**Total Duration: 30 Hours (12-14 Classes)**

C Introduction

* Keywords & Identifier
* Variables & Constants
* C Data Types
* C Input/Output
* C Operators
* C Introduction Examples

C Flow Control

* C if...else
* C for Loop
* C while Loop
* C break and continue
* C switch...case
* C Programming goto
* Control Flow Examples

C Functions

* C Programming Functions
* C User-defined Functions
* C Function Types
* C Recursion
* C Storage Class
* C Function Examples

C Programming Arrays

* C Programming Arrays
* C Multi-dimensional Arrays
* C Arrays & Function

C Programming Pointers

* C Programming Pointers
* C Pointers & Arrays
* C Pointers And Functions
* C Memory Allocation
* Array & Pointer Examples

C Programming Strings

* C Programming String
* C String Functions
* C String Examples

Structure And Union

* C Structure
* C Struct & Pointers
* C Struct & Function
* C Unions
* C struct Examples

C Programming Files

* C Files Input/Output
* C Files Examples

Additional Topics

* C Enumeration
* C Preprocessors
* C Standard Library
* C Programming Examples

## About C Programming

* **Procedural Language** - Instructions in a C program are executed step by step.
* **Portable** - You can move C programs from one platform to another, and run it without any or minimal changes.
* **Speed** - C programming is faster than most programming languages like Java, Python, etc.
* **General Purpose** - C programming can be used to develop operating systems, embedded systems, databases, and so on.

## Why Learn C Programming?

* C helps you to understand the internal architecture of a computer, how computer stores and retrieves information.
* After learning C, it will be much easier to learn other programming languages like Java, Python, etc.
* Opportunity to work on open source projects. Some of the largest open-source projects such as Linux kernel, Python interpreter, SQLite database, etc. are written in C programming.

# **\* C programming Practice Problems**

## Basic programming exercises:

## [Write a C program to perform input/output of all basic data types](https://codeforwin.org/2017/08/c-program-perform-input-output-basic-data-types.html).

1. [Write a C program to enter two numbers and find their sum.](https://codeforwin.org/2015/05/c-program-to-add-two-numbers.html)
2. [Write a C program to enter two numbers and perform all arithmetic operations.](https://codeforwin.org/2015/05/c-program-to-perform-all-arithmetic-operations.html)
3. [Write a C program to enter length and breadth of a rectangle and find its perimeter.](https://codeforwin.org/2015/05/c-program-to-find-perimeter-of-rectangle.html)
4. [Write a C program to enter length and breadth of a rectangle and find its area.](https://codeforwin.org/2015/05/c-program-to-find-area-of-rectangle.html)
5. [Write a C program to enter radius of a circle and find its diameter, circumference and area.](https://codeforwin.org/2015/05/c-program-to-calculate-diameter-circumference-and-area-of-circle.html)
6. [Write a C program to enter length in centimeter and convert it into meter and kilometer.](https://codeforwin.org/2015/05/c-program-to-convert-centimeter-into-meter-kilometer.html)
7. [Write a C program to enter temperature in Celsius and convert it into Fahrenheit.](https://codeforwin.org/2015/05/c-program-to-convert-celsius-into-fahrenheit.html)
8. [Write a C program to enter temperature in Fahrenheit and convert to Celsius](https://codeforwin.org/2015/06/c-program-to-convert-fahrenheit-into-celsius.html)
9. [Write a C program to convert days into years, weeks and days](https://codeforwin.org/2015/06/c-program-to-convert-days-into-years-weeks-days.html).
10. [Write a C program to find power of any number x ^ y.](https://codeforwin.org/2015/05/c-program-to-find-power-of-two-number.html)
11. [Write a C program to enter any number and calculate its square root.](https://codeforwin.org/2015/05/c-program-to-calculate-square-root.html)
12. [Write a C program to enter two angles of a triangle and find the third angle.](https://codeforwin.org/2015/05/c-program-to-find-angles-of-triangle.html)
13. [Write a C program to enter base and height of a triangle and find its area.](https://codeforwin.org/2015/05/c-program-to-find-area-of-triangle.html)
14. [Write a C program to calculate area of an equilateral triangle.](https://codeforwin.org/2015/05/c-program-to-find-area-of-equilateral-triangle.html)
15. [Write a C program to enter marks of five subjects and calculate total, average and percentage.](https://codeforwin.org/2015/05/c-program-to-calculate-total-average-percentage-of-five-subjects.html)
16. [Write a C program to enter P, T, R and calculate Simple Interest.](https://codeforwin.org/2015/05/c-program-to-calculate-simple-interest.html)
17. [Write a C program to enter P, T, R and calculate Compound Interest.](https://codeforwin.org/2015/05/c-program-to-calculate-compound-interest.html)

## Bitwise Operator**:**

[Write a C program to check Least Significant Bit (LSB) of a number is set or not](https://codeforwin.org/2016/01/c-program-to-check-lsb-of-number.html).

1. [Write a C program to check Most Significant Bit (MSB) of a number is set or not](https://codeforwin.org/2016/01/c-program-to-check-most-significant-bit-of-number-is-set-or-not.html).
2. [Write a C program to get nth bit of a number](https://codeforwin.org/2016/01/c-program-to-get-value-of-nth-bit-of-number.html).
3. [Write a C program to set nth bit of a number](https://codeforwin.org/2016/01/c-program-to-set-nth-bit-of-number-using-bitwise-operator.html).
4. [Write a C program to clear nth bit of a number](https://codeforwin.org/2016/01/c-program-to-clear-nth-bit-of-number.html).
5. [Write a C program to toggle nth bit of a number](https://codeforwin.org/2016/01/c-program-to-toggle-nth-bit-of-number.html).
6. [Write a C program to get highest set bit of a number](https://codeforwin.org/2016/01/c-program-to-get-highest-order-set-bit-of-number.html).
7. [Write a C program to get lowest set bit of a number](https://codeforwin.org/2016/01/c-program-to-get-lowest-order-set-bit-of-number.html).
8. [Write a C program to count trailing zeros in a binary number](https://codeforwin.org/2016/01/c-program-to-count-trailing-zeros-in-binary-number-using-bitwise-operator.html).
9. [Write a C program to count leading zeros in a binary number](https://codeforwin.org/2016/01/c-program-to-count-leading-zeros-in-binary-number.html).
10. [Write a C program to flip bits of a binary number using bitwise operator](https://codeforwin.org/2016/01/c-program-to-flip-all-bits-of-binary-number.html).
11. [Write a C program to count total zeros and ones in a binary number](https://codeforwin.org/2016/01/c-program-to-count-number-of-ones-and-zeros-in-binary-number.html).
12. [Write a C program to rotate bits of a given number](https://codeforwin.org/2017/12/c-program-rotate-number-bits.html).
13. [Write a C program to convert decimal to binary number system using bitwise operator](https://codeforwin.org/2016/01/c-program-to-convert-decimal-to-binary-number-system-using-bitwise-operator.html).
14. [Write a C program to swap two numbers using bitwise operator](https://codeforwin.org/2016/01/c-program-to-swap-two-numbers-using-bitwise-operator.html).
15. [Write a C program to check whether a number is even or odd using bitwise operator](https://codeforwin.org/2016/01/c-program-to-check-even-or-odd-using-bitwise-operator.html).

## Ternary Operator:

[Write a C program to find maximum between two numbers using conditional operator.](https://codeforwin.org/2015/06/c-program-to-find-maximum-using-ternary-operator.html)

1. [Write a C program to find maximum between three numbers using conditional operator](https://codeforwin.org/2015/06/c-program-to-find-maximum-between-three-number-using-ternary-operator.html).
2. [Write a C program to check whether a number is even or odd using conditional operator.](https://codeforwin.org/2015/06/c-program-to-check-even-or-odd-using-conditional-operator.html)
3. [Write a C program to check whether year is leap year or not using conditional operator.](https://codeforwin.org/2015/06/c-program-to-check-leap-year-using-conditional-operator.html)
4. [Write a C program to check whether character is an alphabet or not using conditional operator.](https://codeforwin.org/2015/06/c-program-to-check-alphabet-using-conditional-operator.html)

## If Else:

0.[Write a C program to find maximum between two numbers.](https://codeforwin.org/2015/05/c-program-to-find-maximum-between-two-numbers.html)

