**MADE-UP PROGRAMMING EXERCISES FOR STRUCTURED PROGRAMMING IN C and C++**

1.Write a program to

-add all odd numbers between (1 and 100, 1 and n, a and b)

- add all even numbers between (1 and 100, 1 and n, a and b)

- add all numbers divisible by (3,4, 5,n) between (1 and 100, 1 and n, a and b)

2.Write a program to display

- all odd numbers between (1 and 100, 1 and n, a and b)

- all even numbers between (1 and 100, 1 and n, a and b)

- all numbers divisible by (3,4, 5,n) between (1 and 100, 1 and n, a and b)

-all primes between(1 and 100, 1 and n, a and b)

3. Write a table of values for the bitwise logical operations for all possible combinations of **0** and **1** operands.

4.Implement and test these functions: **strlen()**, which returns the length of a C-style string; **strcpy()**, which copies a C-style string into another; and **strcmp()**, which compares two C-stylestrings. Consider what the argument types and return types ought to be. Then compare your functions with the standard library versions as declared in **<cstring>** (**<string.h>**) and as specified

**5**. Write a function **cat()** that takes two C-style string arguments and returns a string that is the concatenation of the arguments. Use **new** to find store for the result.

6.Write a function **rev()** that takes a C-style string argument and reverses the characters init. That is, after **rev(p)** the last character of **p** will be the first, etc.

**1.**Write a C program to accept two integers and check whether they are equal or not. [Go to the editor](https://www.w3resource.com/c-programming-exercises/conditional-statement/index.php#editorr)  
Test Data : 15 15Expected Output :  
Number1 and Number2 are equal  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/conditional-statement/c-conditional-statement-exercises-1.php)

**2.**Write a C program to check whether a given number is even or odd. [Go to the editor](https://www.w3resource.com/c-programming-exercises/conditional-statement/index.php#editorr)  
Test Data : 15  
Expected Output :  
15 is an odd integer  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/conditional-statement/c-conditional-statement-exercises-2.php)

**3.** Write a C program to check whether a given number is positive or negative. [Go to the editor](https://www.w3resource.com/c-programming-exercises/conditional-statement/index.php#editorr)  
Test Data : 15  
Expected Output :  
15 is a positive number  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/conditional-statement/c-conditional-statement-exercises-3.php)

**4.**Write a C program to find whether a given year is a leap year or not. [Go to the editor](https://www.w3resource.com/c-programming-exercises/conditional-statement/index.php#editorr)  
Test Data : 2016  
Expected Output :  
2016 is a leap year.  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/conditional-statement/c-conditional-statement-exercises-4.php)

**5.**Write a C program to read the age of a candidate and determine whether it is eligible for casting his/her own vote. [Go to the editor](https://www.w3resource.com/c-programming-exercises/conditional-statement/index.php#editorr)  
Test Data : 21  
Expected Output :  
Congratulation! You are eligible for casting your vote.  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/conditional-statement/c-conditional-statement-exercises-5.php)

**6.**Write a C program to read the value of an integer m and display the value of n is 1 when m is larger than 0, 0 when m is 0 and -1 when m is less than 0. [Go to the editor](https://www.w3resource.com/c-programming-exercises/conditional-statement/index.php#editorr)  
Test Data : -5  
Expected Output :  
The value of n = -1  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/conditional-statement/c-conditional-statement-exercises-6.php)

**7.** Write a C program to accept the height of a person in centimeter and categorize the person according to their height. [Go to the editor](https://www.w3resource.com/c-programming-exercises/conditional-statement/index.php#editorr)  
Test Data : 135  
Expected Output :  
The person is Dwarf.  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/conditional-statement/c-conditional-statement-exercises-7.php)

**8.**Write a C program to find the largest of three numbers. [Go to the editor](https://www.w3resource.com/c-programming-exercises/conditional-statement/index.php#editorr)  
Test Data : 12 25 52  
Expected Output :  
1st Number = 12,        2nd Number = 25,        3rd Number = 52  
The 3rd Number is the greatest among three  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/conditional-statement/c-conditional-statement-exercises-8.php)

**9.**Write a C program to accept a coordinate point in a XY coordinate system and determine in which quadrant the coordinate point lies. [Go to the editor](https://www.w3resource.com/c-programming-exercises/conditional-statement/index.php#editorr)  
Test Data : 7 9  
Expected Output :  
The coordinate point (7,9) lies in the First quadrant.  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/conditional-statement/c-conditional-statement-exercises-9.php)

**10.** Write a C program to find the eligibility of admission for a professional course based on the following criteria: [Go to the editor](https://www.w3resource.com/c-programming-exercises/conditional-statement/index.php#editorr)  
Eligibility Criteria : Marks in Maths >=65 and Marks in Phy >=55 and Marks in Chem>=50 and Total in all three subject >=190 or Total in Maths and Physics >=140 ------------------------------------- Input the marks obtained in Physics :65 Input the marks obtained in Chemistry :51 Input the marks obtained in Mathematics :72 Total marks of Maths, Physics and Chemistry : 188 Total marks of Maths and Physics : 137 The candidate is not eligible.  
Expected Output :  
The candidate is not eligible for admission.  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/conditional-statement/c-conditional-statement-exercises-10.php)

**14.**Write a C program to check whether a triangle is Equilateral, Isosceles or Scalene. [Go to the editor](https://www.w3resource.com/c-programming-exercises/conditional-statement/index.php#editorr)  
Test Data :  
50 50 60  
*Expected Output* :  
This is an isosceles triangle.  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/conditional-statement/c-conditional-statement-exercises-14.php)

**15.**Write a C program to check whether a triangle can be formed by the given value for the angles. [Go to the editor](https://www.w3resource.com/c-programming-exercises/conditional-statement/index.php#editorr)  
Test Data :  
40 55 65  
*Expected Output* :  
The triangle is not valid.  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/conditional-statement/c-conditional-statement-exercises-15.php)

**16.**Write a C program to check whether a character is an alphabet, digit or special character. [Go to the editor](https://www.w3resource.com/c-programming-exercises/conditional-statement/index.php#editorr)  
Test Data :  
@  
*Expected Output* :  
This is a special character.  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/conditional-statement/c-conditional-statement-exercises-16.php)

**17.**Write a C program to check whether an alphabet is a vowel or consonant. [Go to the editor](https://www.w3resource.com/c-programming-exercises/conditional-statement/index.php#editorr)  
Test Data :  
k  
*Expected Output* :  
The alphabet is a consonant.  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/conditional-statement/c-conditional-statement-exercises-17.php)

**18.**Write a C program to calculate profit and loss on a transaction. [Go to the editor](https://www.w3resource.com/c-programming-exercises/conditional-statement/index.php#editorr)  
Test Data :  
500 700  
*Expected Output* :  
You can booked your profit amount : 200  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/conditional-statement/c-conditional-statement-exercises-18.php)

**19.**Write a program in C to calculate and print the Electricity bill of a given customer. The customer id., name and unit consumed by the user should be taken from the keyboard and display the total amount to pay to the customer. The charge are as follow : [Go to the editor](https://www.w3resource.com/c-programming-exercises/conditional-statement/index.php#editorr)

|  |  |
| --- | --- |
| **Unit** | **Charge/unit** |
| upto 199 | @1.20 |
| 200 and above but less than 400 | @1.50 |
| 400 and above but less than 600 | @1.80 |
| 600 and above | @2.00 |

If bill exceeds Rs. 400 then a surcharge of 15% will be charged and the minimum bill should be of Rs. 100/-

Test Data :  
1001  
James  
800  
*Expected Output* :  
Customer IDNO :1001  
Customer Name :James  
unit Consumed :800  
Amount Charges @Rs. 2.00 per unit : 1600.00  
Surchage Amount : 240.00  
Net Amount Paid By the Customer : 1840.00

[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/conditional-statement/c-conditional-statement-exercises-19.php)

