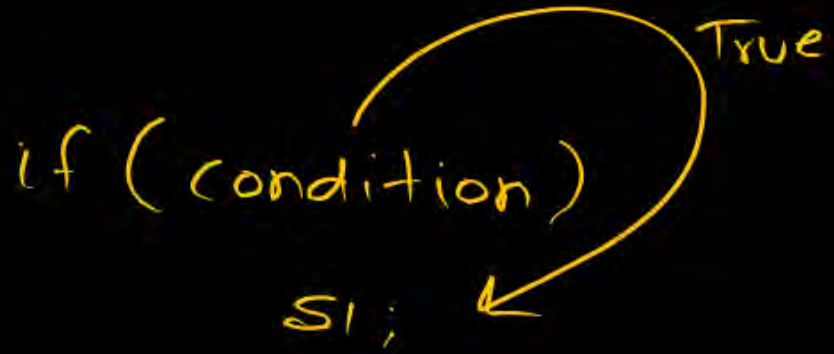
S1

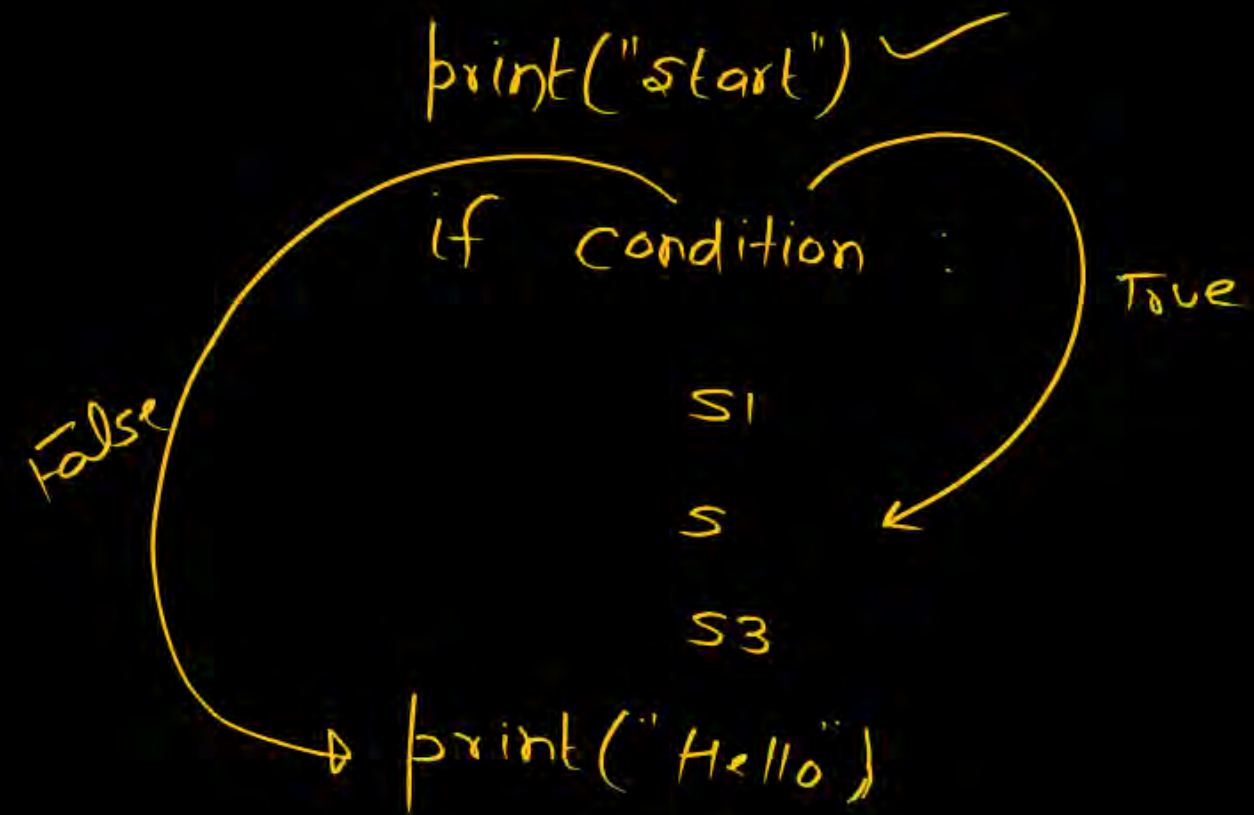
S2

S3



C long






start → S1 → S2 → S3 → Hello

start → False

C/C++/Java

```
print("1")  
print("2")  
print("3")