1. [Write a C program to find maximum between three numbers.](https://codeforwin.org/2015/05/c-program-to-find-maximum.html)
2. [Write a C program to check whether a number is negative, positive or zero.](https://codeforwin.org/2015/05/c-program-to-check-negative-positive-zero.html)
3. [Write a C program to check whether a number is divisible by 5 and 11 or not.](https://codeforwin.org/2015/05/c-program-to-check-whether-number-is-divisible-by-5-and-11.html)
4. [Write a C program to check whether a number is even or odd.](https://codeforwin.org/2015/05/c-program-to-check-even-odd.html)
5. [Write a C program to check whether a year is leap year or not.](https://codeforwin.org/2015/05/c-program-to-check-leap-year.html)
6. [Write a C program to check whether a character is alphabet or not.](https://codeforwin.org/2015/05/c-program-to-check-alphabet.html)
7. [Write a C program to input any alphabet and check whether it is vowel or consonant.](https://codeforwin.org/2015/05/c-program-to-check-vowel-or-consonant.html)
8. [Write a C program to input any character and check whether it is alphabet, digit or special character.](https://codeforwin.org/2015/05/c-program-to-check-alphabet-digit-special-character.html)
9. [Write a C program to check whether a character is uppercase or lowercase alphabet](https://codeforwin.org/2015/09/c-program-to-check-whether-character-is-uppercase-or-lowercase.html).
10. [Write a C program to input week number and print week day](https://codeforwin.org/2015/05/c-program-to-print-week-name.html).
11. [Write a C program to input month number and print number of days in that month.](https://codeforwin.org/2015/05/c-program-to-print-number-of-days-in-month.html)
12. [Write a C program to count total number of notes in given amount](https://codeforwin.org/2015/07/c-program-to-count-total-number-of-notes.html).
13. [Write a C program to input angles of a triangle and check whether triangle is valid or not.](https://codeforwin.org/2015/05/c-program-to-check-whether-triangle-is-valid-or-not.html)
14. [Write a C program to input all sides of a triangle and check whether triangle is valid or not.](https://codeforwin.org/2015/05/c-program-to-check-whether-triangle-side-is-valid-or-not.html)
15. [Write a C program to check whether the triangle is equilateral, isosceles or scalene triangle.](https://codeforwin.org/2015/05/c-program-to-check-whether-triangle-is-equilateral-isosceles-scalene.html)
16. [Write a C program to find all roots of a quadratic equation](https://codeforwin.org/2016/04/c-program-to-find-all-roots-of-quadratic-equation.html).
17. [Write a C program to calculate profit or loss.](https://codeforwin.org/2015/05/c-program-to-check-profit-or-loss.html)
18. [Write a C program to input marks of five subjects Physics, Chemistry, Biology, Mathematics and Computer. Calculate percentage and grade according to following:](https://codeforwin.org/2015/05/c-program-to-enter-student-marks-and-calculate-percentage-and-grade.html)  
    Percentage >= 90% : Grade A  
    Percentage >= 80% : Grade B  
    Percentage >= 70% : Grade C  
    Percentage >= 60% : Grade D  
    Percentage >= 40% : Grade E  
    Percentage < 40% : Grade F
19. [Write a C program to input basic salary of an employee and calculate its Gross salary according to following:](https://codeforwin.org/2015/05/c-program-to-calculate-gross-salary-of-employee.html)  
    Basic Salary <= 10000 : HRA = 20%, DA = 80%  
    Basic Salary <= 20000 : HRA = 25%, DA = 90%  
    Basic Salary > 20000 : HRA = 30%, DA = 95%
20. [Write a C program to input electricity unit charges and calculate total electricity bill according to the given condition:](https://codeforwin.org/2015/05/c-program-to-calculate-electricity-bill.html)  
    For first 50 units Rs. 0.50/unit  
    For next 100 units Rs. 0.75/unit  
    For next 100 units Rs. 1.20/unit  
    For unit above 250 Rs. 1.50/unit  
    An additional surcharge of 20% is added to the bill

## Switch case:

0.[Write a C program to print day of week name using switch case.](https://codeforwin.org/2015/06/c-program-to-print-week-day-name-using-switch-case.html)

1. [Write a C program print total number of days in a month using switch case.](https://codeforwin.org/2015/06/c-program-to-print-number-of-days-in-month-using-switch-case.html)
2. [Write a C program to check whether an alphabet is vowel or consonant using switch case.](https://codeforwin.org/2015/06/c-program-to-check-vowel-or-consonant-using-switch-case.html)
3. [Write a C program to find maximum between two numbers using switch case.](https://codeforwin.org/2015/06/c-program-to-find-maximum-using-switch-case.html)
4. [Write a C program to check whether a number is even or odd using switch case.](https://codeforwin.org/2015/06/c-program-to-check-even-or-odd-using-switch-case.html)
5. [Write a C program to check whether a number is positive, negative or zero using switch case.](https://codeforwin.org/2018/05/check-positive-negative-or-zero-using-switch-case.html)
6. [Write a C program to find roots of a quadratic equation using switch case](https://codeforwin.org/2016/04/c-program-to-find-all-roots-of-quadratic-equation-using-switch.html).
7. [Write a C program to create Simple Calculator using switch case](https://codeforwin.org/2015/06/c-program-to-create-simple-calculator-using-switch-case.html).

## Loop/Iteration:

[Write a C program to print all natural numbers from 1 to n.](https://codeforwin.org/2015/06/c-program-to-print-natural-numbers-from-1-to-n.html) – using [while loop](https://codeforwin.org/2015/06/c-program-to-print-numbers-from-1-to-n-using-while-loop.html)

