

2D - Arrays.

Matrix Multiplication : 2×3 & 3×4 [Matrix]

Valid only When column of 1st matrix = Row of 2nd matrix

→ A 2×3 & 3×4 matrix will result in 2×4 [Result] $[r1 \times c2]$

A ⇒

10	0	0
0	1	20

B ⇒

10	1	1	1
20	1	1	1
3	2	0	30

C ⇒

$10+0+0$	$10+0+0$	$10+0+0$	$10+0+0$
$0+20+60$	$0+1+0$	$0+1+0$	$0+1+600$

⇒ row × column

a_{11} a_{12} a_{13}

b_{11} b_{12} b_{13} b_{14}

a_{21} a_{22} a_{23}

b_{21} b_{22} b_{23} b_{24}

b_{31} b_{32} b_{33} b_{34}

c_{11}	c_{12}	c_{13}	c_{14}
c_{21}	c_{22}	c_{23}	c_{24}

$$c_{11} = a_{11} \times b_{11} + a_{12} \times b_{21} + a_{13} \times b_{31}$$

a → row is same, column is changing

b → row is changing, column remain same

$$c_{23} = a_{21} \times b_{13} + a_{22} \times b_{23} + a_{23} \times b_{33}$$

$i[k] + [k]j$

```
if (c1 != c2) {
```

```
    console.WriteLine("Invalid Input");
```

```
    return;
```

```
}
```

```
int[,] product = new int[c1, c2] → c1 & c2
```

```
for (int i = 0; i < prod.Length; i++) {
```

```
    for (int j = 0; j < prod[0].Length; j++) {
```

```
        for (int k = 0; k < c1; k++) {
```

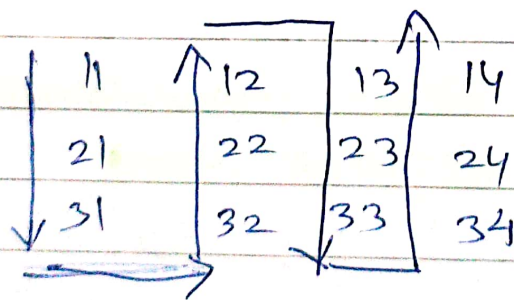
```
            prod[i][j] += one[i][k] * two[k][j]
```

```
        }
```

```
    }
```

```
}
```

Wave Traversal 3 x 4



11
21
31
32
22
12
13
23
33
34
24
14