```



123

```
a = int(input())
```

12

```
b = int(input())
```

OR

```
print("1")
```

123

```
print("2")
```

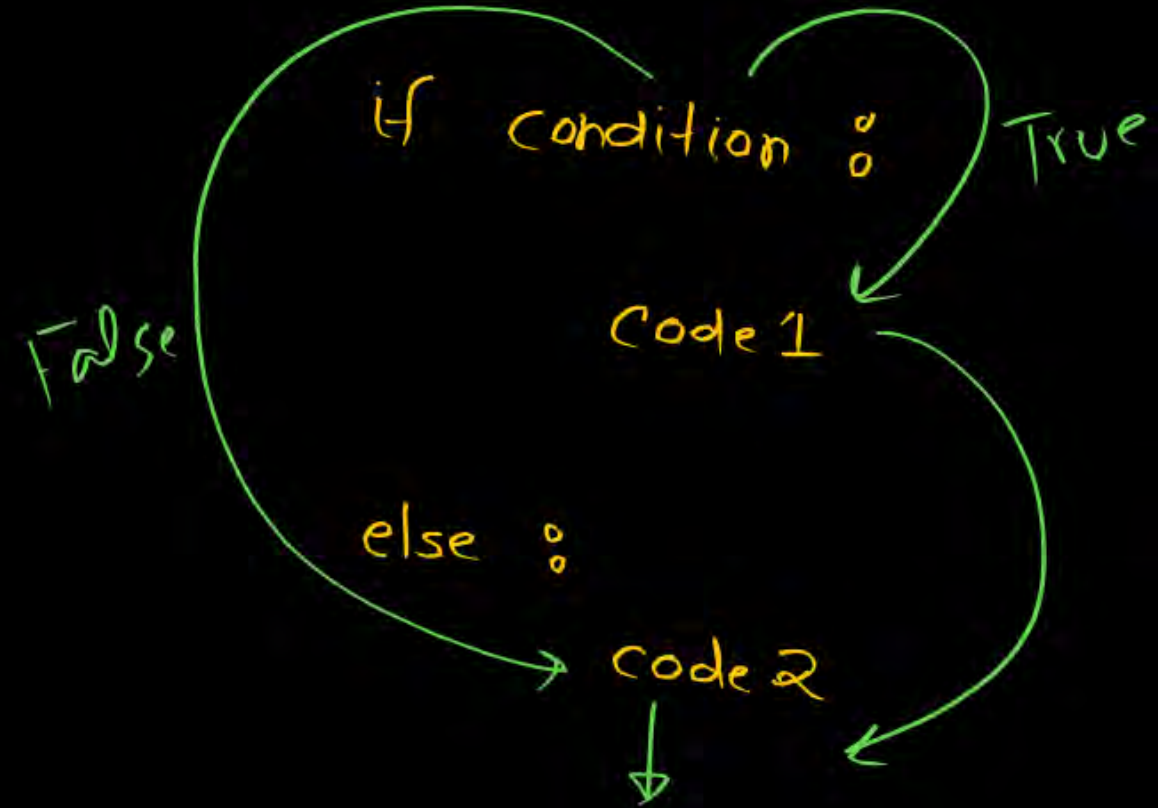
```
if a < b :
```

```
    print("3")
```





