**LAB REPORT (SE122)**

**ID:221-35-858**

1. Write a program in C to store elements in an [array](https://elearn.daffodilvarsity.edu.bd/mod/resource/view.php?id=948237) and print it

2. Write a program in C to read n number of values in an [array](https://elearn.daffodilvarsity.edu.bd/mod/resource/view.php?id=948237) and display it in reverse order.

3. Write a program in C to find the sum of all elements of the [array](https://elearn.daffodilvarsity.edu.bd/mod/resource/view.php?id=948237)

4.  Write a program in C to copy the elements of one [array](https://elearn.daffodilvarsity.edu.bd/mod/resource/view.php?id=948237) into another [array](https://elearn.daffodilvarsity.edu.bd/mod/resource/view.php?id=948237)

5.  Write a program in C to count a total number of duplicate elements in an [array](https://elearn.daffodilvarsity.edu.bd/mod/resource/view.php?id=948237).

6. Write a program in C to print all unique elements in an [array](https://elearn.daffodilvarsity.edu.bd/mod/resource/view.php?id=948237)

7. Write a program in C to merge two arrays of same size sorted in descending order

8. Write a program in C to find the maximum and minimum element in an [array](https://elearn.daffodilvarsity.edu.bd/mod/resource/view.php?id=948237).

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

10. Write a program in C to sort elements of [array](https://elearn.daffodilvarsity.edu.bd/mod/resource/view.php?id=948237) in ascending order.

11. Write a program in C to sort elements of the [array](https://elearn.daffodilvarsity.edu.bd/mod/resource/view.php?id=948237) in descending order.

12. Write a program in C to insert New value in the [array](https://elearn.daffodilvarsity.edu.bd/mod/resource/view.php?id=948237) (unsorted list).

13. Write a program in C to delete an element at desired position from an [array](https://elearn.daffodilvarsity.edu.bd/mod/resource/view.php?id=948237).

14. Write a program in C to find the second largest element in an [array](https://elearn.daffodilvarsity.edu.bd/mod/resource/view.php?id=948237).

15. Write a program in C to find the second smallest element in an [array](https://elearn.daffodilvarsity.edu.bd/mod/resource/view.php?id=948237)

16. Write a program in C for a 2D [array](https://elearn.daffodilvarsity.edu.bd/mod/resource/view.php?id=948237) of size 3x3 and print the matrix.

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

18. Write a program in C to display the n terms of odd natural number and their sum.

19. Write a program in C to display the n terms of harmonic series and their sum.

20. Write a C program to determine whether a given number is prime or not.

21. Write a program in C to find the number and sum of all integer between 100 and 200 which are divisible by 9.

22. Write a program in C to find the sum of the series 1 +11 + 111 + 1111 + ….. n terms

23.Write the code to find the factorial of that number.

24.Enter a six digit number and print the number in reverse order and find the sum of those number.

25.Write a menu driven program which has the following options.