**20.**Write a program in C to accept a grade and declare the equivalent description : [Go to the editor](https://www.w3resource.com/c-programming-exercises/conditional-statement/index.php#editorr)

|  |  |
| --- | --- |
| **Grade** | **Description** |
| E | Excellent |
| V | Very Good |
| G | Good |
| A | Average |
| F | Fail |

Test Data :  
Input the grade :A  
*Expected Output* :  
You have chosen : Average  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/conditional-statement/c-conditional-statement-exercises-20.php)

**21.**Write a program in C to read any day number in integer and display day name in the word. [Go to the editor](https://www.w3resource.com/c-programming-exercises/conditional-statement/index.php#editorr)  
Test Data :  
4  
*Expected Output* :  
Thursday  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/conditional-statement/c-conditional-statement-exercises-21.php)

**22.**Write a program in C to read any digit, display in the word. [Go to the editor](https://www.w3resource.com/c-programming-exercises/conditional-statement/index.php#editorr)  
Test Data :  
4  
*Expected Output* :  
Four  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/conditional-statement/c-conditional-statement-exercises-22.php)

**23.**Write a program in C to read any Month Number in integer and display Month name in the word. [Go to the editor](https://www.w3resource.com/c-programming-exercises/conditional-statement/index.php#editorr)  
Test Data :  
4  
*Expected Output* :  
April  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/conditional-statement/c-conditional-statement-exercises-23.php)

**24.**Write a program in C to read any Month Number in integer and display the number of days for this month. [Go to the editor](https://www.w3resource.com/c-programming-exercises/conditional-statement/index.php#editorr)  
Test Data :  
7  
*Expected Output* :  
Month have 31 days  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/conditional-statement/c-conditional-statement-exercises-24.php)

**25.**Write a program in C which is a Menu-Driven Program to compute the area of the various geometrical shape. [Go to the editor](https://www.w3resource.com/c-programming-exercises/conditional-statement/index.php#editorr)  
Test Data :  
1  
5  
*Expected Output* :  
The area is : 78.500000  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/conditional-statement/c-conditional-statement-exercises-25.php)

**26.**Write a program in C which is a Menu-Driven Program to perform a simple calculation. [Go to the editor](https://www.w3resource.com/c-programming-exercises/conditional-statement/index.php#editorr)  
Test Data :  
10  
2  
3  
*Expected Output* :  
The Multiplication of 10 and 2 is: 20  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/conditional-statement/c-conditional-statement-exercises-26.php)

**1.**Write a program in C to display the first 10 natural numbers. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php#editorr)  
*Expected Output* :  
1 2 3 4 5 6 7 8 9 10  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-1.php)

**2.**Write a C program to find the sum of first 10 natural numbers. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php#editorr)  
*Expected Output* :  
The first 10 natural number is :  
1 2 3 4 5 6 7 8 9 10  
The Sum is : 55  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-2.php)

**3.**Write a program in C to display n terms of natural number and their sum.[Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php#editorr)  
Test Data : 7  
*Expected Output* :  
The first 7 natural number is :  
1 2 3 4 5 6 7  
The Sum of Natural Number upto 7 terms : 28  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-3.php)

**4.**Write a program in C to read 10 numbers from keyboard and find their sum and average. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php#editorr)  
Test Data :  
Input the 10 numbers :  
Number-1 :2  
...  
Number-10 :2  
*Expected Output* :  
The sum of 10 no is : 55  
The Average is : 5.500000  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-4.php)

**5.**Write a program in C to display the cube of the number upto given an integer. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php#editorr)  
Test Data :  
Input number of terms : 5  
*Expected Output* :  
Number is : 1 and cube of the 1 is :1  
Number is : 2 and cube of the 2 is :8  
Number is : 3 and cube of the 3 is :27  
Number is : 4 and cube of the 4 is :64  
Number is : 5 and cube of the 5 is :125  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-5.php)

**6.**Write a program in C to display the multiplication table of a given integer. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php#editorr)  
Test Data :  
Input the number (Table to be calculated) : 15  
*Expected Output* :  
15 X 1 = 15  
...  
...  
15 X 10 = 150  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-6.php)

**7.** Write a program in C to display the multipliaction table vertically from 1 to n. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php#editorr)  
Test Data :  
Input upto the table number starting from 1 : 8  
*Expected Output* :  
Multiplication table from 1 to 8  
1x1 = 1, 2x1 = 2, 3x1 = 3, 4x1 = 4, 5x1 = 5, 6x1 = 6, 7x1 = 7, 8x1 = 8  
...  
1x10 = 10, 2x10 = 20, 3x10 = 30, 4x10 = 40, 5x10 = 50, 6x10 = 60, 7x10 = 70, 8x10 = 80  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-7.php)

**8.**Write a program in C to display the n terms of odd natural number and their sum . [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php" \l "editorr)  
Test Data  
Input number of terms : 10  
*Expected Output* :  
The odd numbers are :1 3 5 7 9 11 13 15 17 19  
The Sum of odd Natural Number upto 10 terms : 100  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-8.php)

**9.**Write a program in C to display the pattern like right angle triangle using an asterisk. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php#editorr)

The pattern like :

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[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-9.php)

**10.** Write a program in C to display the pattern like right angle triangle with a number. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php" \l "editorr)

The pattern like :

1

12

123

1234

[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-10.php" \t "_blank)

**11.**Write a program in C to make such a pattern like right angle triangle with a number which will repeat a number in a row. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php" \l "editorr)

The pattern like :

1

22

333

4444

[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-11.php" \t "_blank)

**12.**Write a program in C to make such a pattern like right angle triangle with number increased by 1. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php" \l "editorr)

The pattern like :

1

2 3

4 5 6

7 8 9 10

[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-12.php" \t "_blank)

**13.**Write a program in C to make such a pattern like a pyramid with numbers increased by 1. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php" \l "editorr)

1

2 3

4 5 6

7 8 9 10

[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-13.php" \t "_blank)

**14.**Write a program in C to make such a pattern like a pyramid with an asterisk. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php" \l "editorr)

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[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-14.php" \t "_blank)

**15.**Write a C program to calculate the factorial of a given number. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php" \l "editorr)  
Test Data :  
Input the number : 5  
*Expected Output* :  
The Factorial of 5 is: 120  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-15.php" \t "_blank)

**16.**Write a program in C to display the n terms of even natural number and their sum. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php" \l "editorr)  
Test Data :  
Input number of terms : 5  
*Expected Output* :  
The even numbers are :2 4 6 8 10  
The Sum of even Natural Number upto 5 terms : 30  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-16.php" \t "_blank)

**17.**Write a program in C to make such a pattern like a pyramid with a number which will repeat the number in the same row. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php" \l "editorr)

1

2 2

3 3 3

4 4 4 4

[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-17.php" \t "_blank)

**18.**Write a program in C to find the sum of the series [ 1-X^2/2!+X^4/4!- .........]. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php" \l "editorr)  
Test Data :  
Input the Value of x :2  
Input the number of terms : 5  
*Expected Output* :  
the sum = -0.415873  
Number of terms = 5  
value of x = 2.000000  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-18.php" \t "_blank)

**19.**Write a program in C to display the n terms of harmonic series and their sum. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php" \l "editorr)  
1 + 1/2 + 1/3 + 1/4 + 1/5 ... 1/n terms  
Test Data :  
Input the number of terms : 5  
*Expected Output* :  
1/1 + 1/2 + 1/3 + 1/4 + 1/5 +  
Sum of Series upto 5 terms : 2.283334  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-19.php" \t "_blank)

**20.**Write a program in C to display the pattern like a pyramid using asterisk and each row contain an odd number of asterisks. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php" \l "editorr)

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[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-20.php" \t "_blank)

**21.**Write a program in C to display the sum of the series [ 9 + 99 + 999 + 9999 ...]. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php" \l "editorr)  
Test Data :  
Input the number or terms :5  
*Expected Output* :  
9 99 999 9999 99999  
The sum of the saries = 111105  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-21.php" \t "_blank)

**22.**Write a program in C to print the Floyd's Triangle. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php" \l "editorr)

1

01

101

0101

10101

[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-22.php" \t "_blank)

