

Comp 248

Introduction to Programming

Chapter 6 *Arrays*

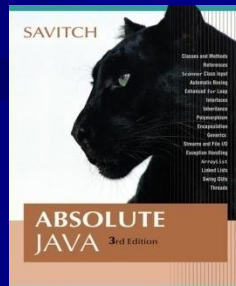
Part B

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Multidimensional Arrays

- It is sometimes useful to have an array with more than one index
- Multidimensional arrays are declared and created in basically the same way as one-dimensional arrays
 - You simply use as many square brackets as there are indices
 - Each index must be enclosed in its own brackets

```
double[][] arr = new double[100][10];  
int[][][] figure = new int[10][20][30];  
Person[][] perArr = new Person[10][100];
```

Multidimensional Arrays

- Multidimensional arrays may have any number of indices, but perhaps the most common number is two
 - Two-dimensional array can be visualized as a two-dimensional display with the first index giving the row, and the second index giving the column

```
char[][] a = new char[5][12];
```

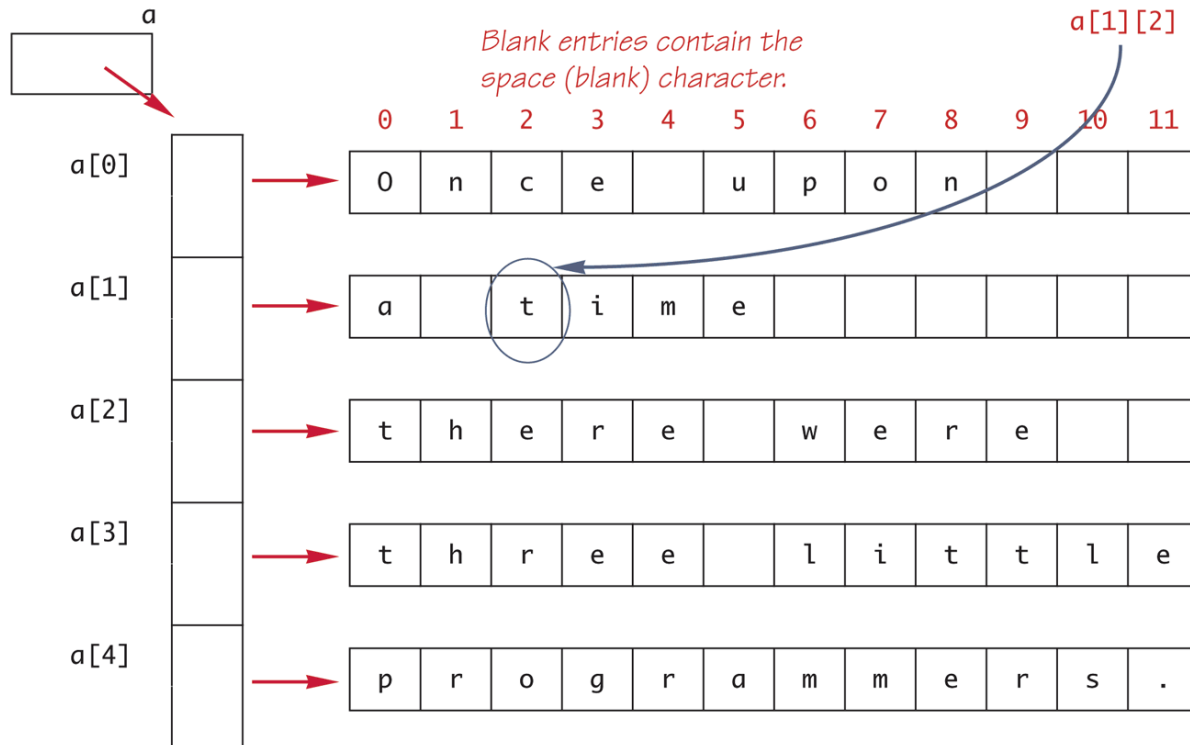
Multidimensional Arrays

- In Java, a two-dimensional array is actually an array of arrays

Display 6.17 Two-Dimensional Array as an Array of Arrays

```
char[][] a = new char[5][12];
```

Code that fills the array is not shown.



(continued)

Multidimensional Arrays

- [ArrayOperations14.java](#) (MS-Word file)

Using the `length` Instance Variable

```
int[][] arr = new int[30][100];
```

- The instance variable **`length`** does not give the total number of indexed variables in a two-dimensional array
 - Because a two-dimensional array is actually an array of arrays, the instance variable **`length`** gives the number of first indices (or "rows") in the array
 - **`arr.length`** is equal to 30
 - For the same reason, the number of second indices (or "columns") for a given "row" is given by referencing **`length`** for that "row" variable
 - **`arr[0].length`** is equal to 100
- [ArrayOperations15.java](#) (MS-Word file)