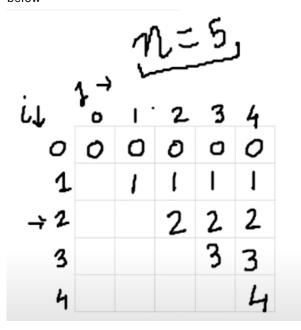
CodeWithHarry



C Program To Print Number Pattern - 1

In this tutorial, we will write a program to print a number pattern in C language. The number pattern for which we will write a C program is shown in the figure below



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Figure 1: Number Pattern

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As shown in figure 1, consider the row as "i" and the columns as "j". To find the formula about when to print the number and when to print space; see that when the index of "j" is greater or equal to the index of "i" we are printing number and when the index of "j" is smaller than the index of "i" we are printing space.

To print this number pattern we will use the formula (j>=i), if the condition (j>=i) will be true then we will print the number otherwise we will print the space; where "i" is the current index of row and "j" is the current index of the column

To figure out which number to print in each row we will use the current value of "i" because it can be seen in figure 1 that in the row "0" all the numbers printed are "0"; in the row "1" all the numbers printed are "1" and so on.

Note: The main thing to note here is that the star pattern shown in figure 1 is for n = 5

C program to print the following pattern is shown below

```
int main(){
   int n = 7;
   for (int i = 0; i < n; i++)
   {
      for (int j = 0; j < n; j++)
      {</pre>
```

Code Snippet 1: Main Program 1

As shown in the code snippet 1, we have to use the nested "for" loop to print such a pattern because the first loop will run for each row and the second loop will run for each column.

- 1. We have initialized an integer variable "n" and assigned value "7" to it
- 2. The first "for" loop will start from the value "0" and runs till (n); the value of "n" is "7" so the loop will run until the value of "i" becomes "6"
- 3. The second "for" loop will start from the value "0" and runs till (n); the value of "n" is "7" so the loop will run until the value of "j" becomes "6"

```
if(j>=i){
```

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```
printf("%d", i);
}

else{
    printf(" ");
}

printf("\n");
}

return 0;
}
```

Code Snippet 2: Main program 2

As shown in the code snippet 2, we have used the formula (j>=i) in the "if" condition to determine whether to print number or print space, for example, if the value of "i" is "1" and the value of "j" is "1" by putting the values into the formula (j>=i) we get the value (1>=1) which is true because "1" is equal to "1" so the number will be printed.

Similarly if the value of "i" is "3" and the value of "j" is "2" by putting the values into the formula (j>=i) we get the value (2>=3) which is false because "2" is smaller than "3" so space will be printed.

Note: The main thing to note here is that we are printing the current value of "i" in the "if" condition because as we have discussed above that value which is being printed in each column are being decided through the value of "i"

The output of the following program is shown in figure 2

0000000 111111 22222 3333 444 55

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<u>Figure 2: Program Output</u>

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