# Data Structures

How and when to use them

# Picking A Data Structure

What are you trying to do?

# Picking A Data Structure

*"... I need to know if I have seen a value before..."*

# Picking A Data Structure

*"... I need to know if I have seen a value before..."*

List

Map

Set

Queue

Stack

# Interface vs Implementation

## Interface

Defines the "contract" for how the data structure can be used.

  For example, a set's interface would have methods for "add", "remove", and "contains".

## Implementation

Provides the functionality behind the "contract". This determines the performance of the data structure.

  For example, a hashset would implement the "add", "remove", and "contains" methods.
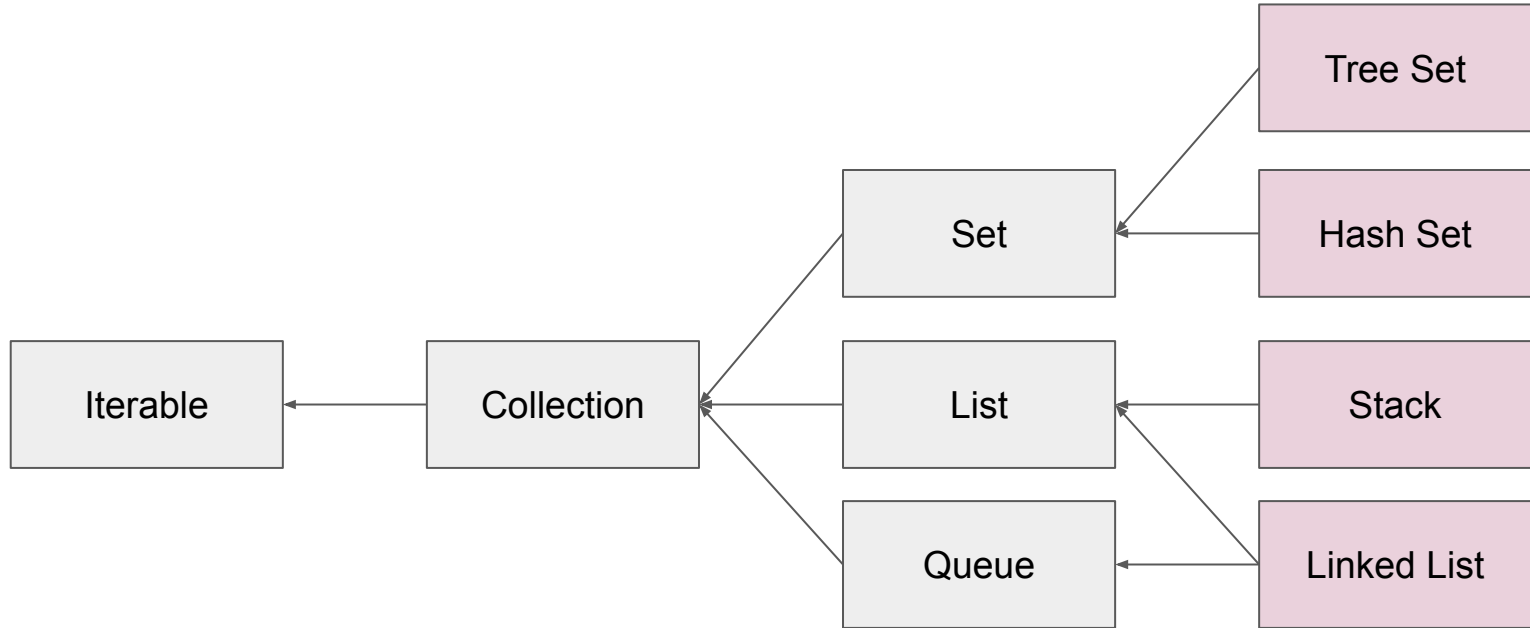
# Interface vs Implementation

```
Set<String> names = new HashSet<>();

names.add("Olivia");

names.add("Aaron");

names.add("Ryan");
```

Unless there is a specific reason, your code only needs the implementation when initializing the variable.

The interface can be used elsewhere. **Why?**

# Interface Hierarchy

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