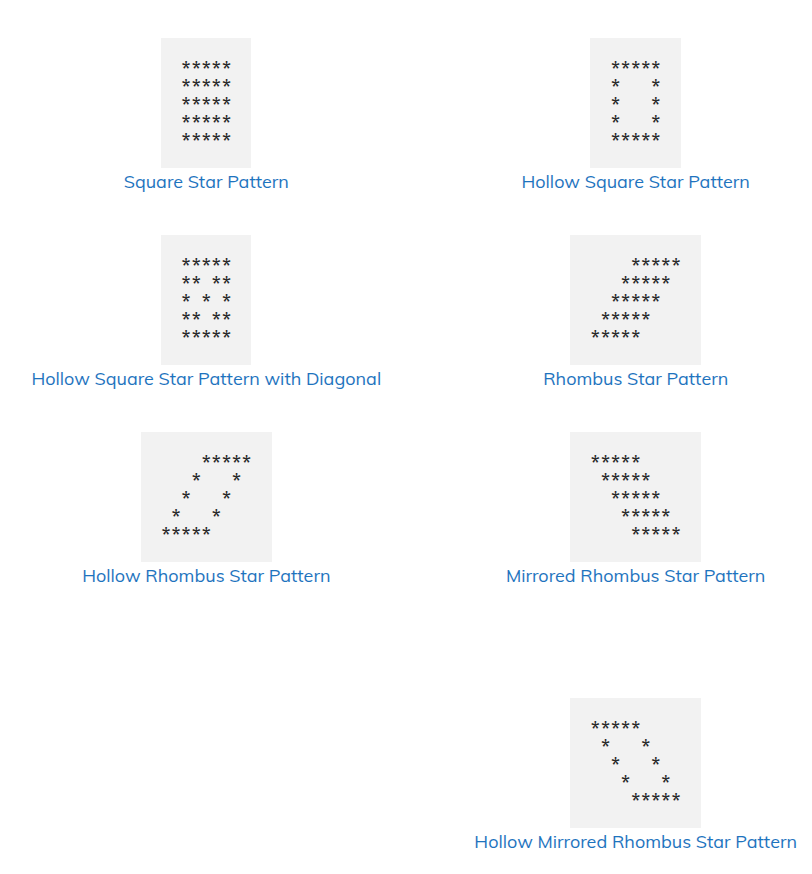
1. [Write a C program to print all natural numbers in reverse (from n to 1)](https://codeforwin.org/2015/07/c-program-to-print-all-natural-numbers-in-reverse.html). – using [while loop](https://codeforwin.org/2015/07/c-program-to-print-all-natural-numbers.html)
2. [Write a C program to print all alphabets from a to z.](https://codeforwin.org/2015/06/c-program-to-print-a-to-z.html) – using [while loop](https://codeforwin.org/2015/07/c-program-to-print-all-alphabets-using-while-loop.html)
3. [Write a C program to print all even numbers between 1 to 100.](https://codeforwin.org/2015/06/c-program-to-print-all-even-numbers-between-1-to-100.html) – using [while loop](https://codeforwin.org/2015/06/c-program-to-print-all-even-numbers-using-while-loop.html)
4. [Write a C program to print all odd number between 1 to 100.](https://codeforwin.org/2015/06/c-program-to-print-all-odd--numbers-between-1-to-100.html)
5. [Write a C program to find sum of all natural numbers between 1 to n.](https://codeforwin.org/2015/06/c-program-to-calculate-sum-of-first-n-natural-numbers.html)
6. [Write a C program to find sum of all even numbers between 1 to n](https://codeforwin.org/2015/06/c-program-to-print-sum-of-all-even-numbers-between-1-to-n.html).
7. [Write a C program to find sum of all odd numbers between 1 to n](https://codeforwin.org/2015/06/c-program-to-print-sum-of-all-odd-numbers-between-1-to-n.html).
8. [Write a C program to print multiplication table of any number](https://codeforwin.org/2015/06/c-program-to-print-table-of-any-number.html).
9. [Write a C program to count number of digits in a number](https://codeforwin.org/2016/10/c-program-to-count-number-of-digits-in-number.html).
10. [Write a C program to find first and last digit of a number](https://codeforwin.org/2015/06/how-to-find-first-and-last-digit-of-any-number.html).
11. [Write a C program to find sum of first and last digit of a number.](https://codeforwin.org/2015/06/c-program-to-find-sum-of-first-and-last-digit-of-number.html)
12. [Write a C program to swap first and last digits of a number](https://codeforwin.org/2016/01/c-program-to-swap-first-and-last-digit-of-number.html).
13. [Write a C program to calculate sum of digits of a number](https://codeforwin.org/2015/06/c-program-to-calculate-sum-of-digits.html).
14. [Write a C program to calculate product of digits of a number](https://codeforwin.org/2015/06/c-program-to-calculate-product-of-digits.html).
15. [Write a C program to enter a number and print its reverse](https://codeforwin.org/2015/06/c-program-to-find-reverse-of-any-number.html).
16. [Write a C program to check whether a number is palindrome or not.](https://codeforwin.org/2015/06/c-program-to-check-whether-number-is-palindrome-or-not.html)
17. [Write a C program to find frequency of each digit in a given integer](https://codeforwin.org/2016/10/c-program-to-count-frequency-of-digits-in-number.html).
18. [Write a C program to enter a number and print it in words.](https://codeforwin.org/2015/06/c-program-to-print-numbers-in-words.html)
19. [Write a C program to print all ASCII character with their values](https://codeforwin.org/2015/06/c-program-to-print-ascii-values-of-all-characters.html).
20. [Write a C program to find power of a number using for loop](https://codeforwin.org/2015/07/c-program-to-find-power-of-number-using-for-loop.html).
21. [Write a C program to find all factors of a number](https://codeforwin.org/2015/06/c-program-to-print-factors-of-any-number.html).
22. [Write a C program to calculate factorial of a number](https://codeforwin.org/2015/06/c-program-to-calculate-factorial-of-any-number.html).
23. [Write a C program to find HCF (GCD) of two numbers](https://codeforwin.org/2015/06/c-program-to-find-hcf-of-two-numbers.html).
24. [Write a C program to find LCM of two numbers](https://codeforwin.org/2015/06/c-program-to-find-lcm-of-two-numbers.html).
25. [Write a C program to check whether a number is Prime number or not.](https://codeforwin.org/2015/06/c-program-to-check-prime-number.html)
26. [Write a C program to print all Prime numbers between 1 to n.](https://codeforwin.org/2015/06/c-program-to-print-all-prime-numbers-between-1-to-n.html)
27. [Write a C program to find sum of all prime numbers between 1 to n](https://codeforwin.org/2015/06/c-program-to-find-sum-of-all-prime.html).
28. [Write a C program to find all prime factors of a number](https://codeforwin.org/2015/06/c-program-to-find-all-prime-factors-of-any-number.html).
29. [Write a C program to check whether a number is Armstrong number or not.](https://codeforwin.org/2015/06/c-program-to-check-armstrong-number.html)
30. [Write a C program to print all Armstrong numbers between 1 to n.](https://codeforwin.org/2015/06/c-program-to-print-first-n-armstrong-numbers.html)
31. [Write a C program to check whether a number is Perfect number or not](https://codeforwin.org/2015/06/c-program-to-check-perfect-number.html).
32. [Write a C program to print all Perfect numbers between 1 to n](https://codeforwin.org/2015/06/c-program-to-print-all-perfect-numbers-between-1-to-n.html).
33. [Write a C program to check whether a number is Strong number or not](https://codeforwin.org/2015/06/c-program-to-check-strong-number.html).
34. [Write a C program to print all Strong numbers between 1 to n](https://codeforwin.org/2015/06/c-program-to-print-all-strong-numbers.html).
35. [Write a C program to print Fibonacci series up to n terms](https://codeforwin.org/2015/06/fibonacci-series-in-c-program.html).
36. [Write a C program to find one’s complement of a binary number](https://codeforwin.org/2015/08/c-program-to-find-ones-complement-of-binary-number.html).
37. [Write a C program to find two’s complement of a binary number](https://codeforwin.org/2015/08/c-program-to-find-twos-complement-of-binary-number.html).
38. [Write a C program to convert Binary to Octal number system](https://codeforwin.org/2015/08/c-program-to-convert-binary-to-octal-number-system.html).
39. [Write a C program to convert Binary to Decimal number system](https://codeforwin.org/2015/08/c-program-to-convert-binary-to-decimal-number-system.html).
40. [Write a C program to convert Binary to Hexadecimal number system](https://codeforwin.org/2015/08/c-program-to-convert-binary-to-hexadecimal-number-system.html).
41. [Write a C program to convert Octal to Binary number system](https://codeforwin.org/2015/08/c-program-to-convert-octal-to-binary-number-system.html).
42. [Write a C program to convert Octal to Decimal number system](https://codeforwin.org/2015/08/c-program-to-convert-octal-to-decimal-number-system.html).
43. [Write a C program to convert Octal to Hexadecimal number system](https://codeforwin.org/2015/08/c-program-to-convert-octal-to-hexadecimal-number-system.html).
44. [Write a C program to convert Decimal to Binary number system](https://codeforwin.org/2015/08/c-program-to-convert-from-decimal-to-binary-number-system.html).
45. [Write a C program to convert Decimal to Octal number system](https://codeforwin.org/2015/08/c-program-to-convert-decimal-to-octal-number-system.html).
46. [Write a C program to convert Decimal to Hexadecimal number system](https://codeforwin.org/2015/08/c-program-to-convert-decimal-to-hexadecimal-number-system.html).
47. [Write a C program to convert Hexadecimal to Binary number system](https://codeforwin.org/2015/08/c-program-to-convert-hexadecimal-to-binary-number-system.html).
48. [Write a C program to convert Hexadecimal to Octal number system](https://codeforwin.org/2015/09/c-program-to-convert-hexadecimal-to-octal-number-system.html).
49. [Write a C program to convert Hexadecimal to Decimal number system](https://codeforwin.org/2015/09/c-program-to-convert-hexadecimal-to-decimal-number-system.html).
50. [Write a C program to print Pascal triangle upto n rows](https://codeforwin.org/2015/07/c-program-to-print-pascal-triangle.html).
51. [Star pattern programs – Write a C program to print the given star patterns.](https://codeforwin.org/2015/07/star-patterns-program-in-c.html)
52. [Number pattern programs – Write a C program to print the given number patterns](https://codeforwin.org/2016/06/number-pattern-programs-in-c.html).

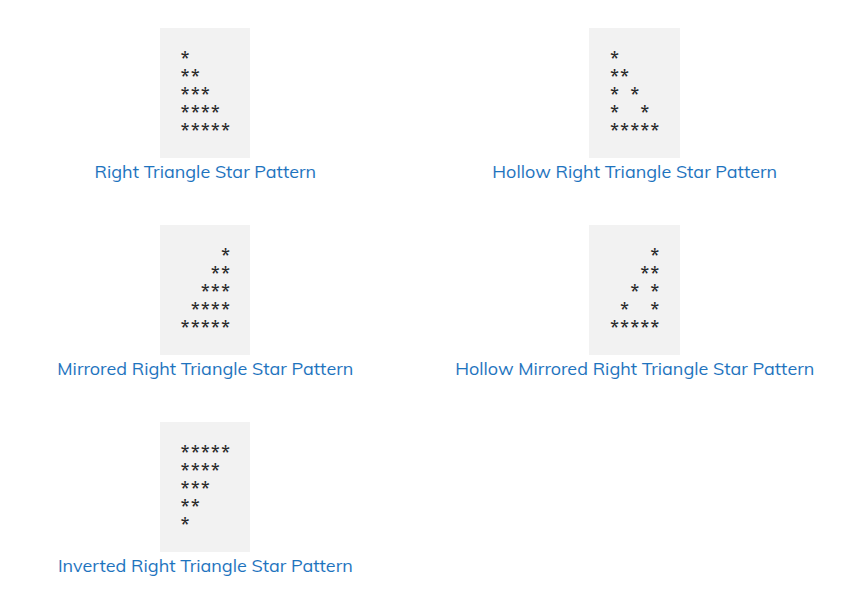
## Number system and conversion:

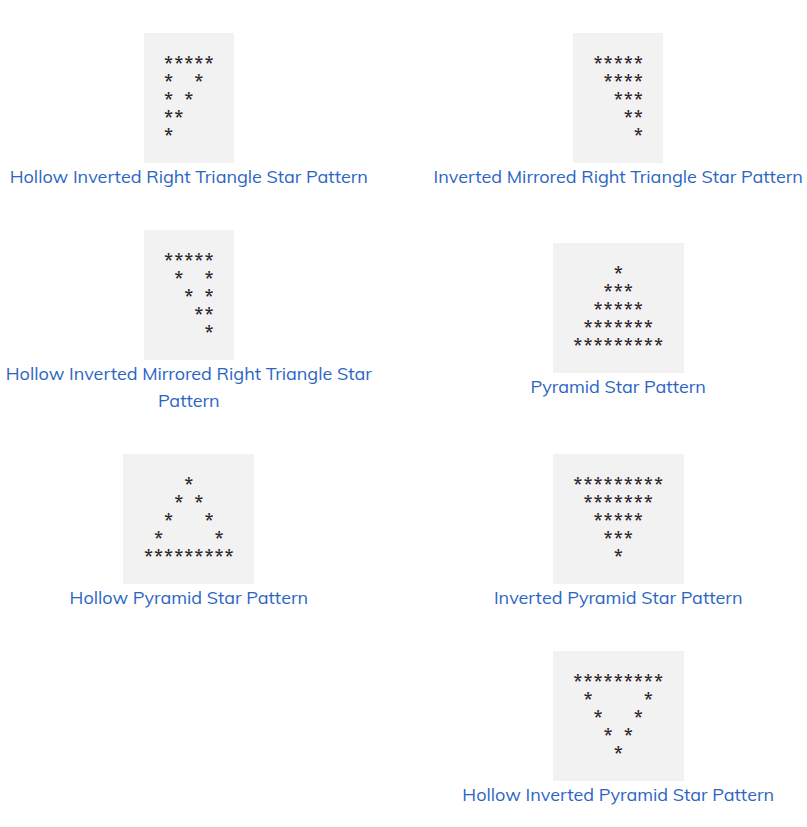
[Write a C program to print all natural numbers from 1 to n.](https://codeforwin.org/2015/06/c-program-to-print-natural-numbers-from-1-to-n.html) – using [while loop](https://codeforwin.org/2015/06/c-program-to-print-numbers-from-1-to-n-using-while-loop.html)

