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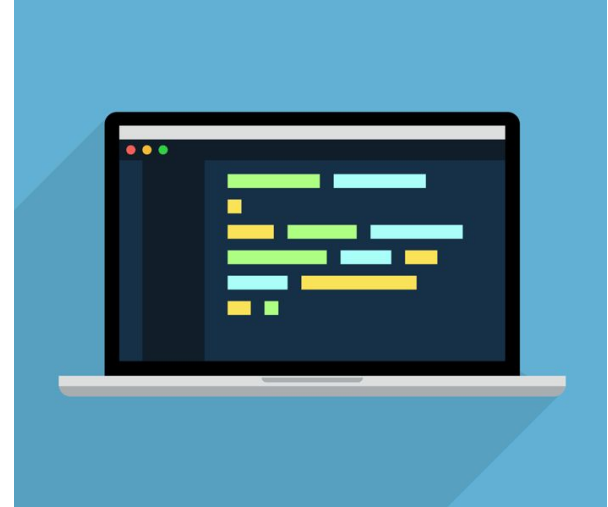
# Nested Loops

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CSA 101 : Problem Solving with  
Programming

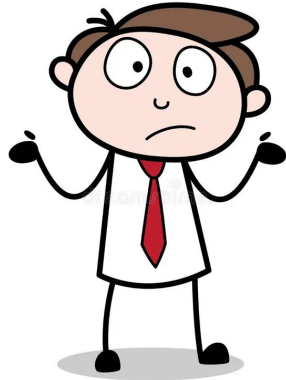
# Quick Recap :

- **Loops in Programming**
- **Range Function**
- **For Loop**
- **While Loop**



# Quick Recap :

When **you know** ahead  
of time **how many**  
**iterations** you need



When **you**  
**don't know**



# Loop Control Statements

Loop control statements change execution from its normal sequence.



break  
statement

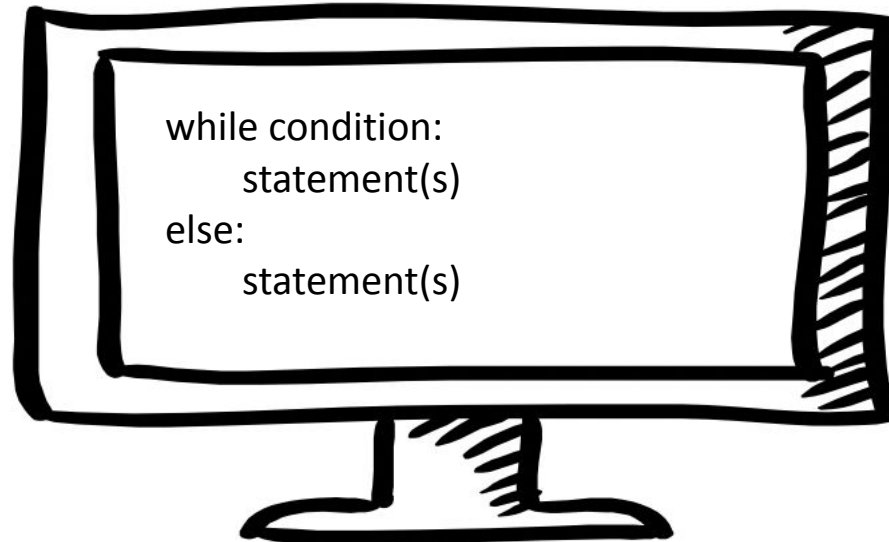
continue  
statement

pass  
statement

# The Else Statement

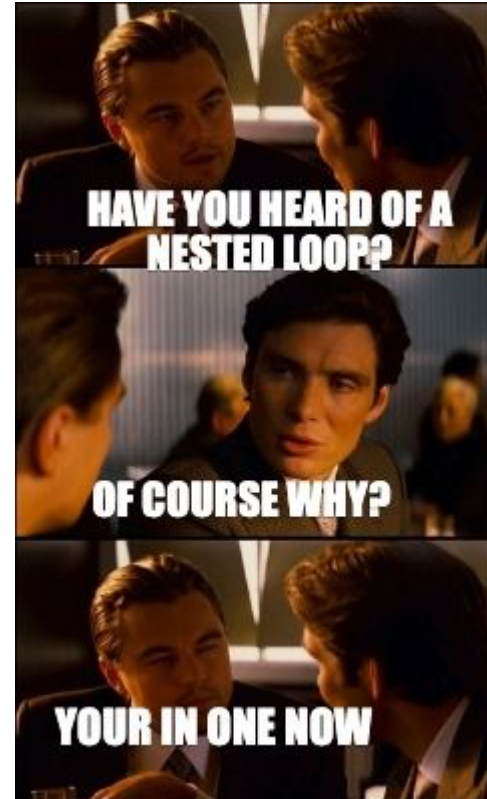
The else block is executed when the for/while loop condition becomes false naturally, not when it's interrupted by a break.

Syntax :-



# What is Nested Loop ?

**Nested loops** are like the  
"loop-ception" of programming:  
a **loop within a loop**.



# Who's up for the challenge ?



*3 sets of 10  
push-ups each*

# Examples:

Nested loops are often used to work with **grids or tables**. Think of a **chessboard**, where you have **rows** and **columns**. You can use a nested loop to print out a grid of numbers:



1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5



# Examples:

1. Write a Python program that prints numbers from 1 to 5 , five times on separate lines using for loop.



**Expected  
Output**

1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5

# Sum Of Factorial

# Q1 – Sum of Factorial

Write a Python program to calculate the sum of factorials of numbers from A to B, inclusive.

$$4! = 4 \cdot 3 \cdot 2 \cdot 1 = 24$$



Expected  
Output

$$\sum_{k=0}^n k!$$

# Q1 – Solution

```
A = int(input())  
B = int(input())  
ans = 0  
for i in range(A,B+1):  
    fact = 1  
    for j in range(1,i+1):  
        fact *= j  
    ans += fact  
print(ans)
```

# Square of Stars

## Q2 – Square Of Stars

You are given an integer  $n$  and you need to print the following pattern Square of Stars.

```
* * * * *  
* * * * *  
* * * * *  
* * * * *  
* * * * *
```



## Q2 – Solution

```
n = int(input())  
for i in range(n):  
    for j in range(n):  
        print("*",end=" ")  
    print()
```

# Triangle Pattern



## Q3 – Triangle Star Sattern

You are given an integer  $n$  and you need to print the following pattern Right-Angled Triangle.

```
*  
* *  
* * *  
* * * *  
* * * * *
```



# Q3 – Solution

```
n = int(input())  
for i in range(1,n+1):  
    for j in range(i):  
        print("*",end=" ")  
    print()
```



**Thank You!**