**23.**Write a program in C to display the sum of the series [ 1+x+x^2/2!+x^3/3!+....]. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php" \l "editorr)  
Test Data :  
Input the value of x :3  
Input number of terms : 5  
*Expected Output* :  
The sum is : 16.375000  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-23.php" \t "_blank)

**24.**Write a program in C to find the sum of the series [ x - x^3 + x^5 + ......]. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php" \l "editorr)  
Test Data :  
Input the value of x :2  
Input number of terms : 5  
*Expected Output* :  
The values of the series:  
2  
-8  
32  
-128  
512  
The sum = 410  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-24.php" \t "_blank)

**25.**Write a program in C to display the n terms of square natural number and their sum. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php" \l "editorr)  
1 4 9 16 ... n Terms  
Test Data :  
Input the number of terms : 5  
*Expected Output* :  
The square natural upto 5 terms are :1 4 9 16 25  
The Sum of Square Natural Number upto 5 terms = 55  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-25.php" \t "_blank)

**26.**Write a program in C to find the sum of the series 1 +11 + 111 + 1111 + .. n terms. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php" \l "editorr)  
Test Data :  
Input the number of terms : 5  
*Expected Output* :  
1 + 11 + 111 + 1111 + 11111  
The Sum is : 12345  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-26.php" \t "_blank)

**27.**Write a c program to check whether a given number is a perfect number or not. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php" \l "editorr)  
Test Data :  
Input the number : 56  
*Expected Output* :  
The positive divisor : 1 2 4 7 8 14 28  
The sum of the divisor is : 64  
So, the number is not perfect.  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-27.php" \t "_blank)

**28.**Write a c program to find the perfect numbers within a given number of range. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php" \l "editorr)  
Test Data :  
Input the starting range or number : 1  
Input the ending range of number : 50  
*Expected Output* :  
The Perfect numbers within the given range : 6 28  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-28.php" \t "_blank)

**29.**Write a C program to check whether a given number is an armstrong number or not. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php" \l "editorr)  
Test Data :  
Input a number: 153  
*Expected Output* :  
153 is an Armstrong number.  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-29.php" \t "_blank)

**30.**Write a C program to find the Armstrong number for a given range of number. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php" \l "editorr)  
Test Data :  
Input starting number of range: 1  
Input ending number of range : 1000  
*Expected Output* :  
Armstrong numbers in given range are: 1 153 370 371 407  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-30.php" \t "_blank)

**31.**Write a program in C to display the pattern like a diamond. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php" \l "editorr)

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[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-31.php" \t "_blank)

**32.**Write a C program to determine whether a given number is prime or not. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php" \l "editorr)  
 Test Data :  
Input a number: 13  
*Expected Output* :  
13 is a prime number.  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-32.php" \t "_blank)

**33.**Write a C program to display Pascal's triangle. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php" \l "editorr)  
 Test Data :  
Input number of rows: 5  
*Expected Output* :

1

1 1

1 2 1

1 3 3 1

1 4 6 4 1

[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-33.php" \t "_blank)

**34.**Write a program in C to find the prime numbers within a range of numbers. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php" \l "editorr)  
Test Data :  
Input starting number of range: 1  
Input ending number of range : 50  
*Expected Output* :  
The prime number between 1 and 50 are :  
2 3 5 7 11 13 17 19 23 29 31 37 41 43 47  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-34.php" \t "_blank)

**35.**Write a program in C to display the first n terms of Fibonacci series. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php" \l "editorr)  
Fibonacci series 0 1 2 3 5 8 13 .....  
Test Data :  
Input number of terms to display : 10  
*Expected Output* :  
Here is the Fibonacci series upto to 10 terms :  
0 1 1 2 3 5 8 13 21 34  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-35.php" \t "_blank)

**36.**Write a program in C to display the such a pattern for n number of rows using a number which will start with the number 1 and the first and a last number of each row will be 1. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php" \l "editorr)

1

121

12321

[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-36.php" \t "_blank)

**37.**Write a program in C to display the number in reverse order. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php" \l "editorr)  
Test Data :  
Input a number: 12345  
*Expected Output* :  
The number in reverse order is : 54321  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-37.php" \t "_blank)

**38.**Write a program in C to check whether a number is a palindrome or not. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php" \l "editorr)  
Test Data :  
Input a number: 121  
*Expected Output* :  
121 is a palindrome number.  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-38.php" \t "_blank)

**39.**Write a program in C to find the number and sum of all integer between 100 and 200 which are divisible by 9. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php" \l "editorr)  
*Expected Output* :  
Numbers between 100 and 200, divisible by 9 :  
108 117 126 135 144 153 162 171 180 189 198  
The sum : 1683  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-39.php" \t "_blank)

**40.**Write a C Program to display the pattern like pyramid using the alphabet. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php" \l "editorr)

A

A B A

A B C B A

A B C D C B A

[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-40.php" \t "_blank)

**41.**Write a program in C to convert a decimal number into binary without using an array. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php" \l "editorr)  
Test Data :  
Input a decimal number: 25  
Binary number equivalent to said decimal number is: 0000000000000000000000000001 1001  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-41.php" \t "_blank)

**42.**Write a program in C to convert a binary number into a decimal number without using array, function and while loop. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php" \l "editorr)  
Test Data :  
Input a binary number :1010101  
*Expected Output* :  
The Binary Number : 1010101  
The equivalent Decimal Number : 85  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-42.php" \t "_blank)

**43.**Write a C program to find HCF (Highest Common Factor) of two numbers. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php" \l "editorr)  
Test Data :  
Input 1st number for HCF: 24  
Input 2nd number for HCF: 28  
*Expected Output* :  
HCF of 24 and 28 is : 4  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-43.php" \t "_blank)

**44.**Write a program in C to find LCM of any two numbers using HCF. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php" \l "editorr)  
Test Data :  
Input 1st number for LCM: 15  
Input 2nd number for LCM: 20  
*Expected Output* :  
The LCM of 15 and 20 is : 60  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-44.php" \t "_blank)

**45.**Write a program in C to find LCM of any two numbers. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php" \l "editorr)  
Test Data :  
Input 1st number for LCM: 15  
Input 2nd number for LCM: 20  
*Expected Output* :  
The LCM of 15 and 20 is : 60  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-45.php" \t "_blank)

**46.**Write a program in C to convert a binary number into a decimal number using math function. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php" \l "editorr)  
Test Data :  
Input the binary number :1010100  
*Expected Output* :  
The Binary Number : 1010100  
The equivalent Decimal Number is : 84  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-46.php" \t "_blank)

**47.**Write a C program to check whether a number is a Strong Number or not. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php" \l "editorr)  
Test Data :  
Input a number to check whether it is Strong number: 15  
*Expected Output* :  
15 is not a Strong number.  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-47.php" \t "_blank)

**48.**Write a C program to find Strong Numbers within a range of numbers. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php" \l "editorr)  
Test Data :  
Input starting range of number : 1  
Input ending range of number: 200  
*Expected Output* :  
The Strong numbers are :  
1 2 145  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-48.php" \t "_blank)

**49.**Write a c program to find out the sum of an A.P. series. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php" \l "editorr)  
Test Data :  
Input the starting number of the A.P. series: 1  
Input the number of items for the A.P. series: 10  
Input the common difference of A.P. series: 4  
*Expected Output* :  
The Sum of the A.P. series are :  
1 + 5 + 9 + 13 + 17 + 21 + 25 + 29 + 33 + 37 = 190  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-49.php" \t "_blank)

**50.**Write a program in C to convert a decimal number into octal without using an array. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php" \l "editorr)  
Test Data :  
Enter a number to convert : 79  
*Expected Output* :  
The Octal of 79 is 117.  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-50.php" \t "_blank)

**51.**Write a program in C to convert an octal number to a decimal without using an array. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php" \l "editorr)  
Test Data :  
Input an octal number (using digit 0 - 7) :745  
*Expected Output* :  
The Octal Number : 745  
The equivalent Decimal Number : 485  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-51.php" \t "_blank)

