



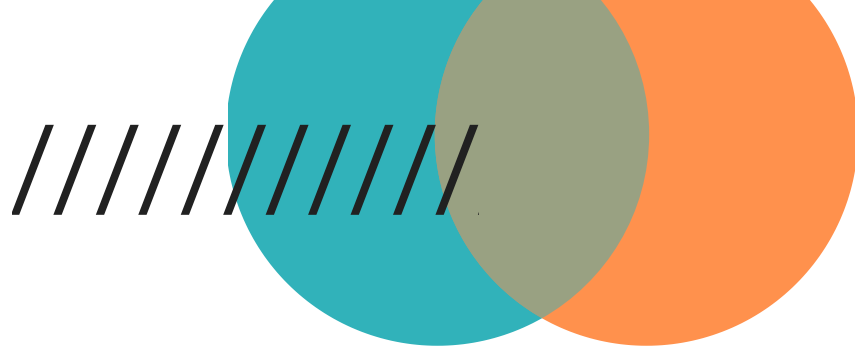
LEAGUE OF AMAZING  
PROGRAMMERS

# LEVEL 2: CHEAT GUIDE



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## Module 0: arrays

- Arrays are a very useful data structure to help store multiple of a specific data type.
- We **make an array** like this...

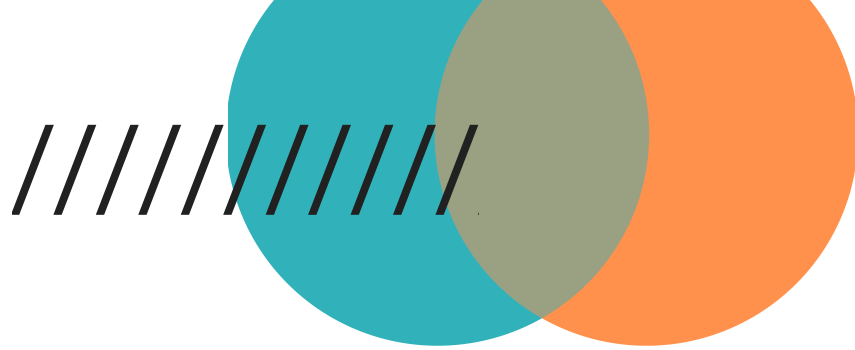
```
int[] intArray= new int[5];
```

- This creates a new int array of length 5.
- We can **access the length** like this...

```
System.out.println(intArray.length);
```

- Note there are no parentheses on the length because it is a public member variable rather than a method you can call.
- To **iterate** over an array, you do it like this...

```
for (int i = 0; i < intArray.length; i++) {  
    intArray[i] = i+1;  
}
```



- Here we set each of the 5 indices equal to the counter “i” plus 1. If we print each element of the array using `System.out.println();`, we get this...
- Example of a forEach Loop:

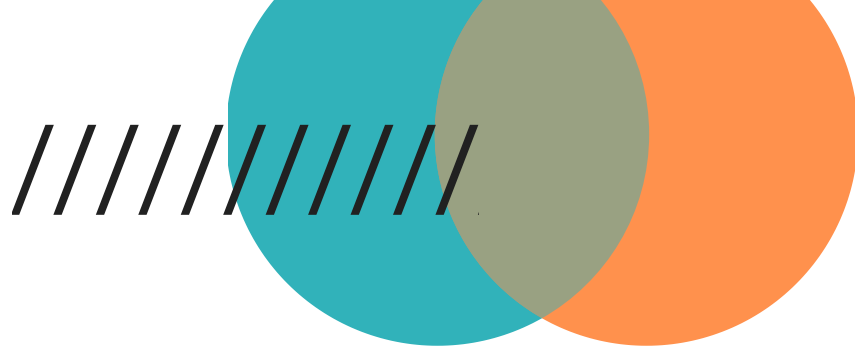
```
for(int i: intArray) {  
    System.out.println(i);  
}
```

Console:

```
1  
2  
3  
4  
5
```

## Module 1: ArrayList

- An ArrayList is a data structure that is used to store and organize lists of information.
- ArrayLists are very similar to arrays. The difference is that the size of an ArrayList can be changed by adding and removing items from the list.



- Here is the format for creating an ArrayList:

```
ArrayList<Type> name = new ArrayList<Type>();
```

- The type is up to you and what you're using the list for. The name is also up to you. It's recommended that the name of the list is related to the purpose, so it's easier to keep track of.
- Here are some examples:

```
1.ArrayList<String> fruitList = new ArrayList<String>();  
2.ArrayList<Integer> studentIDs = new ArrayList<Integer>();  
3.ArrayList<Character> lettersList = new ArrayList<Character>();
```

- At this point, 'ArrayList' will likely be underlined in red.
- To fix this:
  - Hover your mouse over 'ArrayList' and click "Import 'ArrayList'".
  - If nothing is imported, type "import java.util.ArrayList;" at the top of your program.



- Adding and removing items:
  - Type the name of your ArrayList and put a period after it. A bunch of methods should come up for you to use.
  - When adding items, the type inside the parentheses must match the type of list it is.
  - If the list is a String, make sure to have quotes around your word.
  - If the list is an int, make sure you are adding numbers.

- Example:

```
fruitList.add("apple");  
studentIDs.add(12345);  
lettersList.add('c');
```

- Removing items is done in a similar way.

- Example:

```
fruitList.remove("apple");  
studentIDs.remove(12345);  
lettersList.remove('c');
```