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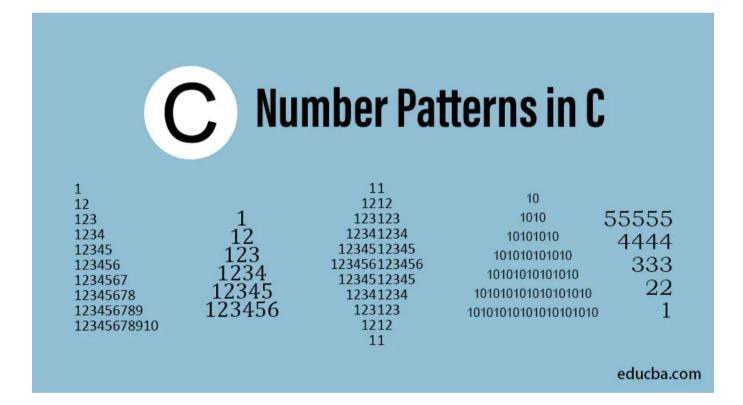.com/software-
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Introduction to Number Patterns in C

Practicing Pattern exercises are always prescribed by many programmers as well as in
it increases the ability to build logic while using Flow Control Statements. It also enhances
logical thinking capabilities. In this article, We are going to see a list of Number patterns to

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Example #1

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

Code:

```c
#include<stdio.h>
#include<conio.h>
int main()
{
int n, i, j;
printf("Enter the number of rows: ");
scanf("%d",&n);
for(i = 1; i <= n; i++)
{
for(j = n; j > i; j--)
{
printf(" ");
}
for(j = 1; j <= i; j++)
{
printf("%d ",j);
```

ɟ

Output:

```
Enter the number of rows: 6
     1
    1 2
   1 2 3
  1 2 3 4
 1 2 3 4 5
1 2 3 4 5 6
```

Example #2

In the following C program, the user can enter the number of rows to print the half pyramid of numbers as he wishes, then the result will be displayed on the screen.

Code:

```c
#include<stdio.h>
#include<conio.h>
int main()
{
int n, i, j;
printf("Enter the number of rows: ");
scanf("%d",&n);

for(i = 1; i <= n; i++)
{
for(j = 1; j <= i; j++)
```

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```
J

return 0;

}
```

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Output:

```
Enter the number of rows: 6
1
```

Example #3

In the following C program, the user can enter the number of rows to print the half pyramid of numbers as he wishes, then the result will be displayed on the screen.

Code:

```c
#include<stdio.h>
#include<conio.h>
int main()
{
int n, i, j;
printf("Enter the number of rows: ");
scanf("%d",&n);
for(i = 1; i <= n; i++)
{
for(j = 1; j <= i; j++)
{
printf("%d",i);
}
printf("\n");


}
return 0;
}
```

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```
333
4444
55555
666666
```

Example #4

In the following C program, the user can enter the number of rows to print the Diamond pattern of numbers as he wishes, then the result will be displayed on the screen.

Code:

```c
#include<stdio.h>
#include<conio.h>
int main()
{
int n, i, j, k;
printf("Enter the number of rows: ");
scanf("%d",&n);
for(i = 1; i <= n; i++)
{
for(j = i; j <n; j++)
{
printf(" ");

}
for(k = 1; k < (i*2); k++)
{
```

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```
for(i = 4, i <= 1, i--)
{
for(j = n; j > i; j--)
{
printf(" ");
}
for(k = 1; k < (i*2); k++)
{
printf("%d",k);
}
printf("\n");
}
return 0;
}
```

Output:

```
Enter the number of rows: 5
    1
  123
 12345
1234567
```

Example #5

In the following C program, the user can enter a number of rows to print the inverted half pyramid of numbers as he wishes, then the result will be displayed on the screen.

Code:

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


}
return 0;
}
```

Example #6

In the following C program, the user can enter the number of rows to print the triangular number pattern as he wishes, then the result will be displayed on the screen:

Code:

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

printf("%d",j);
else
printf(" ");
```

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```
printf( %d ,j);
else
printf(" ");
}
printf("\n");
}
return 0;
}
```

Output:

Logic for the above program:

Between these two patterns spaces are printed in decreasing order. There are 10 spaces in 1st row whereas 8 spaces in 2nd row and so on the last row contains 0 spaces.