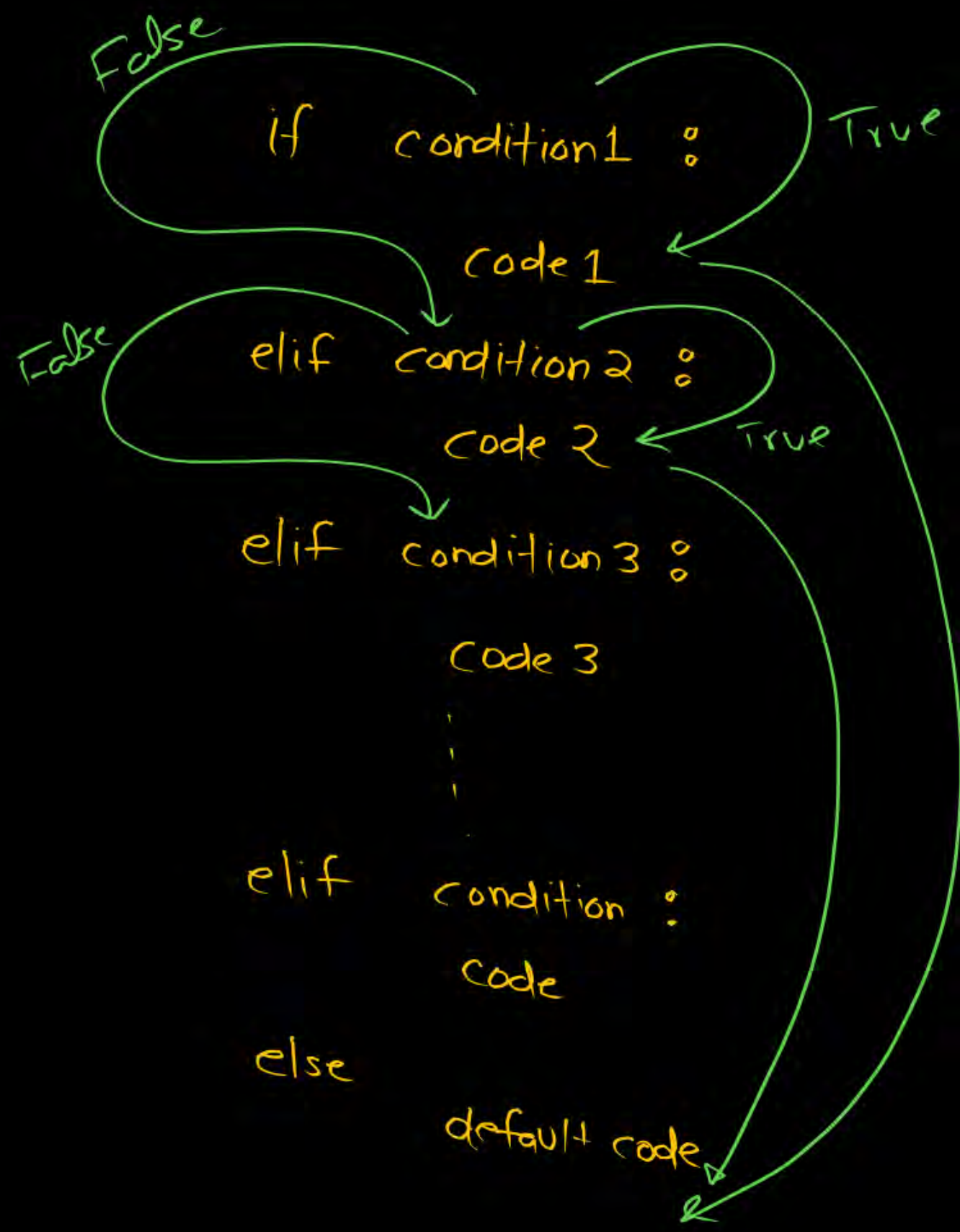
① Take a no. from keyboard & if it is even  $\Rightarrow$  print Pankaj



condition is True  $\rightarrow$  code 1 will execute

Otherwise  $\rightarrow$  code 2 " "

② Take a no. from keyboard & print whether it is even or odd.



else is always optional

① if condition : ✓  
    S1

② if condition : ✓  
    S1  
    S2  
    S3

③ if condition :  
    Code 1  
    else :  
        Code 2

if \_\_\_\_\_ :  
    Code 1  
elif \_\_\_\_\_ :  
    Code 2

if \_\_\_\_\_ :  
    Code 1  
elif \_\_\_\_\_ : ✓  
    Code 2  
elif \_\_\_\_\_ :  
    Code 3



- Q find min among 2 no  
Q find max among 3 distinct no.

✓ Always

X

else  $a < b$  :

