

Loops in Python

Week-4 Lecture-2

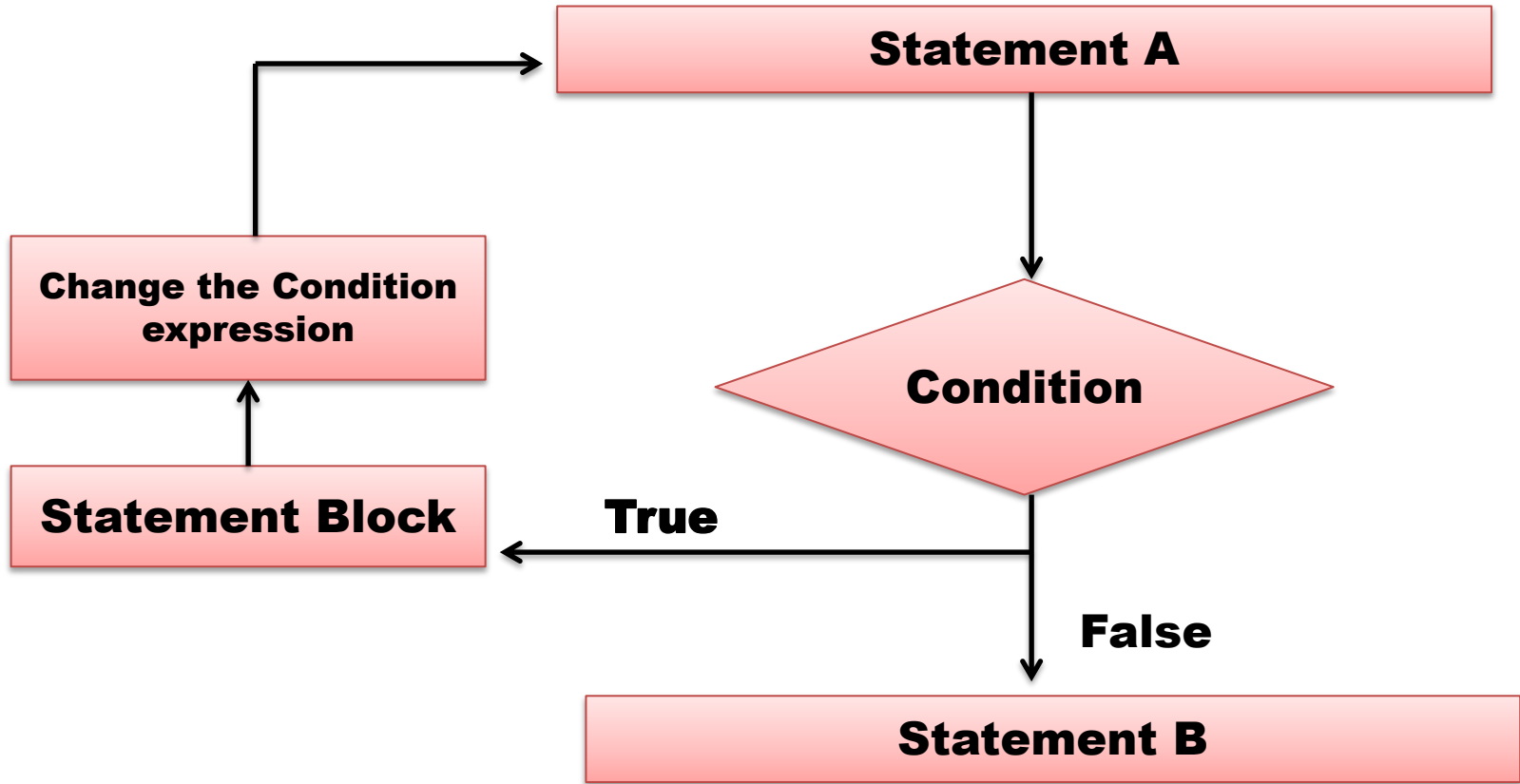
Loops in Python

- Looping is used to execute a statement or list of statements repeatedly until a specific condition is met.
- It is also referred to as an iterative statement.

- Two iterative statements supported by python are:
 - while loop
 - for loop

while loop

- while loop allows a statement or a list of statements to be executed until a particular condition is true.



Three important criteria for a loop.