Example #7

In the following C program, the user can enter number of rows to print the number pyra[mid] pattern as he wishes, then the result will be displayed on the screen:

Code:

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```c
{
int i, s, n, j = 0, c = 0, c1 = 0;
printf("Enter the number of rows: ");
scanf("%d",&n);
for(i = 1; i <= n; ++i)
{
for(s = 1; s <= n-i; ++s)
{
printf("  ");
++c;
}
while(j != 2 * i - 1)
{
if (c <= n - 1)
{
printf("%d ", i + j);
++c;
}
else
{
++c1;
printf("%d ", (i + j - 2 * c1));

}
++j;
}
```

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```
j
```

Output:

Example #8

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

Code:

```c
#include<stdio.h>
#include<conio.h>
int main()
{
int n, i, j, c = 1;
printf("Enter the number of rows: ");
scanf("%d",&n);

for(i = 1; i <= n; i++)
{
for(j = 1; j <= i; ++j)
```

```

}

return 0;

}
```

Output:

Example #9

In the following C program, the user can enter number of rows to print the Cross pattern of numbers as he wishes, then the result will be displayed on the screen:

Code:

```c
#include<stdio.h>
#include<conio.h>
int main()
{
int n, i, j, c = 1;
int m[5][5] = {0};
printf("Enter the number of rows: ");
```

```
if(j == 1 || 6-i == j)
m[i-1][j-1] = c;
if(i < 4) C;
else --c;
}
for(i = 0; i < 5; i++)
{
for(j = 0; j < 5; j++)
{
if(m[i][j] == 0)
printf(" ");
else
printf("%d",m[i][j]);
}
printf("\n");
}
return 0;
}
```

Output:

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numbers as he wishes, then the result will be displayed on the screen:

Code:

```c
#include<stdio.h>
#include<conio.h>
int main()
{
int n, i, j, c = 1;
printf("Enter the number of rows: ");
scanf("%d",&n);
for(i = 1; i <= (2 * n) - 1; i++)
{
for (j = 1; j <= (2 * n) - 1; j++ )
{
if (i == j || i + j == 2 * n)
printf("%d", c);
else
printf(" ") ;
}
if (i < n)
C ;

else
c-- ;
printf("\n") ;
```

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Output:

Example #11

In the following C program, the user can enter number of rows to print the Square pattern of numbers as he wishes, then the result will be displayed on the screen:

Code:

```
#include<stdio.h>
#include<conio.h>
int main()
{
int n, i, j, c = 7, length = 18, max_length = 20;
printf("Enter the number of rows: ");

scanf("%d",&n);
for(i = 1; i <= n; i++)
{
```

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```
else if(j == n)
printf("% - 3d",C);
else if(i == n)
printf("% - 3d",length--);
else if(j == 1)
printf("% - 3d",max_length--);
else
printf("   ");
}
printf("\n");
}
return 0;
}
```

Output:

Example #12

In the following C program, the user can enter number of rows to print the vertical triangle numbers as he wishes, then the result will be displayed on the screen:

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```c
{
int  n, i, j;
printf("Enter the number of rows: ");
scanf("%d",&n);
for(int i = 1; i < n; i++)
{
for(int j = 1; j <= i; j++)
printf("%d",j);
printf("\n");
}
for(int i = n; i >= 0; i--)
{
for(int j = 1; j <= i; j++)
printf("%d",j);
printf("\n");
}
return 0;
}
```

Output:

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Example #13

In the following C program, the user can enter a number of rows to print the vertical triangular of numbers as he wishes, then the result will be displayed on the screen:

Code:

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

for(int j = 1; j <= i; j++)
printf("%d",j);
printf("\n");
```

Output:

Example #14

In the following C program, the user can enter the number of rows to print the Half Triangle

pattern of numbers as he wishes, then the result will be displayed on the screen:

Code:

```c
#include<stdio.h>
#include<conio.h>
int main()
{
int  n, i, j, x, y;

printf("Enter the number of rows: ");
scanf("%d",&n);
for (i = 1; i <= n; i++)
```

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```
y = 0;
}
else
{
x = 0;
y = 1;
}
for (j = 1; j <= i; j++)
if (j % 2 == 0)
printf("%d",x);
else
printf("%d",y);
printf("\n");
}
return 0;
}
```

Output:

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In the following C program, the user can enter the number of rows to print the inverted half

pyramid pattern of numbers as he wishes, then the result will be displayed on the screen:

Code:

```c
#include<stdio.h>
#include<conio.h>
int main()
{
int  n, i, j;
printf("Enter the number of rows: ");
scanf("%d",&n);
for(i = n; i >= 1; i--)
{
for(j = i; j >= 1; j--)
{
printf("%d", i);
}
printf("\n");
}
return 0;
}
```

Output:

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This is a guide to Number Patterns in C. Here we discuss the introduction and different examples along with the sample code. You can also go through our other suggested articles to learn more –

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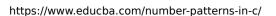
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