UITS

UNIVERSITY OF INFORMATION TECHNOLOGY & SCIENCES

Department of Computer Science & Engineering

Course Code- CSE 104

Course Title- Introduction to Programming Language Lab.

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Section- 2C.

Subject :Array

1. Write a C program to store elements in an array and print it.

```
#include<stdio.h>
int main(){
    int arrdata[5];
    int i;
    printf("\n\n reading and printing of elemnts:\n");
    printf("Enter the elements of the array:\n");
    for(i=0;i<5;i++)
    {
        printf("element =%d:",i);
        scanf("%d",&arrdata[i]);
    }
    printf("\n the list of element in the array are:");
    for(i=0;i<5;i++)
    {
        printf("%d",arrdata[i]);
    }
    return 0;
}
```

Output

```
/tmp/wI3IMxohPO.o
reading and printing of elemnts:
Enter the elements of the array:
element =0:6
element =1:5
element =2:3
element =3:4
element =4:2
the list of element in the array are:65342
```

2. Write a C program that reads a number of values in an array and displays it in reverse order.

```
#include<stdio.h>
void main(){
    int i,n,a[5];
    printf("\n\n read number of values:\n");
    printf("input the number of elementsin the array:");
    scanf("%d",&n);
    printf("input %d number of elements in the array:\n",n);
    for(i=0;i<n;i++)
    {
        printf("element =%d:",i);
        scanf("%d",&a[i]);
    }
    printf("\n the values into thearnay are:\n");
    {
        printf("%5d",a[i]);
    }
printf("\n\n the values stone into the array in revers:\n");
 for(i=0;i>=0;i--)
 {
     printf("%5d",a[i]);
}
printf("\n\n");
}
```

Output

```
/tmp/wI3IMxohPO.o
read number of values:
input the number of elementsin the array:5
input 5 number of elements in the array:
element =0:6
element =1:3
element =2:2
element =3:5
element =4:4
the values into thearnay are:
32766

 the values stone into the array in revers:
    6
```

3. Write a C program to find the sum of all elements of the array (1D).

```
#include<stdio.h>
int main(){
    int arr[]={1,2,4,5};
    int sum=0;
    int length=sizeof(arr)/sizeof(arr[0]);
    for(int i=0;i<length;i++){
    {
   scanf("%d",&a[i]);
    }
   sum=sum+arr[i];
    }
printf("sum of all the elements of array:%d\n",sum);

}
```

4. Write a C program to copy the elements of one array into another array.

```
#include <stdio.h>
void main()
{
  int arr1[100], arr2[100];
  int i, n;
printf("\n\nCopy the elements one array into another array:\n");
printf("Input the number of elements to be stored in the array :");
scanf("%d",&n);
printf("Input %d elements in the array :\n",n);
   for(i=0;i<n;i++){
                printf("element - %d : ",i);
               scanf("%d",&arr1[i]);
                          }
    for(i=0; i<n; i++)
    {
        arr2[i] = arr1[i];
    }
  printf("\nThe elements stored in the first array are :\n");
    for(i=0; i<n; i++)
    {
        printf("% 5d", arr1[i]);
    }
 printf("\n\nThe elements copied into the second array are :\n");
    for(i=0; i<n; i++)
    {
        printf("% 5d", arr2[i]);
    }
                printf("\n\n");
}
```

Output

```
/tmp/wI3IMxohPO.o
Copy the elements one array into another array:
Input the number of elements to be stored in the array :2
Input 2 elements in the array :
element - 0 : 15
element - 1 : 20
The elements stored in the first array are :
   15   20

The elements copied into the second array are :
   15   20
```

5. Write a C program to add two matrices.

```
#include <stdio.h>
#define SIZE 3
int main()
{
    int A[SIZE][SIZE];
    int B[SIZE][SIZE];
    int C[SIZE][SIZE];
    int row, col;
    printf("Enter elements in matrix A of size 3x3: \n");
    for(row=0; row<SIZE; row++)
    {
        for(col=0; col<SIZE; col++)
        {
            scanf("%d", &A[row][col]);
        }
    }
    printf("\nEnter elements in matrix B of size 3x3: \n");
    for(row=0; row<SIZE; row++)
    {
        for(col=0; col<SIZE; col++)
        {
            scanf("%d", &B[row][col]);
        }
    }
    for(row=0; row<SIZE; row++)
    {
        for(col=0; col<SIZE; col++)
        {
            C[row][col] = A[row][col] + B[row][col];
        }
   }
 printf("\nSum of matrices A+B = \n");
    for(row=0; row<SIZE; row++)
    {
        for(col=0; col<SIZE; col++)
        {
            printf("%d ", C[row][col]);
        }
        printf("\n");
    }

    return 0;
}
```

Output

```
/tmp/KwwlczY1zo.o
Enter elements in matrix A of size 3x3:
1 2 3
4 5 6
7 8 9
Enter elements in matrix B of size 3x3:
9 8 7
6 5 4
3 2 1
Sum of matrices A+B =
10 10 10
10 10 10
10 10 10
```

6. Write a C program to count a total number of duplicate elements in an array.

```
#include <stdio.h>
void main()
{
   int arr1[100];
        int arr2[100];
        int arr3[100];
   int n,mm=1,ctr=0;
   int i, j;
        printf("\n\nCount total number of duplicate elements in an array:\n");
   printf("Input the number of elements to be stored in the array :");
   scanf("%d",&n);
  printf("Input %d elements in the array :\n",n);
     for(i=0;i<n;i++)
      {
              printf("element - %d : ",i);
              scanf("%d",&arr1[i]);
            }
                  for(i=0;i<n; i++)
      {
                  arr2[i]=arr1[i];
                  arr3[i]=0;
      }
        for(i=0;i<n; i++)
      {
                  for(j=0;j<n;j++)
                        {
                              if(arr1[i]==arr2[j])
                              {
                              arr3[j]=mm;
                              mm++;
                              }
                        }
                        mm=1;
      }
  for(i=0; i<n; i++)
   {
     if(arr3[i]==2){ctr++;}
   }
 printf("The total number of duplicate elements found in the array is: %d \n", ctr);

            printf("\n\n");

}
```

```
Output                                                    Cle

/tmp/KwwlczY1zo.o
Count total number of duplicate elements in an array:
Input the number of elements to be stored in the array :3
Input 3 elements in the array :
element - 0 : 5
element - 1 : 1
element - 2 : 1
The total number of duplicate elements found in the array is: 1
```