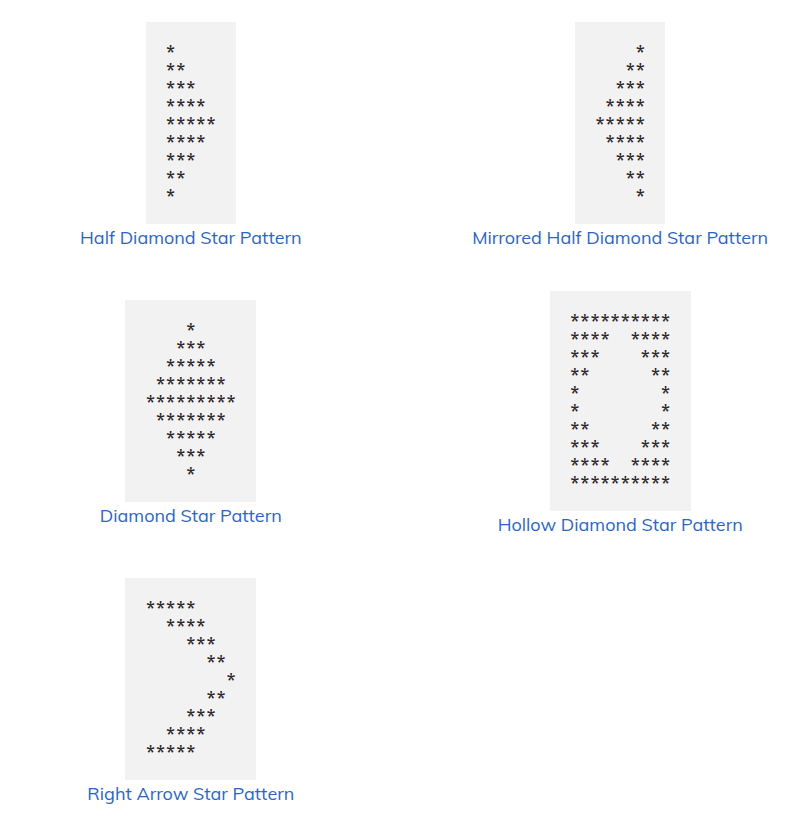
1. [Write a C program to print all natural numbers in reverse (from n to 1)](https://codeforwin.org/2015/07/c-program-to-print-all-natural-numbers-in-reverse.html). – using [while loop](https://codeforwin.org/2015/07/c-program-to-print-all-natural-numbers.html)
2. [Write a C program to print all alphabets from a to z.](https://codeforwin.org/2015/06/c-program-to-print-a-to-z.html) – using [while loop](https://codeforwin.org/2015/07/c-program-to-print-all-alphabets-using-while-loop.html)
3. [Write a C program to print all even numbers between 1 to 100.](https://codeforwin.org/2015/06/c-program-to-print-all-even-numbers-between-1-to-100.html) – using [while loop](https://codeforwin.org/2015/06/c-program-to-print-all-even-numbers-using-while-loop.html)
4. [Write a C program to print all odd number between 1 to 100.](https://codeforwin.org/2015/06/c-program-to-print-all-odd--numbers-between-1-to-100.html)
5. [Write a C program to find sum of all natural numbers between 1 to n.](https://codeforwin.org/2015/06/c-program-to-calculate-sum-of-first-n-natural-numbers.html)
6. [Write a C program to find sum of all even numbers between 1 to n](https://codeforwin.org/2015/06/c-program-to-print-sum-of-all-even-numbers-between-1-to-n.html).
7. [Write a C program to find sum of all odd numbers between 1 to n](https://codeforwin.org/2015/06/c-program-to-print-sum-of-all-odd-numbers-between-1-to-n.html).
8. [Write a C program to print multiplication table of any number](https://codeforwin.org/2015/06/c-program-to-print-table-of-any-number.html).
9. [Write a C program to count number of digits in a number](https://codeforwin.org/2016/10/c-program-to-count-number-of-digits-in-number.html).
10. [Write a C program to find first and last digit of a number](https://codeforwin.org/2015/06/how-to-find-first-and-last-digit-of-any-number.html).
11. [Write a C program to find sum of first and last digit of a number.](https://codeforwin.org/2015/06/c-program-to-find-sum-of-first-and-last-digit-of-number.html)
12. [Write a C program to swap first and last digits of a number](https://codeforwin.org/2016/01/c-program-to-swap-first-and-last-digit-of-number.html).
13. [Write a C program to calculate sum of digits of a number](https://codeforwin.org/2015/06/c-program-to-calculate-sum-of-digits.html).
14. [Write a C program to calculate product of digits of a number](https://codeforwin.org/2015/06/c-program-to-calculate-product-of-digits.html).
15. [Write a C program to enter a number and print its reverse](https://codeforwin.org/2015/06/c-program-to-find-reverse-of-any-number.html).
16. [Write a C program to check whether a number is palindrome or not.](https://codeforwin.org/2015/06/c-program-to-check-whether-number-is-palindrome-or-not.html)
17. [Write a C program to find frequency of each digit in a given integer](https://codeforwin.org/2016/10/c-program-to-count-frequency-of-digits-in-number.html).
18. [Write a C program to enter a number and print it in words.](https://codeforwin.org/2015/06/c-program-to-print-numbers-in-words.html)
19. [Write a C program to print all ASCII character with their values](https://codeforwin.org/2015/06/c-program-to-print-ascii-values-of-all-characters.html).
20. [Write a C program to find power of a number using for loop](https://codeforwin.org/2015/07/c-program-to-find-power-of-number-using-for-loop.html).
21. [Write a C program to find all factors of a number](https://codeforwin.org/2015/06/c-program-to-print-factors-of-any-number.html).
22. [Write a C program to calculate factorial of a number](https://codeforwin.org/2015/06/c-program-to-calculate-factorial-of-any-number.html).
23. [Write a C program to find HCF (GCD) of two numbers](https://codeforwin.org/2015/06/c-program-to-find-hcf-of-two-numbers.html).
24. [Write a C program to find LCM of two numbers](https://codeforwin.org/2015/06/c-program-to-find-lcm-of-two-numbers.html).
25. [Write a C program to check whether a number is Prime number or not.](https://codeforwin.org/2015/06/c-program-to-check-prime-number.html)
26. [Write a C program to print all Prime numbers between 1 to n.](https://codeforwin.org/2015/06/c-program-to-print-all-prime-numbers-between-1-to-n.html)
27. [Write a C program to find sum of all prime numbers between 1 to n](https://codeforwin.org/2015/06/c-program-to-find-sum-of-all-prime.html).
28. [Write a C program to find all prime factors of a number](https://codeforwin.org/2015/06/c-program-to-find-all-prime-factors-of-any-number.html).
29. [Write a C program to check whether a number is Armstrong number or not.](https://codeforwin.org/2015/06/c-program-to-check-armstrong-number.html)
30. [Write a C program to print all Armstrong numbers between 1 to n.](https://codeforwin.org/2015/06/c-program-to-print-first-n-armstrong-numbers.html)
31. [Write a C program to check whether a number is Perfect number or not](https://codeforwin.org/2015/06/c-program-to-check-perfect-number.html).
32. [Write a C program to print all Perfect numbers between 1 to n](https://codeforwin.org/2015/06/c-program-to-print-all-perfect-numbers-between-1-to-n.html).
33. [Write a C program to check whether a number is Strong number or not](https://codeforwin.org/2015/06/c-program-to-check-strong-number.html).
34. [Write a C program to print all Strong numbers between 1 to n](https://codeforwin.org/2015/06/c-program-to-print-all-strong-numbers.html).
35. [Write a C program to print Fibonacci series up to n terms](https://codeforwin.org/2015/06/fibonacci-series-in-c-program.html).
36. [Write a C program to find one’s complement of a binary number](https://codeforwin.org/2015/08/c-program-to-find-ones-complement-of-binary-number.html).
37. [Write a C program to find two’s complement of a binary number](https://codeforwin.org/2015/08/c-program-to-find-twos-complement-of-binary-number.html).
38. [Write a C program to convert Binary to Octal number system](https://codeforwin.org/2015/08/c-program-to-convert-binary-to-octal-number-system.html).
39. [Write a C program to convert Binary to Decimal number system](https://codeforwin.org/2015/08/c-program-to-convert-binary-to-decimal-number-system.html).
40. [Write a C program to convert Binary to Hexadecimal number system](https://codeforwin.org/2015/08/c-program-to-convert-binary-to-hexadecimal-number-system.html).
41. [Write a C program to convert Octal to Binary number system](https://codeforwin.org/2015/08/c-program-to-convert-octal-to-binary-number-system.html).
42. [Write a C program to convert Octal to Decimal number system](https://codeforwin.org/2015/08/c-program-to-convert-octal-to-decimal-number-system.html).
43. [Write a C program to convert Octal to Hexadecimal number system](https://codeforwin.org/2015/08/c-program-to-convert-octal-to-hexadecimal-number-system.html).
44. [Write a C program to convert Decimal to Binary number system](https://codeforwin.org/2015/08/c-program-to-convert-from-decimal-to-binary-number-system.html).
45. [Write a C program to convert Decimal to Octal number system](https://codeforwin.org/2015/08/c-program-to-convert-decimal-to-octal-number-system.html).
46. [Write a C program to convert Decimal to Hexadecimal number system](https://codeforwin.org/2015/08/c-program-to-convert-decimal-to-hexadecimal-number-system.html).
47. [Write a C program to convert Hexadecimal to Binary number system](https://codeforwin.org/2015/08/c-program-to-convert-hexadecimal-to-binary-number-system.html).
48. [Write a C program to convert Hexadecimal to Octal number system](https://codeforwin.org/2015/09/c-program-to-convert-hexadecimal-to-octal-number-system.html).
49. [Write a C program to convert Hexadecimal to Decimal number system](https://codeforwin.org/2015/09/c-program-to-convert-hexadecimal-to-decimal-number-system.html).
50. [Write a C program to print Pascal triangle upto n rows](https://codeforwin.org/2015/07/c-program-to-print-pascal-triangle.html).
51. [Star pattern programs – Write a C program to print the given star patterns.](https://codeforwin.org/2015/07/star-patterns-program-in-c.html)
52. [Number pattern programs – Write a C program to print the given number patterns](https://codeforwin.org/2016/06/number-pattern-programs-in-c.html).

