Arrays

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Learning objectives

▸ Creating and using arrays

▸ Looping over an array with the for-each loop

▸ Multidimensional arrays

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Arrays

‣ A normal variable store a single value

‣ Storing multiple values would require a separate variable for each value

‣ Arrays are special variables that store multiple values in a single variable

‣ Each value is stored in an element in the array

‣ Each element is accessed by an index (starting at zero)

Demo 1 - Arrays

▸ Creating an array

▸ Using an array

▸ Using the index in an array

Arrays

‣ An array consists of the elements and the property length

‣ length tells the number of elements in an array

‣ The length of an array is set when it is created and can never change

‣ The Arrays class has convenience methods for handling arrays

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Demo 2 - Arrays

▸ The length property

▸ Using methods in the class Arrays for convenience

Looping over an array

▸ The for loop could easily be used to access all elements by using the index of the loop to access elements

▸ The for each loop is a special kind of loop for iterating over an array

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Demo 3 - Looping over arrays

‣ The for loop

‣ The for each loop

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Multidimensional arrays

▸ A one-dimensional int array is an array with int elements

▸ A two-dimensional int array is an array of int arrays (an array with arrays with ints)

Multidimensional arrays example

```
String[][] cities = {{"Paris", "Nice"},
        {"London", "Manchester"},
        {"Berlin", "Bern"}};
```

	0	1
0	Paris	Nice
1	London	Manchester
2	Berlin	Bern

Demo 4 - Multidimensional arrays

▸ Creating multidimensional arrays

▸ Using multidimensional arrays
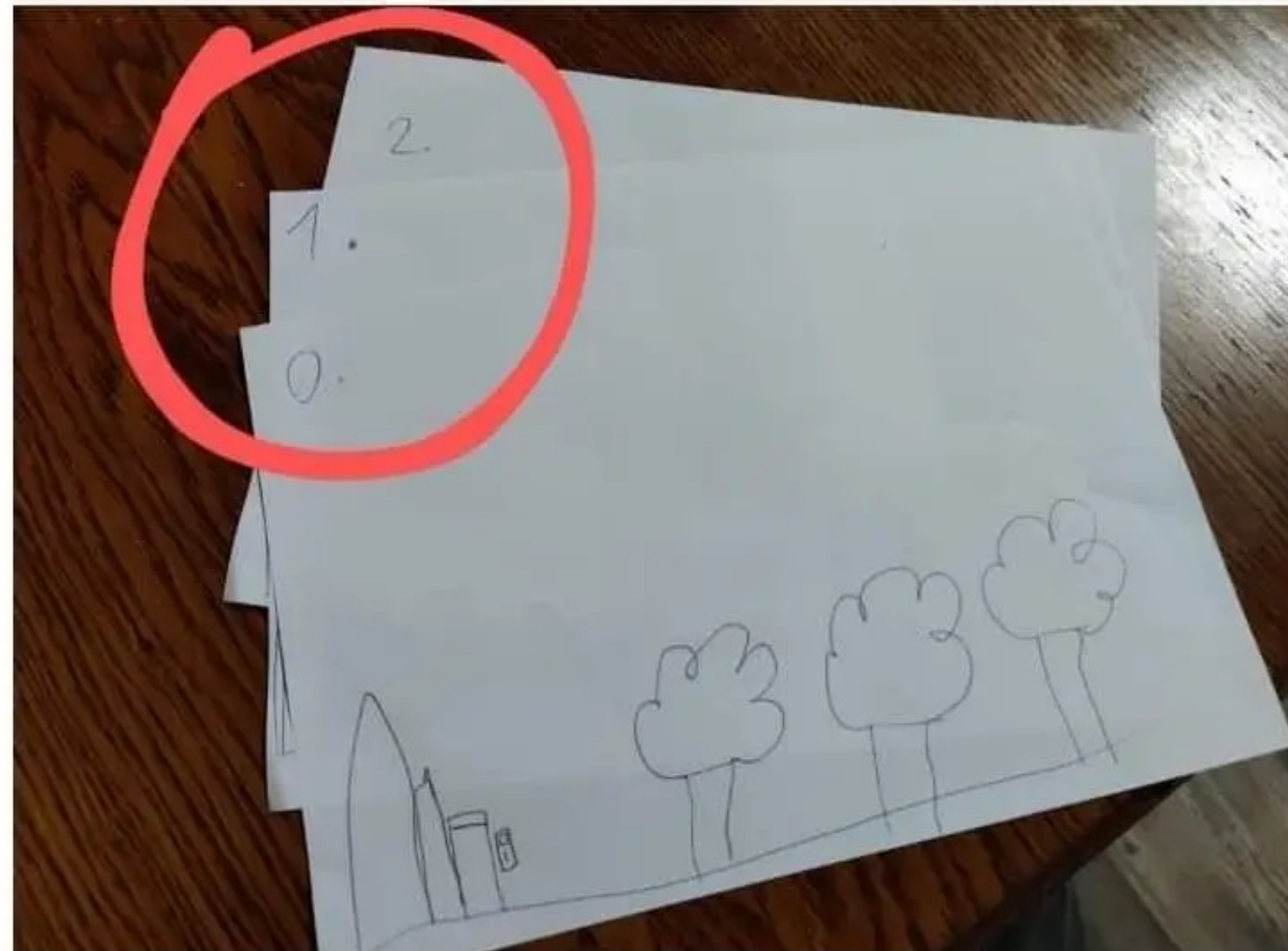
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Exercise 1 - Revert an array

▸ Given this original int array: 1,2,3,4,5,6,7,8,9

▸ Create a program that takes the original array and creates a reverses array that looks like this: 9,8,7,6,5,4,3,2,1

▸ Print both arrays to the console

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Exercise 2 - Lowest, highest, sum, average

▸ Given an int array that looks like this: 56,13,84,7,11,21,79

▸ Create a program that calculate and prints:

▸ The lowest value

▸ The highest value

▸ The sum of all the values

▸ The average of all the values

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Indexes in Java start with...

This is how my 7yo son numbered his drawings ... I've never been more proud

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