          i)Factorial

          ii) Prime or not

          iii) odd

          iv) Even

          v) Exit

**Solve-1:**

**#include <stdio.h>**

**int main()**

**{**

**int n;**

**printf("Enter array size: ");**

**scanf("%d", &n);**

**int a[n];**

**printf("Enter array elements: ");**

**for (int i = 0; i < n; i++)**

**{**

**scanf("%d", &a[i]);**

**printf("%d ", a[i]);**

**}**

**return 0;**

**}**

**Solve-2:**

**#include <stdio.h>**

**int main()**

**{**

**int n;**

**printf("Enter array size: ");**

**scanf("%d", &n);**

**int a[n];**

**printf("Enter array elements: ");**

**for (int i = 0; i < n; i++) scanf("%d", &a[i]);**

**printf("Displaying array in reverse order: ");**

**for (int i = n - 1; i >= 0; i--) printf("%d ", a[i]);**

**return 0;**

**}**

**Solve-3:**

**#include <stdio.h>**

**int main()**

**{**

**int sum = 0, a[5] = { 45, 76, 99, 24, 86 };**

**printf("Array elements: ");**

**for (int i = 0; i < 5; i++)**

**{**

**printf("%d ", a[i]);**

**sum += a[i];**

**}**

**printf("\nSum of it's elements: %d\n", sum);**

**return 0;**

**}**

**Solve-4:**

**#include <stdio.h>**

**int main()**

**{**

**int A[5] = { 45, 76, 99, 24, 86}, B[5];**

**printf("After copying elements from array A to B.\n");**

**for (int i = 0; i < 5; i++)**

**{**

**B[i] = A[i];**

**printf("%d ", B[i]);**

**}**

**return 0;**

**}**

**Solve-5:**

**#include <stdio.h>**

**int main()**

**{**

**int n, c = 0;**

**printf("Enter array size: ");**

**scanf("%d", &n);**

**int a[n];**

**printf("Enter array elements: ");**

**for (int i = 0; i < n; i++) scanf("%d", &a[i]);**

**for (int i = 0; i < n - 1; i++)**

**{**

**for (int j = i + 1; j < n; j++)**

**{**

**if (a[i] == a[j])**

**{**

**c++;**

**break;**

**}**

**}**

**}**

**printf("No. of duplicate element %d\n", c);**

**return 0;**

**}**

**Solve-6:**

**#include <stdio.h>**

**int main()**

**{**

**int n;**

**printf("Enter array size: ");**

**scanf("%d", &n);**

**int a[n];**

**printf("Enter array elements: ");**

**for (int i = 0; i < n; i++) scanf("%d", &a[i]);**

**printf("Unique elements: ");**

**for (int i = 0; i < n; i++)**

**{**

**int c = 1;**

**for (int j = 0; j < n; j++)**

**{**

**if (a[i] == a[j] && i != j)**

**{**

**c = 0;**

**break;**

**}**

**}**

**if (c) printf("%d ", a[i]);**

**}**

**return 0;**

**}**

**Solve-7:**

**#include <stdio.h>**

**int main()**

**{**

**int temp, x[10], a[5] = { 7, 3, 6, 9, 3}, b[5] = { 11, 0, 2, 5, 8 };**

**for (int i = 0; i < 5; i++)**

**{**

**x[i] = a[i];**

**x[i + 5] = b[i];**

**}**

**for (int i = 0; i < 10; i++)**

**{**

**for (int j = i + 1; j < 10; j++)**

**{**

**if (x[i] < x[j])**

**{**

**temp = x[i];**

**x[i] = x[j];**

**x[j] = temp;**

**}**

**}**

**}**

**printf("After merging two arrays, displaying it in descending order: ");**

**for (int i = 0; i < 10; i++) printf("%d ", x[i]);**

**return 0;**

**}**

**Solve-8:**

**#include <stdio.h>**

**int main()**

**{**

**int a[5] = { 14, 5, 11, 9, 18 }, max = a[0], min = a[0];**

**for (int i = 0; i < 5; i++) printf("%d ", a[i]);**

**for (int i = 1; i < 5; i++)**

**{**

**if (max < a[i]) max = a[i];**

**if (min > a[i]) min = a[i];**

**}**

**printf("\nMaximum element: %d\n", max);**

**printf("Minimum element %d\n", min);**

**return 0;**

**}**

**Solve-9:**

**#include <stdio.h>**

**int main()**

**{**

**int x, n = 0, m = 0, odd[100], even[100];**

**while (scanf("%d", &x) && x != 0)**

**{**

**if (x % 2 == 0)**

**{**

**even[n] = x;**

**n++;**

**}**

**else**

**{**

**odd[m] = x;**

**m++;**

**}**

**printf("%d\n", x);**

**}**

**printf("Array of even elements: ");**

**for (int i = 0; i < n; i++) printf("%d ", even[i]);**

**printf("\nArray of odd elements: ");**

**for (int i = 0; i < m; i++) printf("%d ", odd[i]);**

**return 0;**

**}**

**Solve-10:**

**#include <stdio.h>**

**int main()**

**{**

**int n, temp;**