**52.**Write a program in c to find the Sum of GP series. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php" \l "editorr)  
Test Data :  
Input the first number of the G.P. series: 3  
Input the number or terms in the G.P. series: 5  
Input the common ratio of G.P. series: 2  
*Expected Output* :  
The numbers for the G.P. series:  
3.000000 6.000000 12.000000 24.000000 48.000000  
The Sum of the G.P. series : 93.000000  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-52.php" \t "_blank)

**53.**Write a program in C to convert a binary number to octal. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php" \l "editorr)  
Test Data :  
Input a binary number :1001  
*Expected Output* :  
The Binary Number : 1001  
The equivalent Octal Number : 11  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-53.php" \t "_blank)

**54.**Write a program in C to convert an octal number into binary. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php" \l "editorr)  
Test Data :  
Input an octal number (using digit 0 - 7) :57  
*Expected Output* :  
The Octal Number : 57  
The equivalent Binary Number : 101111

[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-54.php" \t "_blank)

**55.**Write a program in C to convert a decimal number to hexadecimal. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php" \l "editorr)  
Test Data :  
Input any Decimal number: 79  
*Expected Output* :  
The equivalent Hexadecimal Number : 4F  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-55.php" \t "_blank)

**56.**Write a program in C to Check Whether a Number can be Express as Sum of Two Prime Numbers. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php" \l "editorr)  
Test Data :  
Input a positive integer: 16  
*Expected Output* :  
16 = 3 + 13  
16 = 5 + 11  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-56.php" \t "_blank)

**57.**Write a program in C to print a string in reverse order. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php" \l "editorr)  
Test Data :  
Input a string to reverse : Welcome  
*Expected Output* :  
Reversed string is: emocleW  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-57.php" \t "_blank)

**58.**Write a C program to find the length of a string without using the library function. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php" \l "editorr)  
Test Data :  
Input a string : welcome  
*Expected Output* :  
The string contains 7 number of characters.  
So, the length of the string welcome is : 7  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-58.php" \t "_blank)

**59.**Write a program in C to check Armstrong number of n digits. [Go to the editor](https://www.w3resource.com/c-programming-exercises/for-loop/index.php" \l "editorr)  
Test Data :  
Input an integer : 1634  
*Expected Output* :  
1634 is an Armstrong number  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/for-loop/c-for-loop-exercises-59.php" \t "_blank)

C Programming Code Editor:

**More to Come !**

**Do not submit any solution of the above exercises at here, if you want to contribute go to the appropriate exercise page.**

﻿

*[An editor is available at the bottom of the page to write and execute the scripts.]*

**1.** Write a program in C to store elements in an array and print it. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php#editorr)  
Test Data :  
Input 10 elements in the array :  
element - 0 : 1  
element - 1 : 1  
element - 2 : 2  
.......  
*Expected Output* :  
Elements in array are: 1 1 2 3 4 5 6 7 8 9  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-1.php)

**2.** Write a program in C to read n number of values in an array and display it in reverse order. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php#editorr)  
Test Data :  
Input the number of elements to store in the array :3  
Input 3 number of elements in the array :  
element - 0 : 2  
element - 1 : 5  
element - 2 : 7  
*Expected Output* :  
The values store into the array are :  
2 5 7  
The values store into the array in reverse are :  
7 5 2  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-2.php)

**3.** Write a program in C to find the sum of all elements of the array. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php#editorr)  
Test Data :  
Input the number of elements to be stored in the array :3  
Input 3 elements in the array :  
element - 0 : 2  
element - 1 : 5  
element - 2 : 8  
*Expected Output* :  
Sum of all elements stored in the array is : 15  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-3.php)

**4.** Write a program in C to copy the elements of one array into another array. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php#editorr)  
Test Data :  
Input the number of elements to be stored in the array :3  
Input 3 elements in the array :  
element - 0 : 15  
element - 1 : 10  
element - 2 : 12  
*Expected Output* :  
The elements stored in the first array are :  
15 10 12  
The elements copied into the second array are :  
15 10 12  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-4.php)

**5.** Write a program in C to count a total number of duplicate elements in an array. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php#editorr)  
Test Data :  
Input the number of elements to be stored in the array :3  
Input 3 elements in the array :  
element - 0 : 5  
element - 1 : 1  
element - 2 : 1  
*Expected Output* :  
Total number of duplicate elements found in the array is : 1  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-5.php)

**6.** Write a program in C to print all unique elements in an array. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php#editorr)  
Test Data :  
Print all unique elements of an array:  
------------------------------------------  
Input the number of elements to be stored in the array: 4  
Input 4 elements in the array :  
element - 0 : 3  
element - 1 : 2  
element - 2 : 2  
element - 3 : 5  
*Expected Output* :  
The unique elements found in the array are:  
3 5  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-6.php)

**7.** Write a program in C to merge two arrays of same size sorted in decending order. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php#editorr)  
Test Data :  
Input the number of elements to be stored in the first array :3  
Input 3 elements in the array :  
element - 0 : 1  
element - 1 : 2  
element - 2 : 3  
Input the number of elements to be stored in the second array :3  
Input 3 elements in the array :  
element - 0 : 1  
element - 1 : 2  
element - 2 : 3  
*Expected Output* :  
The merged array in decending order is :  
3 3 2 2 1 1  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-7.php)

**8.** Write a program in C to count the frequency of each element of an array. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php#editorr)  
Test Data :  
Input the number of elements to be stored in the array :3  
Input 3 elements in the array :  
element - 0 : 25  
element - 1 : 12  
element - 2 : 43  
*Expected Output* :  
The frequency of all elements of an array :  
25 occurs 1 times  
12 occurs 1 times  
43 occurs 1 times  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-8.php)

**9.** Write a program in C to find the maximum and minimum element in an array. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php#editorr)  
Test Data :  
Input the number of elements to be stored in the array :3  
Input 3 elements in the array :  
element - 0 : 45  
element - 1 : 25  
element - 2 : 21  
*Expected Output* :  
Maximum element is : 45  
Minimum element is : 21  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-9.php)

**10.** Write a program in C to separate odd and even integers in separate arrays. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php#editorr)  
Test Data :  
Input the number of elements to be stored in the array :5  
Input 5 elements in the array :  
element - 0 : 25  
element - 1 : 47  
element - 2 : 42  
element - 3 : 56  
element - 4 : 32  
*Expected Output* :  
The Even elements are :  
42 56 32  
The Odd elements are :  
25 47  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-10.php)

**11.** Write a program in C to sort elements of array in ascending order. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php#editorr)  
Test Data :  
Input the size of array : 5  
Input 5 elements in the array :  
element - 0 : 2  
element - 1 : 7  
element - 2 : 4  
element - 3 : 5  
element - 4 : 9  
*Expected Output* :  
Elements of array in sorted ascending order:  
2 4 5 7 9  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-11.php)

**12.** Write a program in C to sort elements of the array in descending order. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
Test Data :  
Input the size of array : 3  
Input 3 elements in the array :  
element - 0 : 5  
element - 1 : 9  
element - 2 : 1  
*Expected Output* :  
Elements of the array in sorted descending order:  
9 5 1  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-12.php" \t "_blank)

**13.** Write a program in C to insert New value in the array (sorted list ).. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
Test Data :  
Input the size of array : 3  
Input 3 elements in the array in ascending order:  
element - 0 : 5  
element - 1 : 7  
element - 2 : 9  
Input the value to be inserted : 8  
*Expected Output* :  
The exist array list is :  
5 7 9  
After Insert the list is :  
5 7 8 9  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-13.php" \t "_blank)

**14.** Write a program in C to insert New value in the array (unsorted list ). [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
Test Data :  
Input the size of array : 4  
Input 4 elements in the array in ascending order:  
element - 0 : 1  
element - 1 : 8  
element - 2 : 7  
element - 3 : 10  
Input the value to be inserted : 5  
Input the Position, where the value to be inserted :2  
*Expected Output* :  
The current list of the array :  
1 8 7 10  
After Insert the element the new list is :  
1 5 8 7 10  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-14.php" \t "_blank)

