



# Nested Loops (part-1)

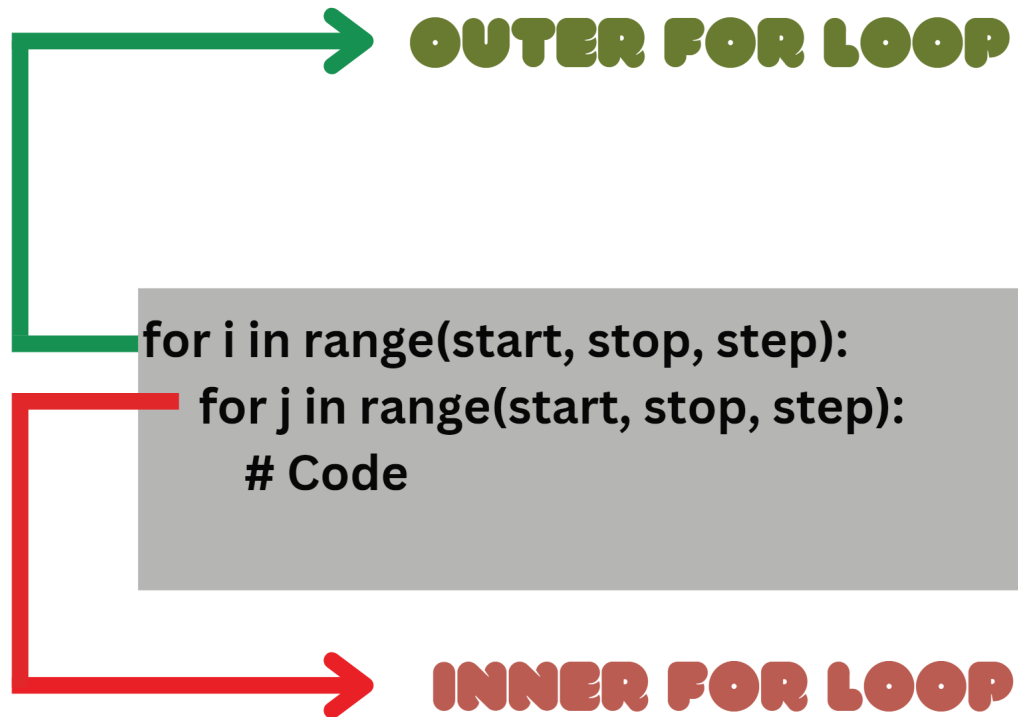
## Nested Loops

- A **nested loop** is a loop within a loop.
- **Analogy**—
  - Suppose you went to a Gol Gappa Shop and you ate 4 gol-gappas in a sequence. You can consider this as a loop where you have eaten 4 gol gappas in a sequence.
  - In another scenario, Suppose you went to a Gol Gappas Shop with 5 other family members. Each Member of the family ate 4 gol-gappas. You can consider this as a loop of 4 gol-gappas which run 5 times because of the 5 family members.



The "**inner loop**" will be executed one time for each iteration of the "**outer loop**":

- **SYNTAX**—



## Dry Run of problem

### Code 1: Nested loops for Gol Gappa example.

```
for family in range(1,6,1):  
    for gappas in range(1,5,1):  
        print(family, " ate ", gappas, " Gol-Gappa");
```

Dry run of the above code by making a table.

**Code 2: Grandfather and Sam are on their farm. Grandfather asked Sam to pick all the apples that are there and keep them in the basket.**

[https://www.canva.com/design/DAFTsm4D8CM/4p3pwjRhjA6yA9yVFGF7og/view?utm\\_content=DAFTsm4D8CM&utm\\_campaign=designshare&utm\\_medium=link&utm\\_source=homepage\\_design\\_menu](https://www.canva.com/design/DAFTsm4D8CM/4p3pwjRhjA6yA9yVFGF7og/view?utm_content=DAFTsm4D8CM&utm_campaign=designshare&utm_medium=link&utm_source=homepage_design_menu)

### Code 3: Print “Hello” in vertical order using a nested loop.

```
for i in range(2):  
    for j in range(3):  
        print("Hello");
```

Start (i)	Stop (i)	Code				Step (i)
i = 0	i < 2	Start (j)	Stop (j)	Code	Step (j)	i += 1
		j = 0	j < 3		j += 1	

Dry run of the above code by making a table.

### Code 4: Print “Hello” in horizontal order using a nested loop.

```
for i in range(2):  
    bag=""  
    for j in range(3):
```

```
bag+="Hello"+" "
print(bag);
```

Dry run of the above code by making a table.

Start (i)	Stop (i)	Code				Step (i)
i = 0	i < 2	Start (j)	Stop (j)	Code	Step (j)	i+=1
		j = 0	j < 3		j+=1	

## Father-Son Marathon



There was a father who trains his son for the next Olympics running competition. Every day Father use to give some targets to his son

**Code 5: Father gave the son a target, of completing 10 sets. Each set contains 10 Rounds of a field.**

```
for father in range(1,11):  
    for son in range(1,11):  
        print("Father count", father,"", Son completed "", son);
```

**Dry run of the above code by making a table.**

## **OJ problems discussed:**

- Your first pattern- <https://oj.masaischool.com/contest/3290/problem/02>

- **Pattern of N-** <https://oj.masaischool.com/contest/3290/problem/07>