

1. Write a C program to perform Matrix Multiplication.

```
#include <stdio.h>

int main() {
    int m, n, p, q;
    int i, j, k;
    printf("Enter rows and columns of first matrix: ");
    scanf("%d %d", &m, &n);
    printf("Enter rows and columns of second matrix: ");
    scanf("%d %d", &p, &q);
    if (n != p) {
        printf("Matrix multiplication not possible.\n");
        return 0;
    }
    int A[m][n], B[p][q], C[m][q];
    printf("Enter elements of first matrix:\n");
    for (i = 0; i < m; i++) {
        for (j = 0; j < n; j++) {
            scanf("%d", &A[i][j]);
        }
    }
    printf("Enter elements of second matrix:\n");
    for (i = 0; i < p; i++) {
        for (j = 0; j < q; j++) {
            scanf("%d", &B[i][j]);
        }
    }
    for (i = 0; i < m; i++) {
        for (j = 0; j < q; j++) {
            C[i][j] = 0;
        }
    }
}
```

```

}

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

    for (j = 0; j < q; j++) {

        for (k = 0; k < n; k++) {

            C[i][j] += A[i][k] * B[k][j];

        }

    }

}

printf("Resultant Matrix:\n");

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

    for (j = 0; j < q; j++) {

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

    }

    printf("\n");

}

return 0;

}

```

main.c	Output
<pre> 1 #include &lt;stdio.h&gt; 2 int main() { 3     int m, n, p, q; 4     int i, j, k; 5     printf("Enter rows and columns of first matrix: "); 6     scanf("%d %d", &amp;m, &amp;n); 7     printf("Enter rows and columns of second matrix: "); 8     scanf("%d %d", &amp;p, &amp;q); 9     if (n != p) { 10         printf("Matrix multiplication not possible.\n"); 11         return 0; 12     } 13     int A[m][n], B[p][q], C[m][q]; 14     printf("Enter elements of first matrix:\n"); 15     for (i = 0; i &lt; m; i++) { 16         for (j = 0; j &lt; n; j++) { 17             scanf("%d", &amp;A[i][j]); 18         } 19     } 20     printf("Enter elements of second matrix:\n"); 21     for (i = 0; i &lt; p; i++) { 22         for (j = 0; j &lt; q; j++) { 23             scanf("%d", &amp;B[i][j]); 24         } 25     } 26     for (i = 0; i &lt; m; i++) { 27         for (j = 0; j &lt; q; j++) { 28             C[i][j] = 0; 29         } 30     } </pre>	<pre> Enter rows and columns of first matrix: 3 3 Enter rows and columns of second matrix: 3 3 Enter elements of first matrix: 4 5 6 7 8 9 1 2 3 Enter elements of second matrix: 7 8 9 4 5 6 1 2 3 Resultant Matrix: 54 69 84 90 114 138 18 24 30 </pre>
<p>=== Code Execution Successful ===</p>	