**15.** Write a program in C to delete an element at desired position from an array. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
Test Data :  
Input the size of array : 5  
Input 5 elements in the array in ascending order:  
element - 0 : 1  
element - 1 : 2  
element - 2 : 3  
element - 3 : 4  
element - 4 : 5  
Input the position where to delete: 3  
*Expected Output* :  
The new list is : 1 2 4 5  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-15.php" \t "_blank)

**16.** Write a program in C to find the second largest element in an array. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
Test Data :  
Input the size of array : 5  
Input 5 elements in the array :  
element - 0 : 2  
element - 1 : 9  
element - 2 : 1  
element - 3 : 4  
element - 4 : 6  
*Expected Output* :  
The Second largest element in the array is : 6  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-16.php" \t "_blank)

**17.** Write a program in C to find the second smallest element in an array. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
Test Data :  
Input the size of array : 5  
Input 5 elements in the array (value must be <9999) :  
element - 0 : 0  
element - 1 : 9  
element - 2 : 4  
element - 3 : 6  
element - 4 : 5  
*Expected Output* :  
The Second smallest element in the array is : 4  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-17.php" \t "_blank)

**18.** Write a program in C for a 2D array of size 3x3 and print the matrix. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
Test Data :  
Input elements in the matrix :  
element - [0],[0] : 1  
element - [0],[1] : 2  
element - [0],[2] : 3  
element - [1],[0] : 4  
element - [1],[1] : 5  
element - [1],[2] : 6  
element - [2],[0] : 7  
element - [2],[1] : 8  
element - [2],[2] : 9  
*Expected Output* :  
The matrix is :  
  
1 2 3  
4 5 6  
7 8 9  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-18.php" \t "_blank)

**19.** Write a program in C for addition of two Matrices of same size. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
Test Data :  
Input the size of the square matrix (less than 5): 2  
Input elements in the first matrix :  
element - [0],[0] : 1  
element - [0],[1] : 2  
element - [1],[0] : 3  
element - [1],[1] : 4  
Input elements in the second matrix :  
element - [0],[0] : 5  
element - [0],[1] : 6  
element - [1],[0] : 7  
element - [1],[1] : 8  
*Expected Output* :  
The First matrix is :  
  
1 2  
3 4  
The Second matrix is :  
  
5 6  
7 8  
The Addition of two matrix is :  
  
6 8  
10 12  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-19.php" \t "_blank)

**20.** Write a program in C for subtraction of two Matrices. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
Test Data :  
Input the size of the square matrix (less than 5): 2  
Input elements in the first matrix :  
element - [0],[0] : 5  
element - [0],[1] : 6  
element - [1],[0] : 7  
element - [1],[1] : 8  
Input elements in the second matrix :  
element - [0],[0] : 1  
element - [0],[1] : 2  
element - [1],[0] : 3  
element - [1],[1] : 4  
*Expected Output* :  
The First matrix is :  
  
5 6  
7 8  
The Second matrix is :  
  
1 2  
3 4  
The Subtraction of two matrix is :  
  
4 4  
4 4  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-20.php" \t "_blank)

**21.** Write a program in C for multiplication of two square Matrices. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
Test Data :  
Input the rows and columns of first matrix : 2 2  
Input the rows and columns of second matrix : 2 2  
Input elements in the first matrix :  
element - [0],[0] : 1  
element - [0],[1] : 2  
element - [1],[0] : 3  
element - [1],[1] : 4  
Input elements in the second matrix :  
element - [0],[0] : 5  
element - [0],[1] : 6  
element - [1],[0] : 7  
element - [1],[1] : 8  
*Expected Output* :  
The First matrix is :  
  
1 2  
3 4  
The Second matrix is :  
  
5 6  
7 8  
The multiplication of two matrix is :  
  
19 22  
43 50  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-21.php" \t "_blank)

**22.** Write a program in C to find transpose of a given matrix. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
Test Data :  
Input the rows and columns of the matrix : 2 2  
Input elements in the first matrix :  
element - [0],[0] : 1  
element - [0],[1] : 2  
element - [1],[0] : 3  
element - [1],[1] : 4  
*Expected Output* :  
The matrix is :  
  
1 2  
3 4  
  
The transpose of a matrix is :  
1 3  
2 4  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-22.php" \t "_blank)

**23.** Write a program in C to find sum of right diagonals of a matrix.[Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
Test Data :  
Input the size of the square matrix : 2  
Input elements in the first matrix :  
element - [0],[0] : 1  
element - [0],[1] : 2  
element - [1],[0] : 3  
element - [1],[1] : 4  
*Expected Output* :  
The matrix is :  
1 2  
3 4  
Addition of the right Diagonal elements is :5  
Elements in array are:  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-23.php" \t "_blank)

**24.** Write a program in C to find the sum of left diagonals of a matrix. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
Test Data :  
Input the size of the square matrix : 2  
Input elements in the first matrix :  
element - [0],[0] : 1  
element - [0],[1] : 2  
element - [1],[0] : 3  
element - [1],[1] : 4  
*Expected Output* :  
The matrix is :  
1 2  
3 4  
Addition of the left Diagonal elements is :5  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-24.php" \t "_blank)

**25.** Write a program in C to find sum of rows an columns of a Matrix. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
Test Data :  
Input the size of the square matrix : 2  
Input elements in the first matrix :  
element - [0],[0] : 5  
element - [0],[1] : 6  
element - [1],[0] : 7  
element - [1],[1] : 8  
*Expected Output* :  
The First matrix is :  
The matrix is :  
5 6  
7 8  
The sum or rows and columns of the matrix is :  
5 6 11  
7 8 15  
  
12 14  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-25.php" \t "_blank)

**26.** Write a program in C to print or display the lower triangular of a given matrix. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
Test Data :  
Input the size of the square matrix : 3  
Input elements in the first matrix :  
element - [0],[0] : 1  
element - [0],[1] : 2  
element - [0],[2] : 3  
element - [1],[0] : 4  
element - [1],[1] : 5  
element - [1],[2] : 6  
element - [2],[0] : 7  
element - [2],[1] : 8  
element - [2],[2] : 9  
*Expected Output* :  
The matrix is :  
1 2 3  
4 5 6  
7 8 9  
  
Setting zero in lower triangular matrix  
  
1 2 3  
0 5 6  
0 0 9  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-26.php" \t "_blank)

**27.** Write a program in C to print or display upper triangular matrix. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
Test Data :  
Input the size of the square matrix : 3  
Input elements in the first matrix :  
element - [0],[0] : 1  
element - [0],[1] : 2  
element - [0],[2] : 3  
element - [1],[0] : 4  
element - [1],[1] : 5  
element - [1],[2] : 6  
element - [2],[0] : 7  
element - [2],[1] : 8  
element - [2],[2] : 9  
*Expected Output* :  
The matrix is :  
1 2 3  
4 5 6  
7 8 9  
  
Setting zero in upper triangular matrix  
  
1 0 0  
4 5 0  
7 8 9  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-27.php" \t "_blank)

**28.** Write a program in C to calculate determinant of a 3 x 3 matrix. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
Test Data :  
Input elements in the first matrix :  
element - [0],[0] : 1  
element - [0],[1] : 0  
element - [0],[2] : -1  
element - [1],[0] : 0  
element - [1],[1] : 0  
element - [1],[2] : 1  
element - [2],[0] : -1  
element - [2],[1] : -1  
element - [2],[2] : 0  
*Expected Output* :  
The matrix is :  
1 0 -1  
0 0 1  
-1 -1 0  
  
The Determinant of the matrix is: 1  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-28.php" \t "_blank)

**29.** Write a program in C to accept a matrix and determine whether it is a sparse matrix. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
Test Data :  
Input the number of rows of the matrix : 2  
Input the number of columns of the matrix : 2  
Input elements in the first matrix :  
element - [0],[0] : 0  
element - [0],[1] : 0  
element - [1],[0] : 1  
element - [1],[1] : 0  
*Expected Output* :  
The given matrix is sparse matrix.  
There are 3 number of zeros in the matrix  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-29.php" \t "_blank)