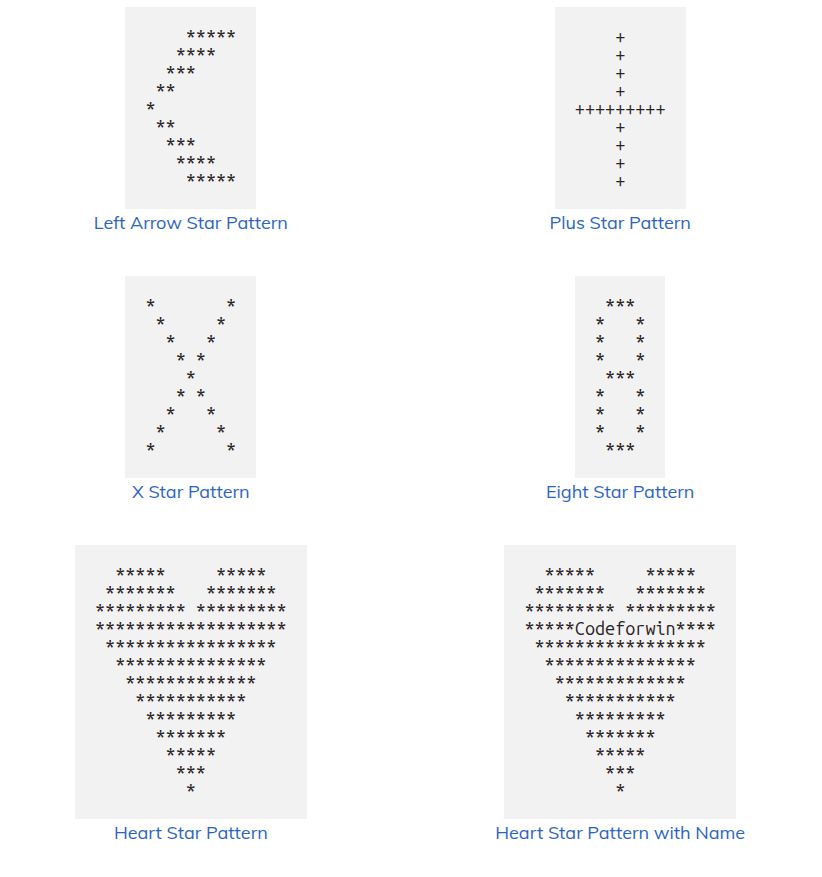
## Star patterns :











## Functions :

[Write a C program to find cube of any number using function](https://codeforwin.org/2016/02/c-program-to-find-cube-of-number-using-function.html).

1. [Write a C program to find diameter, circumference and area of circle using functions](https://codeforwin.org/2016/02/c-program-to-find-diameter-circumference-and-area-of-circle-using-function.html).
2. [Write a C program to find maximum and minimum between two numbers using functions](https://codeforwin.org/2016/02/c-program-to-find-maximum-and-minimum-using-functions.html).
3. [Write a C program to check whether a number is even or odd using functions](https://codeforwin.org/2016/02/c-program-to-check-even-or-odd-using-functions.html).
4. [Write a C program to check whether a number is prime, Armstrong or perfect number using functions](https://codeforwin.org/2016/02/c-program-to-check-prime-armstrong-perfect-number-using-functions.html).
5. [Write a C program to find all prime numbers between given interval using functions](https://codeforwin.org/2016/02/c-program-to-find-prime-numbers-between-two-intervals-using-function.html).
6. [Write a C program to print all strong numbers between given interval using functions](https://codeforwin.org/2016/03/c-program-to-find-all-strong-numbers-between-two-interval-using-function.html).
7. [Write a C program to print all Armstrong numbers between given interval using functions](https://codeforwin.org/2016/03/c-program-to-print-armstrong-numbers-between-1-to-n-using-function.html).
8. [Write a C program to print all perfect numbers between given interval using functions](https://codeforwin.org/2016/03/c-program-to-print-all-perfect-numbers-between-1-to-n-using-function.html).
9. [Write a C program to find power of any number using recursion](https://codeforwin.org/2016/02/c-program-to-find-power-of-any-number-using-recursion.html).
10. [Write a C program to print all natural numbers between 1 to n using recursion](https://codeforwin.org/2016/02/c-program-to-print-all-natural-numbers-in-given-range-using-recursion.html).
11. [Write a C program to print all even or odd numbers in given range using recursion](https://codeforwin.org/2016/03/c-program-to-print-even-odd-numbers-using-recursion.html).
12. [Write a C program to find sum of all natural numbers between 1 to n using recursion](https://codeforwin.org/2016/02/c-program-to-find-sum-of-natural-numbers-using-recursion.html).
13. [Write a C program to find sum of all even or odd numbers in given range using recursion](https://codeforwin.org/2016/03/c-program-to-find-sum-of-even-odd-number-using-recursion.html).
14. [Write a C program to find reverse of any number using recursion](https://codeforwin.org/2016/03/c-program-to-find-reverse-of-number-using-recursion.html).
15. [Write a C program to check whether a number is palindrome or not using recursion](https://codeforwin.org/2016/03/c-program-to-check-palindrome-number-using-recursion.html).
16. [Write a C program to find sum of digits of a given number using recursion](https://codeforwin.org/2016/03/c-program-to-calculate-sum-of-digits-using-recursion.html).
17. [Write a C program to find factorial of any number using recursion](https://codeforwin.org/2016/02/c-program-to-find-factorial-of-number-using-recursive-function.html).
18. [Write a C program to generate nth Fibonacci term using recursion](https://codeforwin.org/2016/02/c-program-to-generate-nth-fibonacci-series-using-recursion.html).
19. [Write a C program to find GCD (HCF) of two numbers using recursion](https://codeforwin.org/2016/03/c-program-to-find-gcd-of-two-numbers-using-recursion.html).
20. [Write a C program to find LCM of two numbers using recursion](https://codeforwin.org/2016/03/c-program-to-find-lcm-of-two-numbers-using-recursion.html).
21. [Write a C program to display all array elements using recursion](https://codeforwin.org/2016/03/c-program-to-print-elements-of-array-using-recursion.html).
22. [Write a C program to find sum of elements of array using recursion](https://codeforwin.org/2016/03/c-program-to-find-sum-of-array-elements-using-recursion.html).
23. [Write a C program to find maximum and minimum elements in array using recursion](https://codeforwin.org/2016/04/c-program-to-find-maximum-and-minimum-in-array-using-recursion.html).

## Recursion:

[Write a C program to find cube of any number using function](https://codeforwin.org/2016/02/c-program-to-find-cube-of-number-using-function.html).