**printf("Enter array size: ");**

**scanf("%d", &n);**

**int a[n];**

**printf("Enter array elements: ");**

**for (int i = 0; i < n; i++) scanf("%d", &a[i]);**

**for (int i = 0; i < n - 1; i++)**

**{**

**for (int j = i + 1; j < n; j++)**

**{**

**if (a[i] > a[j])**

**{**

**temp = a[i];**

**a[i] = a[j];**

**a[j] = temp;**

**}**

**}**

**}**

**printf("Sorted array in ascending order: ");**

**for (int i = 0; i < 5; i++) printf("%d ", a[i]);**

**return 0;**

**}**

**Solve-11:**

**#include <stdio.h>**

**int main()**

**{**

**int n, temp;**

**printf("Enter array size: ");**

**scanf("%d", &n);**

**int a[n];**

**printf("Enter array elements: ");**

**for (int i = 0; i < n; i++) scanf("%d", &a[i]);**

**for (int i = 0; i < n - 1; i++)**

**{**

**for (int j = i + 1; j < n; j++)**

**{**

**if (a[i] < a[j])**

**{**

**temp = a[i];**

**a[i] = a[j];**

**a[j] = temp;**

**}**

**}**

**}**

**printf("Sorted array in descending order: ");**

**for (int i = 0; i < 5; i++) printf("%d ", a[i]);**

**return 0;**

**}**

**Solve-12:**

**#include <stdio.h>**

**int main()**

**{**

**int n, element, pos;**

**printf("Enter array size: ");**

**scanf("%d", &n);**

**int arr[n + 1];**

**printf("Enter array elements: ");**

**for (int i = 0; i < n; i++) scanf("%d", &arr[i]);**

**printf("Enter the position and the new element: ");**

**scanf("%d%d", &pos, &element);**

**for (int i = n; i > pos - 1; i--) arr[i] = arr[i - 1];**

**arr[pos - 1] = element;**

**printf("Resultant array after insertion: ");**

**for (int i = 0; i <= n; i++) printf("%d ", arr[i]);**

**return 0;**

**}**

**Solve-13:**

**#include <stdio.h>**

**int main()**

**{**

**int n, pos;**

**printf("Enter array size: ");**

**scanf("%d", &n);**

**int arr[n];**

**printf("Enter array elements: ");**

**for (int i = 0; i < n; i++) scanf("%d", &arr[i]);**

**printf("Enter the position where you wish to delete: ");**

**scanf("%d", &pos);**

**for (int i = pos - 1; i < n; i++) arr[i] = arr[i + 1];**

**printf("Resultant array after deletion: ");**

**for (int i = 0; i < n - 1; i++) printf("%d ", arr[i]);**

**return 0;**

**}**

**Solve-14:**

**#include <stdio.h>**

**int main()**

**{**

**int n, temp;**

**printf("Enter array size: ");**

**scanf("%d", &n);**

**int a[n];**

**printf("Enter array elements: ");**

**for (int i = 0; i < n; i++) scanf("%d", &a[i]);**

**for (int i = 0; i < n - 1; i++)**

**{**

**for (int j = i + 1; j < n; j++)**

**{**

**if (a[i] < a[j])**

**{**

**temp = a[i];**

**a[i] = a[j];**

**a[j] = temp;**

**}**

**}**

**}**

**for (int i = 1; i < 5; i++)**

**{**

**if (a[0] > a[i])**

**{**

**printf("Second largest element: %d\n", a[i]);**

**break;**

**}**

**}**

**return 0;**

**}**

**Solve-15:**

**#include <stdio.h>**

**int main()**

**{**

**int n, temp;**

**printf("Enter array size: ");**

**scanf("%d", &n);**

**int a[n];**

**printf("Enter array elements: ");**

**for (int i = 0; i < n; i++) scanf("%d", &a[i]);**

**for (int i = 0; i < n - 1; i++)**

**{**

**for (int j = i + 1; j < n; j++)**

**{**

**if (a[i] > a[j])**

**{**

**temp = a[i];**

**a[i] = a[j];**

**a[j] = temp;**

**}**

**}**

**}**

**for (int i = 1; i < 5; i++)**

**{**

**if (a[0] < a[i])**

**{**

**printf("Second smallest element: %d\n", a[i]);**

**break;**

**}**

**}**

**return 0;**

**}**

**Solve-16:**

**#include <stdio.h>**

**int main()**

**{**

**int a[3][3] = {{ 1, 2, 3 },{ 4, 5, 6 },{ 7, 8, 9 }};**

**for (int i = 0; i < 3; i++)**

**{**

**for (int j = 0; j < 3; j++) printf("%d ", a[i][j]);**

**printf("\n");**

**}**

**return 0;**

**}**

**Solve-17:**

**#include <stdio.h>**

**int main()**

**{**

**int a[3][3] = {{ 1, 2, 3 },{ 4, 5, 6 },{ 7, 8, 9 }};**

**int b[3][3] = {{ 9, 8, 7 },{ 6, 5, 4 },{ 3, 2, 1 }};**

**for (int i = 0; i < 3; i++)**

**{**

**for (int j = 0; j < 3; j++) printf("%d ", a[i][j] + b[i][j]);**

**printf("\n");**

