

## Java Multi-Dimensional Arrays

### Multidimensional Arrays

A multidimensional array is an array of arrays.

Multidimensional arrays are useful when you want to store data as a tabular form, like a table with rows and columns.

To create a two-dimensional array, add each array within its own set of curly braces:

Example

```
int[][] myNumbers = { {1, 2, 3, 4}, {5, 6, 7} };
```

myNumbers is now an array with two arrays as its elements.

### Access Elements

To access the elements of the myNumbers array, specify two indexes: one for the array, and one for the element inside that array. This example accesses the third element (23) in the second array (1) of myNumbers:

Example

```
int[][] myNumbers = { {1, 2, 3, 4}, {5, 6, 7} };  
System.out.println(myNumbers[1][2]); // Outputs 7
```

### Change Element Values

You can also change the value of an element:

Example

```
int[][] myNumbers = { {1, 2, 3, 4}, {5, 6, 7} };
```

```
myNumbers[1][2] = 9;
```

```
System.out.println(myNumbers[1][2]); // Outputs 9 instead of 7
```

## Loop Through a Multi-Dimensional Array

We can also use a for loop inside another for loop to get the elements of a two-dimensional array (we still have to point to the two indexes):

### Example

```
public class Main {  
    public static void main(String[] args) {  
        int[][] myNumbers = { {1, 2, 3, 4}, {5, 6, 7} };  
        for (int i = 0; i < myNumbers.length; ++i) {  
            for(int j = 0; j < myNumbers[i].length; ++j) {  
                System.out.println(myNumbers[i][j]);  
            }  
        }  
    }  
}
```

### Output

### References

- <https://www.geeksforgeeks.org/multidimensional-arrays-in-java/>
- <https://www.programiz.com/java-programming/multidimensional-array>
- [https://www.w3schools.com/java/java\\_arrays\\_multi.asp](https://www.w3schools.com/java/java_arrays_multi.asp)