1. [Write a C program to find diameter, circumference and area of circle using functions](https://codeforwin.org/2016/02/c-program-to-find-diameter-circumference-and-area-of-circle-using-function.html).
2. [Write a C program to find maximum and minimum between two numbers using functions](https://codeforwin.org/2016/02/c-program-to-find-maximum-and-minimum-using-functions.html).
3. [Write a C program to check whether a number is even or odd using functions](https://codeforwin.org/2016/02/c-program-to-check-even-or-odd-using-functions.html).
4. [Write a C program to check whether a number is prime, Armstrong or perfect number using functions](https://codeforwin.org/2016/02/c-program-to-check-prime-armstrong-perfect-number-using-functions.html).
5. [Write a C program to find all prime numbers between given interval using functions](https://codeforwin.org/2016/02/c-program-to-find-prime-numbers-between-two-intervals-using-function.html).
6. [Write a C program to print all strong numbers between given interval using functions](https://codeforwin.org/2016/03/c-program-to-find-all-strong-numbers-between-two-interval-using-function.html).
7. [Write a C program to print all Armstrong numbers between given interval using functions](https://codeforwin.org/2016/03/c-program-to-print-armstrong-numbers-between-1-to-n-using-function.html).
8. [Write a C program to print all perfect numbers between given interval using functions](https://codeforwin.org/2016/03/c-program-to-print-all-perfect-numbers-between-1-to-n-using-function.html).
9. [Write a C program to find power of any number using recursion](https://codeforwin.org/2016/02/c-program-to-find-power-of-any-number-using-recursion.html).
10. [Write a C program to print all natural numbers between 1 to n using recursion](https://codeforwin.org/2016/02/c-program-to-print-all-natural-numbers-in-given-range-using-recursion.html).
11. [Write a C program to print all even or odd numbers in given range using recursion](https://codeforwin.org/2016/03/c-program-to-print-even-odd-numbers-using-recursion.html).
12. [Write a C program to find sum of all natural numbers between 1 to n using recursion](https://codeforwin.org/2016/02/c-program-to-find-sum-of-natural-numbers-using-recursion.html).
13. [Write a C program to find sum of all even or odd numbers in given range using recursion](https://codeforwin.org/2016/03/c-program-to-find-sum-of-even-odd-number-using-recursion.html).
14. [Write a C program to find reverse of any number using recursion](https://codeforwin.org/2016/03/c-program-to-find-reverse-of-number-using-recursion.html).
15. [Write a C program to check whether a number is palindrome or not using recursion](https://codeforwin.org/2016/03/c-program-to-check-palindrome-number-using-recursion.html).
16. [Write a C program to find sum of digits of a given number using recursion](https://codeforwin.org/2016/03/c-program-to-calculate-sum-of-digits-using-recursion.html).
17. [Write a C program to find factorial of any number using recursion](https://codeforwin.org/2016/02/c-program-to-find-factorial-of-number-using-recursive-function.html).
18. [Write a C program to generate nth Fibonacci term using recursion](https://codeforwin.org/2016/02/c-program-to-generate-nth-fibonacci-series-using-recursion.html).
19. [Write a C program to find GCD (HCF) of two numbers using recursion](https://codeforwin.org/2016/03/c-program-to-find-gcd-of-two-numbers-using-recursion.html).
20. [Write a C program to find LCM of two numbers using recursion](https://codeforwin.org/2016/03/c-program-to-find-lcm-of-two-numbers-using-recursion.html).
21. [Write a C program to display all array elements using recursion](https://codeforwin.org/2016/03/c-program-to-print-elements-of-array-using-recursion.html).
22. [Write a C program to find sum of elements of array using recursion](https://codeforwin.org/2016/03/c-program-to-find-sum-of-array-elements-using-recursion.html).
23. [Write a C program to find maximum and minimum elements in array using recursion](https://codeforwin.org/2016/04/c-program-to-find-maximum-and-minimum-in-array-using-recursion.html).

## Array:

## List of array and matrix programming exercises

1. [Write a C program to read and print elements of array](https://codeforwin.org/2015/07/c-program-to-read-and-print-elements-in-array.html). – using [recursion](https://codeforwin.org/2016/03/c-program-to-print-elements-of-array-using-recursion.html).
2. [Write a C program to print all negative elements in an array](https://codeforwin.org/2015/07/c-program-to-print-all-negative-elements-in-array.html).
3. [Write a C program to find sum of all array elements](https://codeforwin.org/2015/07/c-program-to-find-sum-of-all-elements-of-array.html). – using [recursion](https://codeforwin.org/2016/03/c-program-to-find-sum-of-array-elements-using-recursion.html).
4. [Write a C program to find maximum and minimum element in an array](https://codeforwin.org/2015/07/c-program-to-find-maximum-and-minimum-element-in-array.html). – using [recursion](https://codeforwin.org/2016/04/c-program-to-find-maximum-and-minimum-in-array-using-recursion.html).
5. [Write a C program to find second largest element in an array](https://codeforwin.org/2015/11/c-program-to-find-second-largest-number-in-array.html).
6. [Write a C program to count total number of even and odd elements in an array](https://codeforwin.org/2016/09/c-program-to-count-even-odd-elements-in-array.html).
7. [Write a C program to count total number of negative elements in an array](https://codeforwin.org/2015/07/c-program-to-count-negative-elements-in-array.html).
8. [Write a C program to copy all elements from an array to another array](https://codeforwin.org/2015/07/c-program-to-copy-all-elements-of-array-to-another.html).
9. [Write a C program to insert an element in an array](https://codeforwin.org/2015/07/c-program-to-insert-element-in-array.html).
10. [Write a C program to delete an element from an array at specified position](https://codeforwin.org/2015/07/c-program-to-delete-element-from-array.html).
11. [Write a C program to count frequency of each element in an array](https://codeforwin.org/2015/07/c-program-to-find-frequency-of-each-element-in-array.html).
12. [Write a C program to print all unique elements in the array](https://codeforwin.org/2015/07/c-program-to-print-all-unique-element-in-array.html).
13. [Write a C program to count total number of duplicate elements in an array](https://codeforwin.org/2015/07/c-program-count-number-of-duplicate-element-in-array.html).
14. [Write a C program to delete all duplicate elements from an array](https://codeforwin.org/2015/07/c-program-to-delete-duplicate-elements-from-array.html).
15. [Write a C program to merge two array to third array](https://codeforwin.org/2015/07/c-program-to-merge-two-array.html).
16. [Write a C program to find reverse of an array](https://codeforwin.org/2015/07/c-program-to-find-reverse-of-array.html).
17. [Write a C program to put even and odd elements of array in two separate array](https://codeforwin.org/2016/01/c-program-to-put-even-and-odd-elements-in-two-separate-array.html).
18. [Write a C program to search an element in an array](https://codeforwin.org/2015/07/c-program-to-search-element-in-array.html).
19. [Write a C program to sort array elements in ascending or descending order](https://codeforwin.org/2015/07/c-program-to-sort-array-in-ascending-order.html).
20. [Write a C program to sort even and odd elements of array separately](https://codeforwin.org/2016/01/c-program-to-sort-even-odd-elements-of-array-separately.html).
21. [Write a C program to left rotate an array](https://codeforwin.org/2017/03/c-program-to-left-rotate-array.html).
22. [Write a C program to right rotate an array](https://codeforwin.org/2017/03/c-program-to-right-rotate-array.html).

## List of matrix programming exercises

1. [Write a C program to add two matrices](https://codeforwin.org/2015/07/c-program-to-add-two-matrices.html).
2. [Write a C program to subtract two matrices](https://codeforwin.org/2015/07/c-program-to-subtract-two-matrices.html).
3. [Write a C program to perform Scalar matrix multiplication](https://codeforwin.org/2015/07/scalar-multiplication-of-matrix-program-in-c.html).
4. [Write a C program to multiply two matrices](https://codeforwin.org/2015/07/c-program-to-multiply-two-matrices.html).
5. [Write a C program to check whether two matrices are equal or not](https://codeforwin.org/2015/07/c-program-to-check-two-matrices-are-equal-or-not.html).
6. [Write a C program to find sum of main diagonal elements of a matrix](https://codeforwin.org/2015/07/c-program-to-find-sum-of-main-diagonal-elements-of-matrix.html).
7. [Write a C program to find sum of minor diagonal elements of a matrix](https://codeforwin.org/2015/07/c-program-to-find-sum-of-minor-diagonal-element-of-matrix.html).
8. [Write a C program to find sum of each row and column of a matrix](https://codeforwin.org/2015/07/c-program-to-find-sum-of-row-and-column-of-matrix.html).
9. [Write a C program to interchange diagonals of a matrix](https://codeforwin.org/2015/07/c-program-to-interchange-diagonals-of-matrix.html).
10. [Write a C program to find upper triangular matrix](https://codeforwin.org/2015/08/c-program-to-find-upper-triangular-matrix.html).
11. [Write a C program to find lower triangular matrix](https://codeforwin.org/2015/08/c-program-to-find-lower-triangular-matrix.html).
12. [Write a C program to find sum of upper triangular matrix](https://codeforwin.org/2015/08/c-program-to-find-sum-of-upper-triangular-matrix.html).
13. [Write a C program to find sum of lower triangular matrix](https://codeforwin.org/2015/08/c-program-to-find-sum-of-lower-triangular-matrix.html).
14. [Write a C program to find transpose of a matrix](https://codeforwin.org/2015/08/c-program-to-find-transpose-of-matrix.html).
15. [Write a C program to find determinant of a matrix](https://codeforwin.org/2015/08/c-program-to-find-determinant-of-matrix.html).
16. [Write a C program to check Identity matrix](https://codeforwin.org/2015/08/c-program-to-check-identity-matrix.html).
17. [Write a C program to check Sparse matrix](https://codeforwin.org/2015/08/c-program-to-check-sparse-matrix.html).
18. [Write a C program to check Symmetric matrix](https://codeforwin.org/2015/08/c-program-to-check-symmetric-matrix.html).

## Matrix (2D array):

[Write a C program to read and print elements of array](https://codeforwin.org/2015/07/c-program-to-read-and-print-elements-in-array.html). – using [recursion](https://codeforwin.org/2016/03/c-program-to-print-elements-of-array-using-recursion.html).

