KIET Group of Institutions, Ghaziabad

Department of Computer Applications

(An ISO – 9001: 2015 Certified & 'A' Grade accredited Institution by NAAC)

Problem Solving Using C Lab

KCA 151: Session 2020-21

Experiment – No-9

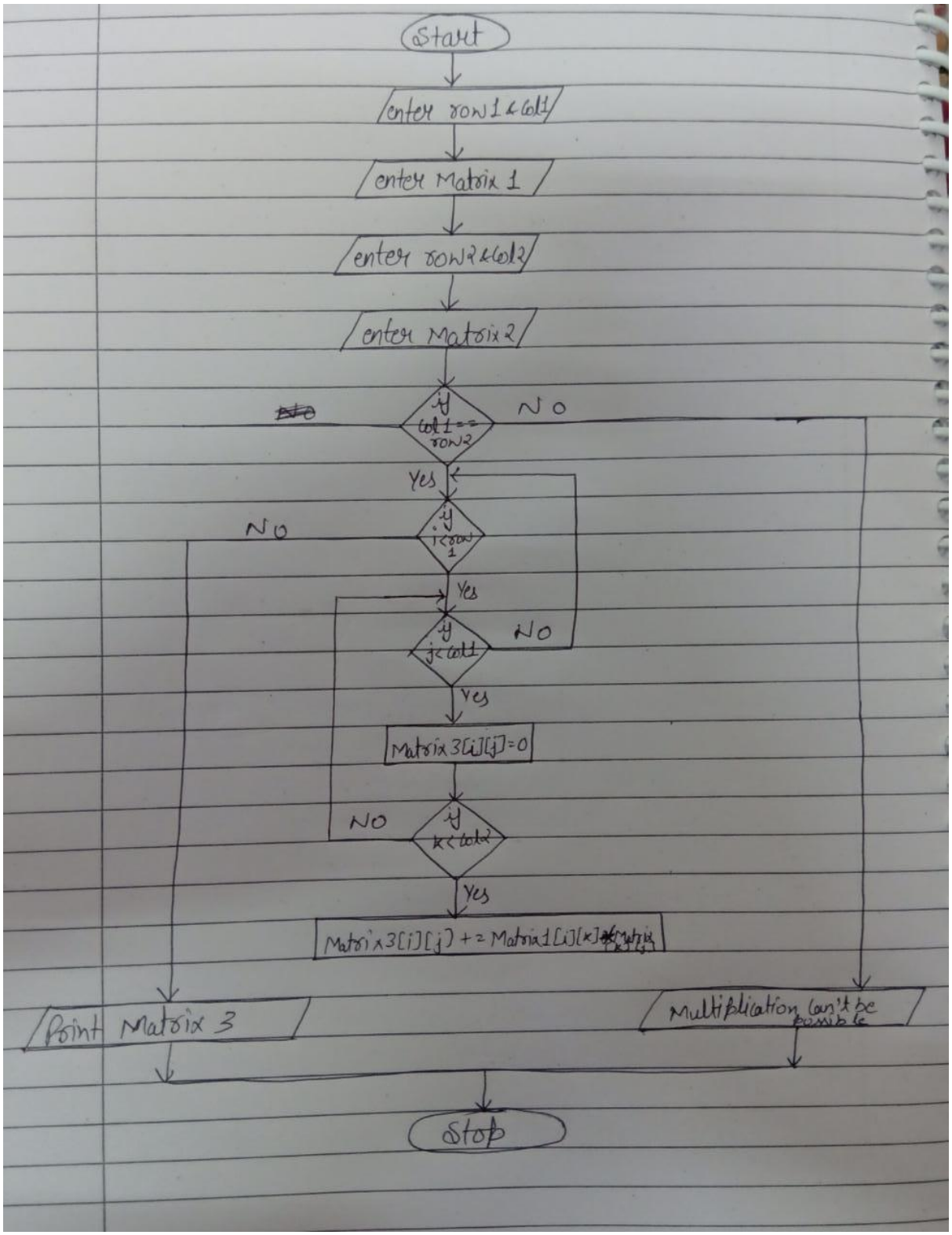
Objective: Program to implement various operation in two dimensional array		
Scheduled Date	**Compiled Date**	**Submission Date**
18-Jan-2021	**18-Jan-2021**	**31-Jan-2021**

Program : Write a program to multiply two matrix using functions

Algorithm :

Step 1: start
Step 2: enter the row 1 and col 1.
Step 3: enter the elements of the matrix 1.
Step 4: enter the row 2 and col 2.
Step 5: enter the elements of the matrix 2.
Step 6: print matrix 1.
Step 7: print matrix 2.
Step 8: if(col1 == row2)
Set a loop i up to row 1
Set an inner loop j up to col1
Matrix3[i][j]=0
Set another inner loop k up to col2
Matrix3[i][j] + = Matrix1[i][k]*Matrix2[k][j].
Print matrix 3.
Else
Print multiplication can't be possible .
Step 9 : stop

Flowchart Segment:


Start
enter row1 & col1
enter Matrix 1
enter row2 & col2
enter Matrix 2
if col1 == row2
NO
Yes
if i<row1
NO
Yes
if j<col1
NO
Yes
Matrix3[i][j]=0
if k<col2
NO
Yes
Matrix3[i][j] += Matrix1[i][k]
Print Matrix 3
Multiplication can't be possible
Stop

Program :

```
#include<stdio.h>
void inputmatrix(int [][10],int,int);
void outputmatrix(int [][10],int,int);
void multimatrix(int [][10],int [][10],int [][10],int,int,int);
void main(){
	int mat1[10][10],mat2[10][10],mat3[10][10],row1,col1,row2,col2;
	printf("enter the value of row and col for matrix 1...");
	scanf("%d %d",&row1,&col1);
	printf("enter the value of row and col for matrix 2...");
	scanf("%d %d",&row2,&col2);
	printf("enter the first matrix \n");
	inputmatrix(mat1,row1,col1);
	printf("enter the second matrix \n");
	inputmatrix(mat2,row2,col2);
	printf("matrix 1\n");
	outputmatrix(mat1,row1,col1);
	printf("matrix 2\n");
	outputmatrix(mat2,row2,col2);
	if(col1==row2){
		multimatrix(mat1,mat2,mat3,row1,col1,col2);
		printf("multiplication of matrix\n");
		outputmatrix(mat3,row1,col2);
	}
	else{
		printf("multiplication can't be possible \n");
	}

}
void inputmatrix(int x[][10],int r,int c){
	int i,j;
	for(i=0;i<r;i++){
		for(j=0;j<c;j++){
			printf("enter the value %d,%d ",i,j);
			scanf("%d",&x[i][j]);
		}
	}
}
void outputmatrix(int x[][10],int r,int c){
	int i,j;
	for(i=0;i<r;i++){
		for(j=0;j<c;j++){
			printf("%d ",x[i][j]);
		}
		printf("\n");
	}
}
```

```
void multimatrix(int x[][10],int y[][10],int z[][10],int r1,int c1,int c2){
	int i,j,k;
	for(i=0;i<r1;i++){
		for(j=0;j<c2;j++){
			z[i][j]=0;
			for(k=0;k<c1;k++){
				z[i][j] += x[i][k]*y[k][j];
			}
		}
	}
}
```

Output Screen