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Patterns in C Programming

```

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

Program in C to print the
Hollow Star Triangle
Pattern

```

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

Program in C to print the
Hollow Number
Diamond Pattern

```

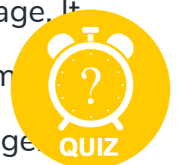
A
BB
CCC
DDD
EEEE
FFFFF
```

Program in C to print the
Characters' Triangle
Pattern

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Introduction to Patterns in C Programming

Patterns in C Programming, C is the procedural, general-purpose programming language. It was first created between 1969 and 1973 by Dennis Ritchie. Low-level access to memory, a simple set of keywords, and easy implementation are the main features of the C language.



are many languages like PHP, Java, Javascript, etc. follows features or syntax of C to some



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Header #include<stdio.h>

Main(): int main()

{

Variable Declaration: int x=12;

Body: printf("%d",x);

Return: return 0;

}

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Examples

There are various patterns in C language like star pattern, number patterns, and character patterns. In this section, we are going to discuss how to create different patterns with the help of examples.

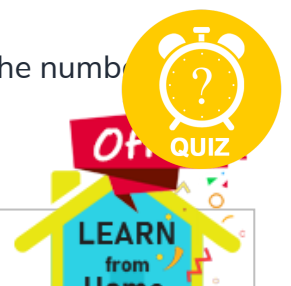
1. Number Patterns

In this section, we are going to see how to print different number patterns in C language (<https://www.educba.com/number-patterns-in-c/>)

Example 1: Program in C to print the number pyramid pattern

In the following C program, the user can provide the number of rows to print the number pyramid pattern as he wants, the result will be displayed on the screen:

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```
#include<stdio.h>
#include<conio.h>
int main()
{
    int n, x, y, k;
    printf("Enter the number of rows to show number pattern: ");
    scanf("%d",&n);
    for(x =1; x <= n; x++)
    {
        for(y =1; y <= n; y++)
        {
            if(y <= x)
```





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```
for(y = n; y >= 1;y--)\n{\n    if(y <= x)\n        printf("%d",y);\n    else\n        printf(" ");\n}\nprintf("\\n");\n}\nreturn 0;\n}
```

Output:

Example2: Program in C to print the Number Diamond Pattern



In the following C program, the user can provide the number of rows to print the diamond



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```
int main()
{
    int n, x, y, k;
    printf("Enter the number of rows to show number paatern: ");
    scanf("%d",&n);
    for(x = 1; x <= n; x++)
    {
        for(y = x; y <n; y++)
        {
            printf(" ");
        }
        for(k = 1; k < (x*2); k++)
        {
            printf("%d",k);
        }
        printf("\n");
    }
    for(x = 4; x >= 1; x--)
    {
        for(y = n; y > x; y--)
        {
            printf(" ");
        }
        for(k = 1; k < (x*2); k++)
        {
            printf("%d",k);
```





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```
}
```

Output:

Example 3: Program in C to print the number pyramid pattern

In the following C program, the user can provide the number of rows to print the number pyramid pattern as he wants, the result will be displayed on the screen:

```
#include<stdio.h>
#include<conio.h>
int main()
{
    int x, s, n,  y = 0, cntr = 0, cntrl = 0;
    printf("Enter the number of rows to show number pattern: ");
    scanf("%d",&n);
    for(x = 1; x <= n; ++x)
    {
        for(s = 1; s <= n-x; ++s)
```





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```
while(y != 2 * x - 1)
{
    if (cntr <= n - 1)
    {
        printf("%d ", x + y);
        ++cntr;
    }
    else
    {
        ++cntr1;
        printf("%d ", (x + y - 2 * cntr1));
    }
    ++y;
}
cntr1 = cntr = y = 0;
printf("\n");
}
return 0;
}
```

Output:





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Example 4: Program in C to print the vertical number pyramid pattern

In the following C program, the user can provide the number of rows to print the vertical number pyramid pattern as he wants, the result will be displayed on the screen

```
#include<stdio.h>
#include<conio.h>
int main()
{
    int  n, x, y;
    printf("Enter the number of rows to show number pattern: ");
    scanf("%d",&n);
    for(int x = 1; x < n; x++)
    {
        for(int y = 1; y <= x; y++)
            printf("%d",y);
        printf("\n");
    }
    for(int x = n; x >= 0; x--)
    {
        for(int y = 1; y <= x; y++)
            printf("%d",y);
        printf("\n");
    }
}
```





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Example 5: Program in C to print the number pyramid pattern

In the following C program, the user can provide the number of rows to print the number pyramid pattern as he wants, the result will be displayed on the screen

```
#include<stdio.h>
#include<conio.h>
int main()
{
    int  n, x, y;
    printf("Enter the number of rows to show number patterns: ");
    scanf("%d",&n);
    for (int x = n; x >= 0; x--)
    {
        for (int y = 1; y <= x; y++)

            printf("%d",y);
```





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```
for(int y = 1; y <= x; y++)  
printf("%d",y);  
printf("\n");  
}  
return 0;  
}
```

Output:

2. Star Patterns

In this section, we are going to see how to print different Star patterns in C language [\(https://www.educba.com/star-patterns-in-c/\)](https://www.educba.com/star-patterns-in-c/)

Example 1: Program in C to print the Star Diamond Pattern



In the following C program, the user can provide the number of rows to print the Star Diamond



