1.Develop a program to perform addition of two matrices.

```
#include<stdio.h>
int main()
{
  int r,c,i,j,a[10][10],b[10][10],sum[10][10];
  printf("Enter the number of rows: ");
  scanf("%d",&r);
  printf("Enter the number of columns: ");
  scanf("%d",&c);
  printf("\nEnter the elements of first matrix:\n");
  for(i=0;i<r;i++)
  for(j=0;j<c;j++)
  scanf("%d",&a[i][j]);
  printf("Enter the elements of second matrix:\n");
  for(i=0;i<r;i++)
  for(j=0;j<c;j++)
  scanf("%d",&b[i][j]);
  printf("Addition of matrices:\n");
  for(i=0;i<r;i++)
  {
     for(j=0;j<c;j++)
     {
        sum[i][j]=a[i][j]+b[i][j];
        printf("%4d",sum[i][j]);
     }
     printf("\n");
  }
  return 0;
}
```

```
Enter the number of rows: 2
Enter the number of columns: 2

Enter the elements of first matrix:
1  2
3  4
Enter the elements of second matrix:
5  6
7  8
Addition of matrices:
   6   8
  10  12
```

2. Program to read a 2D array of marks which stores marks of 4 students in 3 subjects and display the highest marks in each subject.

```
#include<stdio.h>
void main()
{
 int i,j,max_marks,marks[4][3];
 for(i=0;i<4;i++)
 {
  printf("Enter the marks obtained by student %d",i+1);
  for(j=0;j<3;j++)
  {
   printf("\nmarks[%d][%d]=",i,j);
   scanf("%d",&marks[i][j]);
  }
 }
 for(j=0;j<3;j++)
 {
  max_marks=marks[0][j];
  for(i=1;i<4;i++)
  {
   if(marks[i][j]>max_marks)
   max_marks=marks[i][j];
  }
  printf("\nThe highest marks obtained in the subject %d=%d\n",j+1,max_marks);
 }
}
```

```
Enter the marks obtained by student 1
marks[0][0]=10

marks[0][1]=20

marks[0][2]=30
Enter the marks obtained by student 2
marks[1][0]=40

marks[1][1]=50

marks[1][2]=60
Enter the marks obtained by student 3
marks[2][0]=20

marks[2][1]=50

marks[2][2]=70
Enter the marks obtained by student 4
marks[3][0]=50

marks[3][1]=20

marks[3][2]=80

The highest marks obtained in the subject 1=50

The highest marks obtained in the subject 2=50

The highest marks obtained in the subject 3=80
```

3.Develop a program to print the transpose of matrix.

```
#include<stdio.h>
void main()
{
 int r,c,i,j,a[10][10],transpose[10][10];
 printf("Enter the number of rows: ");
 scanf("%d",&r);
 printf("Enter the number of columns: ");
 scanf("%d",&c);
 printf("Enter the elements of matrix:\n");
 for(i=0;i<r;i++)
 for(j=0;j<c;j++)
 scanf("%d",&a[i][j]);
 for(i=0;i<r;i++)
 for(j=0;j<c;j++)
 transpose[j][i]=a[i][j];
 printf("Transpose of the matrix:\n");
 for(i=0;i<c;i++)
 {
    for(j=0;j<r;j++)
      printf("%4d",transpose[i][j]);
      printf("\n");
 }
```

```
Enter the number of rows: 2
Enter the number of columns: 3
Enter the elements of matrix:
1  2  3
4  5  6
Transpose of the matrix:
   1   4
   2   5
   3   6
```

}