**30.** Write a program in C to accept two matrices and check whether they are equal. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
Test Data :  
Input Rows and Columns of the 1st matrix :2 2  
Input Rows and Columns of the 2nd matrix :2 2  
Input elements in the first matrix :  
element - [0],[0] : 1  
element - [0],[1] : 2  
element - [1],[0] : 3  
element - [1],[1] : 4  
Input elements in the second matrix :  
element - [0],[0] : 1  
element - [0],[1] : 2  
element - [1],[0] : 3  
element - [1],[1] : 4  
*Expected Output* :  
The first matrix is :  
1 2  
3 4  
The second matrix is :  
1 2  
3 4  
The Matrices can be compared :  
Two matrices are equal.  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-30.php" \t "_blank)

**31.** Write a program in C to check whether a given matrix is an identity matrix. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
Test Data :  
Input number of Rows for the matrix :3  
Input number of Columns for the matrix :3  
Input elements in the first matrix :  
element - [0],[0] : 1  
element - [0],[1] : 0  
element - [0],[2] : 0  
element - [1],[0] : 0  
element - [1],[1] : 1  
element - [1],[2] : 0  
element - [2],[0] : 0  
element - [2],[1] : 0  
element - [2],[2] : 1  
*Expected Output* :  
The matrix is :  
1 0 0  
0 1 0  
0 0 1  
The matrix is an identity matrix.  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-31.php" \t "_blank)

**32.** Write a program in C to find a pair with given sum in the array. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output* :  
The given array : 6 8 4 -5 7 9  
The given sum : 15  
Pair of elements can make the given sum by the value of index 0 and 5  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-32.php" \t "_blank)

**33.** Write a program in C to find the majority element of an array. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
A majority element in an array A[] of size n is an element that appears more than n/2 times (and hence there is at most one such element).  
*Expected Output* :  
The given array is : 4 8 4 6 7 4 4 8  
There are no Majority Elements in the given array.  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-33.php" \t "_blank)

**34.** Write a program in C to find the number occurring odd number of times in an array. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
All numbers occur even number of times except one number which occurs odd number of times.  
*Expected Output* :  
The given array is : 8 3 8 5 4 3 4 3 5  
The element odd number of times is : 3  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-34.php" \t "_blank)

**35.** Write a program in C to find the largest sum of contiguous subarray of an array. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output* :  
The given array is : 8 3 8 -5 4 3 -4 3 5  
The largest sum of contiguous subarray is : 21  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-35.php" \t "_blank)

**36.** Write a program in C to find the missing number from a given array. There are no duplicates in list. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output* :  
The given array is : 1 3 4 2 5 6 9 8  
The missing number is : 7  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-36.php" \t "_blank)

**37.** Write a program in C to find the pivot element of a sorted and rotated array using binary search. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
Pivot element is the only element in input array which is smaller than it's previous element.  
A pivot element divided a sorted rotated array into two monotonically increasing array.  
*Expected Output* :  
The given array is : 14 23 7 9 3 6 18 22 16 36  
The Pivot Element in the array is : 3  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-37.php" \t "_blank)

**38.** Write a program in C to merge one sorted array into another sorted array. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
Pivot element is the only element in input array which is smaller than it's previous element.  
A pivot element divided a sorted rotated array into two monotonically increasing array.  
*Expected Output* :  
The given Large Array is : 10 12 14 16 18 20 22  
The given Small Array is : 11 13 15 17 19 21  
After merged the new Array is :  
10 11 12 13 14 15 16 17 18 19 20 21 22  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-38.php" \t "_blank)

**39.** Write a program in C to rotate an array by N positions. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output* :  
The given array is : 0 3 6 9 12 14 18 20 22 25 27  
From 4th position the values of the array are : 12 14 18 20 22 25 27  
Before 4th position the values of the array are : 0 3 6 9  
After rotating from 4th position the array is:  
12 14 18 20 22 25 27 0 3 6 9  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-39.php" \t "_blank)

**40.** Write a program in C to find the ceiling in a sorted array. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
N.B.: Given a sorted array in ascending order and a value x, the ceiling of x is the smallest element in array greater than or equal to x, and the floor is the greatest element smaller than or equal to x.  
*Expected Output* :  
The given array is : 1 3 4 7 8 9 9 10  
The ceiling of 5 is: 7  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-40.php" \t "_blank)

**41.** Write a program in C to find the Floor and Ceil of the number 0 to 10 from a sroted array. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output* :  
The given array is : 1 3 5 7 8 9  
Number: 0 ceiling is: 1 floor is: -1  
Number: 1 ceiling is: 1 floor is: 1  
Number: 2 ceiling is: 3 floor is: 1  
Number: 3 ceiling is: 3 floor is: 3  
Number: 4 ceiling is: 5 floor is: 3  
Number: 5 ceiling is: 5 floor is: 5  
Number: 6 ceiling is: 7 floor is: 5  
Number: 7 ceiling is: 7 floor is: 7  
Number: 8 ceiling is: 8 floor is: 8  
Number: 9 ceiling is: 9 floor is: 9  
Number: 10 ceiling is: -1 floor is: 9  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-41.php" \t "_blank)

**42.** Write a program in C to find the smallest missing element from a sorted array. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output* :  
The given array is : 0 1 3 4 5 6 7 9  
The missing smallest element is: 2  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-42.php" \t "_blank)

**43.** Write a program in C to to print next greater elements in a given unsorted array. Elements for which no greater element exist, consider next greater element as -1. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output* :  
The given array is : 5 3 10 9 6 13  
Next Bigger Elements are:  
Next bigger element of 5 in the array is: 10  
Next bigger element of 3 in the array is: 10  
Next bigger element of 10 in the array is: 13  
Next bigger element of 9 in the array is: 13  
Next bigger element of 6 in the array is: 13  
Next bigger element of 13 in the array is: -1  
Next Bigger Elements Array:  
10 10 13 13 13 -1  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-43.php" \t "_blank)

**44.** Write a program in C to find the two repeating elements in a given array. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output* :  
The given array is : 2 7 4 7 8 3 4  
The repeating elements are: 7 4  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-44.php" \t "_blank)

**45.** Write a program in C to find two elements whose sum is closest to zero. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output* :  
The given array is : 38 44 63 -51 -35 19 84 -69 4 -46  
The Pair of elements whose sum is minimum are:  
[44, -46]  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-45.php" \t "_blank)

**46.** Write a program in C to find the smallest positive number missing from an unsorted array. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output* :  
The given array is : 3 1 4 10 -5 15 2 -10 -20  
The smallest positive number missed is: 5  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-46.php" \t "_blank)

**47.** Write a program in C to find a subarray with given sum from the given array. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output* :  
The given array is : 3 4 -7 1 3 3 1 -4  
[0..1] -- { 3 4 }  
[0..5] -- { 3 4 -7 1 3 3 }  
[3..5] -- { 1 3 3 }  
[4..6] -- { 3 3 1 }  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-47.php" \t "_blank)

**48.** Write a program in C to find if a given integer x appears more than n/2 times in a sorted array of n integers. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output* :  
The given array is : 1 3 3 5 4 3 2 3 3  
The given value is : 3  
3 appears more than 4 times in the given array[]  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-48.php" \t "_blank)

**49.** Write a program in C to find majority element of an array. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output* :  
The given array is : 1 3 3 7 4 3 2 3 3  
The majority of the Element : 3  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-49.php" \t "_blank)

**50.** Write a program in C to print a matrix in spiral form. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output* :  
The given array in matrix form is :  
1 2 3 4 5  
6 7 8 9 10  
11 12 13 14 15  
16 17 18 19 20  
The spiral form of above matrix is:  
1 2 3 4 5 10 15 20 19 18 17 16 11 6 7 8 9 14 13 12  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-50.php" \t "_blank)

**51.** Write a program in C to find the maximum circular subarray sum of a given array. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output* :  
The given array is : 10 8 -20 5 -3 -5 10 -13 11  
The maximum circular sum in the above array is: 29  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-51.php" \t "_blank)

