

Data Structures-csa0396

1. Write a C program to perform matrix multiplication.

Code:

```
#include<stdio.h>

int main(){
    int i,j,k;
    int r1,c1,r2,c2;

    printf("Enter Rowss and columns of Mat 1 : \n");
    scanf("%d %d", &r1, &c1);

    printf("Enter Rowss and columns of Mat 1 : \n");
    scanf("%d %d", &r2, &c2);

    if(c1 == r2){
        int a[r1][c1];
        int b[r2][c2];

        printf("Enter Elements of Mat1 : \n");
        for(i=0;i<r1;i++){
            for(j=0;j<c1;j++){
                scanf("%d", &a[i][j]);
            }
        }

        printf("Enter Elements of Mat2 : \n");
        for(i=0;i<r2;i++){
            for(j=0;j<c2;j++){
                scanf("%d", &b[i][j]);
            }
        }
    }
}
```

```
int c[c1][r2];
for(i=0;i<c1;i++){
for(j=0;j<r2;j++){
c[i][j]= 0;
for(k=0;k<r1;k++){
c[i][j]+= a[i][k]*b[k][j];
}
}
}
printf("Matrix 1 X Matrix 2 : \n");
for(i=0;i<r2;i++){
for(j=0;j<c2;j++){
printf("%d \t", c[i][j]);
}
printf("\n");
}
}
else{
printf("Matrix Multipliaction is Not Possible.");
}
return 0;
}
```

Output:

```
Enter Rows and columns of Mat 1 :  
2  
2  
Enter Rows and columns of Mat 1 :  
2  
2  
Enter Elements of Mat1 :  
2 3  
4 5  
Enter Elements of Mat2 :  
6 7  
8 9  
Matrix 1 X Matrix 2 :  
36    41  
64    73  
  
Process returned 0 (0x0)   execution time : 23.461 s  
Press any key to continue.
```