- Start
- Step
- Stop

Examples

Program to print a name 100 times

```
i=1                #starting point of the loop  
while(i<=100):    #Stopping condition of the loop  
    print("Rizwan")  
    i=i+1          # steps/increment
```


Sum of first ten numbers (1+2+3+4+5+6+7+8+9+10)

i=1

sum=0

while(i<=10):

sum=sum+i

i=i+1

print("Sum of first ten numbers: ",sum)

Program to find sum of digits of a given integer

ex: $321=3+2+1=6$

sum=0

num=int(input("Enter a number: "))

while(num!=0):

temp=num%10

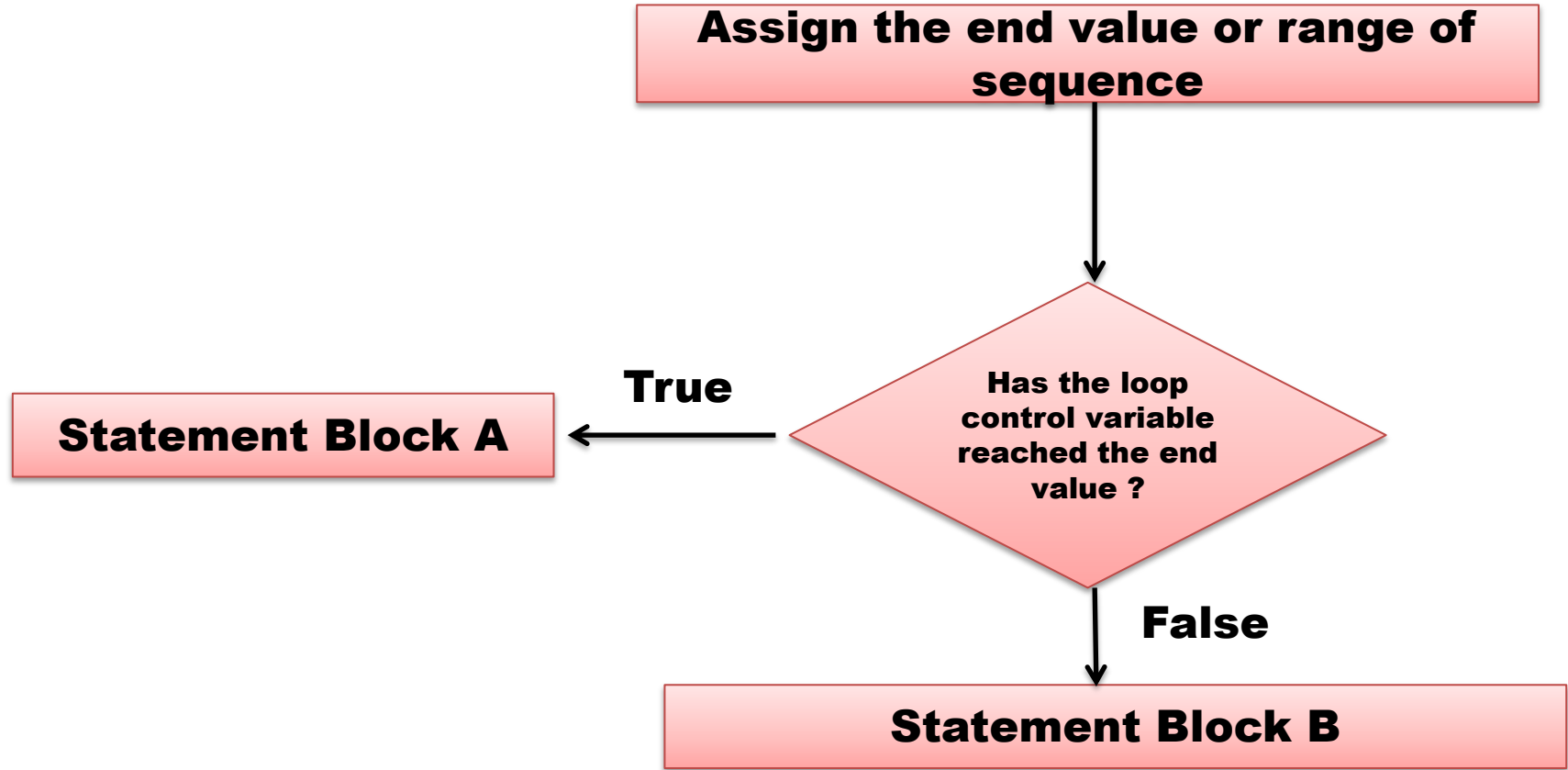
sum=sum+int(temp)

num=num/10

print("Sum of the digits is:",sum)

for loop

- The purpose of the for is similar to while loop i.e. to repeat a task until a predefined condition is true.



The range() function

- range() is a inbuilt python function.
- It returns a sequence of numbers which by default starts from 0, increment by 1 and stops at a given value.

- `range(start, stop, step)`
- where:
 - Start is optional and by default begins from 0.
 - Stop is required as any integer value which specifies the stop position.
 - Step is optional and by default is 1.

```
x = range(1, 10, 2)  
for n in x:  
    print(n)
```

```
x = range(2, 10)  
for n in x:  
    print(n)
```

Example

```
for i in range(1,10,2):  
    print(i,end=" ")
```


Program to find factorial of a number

```
num=int(input("Enter a number: "))  
if (num==0):  
    f=1  
f=1  
for i in range(1,num+1):  
    f=f*i  
print("Factorial of",num,"is",f)
```



Thank
You