

Arrays in Java

Arrays

An array is a collection of values with the same data type.

```
String[] animals = {"Giraffe",  
"Elephant", "Toucan"};  
  
// Access an element via its index:  
System.out.println(animals[0]); //  
Prints: Giraffe  
  
// Change an element value:  
animals[1] = "Lion";  
  
// Find number of elements in an array:  
System.out.println(animals.length); //  
Prints: 3  
  
// Traverse array using for loop:  
for (int i = 0; i < animals.length; i++)  
{  
    System.out.println(animals[i]);  
}  
/* Prints:  
Giraffe  
Lion  
Toucan  
*/  
  
// Traverse array using for-each loop  
for (int i: animals) {  
    System.out.println(i);  
}  
/* Prints:  
Giraffe  
Lion  
Toucan  
*/
```

2D Arrays

A 2D array is an array that stores arrays of the same data type.

```
// Declare a 2D array that stores char
arrays
char[][] letters = {{'A', 'a'}, {'B',
'x'}, {'C', 'c'}};

// Access an element via its index:
System.out.println(letters[0][1]); //
Prints: a

// Change an element by accessing its
index:
letters[1][1] = "b";

// Iterate over 2D array in row-major
order:
for (int i = 0; i < letters.length; i++){
    for (int j = 0; j < letters[0].length;
j++){
        System.out.print(letters[i][j]);
    }
}
// Prints: AaBbCc

// Iterate over 2D array in column-major
order:
for (int i = 0; i < letters[0].length;
i++){
    for (int j = 0; j < letters.length;
j++){
        System.out.print(letters[j][i]);
    }
}
// Prints: ABCabc
```

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