Assignment-5

1. Write a C program to find sum of each row and columns of a matrix.

CODE

01_Sum_of_each_row_and_column_in_a_Matrix.c > main()

```c
#include<stdio.h>

int main()
{
    int i, j, rows, columns, a[10][10], Sum;
    printf("Enter Number of rows and columns:  ");
    scanf("%d %d", &i, &j);

    printf("\nEnter elements in matrix of size %dx%d :\n",i,j);
    for(rows = 0; rows < i; rows++)
    {
        for(columns = 0; columns < j; columns++)
        {
            scanf("%d", &a[rows][columns]);
        }
    }
    for(rows = 0; rows < i; rows++)
    {
        Sum = 0;
        for(columns = 0;columns < j; columns++)
        {
            Sum = Sum + a[rows][columns];
        }
        printf("\nSum of Elements of Row %d =  %d",rows+1, Sum );
    }
    for(rows = 0; rows < i; rows++)
    {
        Sum = 0;
        for(columns = 0;columns < j; columns++)
        {
            Sum = Sum + a[columns][rows];
        }
        printf("\nSum of Elements of Column %d =  %d",rows+1, Sum );
    }
    return 0;
}
```

OUTPUT

```
Enter Number of rows and columns:  3 3

Enter elements in matrix of size 3x3 :
1 2 3
4 5 6
7 8 9

Sum of Elements of Row 1 =  6
Sum of Elements of Row 2 =  15
Sum of Elements of Row 3 =  24
Sum of Elements of Column 1 =  12
Sum of Elements of Column 2 =  15
Sum of Elements of Column 3 =  18
PS E:\Code\CSE 4192\Assignment\05>
```

2.Write a C program to put even and odd elements of array in two separate array.

Input

Input size of the array: 10

Input elements in array: 0 1 2 3 4 5 6 7 8 9

Output

Output even elements in array: 0 2 4 6 8

Output odd elements in array: 1 3 5 7 9

CODE

02_odd_even_elements_separate_two_way.c > main()

```c
#include<stdio.h>
int main()
{
    int n, a[20];
    printf("Input size of the array: ");
    scanf("%d", &n);
    printf("Input elements in array: ");
    for(int i=0; i<n; i++)
    {
        scanf("%d",&a[i]);
    }
    printf("Output even elements in array: \n");
    for(int i=0; i<n; i++)
    {
      if(a[i]%2==0)
      printf("%d ", a[i]);
    }
    printf("\nOutput odd elements in array:\n");
    for(int i=0; i<n; i++)
    {
      if(a[i]%2!=0)
      printf("%d ", a[i]);
    }
    return 0;
}
```

OUTPUT

```
Input size of the array: 10
Input elements in array: 0 1 2 3 4 5 6 7 8 9
Output even elements in array:
0 2 4 6 8
Output odd elements in array:
1 3 5 7 9
PS E:\Code\CSE 4192\Assignment\05>
```

3.Write a C program to find the multiplication of two matrix.

CODE

C 03_Multiplication_of_two_matrix.c > main()

```c
#include <stdio.h>

int main()
{
  int m, n, p, q, c, d, k, sum = 0;
  int first[10][10], second[10][10], multiply[10][10];
  printf("Enter number of rows and columns of first matrix\n");
  scanf("%d%d", &m, &n);
  printf("Enter elements of first matrix\n");
  for (c = 0; c < m; c++)
    for (d = 0; d < n; d++)
      scanf("%d", &first[c][d]);
  printf("Enter number of rows and columns of second matrix\n");
  scanf("%d%d", &p, &q);
  if (n != p)
    printf("The multiplication isn't possible.\n");
  else {
    printf("Enter elements of second matrix\n");
    for (c = 0; c < p; c++)
      for (d = 0; d < q; d++)
        scanf("%d", &second[c][d]);
    for (c = 0; c < m; c++) {
      for (d = 0; d < q; d++) {
        for (k = 0; k < p; k++) {
          sum = sum + first[c][k]*second[k][d];   }
        multiply[c][d] = sum;
        sum = 0; }
    }
    printf("Product of the matrices:\n");
    for (c = 0; c < m; c++) {
      for (d = 0; d < q; d++)
        printf("%d\t", multiply[c][d]);
      printf("\n");  }
  }
  return 0;
}
```

OUTPUT

```
Enter number of rows and columns of first matrix
3 3
Enter elements of first matrix
1 2 3
4 5 6
7 8 9
Enter number of rows and columns of second matrix
3 3
Enter elements of second matrix
9 8 7
6 5 4
3 2 1
Product of the matrices:
30      24      18
84      69      54
138     114     90
PS E:\Code\CSE 4192\Assignment\05>
```

4. Write a C program to delete duplicate elements from array.

Input

Input array elements: 10, 20, 10, 1, 100, 10, 2, 1, 5, 10

Output

After removing all duplicate elements

Elements of array are: 10, 20, 1, 100, 2, 5

CODE

04_Duplicate_an_array.c > main()

```c
#include <stdio.h>
int main()
{
  int size, temp;
  printf("Enter size of array: ");
  scanf("%d",&size);
  int array[size];
  printf("\nInput %d arrray element: ",size);
  for(int i=0; i<size; i++){
    scanf("%d",&array[i]);
  }
  printf("Before removing all duplicate elements Elements of array are: ");
  for(int i=0; i<size; i++){
    printf("%d ",array[i]);
  }
  printf("\n");
  for(int i=0; i<size-1; i++){
    for(int j=i+1; j<size; j++){
      if(array[i] == array[j]){
        temp = array[j];
        array[j] = array[size-1];
        array[size-1] = temp;
        size--;
      }
    }
  }
  printf("After removing all duplicate elements Elements of array are: ");
  for(int i=0; i<size; i++){
    printf("%d ",array[i]);
  }
  return 0;
}
```