**52.** Write a program in C to count the number of triangles can be fromed from a given array. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output* :  
The given array is : 6 18 9 7 10  
Number of possible triangles can be formed from the array is: 5  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-52.php" \t "_blank)

**53.** Write a program in C to find the number of times (frequency) occurs a given number in an array. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output* :  
The given array is : 2 3 4 4 4 4 5 5 5 6 7 7  
The number of times the number 4 occurs in the given array is: 4  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-53.php" \t "_blank)

**54.** Write a program in C to sort an array of 0s, 1s and 2s. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output* :  
The given array is : 0 1 2 2 1 0 0 2 0 1 1 0  
After sortig the elements in the array are:  
0 0 0 0 0 1 1 1 1 2 2 2  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-54.php" \t "_blank)

**55.** Write a program in C to check whether an array is subset of another array. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output* :  
The given first array is : 4 8 7 11 6 9 5 0 2  
The given second array is : 5 4 2 0 6  
The second array is the subset of first array.  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-55.php" \t "_blank)

**56.** Write a program in C to return the minimum number of jumps to reach the end of the array. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output* :  
The given array is : 1 3 5 8 9 2 6 7 6 8 9 1 1 1  
The minimum of number of jumps is required to reach the end is: 3  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-56.php" \t "_blank)

**57.** Write a program in C to find minimum element in a sorted and rotated array. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output* :  
The given array is : 3 4 5 6 7 9 2  
The minimum element in the above array is: 2  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-57.php" \t "_blank)

**58.** Write a program in C to move all zeroes to the end of a given array. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output* :  
The given array is : 2 5 7 0 4 0 7 -5 8 0  
The new array is:  
2 5 7 8 4 -5 7 0 0 0  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-58.php" \t "_blank)

**59.** Write a program in C to return the counting sort on an array. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output* :  
The given array is : 4 14 8 0 2 5 2 1 0 17 9 0 5  
After sorting the elements in the array are: 0 0 0 1 2 2 4 5 5 8 9 14 17  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-59.php" \t "_blank)

**60.** Write a program in C to find the row with maximum number of 1s. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output* :  
The given 2D array is :  
0 1 0 1 1  
1 1 1 1 1  
1 0 0 1 0  
0 0 0 0 0  
1 0 0 0 1  
The index of row with maximum 1s is: 1  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-60.php" \t "_blank)

**61.** Write a program in C to find maximum product subarray in a given array. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output* :  
The given array is : -4 9 -7 0 -15 6 2 -3  
The maximum product of a sub-array in the given array is: 540  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-61.php" \t "_blank)

**62.** Write a program in C to find the largest subarray with equal number of 0s and 1s. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output* :  
The given array is : 0 1 0 0 1 1 0 1 1 1  
Subarray found from the index 0 to 7  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-62.php" \t "_blank)

**63.** Write a program in C to replace every element with the greatest element on its right side. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output* :  
The given array is : 7 5 8 9 6 8 5 7 4 6  
After replace the modified array is: 9 9 9 8 8 7 7 6 6 0  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-63.php" \t "_blank)

**64.** Write a program in C to find the median of two sorted arrays of same size. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output* :  
The given array - 1 is : 1 5 13 24 35  
The given array - 2 is : 3 8 15 17 32  
The Median of the 2 sorted arrays is: 14  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-64.php" \t "_blank)

**65.** Write a program in C to find the product of an array such that product is equal to the product of all the elements of arr[] except arr[i]. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output* :  
The given array is : 1 2 3 4 5 6  
The product array is: 720 360 240 180 144 120  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-65.php" \t "_blank)

**66.** Write a program in C to count the number of inversion in a given array. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output* :  
The given array is : 1 9 6 4 5  
The inversions are: (9, 6) (9, 4) (9, 5) (6, 4) (6, 5)  
The number of inversion can be formed from the array is: 5  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-66.php" \t "_blank)

**67.** Write a program in C to search an element in a row wise and column wise sorted matrix. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output* :  
The given array in matrix form is :  
15 23 31 39  
18 26 36 43  
25 28 37 48  
30 34 39 50  
The given value for searching is: 37  
The element Found at the position in the matrix is: 2, 2  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-67.php" \t "_blank)

**68.** Write a program in C to return maximum sum such that no two elements are adjacent. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output* :  
The given array is : 1 3 5 9 7 10 1 10 100  
The maximum sum from the array such that no two elements are adjacent is: 122  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-68.php" \t "_blank)

**69.** Write a program in C to find out the maximum difference between any two elements such that larger element appears after the smaller number. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output* :  
The given array is : 7 9 5 6 13 2  
The elements which provide maximum difference is: 5, 13  
The Maximum difference between two elements in the array is: 8  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-69.php" \t "_blank)

**70.** Write a program in C to find two numbers that occur odd number of times in an array. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output*:  
The given array is: 6 7 3 6 8 7 6 8 3 3  
The two numbers occuring odd number of times are: 3 & 6  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-70.php" \t "_blank)

**71.** Write a program in C to find the median of two sorted arrays of different size. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output*:  
The given first array is : 90 240 300  
The given second array is : 10 13 14 20 25  
The median of two different size arrays are : 22.500000  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-71.php" \t "_blank)

**72.** Write a program in C to return only the unique rows from a given binary matrix. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output*:  
The given array is :  
0 1 0 0 1  
1 0 1 1 0  
0 1 0 0 1  
1 0 1 0 0  
The unique rows of the given array are :  
0 1 0 0 1  
1 0 1 1 0  
1 0 1 0 0  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-72.php" \t "_blank)

**73.** Write a program in C to print all unique elements of an unsorted array. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output*:  
The given array is : 1 5 8 5 7 3 2 4 1 6 2  
Unique Elements in the given array are:  
1 5 8 7 3 2 4 6  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-73.php" \t "_blank)

**74.** Write a program in C to find the sum of upper triangular elements of a matrix. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output*:  
The given array is :  
1 2 3  
4 5 6  
7 8 9  
The elements being summed of the upper triangular matrix are: 2 3 6  
The Sum of the upper triangular Matrix Elements are: 11  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-74.php" \t "_blank)

**75.** Write a program in C to find the sum of lower triangular elements of a matrix. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output*:  
The given array is :  
1 2 3  
4 5 6  
7 8 9  
The elements being summed of the lower triangular matrix are: 4 7 8  
The Sum of the lower triangular Matrix Elements are: 19  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-75.php" \t "_blank)

**76.** Write a program in C to find largest number possible from the set of given numbers. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output*:  
The given numbers are :  
15 628 971 9 2143 12  
The largest possible number by the given numbers are: 997162821431512  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-76.php" \t "_blank)

**77.** Write a program in C to generate a random permutation of array elements. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output*:  
The given array is:  
1 2 3 4 5 6 7 8  
The shuffled elements in the array are:  
2 8 7 3 4 5 1 6  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-77.php" \t "_blank)

**78.** Write a program in C to find four array elements whose sum is equal to given number. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output*:  
The given array is:  
3 7 1 9 15 14 6 2 5 7  
The elements are:  
3, 15, 14, 5  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-78.php" \t "_blank)

**79.** Write a program in C to sort n numbers in range from 0 to n^2. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output*:  
The given array is: 37 62 52 7 48 3 15 61  
Sorted array is: 3 7 15 37 48 52 61 62  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-79.php" \t "_blank)

**80.** Write a program in C to count all distinct pairs for a specific difference. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output*:  
The given array is:  
5 2 3 7 6 4 9 8  
The distinct pairs for difference 5 are: [7, 2] [8, 3] [9, 4]  
Number of distinct pairs for difference 5 are: 3  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-80.php" \t "_blank)

**81.** Write a program in C to find the maximum repeating number in a given array. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
The array range is [0..n-1] and the elements are in the range [0..k-1] and k<=n..  
*Expected Output*:  
The given array is:  
2 3 3 5 3 4 1 7 7 7 7  
The maximum repeating number is: 7  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-81.php" \t "_blank)