1. [Write a C program to print all negative elements in an array](https://codeforwin.org/2015/07/c-program-to-print-all-negative-elements-in-array.html).
2. [Write a C program to find sum of all array elements](https://codeforwin.org/2015/07/c-program-to-find-sum-of-all-elements-of-array.html). – using [recursion](https://codeforwin.org/2016/03/c-program-to-find-sum-of-array-elements-using-recursion.html).
3. [Write a C program to find maximum and minimum element in an array](https://codeforwin.org/2015/07/c-program-to-find-maximum-and-minimum-element-in-array.html). – using [recursion](https://codeforwin.org/2016/04/c-program-to-find-maximum-and-minimum-in-array-using-recursion.html).
4. [Write a C program to find second largest element in an array](https://codeforwin.org/2015/11/c-program-to-find-second-largest-number-in-array.html).
5. [Write a C program to count total number of even and odd elements in an array](https://codeforwin.org/2016/09/c-program-to-count-even-odd-elements-in-array.html).
6. [Write a C program to count total number of negative elements in an array](https://codeforwin.org/2015/07/c-program-to-count-negative-elements-in-array.html).
7. [Write a C program to copy all elements from an array to another array](https://codeforwin.org/2015/07/c-program-to-copy-all-elements-of-array-to-another.html).
8. [Write a C program to insert an element in an array](https://codeforwin.org/2015/07/c-program-to-insert-element-in-array.html).
9. [Write a C program to delete an element from an array at specified position](https://codeforwin.org/2015/07/c-program-to-delete-element-from-array.html).
10. [Write a C program to count frequency of each element in an array](https://codeforwin.org/2015/07/c-program-to-find-frequency-of-each-element-in-array.html).
11. [Write a C program to print all unique elements in the array](https://codeforwin.org/2015/07/c-program-to-print-all-unique-element-in-array.html).
12. [Write a C program to count total number of duplicate elements in an array](https://codeforwin.org/2015/07/c-program-count-number-of-duplicate-element-in-array.html).
13. [Write a C program to delete all duplicate elements from an array](https://codeforwin.org/2015/07/c-program-to-delete-duplicate-elements-from-array.html).
14. [Write a C program to merge two array to third array](https://codeforwin.org/2015/07/c-program-to-merge-two-array.html).
15. [Write a C program to find reverse of an array](https://codeforwin.org/2015/07/c-program-to-find-reverse-of-array.html).
16. [Write a C program to put even and odd elements of array in two separate array](https://codeforwin.org/2016/01/c-program-to-put-even-and-odd-elements-in-two-separate-array.html).
17. [Write a C program to search an element in an array](https://codeforwin.org/2015/07/c-program-to-search-element-in-array.html).
18. [Write a C program to sort array elements in ascending or descending order](https://codeforwin.org/2015/07/c-program-to-sort-array-in-ascending-order.html).
19. [Write a C program to sort even and odd elements of array separately](https://codeforwin.org/2016/01/c-program-to-sort-even-odd-elements-of-array-separately.html).
20. [Write a C program to left rotate an array](https://codeforwin.org/2017/03/c-program-to-left-rotate-array.html).
21. [Write a C program to right rotate an array](https://codeforwin.org/2017/03/c-program-to-right-rotate-array.html).

## List of matrix programming exercises

1. [Write a C program to add two matrices](https://codeforwin.org/2015/07/c-program-to-add-two-matrices.html).
2. [Write a C program to subtract two matrices](https://codeforwin.org/2015/07/c-program-to-subtract-two-matrices.html).
3. [Write a C program to perform Scalar matrix multiplication](https://codeforwin.org/2015/07/scalar-multiplication-of-matrix-program-in-c.html).
4. [Write a C program to multiply two matrices](https://codeforwin.org/2015/07/c-program-to-multiply-two-matrices.html).
5. [Write a C program to check whether two matrices are equal or not](https://codeforwin.org/2015/07/c-program-to-check-two-matrices-are-equal-or-not.html).
6. [Write a C program to find sum of main diagonal elements of a matrix](https://codeforwin.org/2015/07/c-program-to-find-sum-of-main-diagonal-elements-of-matrix.html).
7. [Write a C program to find sum of minor diagonal elements of a matrix](https://codeforwin.org/2015/07/c-program-to-find-sum-of-minor-diagonal-element-of-matrix.html).
8. [Write a C program to find sum of each row and column of a matrix](https://codeforwin.org/2015/07/c-program-to-find-sum-of-row-and-column-of-matrix.html).
9. [Write a C program to interchange diagonals of a matrix](https://codeforwin.org/2015/07/c-program-to-interchange-diagonals-of-matrix.html).
10. [Write a C program to find upper triangular matrix](https://codeforwin.org/2015/08/c-program-to-find-upper-triangular-matrix.html).
11. [Write a C program to find lower triangular matrix](https://codeforwin.org/2015/08/c-program-to-find-lower-triangular-matrix.html).
12. [Write a C program to find sum of upper triangular matrix](https://codeforwin.org/2015/08/c-program-to-find-sum-of-upper-triangular-matrix.html).
13. [Write a C program to find sum of lower triangular matrix](https://codeforwin.org/2015/08/c-program-to-find-sum-of-lower-triangular-matrix.html).
14. [Write a C program to find transpose of a matrix](https://codeforwin.org/2015/08/c-program-to-find-transpose-of-matrix.html).
15. [Write a C program to find determinant of a matrix](https://codeforwin.org/2015/08/c-program-to-find-determinant-of-matrix.html).
16. [Write a C program to check Identity matrix](https://codeforwin.org/2015/08/c-program-to-check-identity-matrix.html).
17. [Write a C program to check Sparse matrix](https://codeforwin.org/2015/08/c-program-to-check-sparse-matrix.html).
18. [Write a C program to check Symmetric matrix](https://codeforwin.org/2015/08/c-program-to-check-symmetric-matrix.html).

## String :

[Write a C program to find length of a string](https://codeforwin.org/2015/04/c-program-to-calculate-length-of-string.html).

1. [Write a C program to copy one string to another string](https://codeforwin.org/2015/11/c-program-to-copy-one-string-to-another.html).
2. [Write a C program to concatenate two strings](https://codeforwin.org/2015/11/c-program-to-concatenate-two-strings.html).
3. [Write a C program to compare two strings](https://codeforwin.org/2015/11/c-program-to-compare-two-strings.html).
4. [Write a C program to convert lowercase string to uppercase](https://codeforwin.org/2015/04/c-program-convert-lower-case-string-to-upper.html).
5. [Write a C program to convert uppercase string to lowercase](https://codeforwin.org/2015/04/c-program-convert-upper-case-string-to-lower.html).
6. [Write a C program to toggle case of each character of a string](https://codeforwin.org/2016/04/c-program-to-toggle-case-of-each-character-in-string.html).
7. [Write a C program to find total number of alphabets, digits or special character in a string](https://codeforwin.org/2015/11/c-program-to-find-total-number-of-alphabets-digits-special-characters-in-string.html).
8. [Write a C program to count total number of vowels and consonants in a string](https://codeforwin.org/2015/04/c-program-to-calculate-total-number-of-vowels-and-consonants.html).
9. [Write a C program to count total number of words in a string](https://codeforwin.org/2015/04/c-program-to-calculate-total-number-of-words.html).
10. [Write a C program to find reverse of a string](https://codeforwin.org/2015/04/c-program-to-print-reverse-of-string.html).
11. [Write a C program to check whether a string is palindrome or not](https://codeforwin.org/2015/04/c-program-to-check-palindrome.html).
12. [Write a C program to reverse order of words in a given string](https://codeforwin.org/2016/10/c-program-to-reverse-order-of-words-in-string.html).
13. [Write a C program to find first occurrence of a character in a given string](https://codeforwin.org/2015/11/c-program-to-find-first-occurrence-of-character-in-string.html).
14. [Write a C program to find last occurrence of a character in a given string](https://codeforwin.org/2015/12/c-program-to-find-last-occurrence-of-character-in-string.html).
15. [Write a C program to search all occurrences of a character in given string](https://codeforwin.org/2016/04/c-program-to-search-all-occurrences-of-character-in-string.html).
16. [Write a C program to count occurrences of a character in given string](https://codeforwin.org/2016/04/c-program-to-count-all-occurrences-of-character-in-string.html).
17. [Write a C program to find highest frequency character in a string](https://codeforwin.org/2016/04/c-program-to-find-maximum-occurring-character-in-string.html).
18. [Write a C program to find lowest frequency character in a string](https://codeforwin.org/2016/04/c-program-to-find-minimum-occurring-character-in-string.html).
19. [Write a C program to count frequency of each character in a string](https://codeforwin.org/2015/04/c-program-to-calculate-the-frequency-of-each-character-in-a-line.html).
20. [Write a C program to remove first occurrence of a character from string](https://codeforwin.org/2015/12/c-program-to-remove-first-occurrence-of-character-from-string.html).
21. [Write a C program to remove last occurrence of a character from string](https://codeforwin.org/2015/12/c-program-to-remove-last-occurrence-of-character-from-string.html).
22. [Write a C program to remove all occurrences of a character from string](https://codeforwin.org/2015/12/c-program-to-remove-all-occurrences-of-character-from-string.html).
23. [Write a C program to remove all repeated characters from a given string](https://codeforwin.org/2016/04/c-program-to-remove-all-repeated-characters-in-string.html).
24. [Write a C program to replace first occurrence of a character with another in a string](https://codeforwin.org/2016/04/c-program-to-replace-first-occurrence-of-character-in-string.html).
25. [Write a C program to replace last occurrence of a character with another in a string](https://codeforwin.org/2016/04/c-program-to-replace-last-occurrence-of-character-in-string.html).
26. [Write a C program to replace all occurrences of a character with another in a string](https://codeforwin.org/2016/04/c-program-to-replace-all-occurrences-of-character-in-string.html).
27. [Write a C program to find first occurrence of a word in a given string](https://codeforwin.org/2015/11/c-program-to-find-first-occurrence-of-word-in-string.html).
28. [Write a C program to find last occurrence of a word in a given string](https://codeforwin.org/2016/04/c-program-to-find-last-occurrence-of-word-in-string.html).
29. [Write a C program to search all occurrences of a word in given string](https://codeforwin.org/2016/04/c-program-to-search-all-occurrences-of-word-in-string.html).
30. [Write a C program to count occurrences of a word in a given string](https://codeforwin.org/2016/04/c-program-to-count-occurrences-of-word-in-string.html).
31. [Write a C program to remove first occurrence of a word from string](https://codeforwin.org/2015/12/c-program-to-remove-first-occurrence-of-word-from-string.html).
32. [Write a C program to remove last occurrence of a word in given string](https://codeforwin.org/2016/04/c-program-to-remove-last-occurrence-of-word-in-string.html).
33. [Write a C program to remove all occurrence of a word in given string](https://codeforwin.org/2016/04/c-program-to-remove-all-occurrences-of-word-in-string.html).
34. [Write a C program to trim leading white space characters from given string](https://codeforwin.org/2016/04/c-program-to-trim-leading-white-spaces-in-string.html).
35. [Write a C program to trim trailing white space characters from given string](https://codeforwin.org/2016/04/c-program-to-trim-trailing-white-space-characters-in-string.html).
36. [Write a C program to trim both leading and trailing white space characters from given string](https://codeforwin.org/2016/04/c-program-to-trim-both-leading-and-trailing-white-spaces-in-string.html).
37. [Write a C program to remove all extra blank spaces from given string](https://codeforwin.org/2016/04/c-program-to-remove-spaces-blanks-from-string.html).

