CSC320 Discussion Forum 5

Hello All,

In Java there are arrays and arraylists. The arraylist is utilized as an object that contains information of a specific type. It has to be declared like a variable, specifying the data type it will contain and the name. The list can then be left empty or pre-filled depending on the need. An array is similar to an arraylist in that it also has to be declared and can hold data of a specified type. The difference is an array can become more complex by becoming a multi-dimensional array. This expands the amount of information and how it’s displayed by many magnitudes.

One example of how a simple array could be utilized would be to capture double data for financial information. Similar to CTA4, the data can be added as a user input or prefilled, but then be applied to mathematical equations to gain information such as taxes owed for the year.

Another example could be using a 2-dimensional array as an inventory for a business. One dimension could be set up as a row, where the zero index could be titles. Then the columns could be filled with information that fits under the title. A great example would be a car dealership where the titles could be a model, such as a 3-series BMW. Under the 3 series title would be each type of 3-series that the dealership has available.

A much more complex way of using an array would be storing a 3-dimensional image or object. A simple example would be storing a Rubik’s cube, where we could create a 6x3x3 array. One array would represent the six sides of a cube, while the other two would represent the nine individual pieces on each side.

My curiosity got the better of me and started looking into 4-dimensional arrays. This would be in the realm of linear algebra or other higher math levels. A 3-dimensional object could have time applied as a 4th dimension.

Below is an example of a 2-dimensional array, that is setup with rows and columns.

public class TwoDArray {

public static void main(String[] args) {

int rows = 4;

int columns = 4;

int[][] array = new int[rows][columns];

int value = 1;

for (int i = 0; i < rows; i++) {

for (int j = 0; j < columns; j++) {

array[i][j] = value;

value++;

}

}

System.out.println("The 2D array is: ");

for (int i = 0; i < rows; i++) {

for (int j = 0; j < columns; j++) {

System.out.print(array[i][j] + " ");

}

System.out.println();

}

}

}

Reference

GeeksforGeeks. (2023, September 23). *Multidimensional Arrays in Java*. https://www.geeksforgeeks.org/multidimensional-arrays-in-java/