Collections

Upon completion of this module, a student will be able to

- understand what an array is and create one as a data member
- access and manipulate data in an array
- iterate through and array with a loop
- understand the difference between arrays and lists
- create a list and manipulate data inside of it
- understand what key-value paired data is
- store data in a key, value storage tool

Assignment

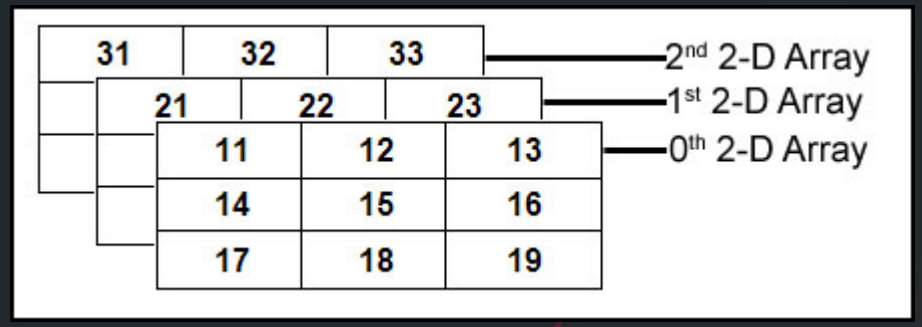
- Task
    - For this project you'll build an app with a text field for the user to enter a word and loot for synonyms in a (small) database.
- Repo
    - https://github.com/LambdaSchool/Android_Collections
- Submission
    - Compress the project directory into a zip archive and then send it to your PM in a DM
- Challenge
    - Try making it so that if a any word in the element array is equivalent to the value entered, that all its sibling synonyms are found and returned.

A Student Can

understand what an array is and create one as a data member

Arrays

- Data Structure
- Fixed Size
  - define size on creation
- Collection of Variables of the same type



A Student Can

access and manipulate data in an array

Manipulating Arrays

```
int[] array = new int[5];
array[0] = 10;
```

- Arrays are indexed values
  - first value at 0
  - second at 1
  - etc.
- Accessed with the Index Operator

A Student Can

iterate through and array with a loop

Manipulating Arrays

- For loop
- For each loop

```
private void fillLayout() {
    for(int y = 0; y < tableCells.length; ++y) {
        tableRows[y] = defaultRow();
        parentLayout.addView(tableRows[y]);
        for(int x = 0; x < tableCells[y].length; ++x) {
            tableCells[y][x] = defaultCell(y, x);
            tableRows[y].addView(tableCells[y][x]);
        }
    }
}
```

A Student Can

understand the difference between arrays and lists

Lists

- Dynamic Array
- Different Types
  - ArrayList
  - Vector
  - Stack

A Student Can

create a list and manipulate data inside of it

Array Lists

- Declare the list and what type of data it will hold
- add() - adds data to the end of a list
- get(i) - retrieves data from index ‘i’ of the list

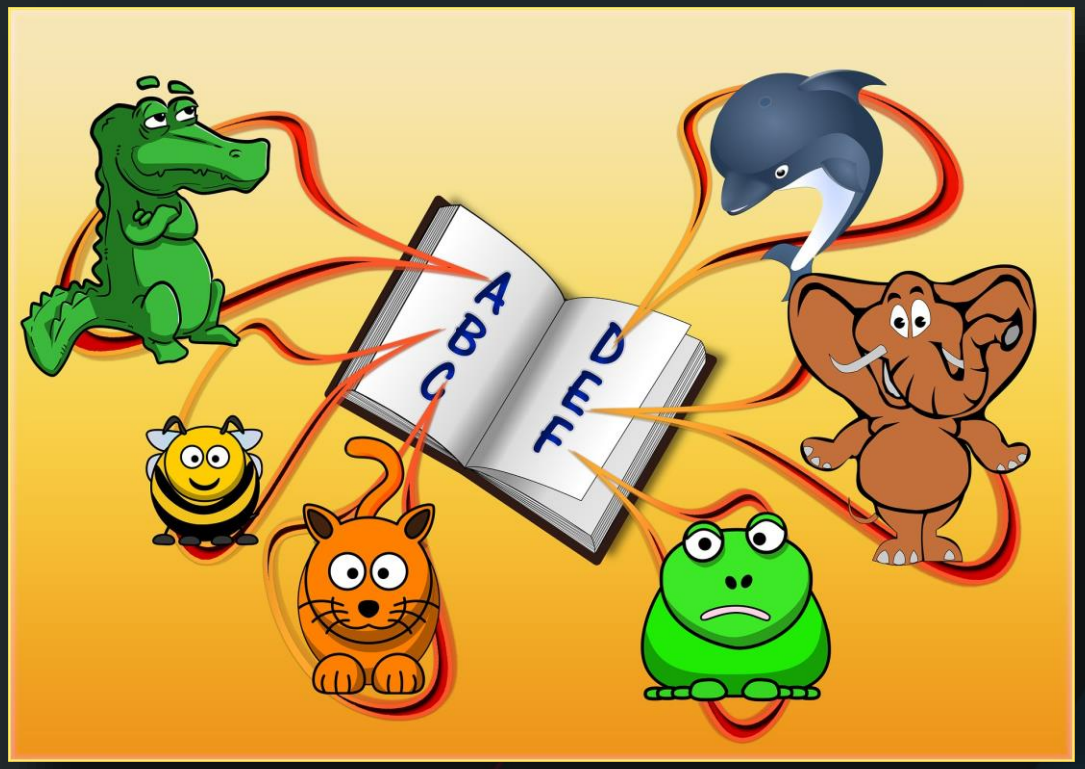
```
ArrayList<Integer> demoList = new ArrayList<>();
demoList.add(10);
System.out.println(demoList.get(0));
```

A Student Can

understand what key-value paired data is

Key Value Pairs

- Data accesses with a Key rather than an index
- Data Members
- Dictionaries
- JSON



A Student Can

store data in a key, value storage tool

Maps

- Dictionary
- Key, Value storage