

# Looping Visualization Diagram.

June 24, 2023

Explain this code step by step with Daigram for(int i =1; i<=5; i++){ for(int j = 1; j<=5; j++){ cout<< i <<' '; } cout<<'\n'; }

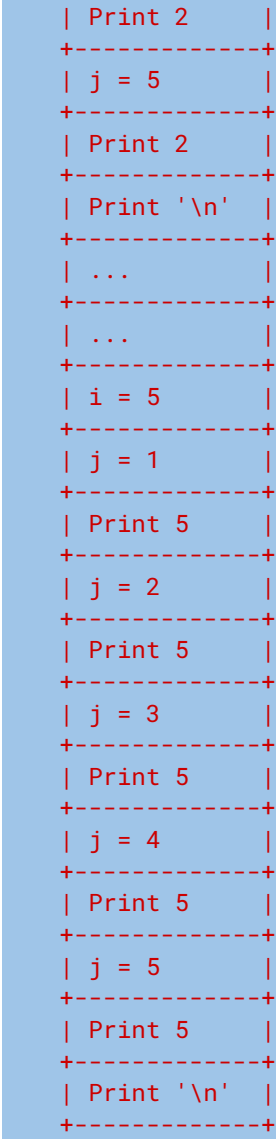
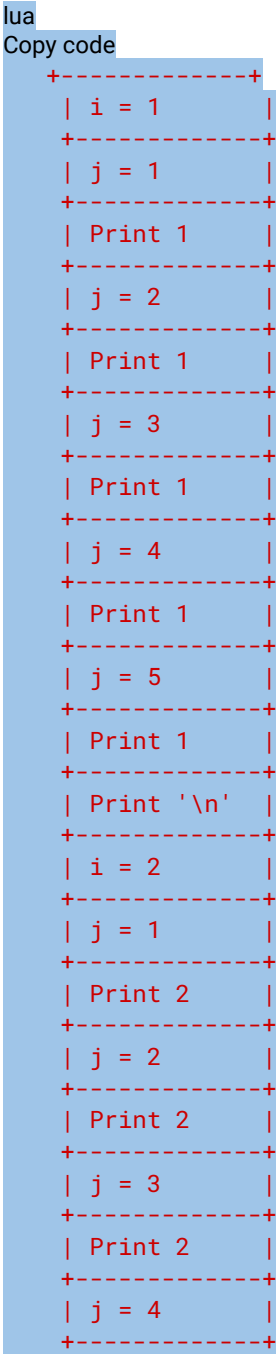
ChatGPT

Certainly! Let's break down the code step by step and create a diagram to visualize the execution flow. The code snippet you provided is written in C++ and uses nested loops to print numbers in a specific pattern. Here's how it works:

- Initialization:
  - Create two variables `i` and `j` and set them to 1.
- Condition check (outer loop):
  - Check if `i` is less than or equal to 5.
- Inner loop:
  - If the condition in step 2 is true, enter the inner loop.
  - Check if `j` is less than or equal to 5.
- Print the number:
  - If the condition in step 3 is true, execute the following statement:
    - Print the value of `i`.
    - Output a space after the number.
- Increment `j`:
  - After executing the inner loop body, increment the value of `j` by 1.
- Condition check (inner loop):
  - Go back to step 3 and repeat the inner loop as long as the condition is true.
- Print a newline character:
  - After the inner loop finishes, execute the following statement:
    - Print a newline character (`'\n'`).
- Increment `i`:
  - After executing the outer loop body and the

- newline character statement, increment the value of `i` by 1.
- Condition check (outer loop):
  - Go back to step 2 and repeat the outer loop as long as the condition is true.

The following diagram illustrates the execution flow:



This process continues until the outer loop condition (`i <= 5`) becomes false, and the program terminates. As a result, the output will be:

Copy code

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