7) c) Write a C Program to find whether given matrix is symmetric or not.

Program:

```
#include<conio.h>
#include<stdio.h>
void main()
{
 int a[10][10],i,j,m;
 clrscr();
 printf("Enter order of square matrix: ");
 scanf("%d",&m);
 for(i=0;i<m;i++)
 {
  for(j=0;j<m;j++)
  {
   printf("Enter value of a[%d][%d]: ",i,j);
   scanf("%d",&a[i][j]);
  }
 }
 for(i=0;i<m;i++)
 {
  for(j=0;j<m;j++)
  {
   if(a[i][j]!=a[j][i])
   {
    printf("\n\nMatrix is not symmetric");
    getch();
    exit(0);
   }
  }
 }
 printf("\n\nMatrix is symmetric");
 getch();
 }
```

Output:

```
Enter order of square matrix:2
Enter value of a[0][0]:12
Enter value of a[0][1]:34
Enter value of a[1][0]:34
Enter value of a[1][1]:54
Matrix is symmetric
```

Week : 9

9) a) Write a C program to perform addition of two matrices.

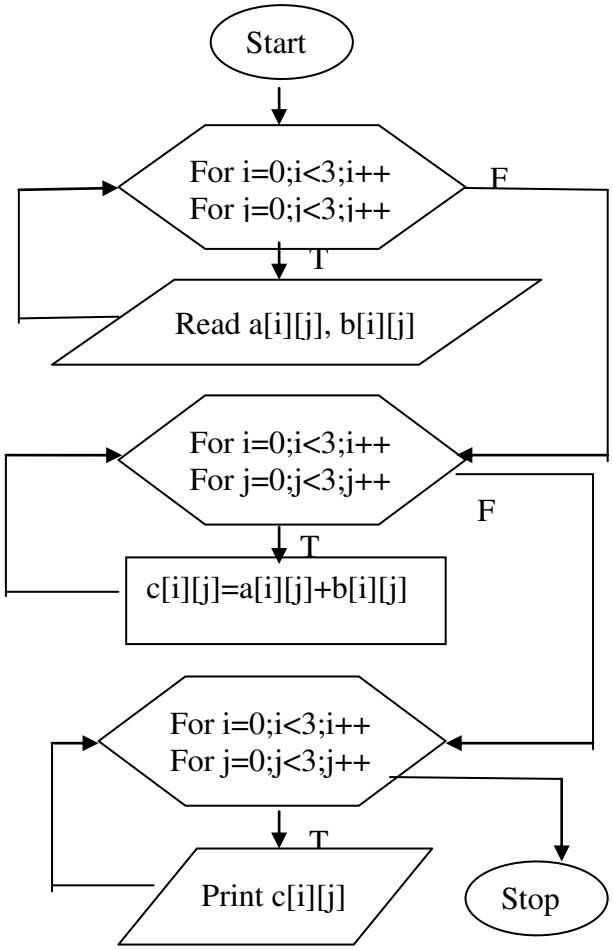
AIM:

To perform addition of two matrices.

ALGORITHM:

Step 1: Start
Step21: for i is 0 to 2 by step 1
for j is 0 to 2 by step 1
Step 3: Read a[i][j],b[i][j]
Step 4: goto step 2
Step 5: calculate c[i][j]=a[i][j]+b[i][j]
Step 6: goto step 2
Step 7: Print c[i][j]
Step 8: Stop

Flow Chart:



PROGRAM:

```
#include<stdio.h>
#include<conio.h>
void main()
{
int a[3][3],b[3][3],c[3][3];
int i,j;
        clrscr();
        printf("ENTER A MATRIX\n");
        for(i=0;i<3;i++)
        {
                for(j=0;j<3;j++)
                scanf("%d",&a[i][j]);
        }
        printf("ENTER B MATRIX\n");
        for(i=0;i<3;i++)
        {
                for(j=0;j<3;j++)
                scanf("%d",&b[i][j]);
        }
        for(i=0;i<3;i++)
        {
                for(j=0;j<3;j++)
                c[i][j]=a[i][j]+b[i][j];
        }
        printf(" After addition of two matrices :\n");
        for(i=0;i<3;i++)
        {
                for(j=0;j<3;j++)
                {
                        printf("%d\t",c[i][j]);
                  }
                printf("\n");
        }
        getch();
}
```

INPUT:

ENTER a MATRIX
1 2 3
4 5 6
7 8 9
ENTER b MATRIX
1 1 1
1 1 1
1 1 1

OUTPUT:

After addition of two matrices is..
2 3 4
5 6 7
8 9 10

Record at least 3 results

Signature of faculty with date

9) b)Write a C program that uses functions to perform Multiplication of Two Matrices.

AIM:

To perform multiplication of two matrices.

ALGORITHM:

Step 1: Start

Step21: for i is 0 to 2 by step 1

for j is 0 to 2 by step 1

Step 3: Read a[i][j],b[i][j]

Step 4: goto step 2

Step 5: calculate c[i][j]=c[i][j]+a[i][k]*b[k][j]

Step 6: goto step 2

Step 7: Print c[i][j]

Step 8: Stop

Program:

```
#include<stdio.h >
#include<conio.h>
int i,j,k;
void main()
{
 int a[10][10],b[10][10],c[10][10],m,n,p,q;
 void mul(int x[10][10],int y[10][10],int z[10][10],int m,int n,int p,int q);
 void read(int x[10][10],int m,int n);
 void display(int x[10][10], int m,int n);
 clrscr();
 printf("Enter the size of A Mtrix (Row and Col): \n");
 scanf("%d%d",&m,&n);
 printf("Enter the size of B Mtrix (Row and Col): \n");
 scanf("%d%d",&p,&q);
 if(n!=p)
 {
    printf("Multiplication Not Possible\n Please re-enter\n");
    printf("correct size and try again .....\n");
 }
 else
 {
   read(a,m,n);
   read(b,m,n);
   mul(a,b,c,m,n,p,q);
   printf("A Matrix is :\n");
   display(a,m,n);
```

```
    printf("B Matrix is :\n");

    display(b,m,n);
    printf("C Matrix is :\n");
    display(c,m,n);
  }
  getch();
}
  void mul(int x[10][10],int y[10][10],int z[10][10],int m,int n,int p,int q)
  {
   for (i=0;i<m;i++)
      for(j=0;j<q;j++)
      {
            z[i][j]=0;
            for(k=0;k<n;k++)
               z[i][j]+= x[i][k]*y[k][j];
      }

  }

  void read(int x[10][10], int m,int n)
  {
   printf("Enter Matrix Value Row by Row\n");
   for (i=0;i<m;i++)
      for(j=0;j<n;j++)
           scanf("%d",&x[i][j]);

  }

  void display(int x[10][10], int m,int n)
  {
    for (i=0;i<m;i++)
     {
          for(j=0;j<n;j++)
            printf("%5d",x[i][j]);
          printf("\n");
     }
    printf("\n");

  }
```

Input:

Enter the size of A Mtrix (Row and Col): 2 2

Enter the size of B Mtrix (Row and Col): 2 2

Enter Matrix Value Row by Row
1 0
2 6

Enter Matrix Value Row by Row

3 4
4 2

Output:

A matrix is:
1 0
2 6

B Matrix is:

3 4
4 2

C matrix is:

3 4
24 20

Record at least 3 results

Signature of faculty with date