

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

Certainly! The code you provided consists of  
nested loops that print numbers in a specific  
pattern. Here's a step-by-step explanation with  
a diagram:

Initialize the outer loop variable `i` to 1.  
Check if `i` is less than or equal to 5. If  
it is, proceed to the inner loop.  
Otherwise, exit the loop.

Initialize the inner loop variable `j` to 1.  
Check if `j` is less than or equal to 5. If  
it is, execute the loop body. Otherwise,  
exit the loop.

Print the value of `j`, followed by a  
space.

Increment `j` by 1.

Repeat steps 4-6 until `j` becomes 6  
(i.e., the inner loop condition is no  
longer satisfied).

Print a newline character (`'\n'`) to move  
to the next line.

Increment `i` by 1.

Repeat steps 2-9 until `i` becomes 6  
(i.e., the outer loop condition is no  
longer satisfied).

Exit the loop.

Diagram:

arduino

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```
i = 1
|
| j = 1 2 3 4 5
| '\n'
|
i = 2
|
| j = 1 2 3 4 5
| '\n'
|
i = 3
```

```
|
| j = 1 2 3 4 5
| '\n'
|
i = 4
|
| j = 1 2 3 4 5
| '\n'
|
i = 5
|
| j = 1 2 3 4 5
| '\n'
```

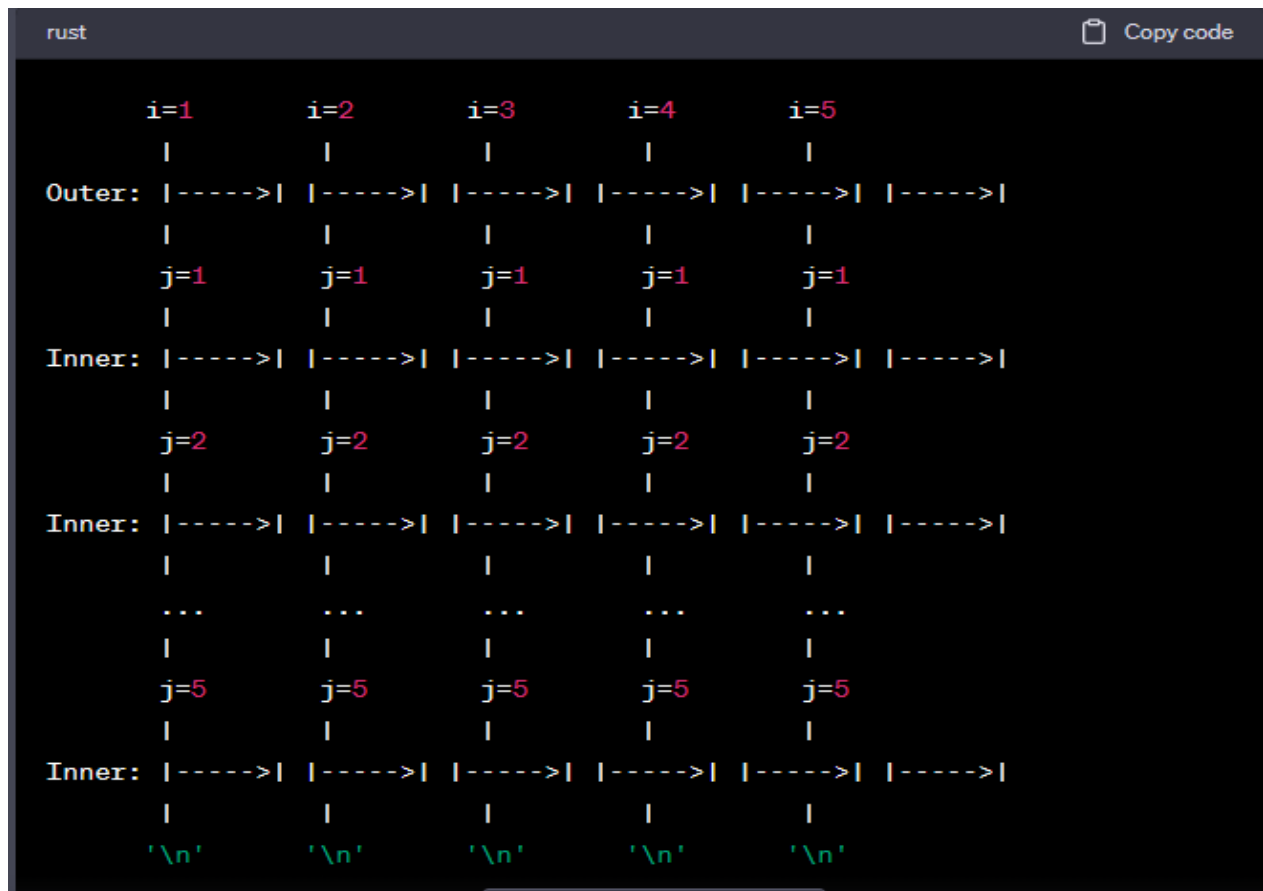
The output of this code will be:

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```
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
```

Each line consists of the numbers from 1 to 5  
separated by spaces. The outer loop controls  
the number of lines (5 in this case), and the  
inner loop prints the numbers in each line.

Diagram 2:




Example 3:



Continue of about Image

```
Outer Loop (i=1)
| Inner Loop (j=1) => Print 1 + ' '
| Inner Loop (j=2) => Print 2 + ' '
| Inner Loop (j=3) => Print 3 + ' '
| Inner Loop (j=4) => Print 4 + ' '
| Inner Loop (j=5) => Print 5 + ' '
| Print '\n'
Outer Loop (i=2)
| Inner Loop (j=1) => Print 1 + ' '
| Inner Loop (j=2) => Print 2 + ' '
| Inner Loop (j=3) => Print 3 + ' '
| Inner Loop (j=4) => Print 4 + ' '
| Inner Loop (j=5) => Print 5 + ' '
| Print '\n'
... (repeat for i=3, i=4, and i=5)
```

The output of this code will be:

 Copy code

```
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
```