**82.** Write a program in C to print all possible combinations of r elements in a given array. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output*:  
The given array is:  
1 5 4 6 8 The combination from by the number of elements are: 4  
The combinations are:  
1 5 4 6  
1 5 4 8  
1 5 6 8  
1 4 6 8  
5 4 6 8  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-82.php" \t "_blank)

**83.** Write a program in C to find a pair with the given difference. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output*:  
The given array is:  
1 15 39 75 92  
The given difference is: 53  
The pair are: (39, 92)  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-83.php" \t "_blank)

**84.** Write a program in C to find the minimum distance between two numbers in a given array. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output*:  
The given array is:  
7 9 5 11 7 4 12 6 2 11  
The minimum distance between 7 and 11 is: 1  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-84.php" \t "_blank)

**85.** Write a program in C to Count all possible paths from top left to bottom right of a m X n matrix.[Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output*:  
The size of matrix is : 4 x 4  
The all possible paths from top left to bottom right is: 20  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-85.php" \t "_blank)

**86.** Write a program in C find the equilibrium index of an array. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output*:  
The given array is:  
0 -4 7 -4 -2 6 -3 0  
The equilibrium index found at : 7 5 0  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-86.php" \t "_blank)

**87.** Write a program in C to find the maximum element in an array which is first increasing and then decreasing. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output*:  
The given array is:  
2 7 12 25 4 57 27 44  
The maximum element which is increasing then decreasing is: 57  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-87.php" \t "_blank)

**88.** Write a program in C to find the maximum n – m such that array[n] > array[m] from a given array[]. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
Given an array arr[], find the maximum j – i such that arr[j] > arr[i]  
*Expected Output*:  
The given array is:  
7 5 8 2 3 2 4 2 1 0  
m = 0, n = 2, arr1[m] = 7 arr1[n] = 8 difference = 2  
m = 3, n = 6, arr1[m] = 2 arr1[n] = 4 difference = 3  
The maximum differcences between two position of array index is: 3  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-88.php" \t "_blank)

**89.** Write a program in C to find maximum size square sub-matrix with all 1s. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output*:  
The given array in matrix form is :  
0 1 0 1 1  
1 1 1 1 0  
1 1 1 1 0  
1 1 1 1 0  
1 1 1 1 1  
0 1 0 1 0  
The maximum size sub-matrix is:  
1 1 1 1  
1 1 1 1  
1 1 1 1  
1 1 1 1  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-89.php" \t "_blank)

**90.** Given an array of size n such that every element is in the range from 0 to n-1. Write a program in C to rearrange the given array so that arr[i] becomes arr[arr[i]]. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output*:  
The Original array is  
2 1 4 3 0 The modified array is:  
4 1 0 3 2  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-90.php" \t "_blank)

**91.**Given an unsorted array of specific size. Write a program in C to find the minimum length of subarray such that,  
sorting this subarray makes the whole array sorted.[Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output*:  
The given array is:  
10 12 15 17 28 32 42 18 56 59 67  
The minimum length of unsorted subarray which makes the given array sorted  
lies between the indeces 4 and 7  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-91.php" \t "_blank)

**92.** Write a program in C that checks whether the elements in an unsorted array appears consecutively or not. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output*:  
The given array is:  
7 4 3 5 6 2  
The appearence of elements in the array are consecutive.  
The given array is:  
7 4 4 5 6 2  
The appearence of elements in the array are not consecutive.  
The given array is:  
7 4 9 5 6 3  
The appearence of elements in the array are not consecutive.  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-92.php" \t "_blank)

**93.** Write a program in C to rearrange positive and negative numbers alternatively in a given array.[Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
N.B.: If positive numbers are more they appear at the end and for also negative numbers, they too appear in the end of the array.  
*Expected Output*:  
The given array is:  
-4 8 -5 -6 5 -9 7 1 -21 -11 19  
The rearranged array is:  
-4 7 -5 1 -21 5 -11 8 -9 19 -6  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-93.php" \t "_blank)

**94.** Write a program in C to find the maximum for each and every contigious subarray of size k from a given array.[Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output*:  
The given array is:  
1 3 6 21 4 9 12 3 16 10  
The length of each subarray is: 4  
The contigious subarray of length 4 and their maximum value are:  
1 3 6 21 ----> 21  
3 6 21 4 ----> 21  
6 21 4 9 ----> 21  
21 4 9 12 ----> 21  
4 9 12 3 ----> 12  
9 12 3 16 ----> 16  
12 3 16 10 ----> 16  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-94.php" \t "_blank)

**95.** Write a program in C to segregate 0s and 1s in an array. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output*:  
The given array is:  
1 0 1 0 0 1 0 1 1  
The array after segregation is: 0 0 0 0 1 1 1 1 1  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-95.php" \t "_blank)

**96.** Write a program in C to segregate even and odd elements on an array. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output*:  
The given array is:  
17 42 19 7 27 24 30 54 73  
The array after segregation is: 54 42 30 24 27 7 19 17 73  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-96.php" \t "_blank)

**97.** Write a program in C to find the index of first peak element in a given array. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output*:  
The given array is:  
5 12 13 20 16 19 11 7 25  
The index of first peak element in the array is: 3  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-97.php" \t "_blank)

**98.** Write a program in C to return the largest span found in the leftmost and rightmost appearances of same value(values are inclusive) in a given array. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output*:  
The given array is:  
17 42 19 7 27 24 17 54 73  
The span between the same values in the array is: 7  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-98.php" \t "_blank)

**99.** Write a program in C to check if an array can be splitted in such a position that, the sum of left side of the splitting is equal to the sum of the right side. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output*:  
The given array is : 1 3 3 8 4 3 2 3 3  
The array can be split in a position where the sum of both side are equal.  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-99.php" \t "_blank)

**100.** Write a program in C to return the number of clumps(a series of 2 or more adjacent elements of the same value) in a given array. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output*:  
The given array is:  
17 42 42 7 24 24 17 54 17  
The number of clumps in the array is: 2  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-100.php" \t "_blank)

**101.** Write a program in C to rearrange an array such that arr[i]=i. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)

N.B.: Given array contains N elements, from 0 to N – 1. All elements within the range may not be present in the array. There will be -1 if an element within the range is not present in the array.

*Expected Output*:  
The given array is:  
2 5 -1 6 -1 8 7 -1 9 1  
The new array is: -1 1 2 -1 -1 5 6 7 8 9  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-101.php" \t "_blank)

**102.** Write a program in C to rearrange an array in such an order that– smallest, largest, 2nd smallest, 2nd largest and on. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output*:  
The given array is:  
5 8 1 4 2 9 3 7 6  
The new array is:  
1 9 2 8 3 7 4 6 5  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-102.php" \t "_blank)

**103.** Write a program in C to update every array element with multiplication of previous and next numbers in array. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output*:  
The given array is:  
1 2 3 4 5 6  
The new array is:  
2 3 8 15 24 30  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-103.php" \t "_blank)

**104.** Write a program in C to rearrange an array such that even index elements are smaller and odd index elements are greater than their next. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output*:  
The array given is:  
6 4 2 1 8 3  
The new array after rearranging:  
4 6 1 8 2 3  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-104.php" \t "_blank)

**105.** Write a program in C to find minimum number of swaps required to gather all elements less than or equals to k. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output*:  
The given array is:  
2 7 9 5 8 7 4  
The minimum swap required is: 2  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-105.php" \t "_blank)

**106.** Write a program in C to convert the array in such a way that double its value and replace the next number with 0 if current and next element are same and rearrange the array such that all 0's shifted to the end. [Go to the editor](https://www.w3resource.com/c-programming-exercises/array/index.php" \l "editorr)  
*Expected Output*:  
The given array is: 0 3 3 3 0 0 7 7 0 9  
The new array is: 6 3 14 9 0 0 0 0 0 0  
[Click me to see the solution](https://www.w3resource.com/c-programming-exercises/array/c-array-exercise-106.php" \t "_blank)

**C Programming Code Editor:**