**}**

**return 0;**

**}**

**Solve-18:**

**#include <stdio.h>**

**int main()**

**{**

**int n, sum = 0;**

**printf("Enter the range: ");**

**scanf("%d", &n);**

**printf("Displaying odd numbers in range(%d): ", n);**

**for (int i = 1; i <= n; i += 2)**

**{**

**sum += i;**

**printf("%d ", i);**

**}**

**printf("\nSum of odd numbers in range(%d): %d\n", n, sum);**

**return 0;**

**}**

**Solve-19:**

**#include <stdio.h>**

**int main()**

**{**

**int n;**

**float sum = 0;**

**printf("Enter the range: ");**

**scanf("%d", &n);**

**printf("Displaying harmonic series in range(%d): ", n);**

**for (int i = 1; i <= n; i++)**

**{**

**sum += 1.0 / i;**

**if (i == 1) printf("1 ");**

**else printf("1/%d ", i);**

**}**

**printf("\nSum of harmonic series in range(%d): %.1f\n", n, sum);**

**return 0;**

**}**

**Solve-20:**

**#include <stdio.h>**

**#include <math.h>**

**int main()**

**{**

**int n, flag = 1;**

**printf("Enter a positive integer: ");**

**scanf("%d", &n);**

**if (n % 2 == 0 && n != 2 || n == 1) flag = 0;**

**else**

**{**

**for (int i = 3; i <= sqrt(n); i += 2)**

**{**

**if (n % i == 0)**

**{**

**flag = 0;**

**break;**

**}**

**}**

**}**

**if (flag)**

**printf("%d is a prime number.", n);**

**else**

**printf("%d is not a prime number.", n);**

**return 0;**

**}**

**Solve-21:**

**#include <iostream>**

**int main()**

**{**

**int sum = 0;**

**printf("Integer between 100 and 200 which are divisible by 9.\n");**

**for (int i = 108; i < 200; i += 9)**

**{**

**sum += i;**

**printf("%d ", i);**

**}**

**printf("\nSum of them: %d\n", sum);**

**return 0;**

**}**

**Solve-22:**

**#include <iostream>**

**int main()**

**{**

**int n;**

**printf("Enter n term: ");**

**scanf("%d", &n);**

**printf("Sum of the series 1+11+111+..n terms: ");**

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

**return 0;**

**}**

**Solve-23:**

**#include <iostream>**

**int main()**

**{**

**int n, fact = 1;**

**printf("Enter a number: ");**

**scanf("%d", &n);**

**for (int i = 2; i <= n; i++) fact \*= i;**

**printf("Factorial of %d is: %d\n", n, fact);**

**return 0;**

**}**

**Solve-24:**

**#include <iostream>**

**int main()**

**{**

**int sum = 0;**

**char d[6];**

**printf("Enter a six digit number: ");**

**scanf("%s", &d);**

**printf("Displaying number in reverse order: ");**

**for (int i = 5; i >= 0; i--)**

**{**

**sum += d[i] - 48;**

**printf("%c", d[i]);**

**}**

**printf("\nSum of it's digit: %d\n", sum);**

**return 0;**

**}**

**Solve-25:**

**#include <stdio.h>**

**#include <math.h>**

**int main()**

**{**

**int opt, n, fact = 1, flag = 1;**

**printf("1. Factorial\n");**

**printf("2. Prime or not\n");**

**printf("3. Odd\n");**

**printf("4. Even\n");**

**printf("5. Exit\n");**

**printf("Enter any option: ");**

**scanf("%d", &opt);**

**switch (opt)**

**{**

**case 1:**

**printf("Enter a number: ");**

**scanf("%d", &n);**

**for (int i = 2; i <= n; i++) fact \*= i;**

**printf("Factorial of %d is: %d\n", n, fact);**

**break;**

**case 2:**

**printf("Enter a number: ");**

**scanf("%d", &n);**

**if (n % 2 == 0 && n != 2 || n == 1) flag = 0;**

**else**

**{**

**for (int i = 3; i <= sqrt(n); i += 2)**

**{**

**if (n % i == 0)**

**{**

**flag = 0;**

**break;**

**}**

**}**

**}**

**if (flag)**

**printf("%d is a prime number.", n);**

**else**

**printf("%d is not a prime number.", n);**

**break;**

**case 3:**

**printf("Enter a number: ");**

**scanf("%d", &n);**

**if (n % 2 == 1) printf("Yes, odd.\n");**

**else printf("Not, odd.\n");**

**break;**

**case 4:**

**printf("Enter a number: ");**

**scanf("%d", &n);**

**if (n % 2 == 0) printf("Yes, even.\n");**

**else printf("Not, even.\n");**

**break;**

**case 5:**

**printf("Exiting...\n");**

**break;**

**default:**

**printf("Invalid option.\n");**

**break;**

**}**

**return 0;**

**}**