OUTPUT

```
Enter size of array: 10

Input 10 arrray element: 1 2 3 3 4 5 6 5 6 2
Before removing all duplicate elements Elements of array are: 1 2 3 3 4 5 6 5 6 2
After removing all duplicate elements Elements of array are: 1 2 3 6 4 5
PS E:\Code\CSE 4192\Assignment\05>
```

Lab-5

1. Write a C Program for Create a two matrix.

CODE

C 01_Create_Two_Dimensional_Matrix.c > main()

```c
#include<stdio.h>
int main()
{
    int mat_1[10][10],mat_2[10][10],mat_3[10][10],row,col,i,j;
    printf("Enter the row and coloum number of the two matrix :");
    scanf("%d    %d",&row,&col);
    printf("Enter the elements of the first matrix :\n");
    for(i=0; i<row; i++)
    {
        for(j=0; j<col; j++)
        {scanf("%d",&mat_1[i][j]);}
    }
    printf("Enter the elements of the second matrix :\n");
    for(i=0; i<row; i++)
    {
        for(j=0; j<col; j++)
        {scanf("%d",&mat_2[i][j]);}
    }
    printf("\tThe first matrix is :\n");
    for(i=0; i<row; i++)
    {
        for(j=0; j<col; j++)
        {printf("\t%d\t",mat_1[i][j]);}
        printf("\n");
    }
    printf("\tThe second matrix is :\n");
    for(i=0; i<row; i++)
    {
        for(j=0; j<col; j++)
        {printf("\t%d\t",mat_2[i][j]);}
        printf("\n");
    }
    for(i=0; i<row; i++)
    {
        for(j=0; j<col; j++)
        {mat_3[i][j]=mat_1[i][j]+mat_2[i][j];}
    }
    printf("\tSum of first and second matrix is :\n");
    for(i=0; i<row; i++)
    {
        for(j=0; j<col; j++)
        {printf("\t%d\t",mat_3[i][j]);}
        printf("\n");}
    }
```

OUTPUT

```
Enter the row and coloum number of the two matrix :2 2
Enter the elements of the first matrix :
1 2
3 4
Enter the elements of the second matrix :
4 5
6 7
        The first matrix is :
        1               2
        3               4
        The second matrix is :
        4               5
        6               7
        Sum of first and second matrix is :
        5               7
        9               11
PS E:\Code\CSE 4192\Class\Class-5>
```

2. Write program in c sum of two matrix.

CODE

C 02_Adding_Two_Matrix.c > main()

```c
#include <stdio.h>

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

    printf("Enter the number of rows and columns of matrix:\n");
    scanf("%d%d", &m, &n);
    printf("Enter the elements of first matrix:\n");
    for (c = 0; c < m; c++)
        for (d = 0; d < n; d++)
            scanf("%d", &first[c][d]);
    printf("Enter the elements of second matrix:\n");

    for (c = 0; c < m; c++)
        for (d = 0; d < n; d++)
            scanf("%d", &second[c][d]);
    printf("Sum of entered matrices:\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");
    }
    return 0;
}
```

OUTPUT

```
Enter the number of rows and columns of matrix:
3 3
Enter the elements of first matrix:
1 2 3
4 5 6
7 8 9
Enter the elements of second matrix:
9 8 7
6 5 4
3 2 1
Sum of entered matrices:
10      10      10
10      10      10
10      10      10
PS E:\Code\CSE 4192\Class\Class-5>
```

3. Write a program in C find transpose of a matrix.

CODE

C 03_Transpose_Matrix.c > main()

```c
#include<stdio.h>
void main()
{
    int matrix1[10][10], matrix2[10][10], row, column, i, j;
    printf("Enter The Size of Martrix : ");
    scanf("%d%d",&row, &column);
    printf("\nEnter The Elements of the Matrix : \n");
    for(i=0; i<row; i++)
    {
        for(j=0; j<column; j++)
        {
            scanf("%d",&matrix1[i][j]);
        } }
    printf("\tThe matrix is :\n");
    for(i=0; i<row; i++)
    {
        for(j=0; j<column; j++)
        {
            printf("\t%d\t",matrix1[i][j]);
        }
        printf("\n"); }
    for(i=0; i<column; i++)
    {
        for(j=0; j<row; j++)
        {
            matrix2[i][j]=matrix1[j][i];
        } }
    printf("\tThe Transpose Mtrix is :\n");
    for(i=0; i<column; i++)
    {
        for(j=0; j<row; j++)
        {
            printf("\t%d\t",matrix2[i][j]);
        }
        printf("\n");
    } }
```

OUTPUT

```
Enter The Size of Martrix : 3 3

Enter The Elements of the Matrix :
1 2 3 4 5 6 7 8 9
        The matrix is :
        1               2               3
        4               5               6
        7               8               9
        The Transpose Mtrix is :
        1               4               7
        2               5               8
        3               6               9
PS E:\Code\CSE 4192\Class\Class-5>
```