3 distinct no.  $\begin{cases} a \\ b \\ c \end{cases}$   
False

Nested if-else

if  $a > b$  and  $a > c$  :

print("The largest among", a, b, c, "is", a)

else :

if  $b > c$  :  
print(b)  
else:  
print(c)

a is not  
largest

Either  
b  
or  
c  
can be  
largest





## ② Iterative statement

Repeat  $\Rightarrow$  code

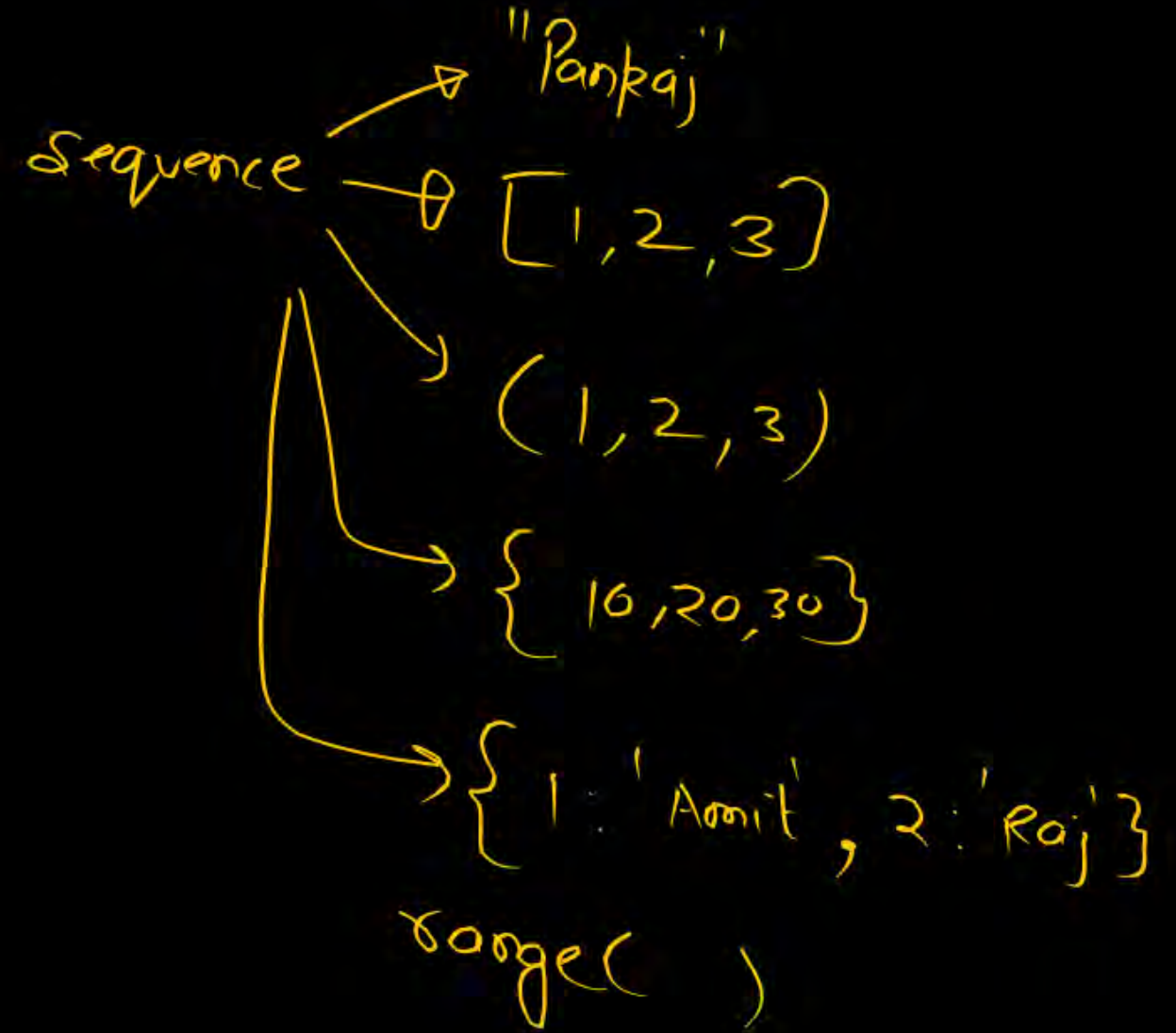
→ ① for loop

② while loop

for loop



if we want to execute some  
code for every element  
in some seq



for x in sequence :

list, tuple, string, set, dict, range

code

① for x in "Parraj" :  
    print(x)

6 element

'P', 'a', 'r', 'r', 'a', 'j'



i = 0

for x in "Pankaj" :

print("The element at index", i, "is", x)

i = i + 1

P	a	n	k	a	j
0	1	2	3	4	5

i	x
0	P
1	a
2	n
3	k
4	a
5	j

① for i in range(5): ⇒ 5 values

i = 0, 1, 2, 3, 4

print("Pankaj") code

② for i in range(1, 6): ↗ start  
↘ end  
print("Pankaj")

start → end-1  
1, 2, 3, 4, 5

③

```
for i in range(1, 101):
```

```
    if (i % 2 == 0):
```

```
        print(i)
```

