CSA-0317 DATA STRUCTURES

PROGRAM 1

```c
#include <stdio.h>
int main() {
    int a[10][10], b[10][10], c[10][10];
    int i, j, k, r1, c1, r2, c2;
    // Input dimensions
    printf("Enter rows and columns of first matrix: ");
    scanf("%d %d", &r1, &c1);
    printf("Enter rows and columns of second matrix: ");
    scanf("%d %d", &r2, &c2);
    // Check compatibility
    if (c1 != r2) {
        printf("Matrix multiplication not possible!\n");
        return 0;
    }
    // Input first matrix
    printf("Enter elements of first matrix:\n");
    for (i = 0; i < r1; i++)
        for (j = 0; j < c1; j++)
            scanf("%d", &a[i][j]);
    // Input second matrix
    printf("Enter elements of second matrix:\n");
    for (i = 0; i < r2; i++)
        for (j = 0; j < c2; j++)
            scanf("%d", &b[i][j]);
    // Multiply matrices
    for (i = 0; i < r1; i++) {
        for (j = 0; j < c2; j++) {
            c[i][j] = 0;
```

```c
        for (k = 0; k < c1; k++)

            c[i][j] += a[i][k] * b[k][j];

    }

}


    // Print result

    printf("Resultant Matrix:\n");

    for (i = 0; i < r1; i++) {

        for (j = 0; j < c2; j++)

            printf("%d ", c[i][j]);

        printf("\n");

    }


    return 0;

}
```

OUTPUT:

```
Enter rows and columns of first matrix: 2
    3
Enter rows and columns of second matrix:
    3 2
Enter elements of first matrix:
3 4 5
6 7 8
Enter elements of second matrix:
1 2
6 9
3 5
Resultant Matrix:
42 67
72 115


=== Code Execution Successful ===
```