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Week 12

April 9 2023

Week 12 Lecture Notes

## Array

An array is a collection of values with the same data type under a single alias and contiguous RAM addresses. Arrays are often used to store small chunks of data or values. Since arrays only have one alias, you can access different elements with the array index. The first element of an array will have index 0, and you can manipulate the index you call to access different elements.

Ex:

```
int arr[] = {0, 1, 2, 3}; //arr[] with 4 values
```

```
System.out.println(arr[1]); //will print 1 because 1 is the second element
```

## Assignment

Arrays can be declared and assigned values in 2 ways:

Long list - array is defined and list of values immediately assigned

Manual: array with set number of elements with new keyword

Ex:

```
int arr[] = {1, 2};
```

```
int arr[] = new Int[2];
```

```
arr[0] = 1;
```

```
arr[1] = 2;
```

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## Multidimensional arrays

Basic array can be thought of as a one dimensional line of values. Arrays can be declared with several dimensions which can create a line, plane, or cube of values. A multidimensional array is declared by adding more [], and accessing an element requires the index of each dimension.

Ex:

```
int arr[][] = new int[3][3];
```

V

X X X

X X X

X X X

arr[1][1] would access center element