Chapter - 5 : Array

Program 1 : Write a program to read two matrix (2D Array) and print the sum of corresponding values of the matrix.

```
#include<stdio.h>
#include<conio.h>

void main()
{
    int m, n, c, d, first[10][10], second[10][10], sum[10][10];

    clrscr();
    printf("Enter the number of rows and columns of Array(2D)\n");
    scanf("%d%d", &m, &n);

    printf("Enter the elements of first Array\n");
    for (c = 0; c < m; c++)
        for (d = 0; d < n; d++)
            scanf("%d", &first[c][d]);

    printf("Enter the elements of second Array\n");
    for (c = 0; c < m; c++)
        for (d = 0 ; d < n; d++)
            scanf("%d", &second[c][d]);

    printf("Sum of Arrays:-\n");
    for (c = 0; c < m; c++)
    {
       for (d = 0 ; d < n; d++)
            {
              sum[c][d] = first[c][d] + second[c][d];
              printf("%d\t", sum[c][d]);
            }
        printf("\n");
    }

    getch();
}
```

Program 2 : Write a program to read 3 dimensional integer array and print the values.

```
#include <stdio.h>

void  main()
{
        int test[2][3][2];

        printf("Enter 12 values: \n");

        for (int i = 0; i < 2; ++i)
        {
                for (int j = 0; j < 3; ++j)
                {
                        for (int k = 0; k < 2; ++k)
                        {
                          scanf("%d", &test[i][j][k]);
                        }
                }
        }

 // Printing values with proper index.

        printf("\nDisplaying values:\n");
        for (int i = 0; i < 2; ++i)
        {
                for (int j = 0; j < 3; ++j)
                {
                        for (int k = 0; k < 2; ++k)
                        {
                          printf("test[%d][%d][%d] = %d\n", i, j, k, test[i][j][k]);
                        }
                }
        }

}
```

Program 3 : Write a program to sort the integer array

```
#include<stdio.h>
void main ()
{ int i, j,temp;
   int a[10] = { 10, 9, 7, 101, 23, 44, 12, 78, 34, 23};

        for(i = 0; i<10; i++)
            {
                for(j = i+1; j<10; j++)
                {
                    if(a[j] > a[i])
                    {
                       temp = a[i];
                       a[i] = a[j];
                       a[j] = temp;
                    }
                }
            }

        printf("Printing Sorted Element List ...\n");
          for(i = 0; i<10; i++)
          {
                printf("%d\n",a[i]);
          }
  }
```

Program 4 : Write a program to count the frequency of a character.

```
#include <stdio.h>
void  main()
 {
        char str[1000], ch;
        int count = 0;

        printf("Enter a string: ");
        fgets(str, sizeof(str), stdin);

        printf("Enter a character to find its frequency: ");
        scanf("%c", &ch);

        for (int i = 0; str[i] != '\0'; ++i) {
           if (ch == str[i])
              ++count;
        }
        printf("Frequency of %c = %d", ch, count);
}
```

Program 5 : Write a program to count the frequency of a character.

```
#include <stdio.h>
int main() {
   char line[150];
   int vowels, consonant, digit, space;

   vowels = consonant = digit = space = 0;

   printf("Enter a line of string: ");
   fgets(line, sizeof(line), stdin);

   for (int i = 0; line[i] != '\0'; ++i) {
      if (line[i] == 'a' || line[i] == 'e' || line[i] == 'i' ||
         line[i] == 'o' || line[i] == 'u' || line[i] == 'A' ||
         line[i] == 'E' || line[i] == 'I' || line[i] == 'O' ||
         line[i] == 'U') {
         ++vowels;
      } else if ((line[i] >= 'a' && line[i] <= 'z') || (line[i] >= 'A' && line[i] <= 'Z')) {
         ++consonant;
      } else if (line[i] >= '0' && line[i] <= '9') {
         ++digit;
      } else if (line[i] == ' ') {
         ++space;
      }
   }

   printf("Vowels: %d", vowels);
   printf("\nConsonants: %d", consonant);
   printf("\nDigits: %d", digit);
   printf("\nWhite spaces: %d", space);
   return 0;
}
```

Program 6 : Write a program to copy one string to another .

```
#include <stdio.h>
void main() {
   char s1[100], s2[100], i;
   printf("Enter string s1: ");
   fgets(s1, sizeof(s1), stdin);

   for (i = 0; s1[i] != '\0'; ++i) {
      s2[i] = s1[i];
   }
   s2[i] = '\0';
   printf("String s2: %s", s2);
}
```

Program 7 : Write a program to concatenate one string to another .

```
#include <stdio.h>
void main()
{
        char s1[100] = "programming ", s2[] = "is awesome";
        int i, j;

        // length of s1 is stored in i
        for (i = 0; s1[i] != '\0'; ++i) {
           printf("i = %d\n", i);
        }

        // concatenating each character of s2 to s1
        for (j = 0; s2[j] != '\0'; ++j, ++i) {
           s1[i] = s2[j];
        }

        // terminating s1 string
        s1[i] = '\0';

        printf("After concatenation: ");
        puts(s1);
}
```