

2D ARRAYS

- An array with two dimensions can be used to represent data that corresponds to a grid. For example, a checkerboard, the streets in a city, and seats in a theater call all be represented with a grid. A tic-tac-toe board represented in a two-dimensional array can be visualized as:

| | | | |
|---|---|---|---|
| | 0 | 1 | 2 |
| 0 | X | O | X |
| 1 | X | X | O |
| 2 | O | O | O |

- When you declare a one-dimensional array, you type a single, empty set of square brackets after the array type, and you use a single subscript in a set of square brackets when reserving memory.
- To declare a two-dimensional array, you type a comma in the square brackets after the array type, and you use two subscripts, separated by a comma in brackets, when reserving memory.
- For example, creating an array named `sales` that holds three rows and four columns:

| | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|
| <code>sales[0, 0]</code> | <code>sales[0, 1]</code> | <code>sales[0, 2]</code> | <code>sales[0, 3]</code> |
| <code>sales[1, 0]</code> | <code>sales[1, 1]</code> | <code>sales[1, 2]</code> | <code>sales[1, 3]</code> |
| <code>sales[2, 0]</code> | <code>sales[2, 1]</code> | <code>sales[2, 2]</code> | <code>sales[2, 3]</code> |