EXPERIMENT-2

AIM: - A program written in c language for matrix multiplication fails "Introspect the causes for its failure and write down the possible reasons for its failure".

Objective: Understand the failures of matrix multiplication

SOURCE-CODE: -

```
#include<stdio.h>
#include<conio.h>
void main()
{
int a[10][10],b[10][10],c[10][10],i,j,k,m,n,p,q;
clrscr();
printf("Enter 1st matrix no.of rows & cols")
scanf("%d%d",&m,&n);
printf("Enter 2nd matrix no.of rows  & cols")
scanf("%d%d",&p,&q);
printf("\n enter the matrix elements");
for(i=0;i<m;i++);
{
for(j=0;j<n;j++);
{
scanf("%d",&a[i][j]);
}
}
printf("\n a matrix is\n");
for(i=0;i<m;i++)
{
for(j=0;j<n;j++)
{
```

```
printf("%d\t",a[i][j]);
}
printf("\n");
}
for(i=0;i<p;i++)
{
for(j=0;j<q;j++)
{
scanf("%d\t",&b[i][j]);
}
}
printf("\n b matrix is\n");
for(i=0;i<p;i++)
{
for(j=0;j<q;j++)
{
printf("%d\t",b[i][j]);
}
printf("\n");
}
for(i=0;i<m;i++)
{
for(j=0;j<q;j++)
{
c[i][j]=0;
for(k=0;k<n;k++)
{
c[i][j]=c[i][j]+a[i][k]*b[k][j];
```

```
}
}
}
for(i=0;i<m;i++)
{
for(j=0;j<q;j++)
{
printf("%d\t",c[i][j]);
}
printf("\n");
}
getch();
}
```

TEST CASES:

Test Case:1

Test Case Name: Matrix size equal and within the Range.

Input	Excepted Output	Actual Output	Remarks
m=3, n=3 r=3, q=3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	3 3 3 3 3 3 3 3 3	3 3 3 3 3 3 3 3 3	Success

Test Case:2

Test Case Name: Matrix size not equal and within the Range.

Input	Excepted Output	Actual Output	Remarks
m=2, n=2 r=3, q=3 1 1 1 1 1 1 1 1 1 1 1 1 1	Matrix Multiplication is not Possible.		

Test Case:3

Test Case Name: Matrix size equal and Values Out of the Range.

Input	Excepted Output	Actual Output	Remarks
m=2, n=2 r=2, q=2 343454 11111 123456 123456 100000 235679 456689 799842			