$i = 1, 2, 3, \dots, 100$

$\text{range}(\text{start}, \text{end}, \text{step})$   $\rightarrow 1$

$\text{start} \rightarrow \text{end} - 1$

④

```
for i in range(5, 1):
```

```
    print(i)
```

$\text{range}(5, 1, -1)$

$5 \rightarrow 4 \rightarrow 3 \rightarrow 2$



Q Find the product of first 5 natural no (1, 2, 3, 4, 5)  
(using loop)

Answer = 1

Answer = Answer  $\times$  1

Answer = Answer  $\times$  2

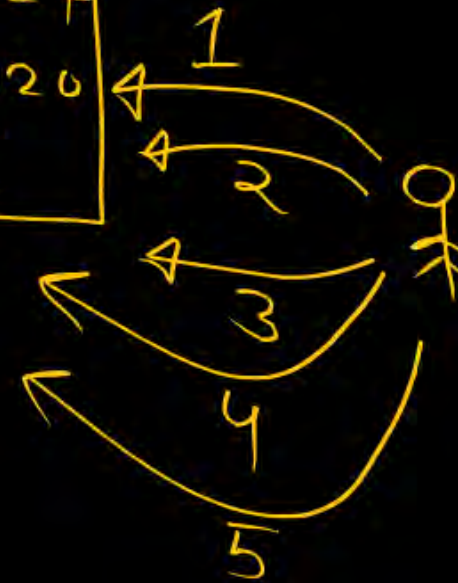
Answer = Answer  $\times$  3

Answer = Answer  $\times$  4

Answer = Answer  $\times$  5

Answer

~~6~~ 24  
~~X~~ 120  
~~2~~



Aman

2  $\times$  3  
(6)

Q Find the product of first 5 natural no. (1, 2, 3, 4, 5)  
(using loop)

Answer = 1

Answer = Answer × 1  
Answer = Answer × 2  
Answer = Answer × 3  
Answer = Answer × 4  
Answer = Answer × 5

variable Answer = 1

for i in range(1, 6):

Answer = Answer × i

Prod = 1

for i in range(1, 6):

Prod = Prod \* i

print(Prod)

1 × 2 × 3 × 4 × 5

(1, n+1)

1, 2, 3, ..., n



Given a list of integers, WAP to find the sum of all elements in the list

$l = [1, 3, 8, 2, 10]$

Abtakpasum = 0

Abtakpasum = Abtakpasum + 1  
Abtakpasum = Abtakpasum + 3  
Abtakpasum = Abtakpasum + 8  
Abtakpasum = Abtakpasum + 2  
Abtakpasum = Abtakpasum + 10

element from list

Abtakpasum

12	24
14	24

Abtakpasum = 0

for x in l:

Abtakpasum = Abtakpasum + x





① Prime no. ✓

✓ ② sum of all factors of a number

$$n = 6$$



$$\text{Sum} = 12$$

While loop

break

Pass

15 class

→ Fundamentals

15-18 →



# Day 6

```
In [2]: a=int(input("Enter a number"))
        if a%2==0 :
            print("pankaj")
```

Enter a number13

```
In [3]: a=int(input("Enter a number"))
        if a%2==0 :
            print("Even")
        else :
            print("Odd")
```

Enter a number10  
Even

```
In [4]: a=int(input("Enter a number"))
        if a%2==0 :
            print("Even")
        else :
            print("Odd")
```

Enter a number13  
Odd

```
In [5]: Year=int(input("enter ur year as a number"))
        if Year==1 :
            print("Enjoy karo agle saal sochna")
        elif Year==2 :
            print("Sochna shuru kro kaise kroge")
        elif Year==3 :
            print("Sochne ka samay gaya karne ka time hai")
        elif Year==4 :
            print("Ab kya kre")
        else :
            print("Ram bharose")
```

enter ur year as a number1  
Enjoy karo agle saal sochna

```
In [6]: Year=int(input("enter ur year as a number"))
        if Year==1 :
            print("Enjoy karo agle saal sochna")
        elif Year==2 :
            print("Sochna shuru kro kaise kroge")
        elif Year==3 :
            print("Sochne ka samay gaya karne ka time hai")
        elif Year==4 :
            print("Ab kya kre")
        else :
            print("Ram bharose")
```

