1) WAP to enter the five elements in array and show it

2) WAP to enter the five elements in array and calculate the sum of all elements

a[0]	a[1]	a[2]	a[3]	a[4]
10	20	30	40	50

Output : Sum of all array elements : 150

2) WAP to enter the five elements in array and find out the maximum and minimum elements

a[0]	**a[1]**	**a[2]**	**a[3]**	**a[4]**
5	**9**	**11**	**4**	**6**

Output like as

Maximum element in array : 11

Minimum element in array : 4

3)WAP to enter the five element and display in ascending order ?

a[0]	**a[1]**	**a[2]**	**a[3]**	**a[4]**
5	3	6	4	1

Output like as

1	**3**	**4**	**5**	**6**

4) WAP to insert the element on specified position in array ?

e.g. declare the array of size 6 and store 5 values in it and last block should be empty

a[0]	a[1]	a[2]	a[3]	a[4]	a[5]
10	20	30	40	50	

Enter the index on which value want to be insert

e.g. index = 2

Enter the value which want to store on index

Value = 100

When we insert the value on index then we need to shift the values from index to next index

e.g.

a[0]	a[1]	a[2]	a[3]	a[4]

10	20	100	30	40	50

5). Write a program to enter the 5 values in ascending order and store in array and find out the missing element from array?

a[0]	a[1]	a[2]	a[3]	a[4]
1	5	9	13	17

Missing elements : output should like as

2 3 4 6 7 8 10 11 12 14 15 16

6).WAP to enter the five element in array and reverse it ?

e.g.

a[0]	a[1]	a[2]	a[3]	a[4]
10	20	30	40	50

After Reverse Array should like as

a[0]	a[1]	a[2]	a[3]	a[4]
50	40	30	20	10

7) WAP to enter the 10 element array and print the occurrence of every element ?

a[0]	a[1]	a[2]	a[3]	a[4]	a[5]	a[6]	a[7]	a[8]	a[9]
10	20	30	10	20	50	30	10	30	10

Output :

Element count

10 ---------- 4

20 ---------- 2

30 ---------- 3

50 ---------- 1

8) . Write a program in C to merge two arrays of same size sorted in decending order.

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

9) . Write a program in C to separate odd and even integers in separate arrays ?

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

10). Write a program in C to delete an element at desired position from an array.

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

11). Write a program in C to find the second largest element in an array ?

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

12) . Write a program in C to find a pair with given sum in the array.

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

13) Write a program in C to find the majority element of an array ?

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.

14) Write a program in C to rotate an array by N positions ?

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

15) Write a program in C to find the ceiling in a sorted array?

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

16). Write a program in C to find the Floor and Ceil of the number 0 to 10 from a sroted array.

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

17) Write a program in C to find the smallest missing element from a sorted array?

Expected Output :
The given array is : 0 1 3 4 5 6 7 9
The missing smallest element is: 2

18) 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.

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

19) Write a program in C to find two elements whose sum is closest to zero

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]

20) Write a program in C to find a subarray with given sum from the given array?

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 }

21) 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 ?

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[]

22) Write a program in C to find the maximum circular subarray sum of a given array.

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

23) Write a program in C to move all zeroes to the end of a given array.

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

24) Write a program in C to count the number of inversion in a given array

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

25) Write a program in C to find out the maximum difference between any two elements such that larger element appears after the smaller number.

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

26) Write a program in C to count all distinct pairs for a specific difference

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

27) Write a program in C to find the maximum repeating number in a given array.

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

28)Write a program in C to print all possible combinations of r elements in a given array.

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

29) Write a program in C to find a pair with the given difference

Expected Output:
The given array is:
1 15 39 75 92
The given difference is: 53
The pair are: (39, 92)

30) Write a program in C to find the minimum distance between two numbers in a given array.

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

31) Write a program in C to rearrange positive and negative numbers alternatively in a given array ?

Output:

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

32)Write a program in C to find the maximum for each and every contigious subarray of size k from a given array.

Expected Output:
The given array is:
1 3 6 21 4 9 12 3 16 10
The length of each subarray is: 4
The contagious 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

33) 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.

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

34)Remove duplicates from unsorted array using Set data structure

Given an unsorted array of integers, print the array after removing the duplicate elements from it. We need to print distinct array elements according to their first occurrence.

Examples:

Input: arr[] = { 1, 2, 5, 1, 7, 2, 4, 2}

Output: 1 2 5 7 4

Explanation: {1, 2} appear more than one time.

Input: arr[] = { 3, 3, 4, 1, 1}

Output: 3 4 1

35) Write a program in C for a 2D array of size 3x3 and print the matrix ?

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

36)Write a program in C for addition of two Matrices of same size.

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

1 2
3 4
The Second matrix is :

5 6
7 8
The Addition of two matrix is :

6 8
10 12

37) Write a program in C for subtraction of two Matrices.

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

38)Write a program in C for multiplication of two square Matrices

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

39)Write a program in C to find transpose of a given matrix.

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

40)Write a program in C to find sum of right diagonals of a matrix

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

41)Write a program in C to find the sum of left diagonals of a matrix.

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

42)Write a program in C to find sum of rows an columns of a Matrix.

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

43) Write a program in C to print or display the lower triangular of a given matrix.

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

44)Write a program in C to print or display upper triangular matrix

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

45)Write a program in C to calculate determinant of a 3 x 3 matrix.

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

46)Write a program in C to accept a matrix and determine whether it is a sparse matrix.

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

47)Write a program in C to accept two matrices and check whether they are equal

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.

48)Write a program in C to check whether a given matrix is an identity matrix.

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.