Problem	SOLVE-1
| 1. Write a program in C to store elements in an array and print it | ```c
#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;
}
``` |
| 2. Write a program in C to read n number of values in an array and display it in reverse order. | ```c
#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;
}
``` |

| 3. Write a program in C to find the sum of all elements of the array | ```c
#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;
}
``` |
| 4. Write a program in C to copy the elements of one array into another array | ```c
#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;
}
``` |
| 5. Write a program in C to count a total number of duplicate elements in an array. | ```c
#include <stdio.h>
int main()
{
        int n, c = 0;
        printf("Enter array size: ");
        scanf("%d", &n);
        int a[n];
        printf("Enter array elements: ");
``` |

| | ```c
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;
}
``` |
| | ```c
#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;
}
``` |
| 7. Write a program in C to merge two arrays of same size sorted in descending order | ```
#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;
}
``` |

| 8. Write a program in C to find the maximum and minimum element in an array. | ```c
#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;
}
``` |
| 9. Write a program in C to separate odd and even integers in separate arrays | ```c
#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;

}
``` |
| 10. Write a program in C to sort elements of array in ascending order. | ```
#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;
}
``` |

| 11. Write a program in C to sort elements of the array in descending order. | ```c
#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;
}
``` |
| 12. Write a program in C to insert New value in the array (unsorted list ). | ```c
#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]);
``` |

| | ```c
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;
}
``` |
| 13. Write a program in C to delete an element at desired position from an array. | ```c
#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;
}
``` |
| 14. Write a program in C to find the second largest element in an array. | ```c
#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]);
``` |

| | ```c
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;
}
``` |
| 15. Write a program in C to find the second smallest element in an array | ```c
#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++)
``` |

```c
                {
                    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;
        }
```

| 16. Write a program in C for a 2D array of size 3x3 and print the matrix. | ```c
#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;
}
``` |

| 17. Write a program in C for addition of two Matrices of same size. | ```c
#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;
}
``` |
| 18. Write a program in C to display the n terms of odd natural numbers and their sum. | ```c
#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;
}
``` |

| 19. Write a program in C to display the n terms of harmonic series and their sum. | ```c
#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;
}
``` |
| 20. Write a C program to determine whether a given number is prime or not. | ```c
#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;
``` |

| | ```c
                    }
                }
            }
            if (flag)
                printf("%d is a prime number.", n);
            else
                printf("%d is not a prime number.", n);
            return 0;
}
``` |
| 21. Write a program in C to find the number and sum of all integers between 100 and 200 which are divisible by 9. | ```c
#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;
}
``` |
| 22. Write a program in C to find the sum of the series 1 +11 + 111 + 1111 + .. n terms | ```c
#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;
}
``` |

23.Write the code to find the factorial of that number.	```cpp
	#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;
	}
	``

24.Enter a six digit number and print the number in reverse order and find the sum of those numbers.	```cpp
	#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;
	}
	``

25.Write a menu driven program which has the following options.
 	
I)Factorial
 	
ii) Prime or not
	``cpp
	#include <stdio.h>
	#include <math.h>
	int main()
	{
	        int opt, n, fact = 1, flag = 1;
	        printf("1. Factorial\n");
	``

```c
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);
```

```c
                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;
}
```