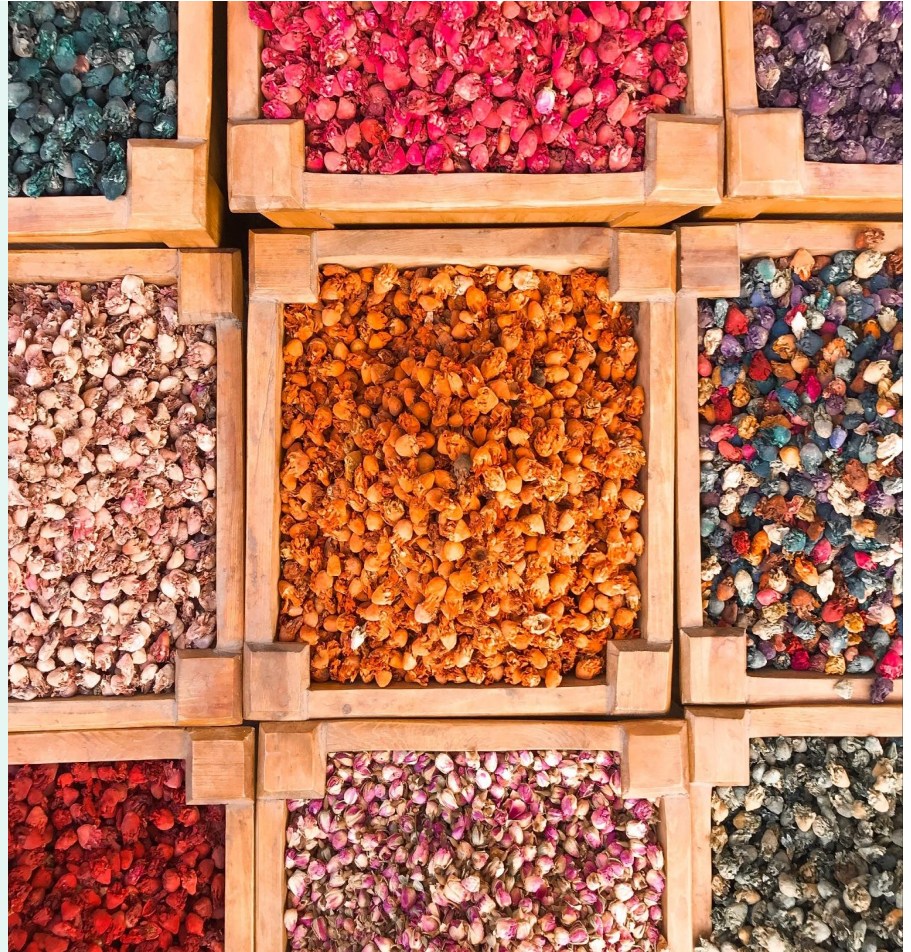


Multidimensional Arrays

By Pranjali Nadhani



Array of Arrays

$A[] =$

0	1	2	3	4	5	6	7	8
12	21	34	45	56	67	78	89	90

$A[] =$

0	1	2	3	4	5	6	7	8
12	21	34	45	56	67	78	89	90

$A[0] =$

0	1	2
12	21	34

$A[1] =$

45	56	67
----	----	----

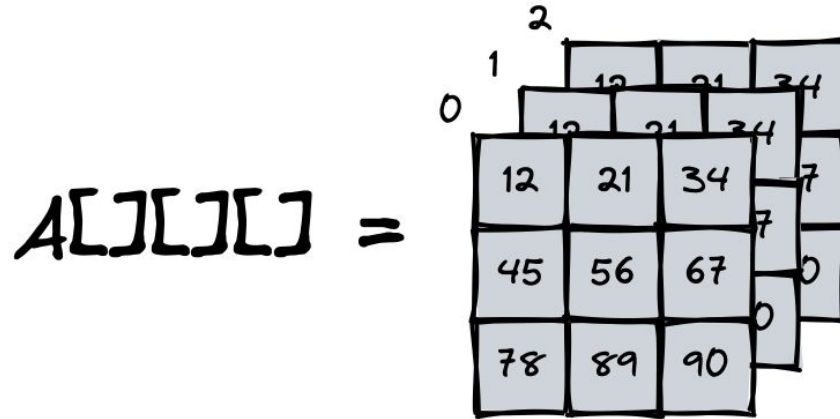
$A[2] =$

78	89	90
----	----	----

2D Arrays - Rows and Columns

	0	1	2
0	12	21	34
1	45	56	67
2	78	89	90

3D Arrays - Rows, Columns and Pages



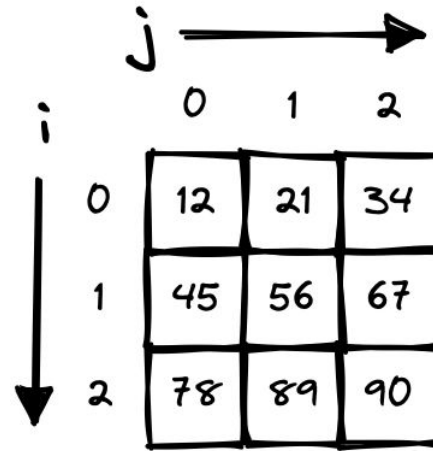
2D Arrays - Initialisation

```
const A = [  
  [12, 21, 34],  
  [45, 56, 67],  
  [78, 89, 90]  
]
```

		j →		
i ↓		0	1	2
	0	12	21	34
	1	45	56	67
	2	78	89	90

2D Arrays - Traversal

```
function readMatrix(A) {  
  for (let i = 0; i < A.length; i++) {  
    for (let j = 0; j < A[i].length; j++) {  
      console.log(A[i][j]);  
    }  
  }  
}
```



A hand-drawn diagram illustrating a 3x3 matrix. The rows are indexed by 'i' (0, 1, 2) and the columns by 'j' (0, 1, 2). The matrix contains the following values:

j →	0	1	2	
i ↓	0	12	21	34
1	45	56	67	
2	78	89	90	

```
function addMatrices(A, B) {  
  if (A.length === B.length && A[0].length === B[0].length) {  
    const C = [];  
    for (let i = 0; i < A.length; i++) {  
      C[i] = [];  
      for (let j = 0; j < A[i].length; j++) {  
        C[i][j] = A[i][j] + B[i][j];  
      }  
    }  
    return C;  
  }  
  throw new Error("Matrices cannot be added");  
}
```

1	2	3		12	23	34		13	25	37
4	5	6	+	45	56	67	=	49	61	73
7	8	9		78	89	90		85	97	99
A				B				C		