## Pointer:

[Write a C program to create, initialize and use pointers](https://codeforwin.org/2017/01/c-program-to-demonstrate-use-of-pointers.html).

1. [Write a C program to add two numbers using pointers](https://codeforwin.org/2017/01/c-program-to-add-two-numbers-using-pointers.html).
2. [Write a C program to swap two numbers using pointers](https://codeforwin.org/2017/01/c-program-to-swap-two-numbers-using-call-by-reference.html).
3. [Write a C program to input and print array elements using pointer](https://codeforwin.org/2017/11/c-program-input-print-array-elements-using-pointers.html).
4. [Write a C program to copy one array to another using pointers](https://codeforwin.org/2017/11/c-program-to-copy-one-array-to-another-using-pointers.html).
5. [Write a C program to swap two arrays using pointers](https://codeforwin.org/2017/11/c-program-to-swap-two-arrays-using-pointers.html).
6. [Write a C program to reverse an array using pointers](https://codeforwin.org/2017/11/c-program-reverse-array-using-pointers.html).
7. [Write a C program to search an element in array using pointers](https://codeforwin.org/2017/11/c-program-to-search-element-in-array-using-pointers.html).
8. [Write a C program to access two dimensional array using pointers](https://codeforwin.org/2017/12/access-two-dimensional-array-using-pointers-c-programming.html).
9. [Write a C program to add two matrix using pointers](https://codeforwin.org/2017/12/c-program-add-two-matrix-using-pointers.html).
10. [Write a C program to multiply two matrix using pointers](https://codeforwin.org/2017/12/c-program-multiply-two-matrix-using-pointers.html).
11. [Write a C program to find length of string using pointers](https://codeforwin.org/2015/04/c-program-to-calculate-length-of-string.html" \l "program-using-pointer).
12. [Write a C program to copy one string to another using pointers](https://codeforwin.org/2015/11/c-program-to-copy-one-string-to-another.html" \l "program-using-pointer).
13. [Write a C program to concatenate two strings using pointers](https://codeforwin.org/2015/11/c-program-to-concatenate-two-strings.html" \l "program-using-pointer).
14. [Write a C program to compare two strings using pointers](https://codeforwin.org/2015/11/c-program-to-compare-two-strings.html" \l "program-using-pointer).
15. [Write a C program to find reverse of a string using pointers](https://codeforwin.org/2015/04/c-program-to-print-reverse-of-string.html" \l "program-using-pointer).
16. [Write a C program to sort array using pointers](https://codeforwin.org/2017/12/c-program-sort-array-using-pointers.html).
17. [Write a C program to return multiple value from function using pointers](https://codeforwin.org/2017/12/return-multiple-value-from-function-c-programming.html).

## Files :

[Write a C program to create a file and write contents, save and close the file.](https://codeforwin.org/2018/01/c-program-create-file-write-contents.html)

1. [Write a C program to read file contents and display on console.](https://codeforwin.org/2018/01/c-program-read-and-display-file-contents.html)
2. [Write a C program to read numbers from a file and write even, odd and prime numbers to separate file.](https://codeforwin.org/2018/01/c-program-write-even-odd-prime-numbers-separate-file.html)
3. [Write a C program to append content to a file.](https://codeforwin.org/2018/02/c-program-append-data-file.html)
4. [Write a C program to compare two files.](https://codeforwin.org/2018/02/c-program-compare-two-files.html)
5. [Write a C program to copy contents from one file to another file.](https://codeforwin.org/2018/02/c-program-to-copy-file.html)
6. [Write a C program to merge two file to third file.](https://codeforwin.org/2018/02/c-program-merge-two-files.html)
7. [Write a C program to count characters, words and lines in a text file.](https://codeforwin.org/2018/02/c-program-count-characters-words-lines-in-file.html)
8. [Write a C program to remove a word from text file.](https://codeforwin.org/2018/02/c-program-remove-word-from-file.html)
9. [Write a C program to remove specific line from a text file.](https://codeforwin.org/2018/02/c-program-remove-specific-line-from-file.html)
10. [Write a C program to remove empty lines from a text file.](https://codeforwin.org/2018/02/c-program-remove-empty-lines-from-file.html)
11. [Write a C program to find occurrence of a word in a text file.](https://codeforwin.org/2018/02/c-program-find-occurrence-of-a-word-in-file.html)
12. [Write a C program to count occurrences of a word in a text file.](https://codeforwin.org/2018/02/c-program-count-occurrences-of-a-word-in-file.html)
13. [Write a C program to count occurrences of all words in a text file.](https://codeforwin.org/2018/02/c-program-count-occurrences-of-all-words-a-file.html)
14. [Write a C program to find and replace a word in a text file.](https://codeforwin.org/2018/02/c-program-find-and-replace-a-word-in-file.html)
15. [Write a C program to replace specific line in a text file.](https://codeforwin.org/2018/02/c-program-replace-specific-line-a-text-file.html)
16. [Write a C program to print source code of same program.](https://codeforwin.org/2018/03/c-program-print-source-code-of-itself-as-output.html)
17. [Write a C program to convert uppercase to lowercase character and vice versa in a text file.](https://codeforwin.org/2018/03/c-program-to-convert-uppercase-to-lowercase-in-file.html)
18. [Write a C program to find properties of a file using stat() function.](https://codeforwin.org/2018/03/c-program-find-file-properties-using-stat-function.html)
19. [Write a C program to check if a file or directory exists.](https://codeforwin.org/2018/03/c-program-check-file-or-directory-exists-not.html)
20. [Write a C program to rename a file using rename() function.](https://codeforwin.org/2018/03/c-program-rename-a-file-using-rename-function.html)
21. [Write a C program to list all files and sub-directories recursively.](https://codeforwin.org/2018/03/c-program-to-list-all-files-in-a-directory-recursively.html)

## Macros/Pre-processor directives:

[Create custom header file](https://codeforwin.org/2018/12/c-program-to-create-and-include-custom-header-file.html)

* [Define, undefine and redefine a macro](https://codeforwin.org/2018/12/c-program-to-define-undefine-redefine-macro.html)
* [Find sum using macro](https://codeforwin.org/2018/12/c-program-to-find-sum-of-two-numbers-using-macro.html)
* [Find square and cube using macro](https://codeforwin.org/2018/12/c-program-to-find-square-and-cube-using-macro.html)
* [Check even/odd using macro](https://codeforwin.org/2018/12/c-program-to-check-even-or-odd-using-macro.html)
* [Find maximum or minimum using macro](https://codeforwin.org/2018/12/c-program-to-find-maximum-or-minimum-using-macro.html)
* [Check lowercase/uppercase using macro](https://codeforwin.org/2018/12/c-program-to-check-lowercase-or-uppercase-using-macro.html)
* [Swap two numbers using macro](https://codeforwin.org/2019/01/swap-two-numbers-using-macros.html)
* [Multiline macros](https://codeforwin.org/2019/02/how-to-write-multiline-macro-c-language.html)