

multiplicationMatrix.c

```
1 #include <stdio.h>
2
3 int main()
4 {
5     int A[50][50], B[50][50], C[50][50], i, j, m1, n1, m2, n2;
6
7     printf("\n\nMultiplication of two Matrices :\n");
8     printf("-----\n");
9     // for A matrix
10    printf("\n\n A Matrix :\n");
11    printf("-----\n");
12    printf("Enter the number of rows of A matrix(between 1 to 50 ): ");
13    scanf("%d", &m1);
14    printf("Enter the number of columns of A matrix (between 1 to 50 ): ");
15    scanf("%d", &n1);
16
17    // for B matrix
18    printf("\n\n B Matrix :\n");
19    printf("-----\n");
20    printf("Enter the number of rows of B matrix(between 1 to 50 ): ");
21    scanf("%d", &m2);
22    printf("Enter the number of columns of B matrix (between 1 to 50 ): ");
23    scanf("%d", &n2);
24
25    if (n1 != m2)
26    {
27        printf("\n Error : Number of column of the A matrix should be same as
28        number of rows of B matrix. \n\n");
29    }
30    else
31    {
32
33        /* Stored values into the array*/
34        printf("\n\n");
35
36        printf("Enter elements of A matrix :\n");
37        printf("-----\n");
38
39        for (i = 0; i < m1; i++) // row
40        {
41            for (j = 0; j < n1; j++) // column
42            {
43                printf("element - [%d],[%d] : ", i, j);
44                scanf("%d", &A[i][j]);
45            }
46
47        printf("\n\n");
48
49        printf("Enter elements of B matrix :\n");
50        printf("-----\n");
51    }
```

```

52     for (i = 0; i < m2; i++)
53     {
54         for (j = 0; j < n2; j++)
55         {
56             printf("element - [%d],[%d] : ", i, j);
57             scanf("%d", &B[i][j]);
58         }
59     }
60     printf("\n A matrix is :\n");
61     printf("-----\n");
62
63     for (i = 0; i < m1; i++)
64     {
65         printf("\n\t");
66         for (j = 0; j < n1; j++)
67             printf("%d\t", A[i][j]);
68     }
69
70     printf("\n\n");
71
72     printf("\n B matrix is :\n");
73     printf("-----\n");
74
75     for (i = 0; i < m2; i++)
76     {
77         printf("\n\t");
78         for (j = 0; j < n2; j++)
79             printf("%d\t", B[i][j]);
80     }
81     /* calculate the multiplication of the matrix */
82
83     printf("\n\n");
84
85     for (i = 0; i < m1; i++)
86     {
87         for (j = 0; j < n2; j++)
88         {
89             // Calculate the result
90             for (int k = 0; k < n1; k++)
91             {
92                 C[i][j] += A[i][k] * B[k][j];
93             }
94         }
95     }
96
97     // output
98     printf("\nThe C matrix is : \n");
99     printf("-----\n");
100
101    for (i = 0; i < m1; i++)
102    {
103        printf("\n\t");
104        for (j = 0; j < n2; j++)
105            printf("%d\t", C[i][j]);

```

```
106         }
107
108         printf("\n\n");
109     }
110 }
111
112
113 /*
114 Output:
115 Multiplication of two Matrices :
116 -----
117
118
119 A Matrix :
120 -----
121 Enter the number of rows of A matrix(between 1 to 50 ): 2
122 Enter the number of columns of A matrix (between 1 to 50 ): 3
123
124
125 B Matrix :
126 -----
127 Enter the number of rows of B matrix(between 1 to 50 ): 3
128 Enter the number of columns of B matrix (between 1 to 50 ): 2
129
130
131 Enter elements of A matrix :
132 -----
133 element - [0],[0] : 1
134 element - [0],[1] : 3
135 element - [0],[2] : 4
136 element - [1],[0] : 2
137 element - [1],[1] : 1
138 element - [1],[2] : 6
139
140
141 Enter elements of B matrix :
142 -----
143 element - [0],[0] : 4
144 element - [0],[1] : 6
145 element - [1],[0] : 8
146 element - [1],[1] : 7
147 element - [2],[0] : 9
148 element - [2],[1] : 4
149
150 A matrix is :
151 -----
152
153      1      3      4
154      2      1      6
155
156
157 B matrix is :
158 -----
159
```

```
160      4      6
161      8      7
162      9      4
163
164
165 The C matrix is :
166 -----
167
168      64      43
169      70      43
170 */
```