enter ur year as a number2  
Sochna shuru kro kaise kroge

```
In [7]: Year=int(input("enter ur year as a number"))
if Year==1 :
    print("Enjoy karo agle saal sochna")
elif Year==2 :
    print("Sochna shuru kro kaise kroge")
elif Year==3 :
    print("Sochne ka samay gaya karne ka time hai")
elif Year==4 :
    print("Ab kya kre")
else :
    print("Ram bharose")
```

enter ur year as a number3  
Sochne ka samay gaya karne ka time hai

```
In [8]: Year=int(input("enter ur year as a number"))
if Year==1 :
    print("Enjoy karo agle saal sochna")
elif Year==2 :
    print("Sochna shuru kro kaise kroge")
elif Year==3 :
    print("Sochne ka samay gaya karne ka time hai")
elif Year==4 :
    print("Ab kya kre")
else :
    print("Ram bharose")
```

enter ur year as a number4  
Ab kya kre

```
In [9]: Year=int(input("enter ur year as a number"))
if Year==1 :
    print("Enjoy karo agle saal sochna")
elif Year==2 :
    print("Sochna shuru kro kaise kroge")
elif Year==3 :
    print("Sochne ka samay gaya karne ka time hai")
elif Year==4 :
    print("Ab kya kre")
else :
    print("Ram bharose")
```

enter ur year as a number5  
Ram bharose

```
In [10]: a=int(input("Enter first number"))
b=int(input("Enter second number"))
c=int(input("Enter Third number"))
if a>b and a>c :
    print("The largest among",a,b,c,"is",a)# a is greater than both
else :
    if b>c :
        print("The largest among",a,b,c,"is",b)
    else :
        print("The largest among",a,b,c,"is",c)
```

Enter first number10  
Enter second number5  
Enter Third number20  
The largest among 10 5 20 is 20



```
In [11]: for x in "pankaj":  
         print(x)
```

p  
a  
n  
k  
a  
j

```
In [12]: i=0  
         for x in "pankaj":  
             print("The element at index",i,"is",x)  
             i=i+1
```

The element at index 0 is p  
The element at index 1 is a  
The element at index 2 is n  
The element at index 3 is k  
The element at index 4 is a  
The element at index 5 is j

```
In [13]: for i in range(5,1):  
         print(i)
```

```
In [14]: for i in range(5,1,-1):  
         print(i)
```

5  
4  
3  
2

```
In [16]: prod=1  
         for i in range(1,5+1):  
             prod=prod * i  
         print(prod)
```

120

```
In [17]: n=int(input("enter any number"))  
         prod=1  
         for i in range(1,n+1):  
             prod=prod * i  
         print(prod)
```

enter any number5  
120

```
In [18]: n=int(input("enter any number"))  
         prod=1  
         for i in range(1,n+1):  
             prod=prod * i  
         print(prod)
```

enter any number10  
3628800

```
In [19]: n=int(input("enter any number"))  
         prod=1
```

```
for i in range(1,n+1):
    prod=prod * i
print(prod)
```

```
enter any number100  
9332621544394415268169923885626670049071596826438162146859296389521759999322991560894  
1463976156518286253697920827223758251185210916864000000000000000000000000
```

```
In [20]: l=[1,3,8,10,5]
          abtakkasum=0
          for x in l:
              abtakkasum=abtakkasum +x
          print("The sum of all elements is",abtakkasum)
```

The sum of all elements is 27

```
In [21]: l=eval(input("Enter a list"))
          sum=0
          for x in l:
              sum=sum+x
          print(sum)
```

```
Enter a list[1,3,8,10,-4]
18
```

```
In [22]: l=eval(input("Enter a list"))
          print(type(l))
          sum=0
          for x in l:
              sum=sum+x
          print(sum)
```

```
Enter a list[1,2,3,4,5]
<class 'list'>
15
```

```
In [23]: a=eval(input("Enter"))
          print(type(a))
```

```
Enter{1,2,3}
<class 'set'>
```

```
In [24]: a=eval(input("Enter"))
          print(type(a))
```

```
Enter(1,2,3,4)
<class 'tuple'>
```

```
In [25]: a=eval(input("Enter"))
          print(type(a))
```

```
Enter{1:'pankaj',2:'amit'}
<class 'dict'>
```

In [ ]:

**THANK - YOU**