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```
int main()
{
    int n, s, x, y;
    printf("Enter number of rows to show star pattern: ");
    scanf("%d",&n);
    for(x = 0; x <= n; x++)
    {
        for(s = n; s > x; s--)
            printf(" ");
        for(y = 0; y < x; y++)
            printf("* ");
        printf("\n");
    }
    for(x = 1; x < n; x++)
    {
        for(s = 0; s < x; s++)
            printf(" ");
        for(y = n; y > x; y--)
            printf("* ");
        printf("\n");
    }
    return 0;
}
```



Output:



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Example 2: Program in C to print the Vertical Curve Pattern

In the following C program, the user can provide the number of rows to print the Vertical Curve pattern as he wants, the result will be displayed on the screen

```
#include<stdio.h>
#include<conio.h>
int main()
{
    int n, x , y;
    printf("Enter number of rows to show star pattern: ");
    scanf("%d",&n);
    for(x = 1; x <= n; x++)
    {
        for(y = 1; y <= x; y++)
        {
            printf("*");
        }
        printf("\n");
    }
    for(x = n; x >= 1; x--)
    {
```





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```
// ending line after each row
printf("\n");
}
return 0;
}
```

Output:

Example 3: Program in C to print the Hollow Number Diamond Pattern

In the following C program, the user can provide the number of rows to print the hollow diamond pattern as he wants, the result will be displayed on the screen

```
#include<stdio.h>
#include<conio.h>
int main()
{
```





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```
{
for(y = n; y > x; y--)
{
printf(" ");
}
printf("*");
if (x > 0)
{
for(k = 1; k <= s; k++)
{
printf(" ");
}
s += 2;
printf("*");
}
printf("\n");
}
s -= 4;
for(x = 0; x <= n - 1; x++)
{
for(y = 0; y <= x; y++)
{
printf(" ");
}
printf("*");

for(k = 1; k <= s; k++)
```





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```
if(x != n -1)
{
printf ("*");
}
//ending line after each row
printf("\n");
}
return 0;
}
```

Output:

Example 4: Program in C to print the Hollow Star Triangle Pattern



In the following C program, the user can provide the number of rows to print the Hollow Star



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```
int main()
{
    int n, x, y, s;
    printf("Enter number of rows to show the star pattern: ");
    scanf("%d",&n);
    for(x = 1; x <= n; x++)
    {
        //for loop to put space in pyramid
        for (s = x; s < n; s++)
            printf(" ");
        //for loop to print star
        for(y = 1; y <= (2 * n - 1); y++)
        {
            if(x == n || y == 1 || y == 2 * x - 1)
                printf("*");
            else
                printf(" ");
        }
        //ending line after each row
        printf("\n");
    }
    return 0;
}
```

Output:





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Example 5: Program in C to print the Star Triangle Pattern

In the following C program, the user can provide the number of rows to print the Star Triangle pattern as he wants, the result will be displayed on the screen

```
#include<stdio.h>
#include<conio.h>
int main()
{
    int n, s, x, y;
    printf("Enter number of rows to show star pattern: ");
    scanf("%d",&n);
    for(x = 1; x <= n; x++)
    {
        //for loop to put space
        for(s = x; s < n; s++)
            printf(" ");
        //for loop for displaying star
        for(y = 1; y <= x; y++)
            printf("* ");
        // ending line after each row
        printf("\n");
    }
```





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3. Character Patterns

In this section, we are going to see how to print different character patterns in C language

Example 1: Program in C to print the Consecutive Characters' Triangle Pattern

In the following C program, the user can provide the number of rows to print the Consecutive Characters' Triangle pattern as he wants, the result will be displayed on the screen

```
#include<stdio.h>
#include<conio.h>
int main()
{
    int n, x, y;
    printf("Enter number of rows to show character pattern: ");
    scanf("%d",&n);
    for(x = 1; x <= n; x++)
    {
        for(y = 1; y <= x; y++)
        {
            printf("%c",'A' + y -1);
```





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```
}
```

Output:

Example 2: Program in C to print the Characters' Triangle Pattern

In the following C program, the user can provide the number of rows to print the Characters' Triangle Triangle pattern as he wants, the result will be displayed on the screen

```
#include<stdio.h>
#include<conio.h>
int main()
{
    int n, x, y;
    printf("Enter number of rows to show character pattern: ");
    scanf("%d",&n);
    for(x = 1; x <= n; x++)
    {
        for(y = 1; y <= x; y++)
        {
```





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```
return 0;
}
```

Output:

Example 3: Program in C to print the Characters' Inverted Triangle Pattern

In the following C program, the user can provide the number of rows to print the Characters' Inverted Triangle pattern as he wants, the result will be displayed on the screen

```
#include<stdio.h>
#include<conio.h>
int main()
{
    int n, x, y;
    printf("Enter number of rows to show character pattern: ");
    scanf("%d",&n);
    for(x= 1; x <= n; x++)
    {
        for(y = n; y >= x; y--)
```





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```
}  
return 0;  
}
```

Output:

Recommended Article

This has been a guide to Patterns in C Programming. Here we discuss different numbers, stars and character's Patterns with examples. You can also go through our other suggested articles to learn more –

1. [Object-Oriented Programming in Java \(https://www.educba.com/object-oriented-programming-in-java/\)](https://www.educba.com/object-oriented-programming-in-java/)
2. [Star Patterns in Java \(https://www.educba.com/star-patterns-in-java/\)](https://www.educba.com/star-patterns-in-java/)
3. [Patterns in C# \(https://www.educba.com/patterns-in-c-sharp/\)](https://www.educba.com/patterns-in-c-sharp/)

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