

Collections in Java SE 17

What are collections and why use them?



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Collections in Java SE 17

Version Check



Version Check



This version was created by using:
- Java SE 17



Version Check



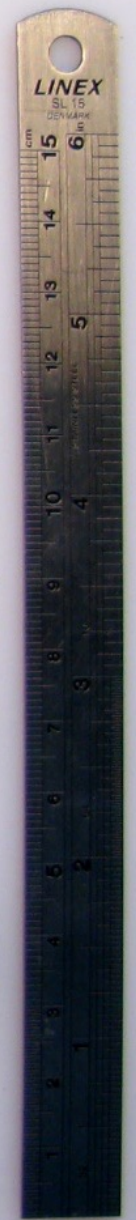
This course is 100% applicable to:

- Java SE 17 onwards

This course is mostly applicable to:

- Java SE 8 onwards





Project & Array Problem



Introduction & Course Outline



Implementing Data Structures Is Hard!



Data Structures Are Diverse



Ordering

Pairs

Uniqueness



Course Outline



Introduction to Collections



Java Streams



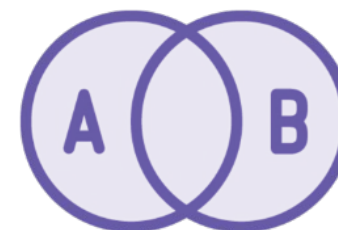
Lists: Collections with Iteration Order



Collection Operations & Factories



Maps: Collections of Pairs

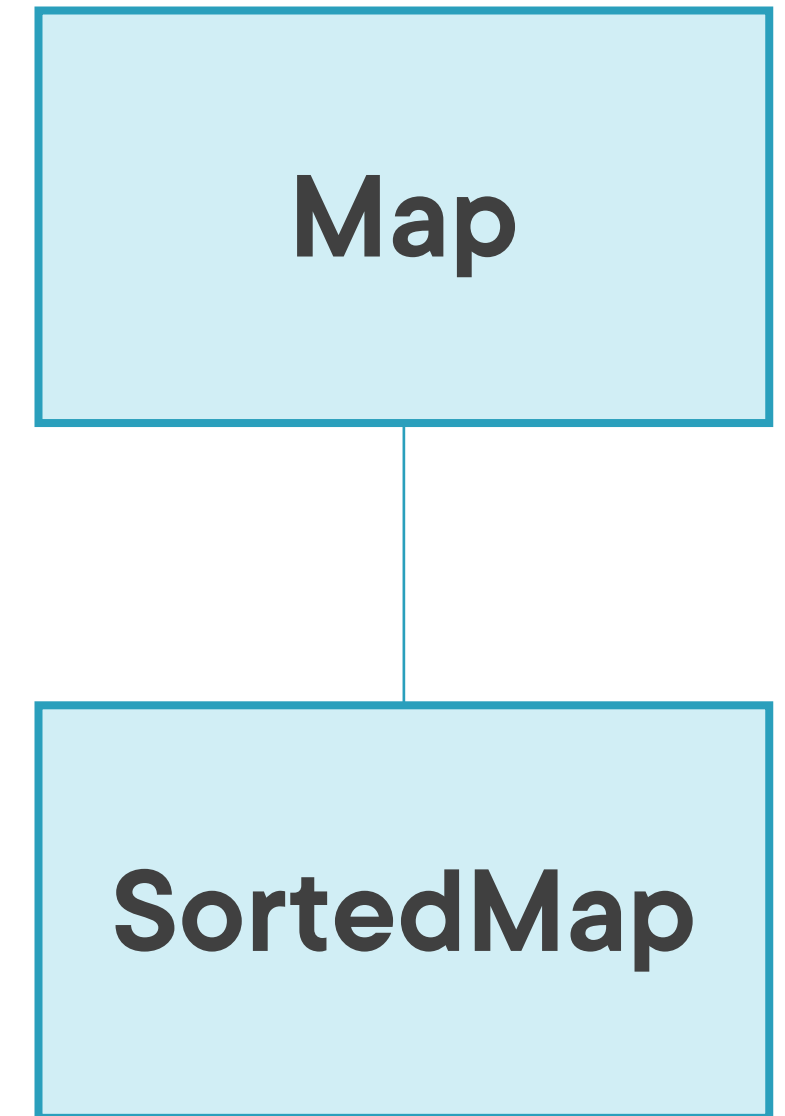
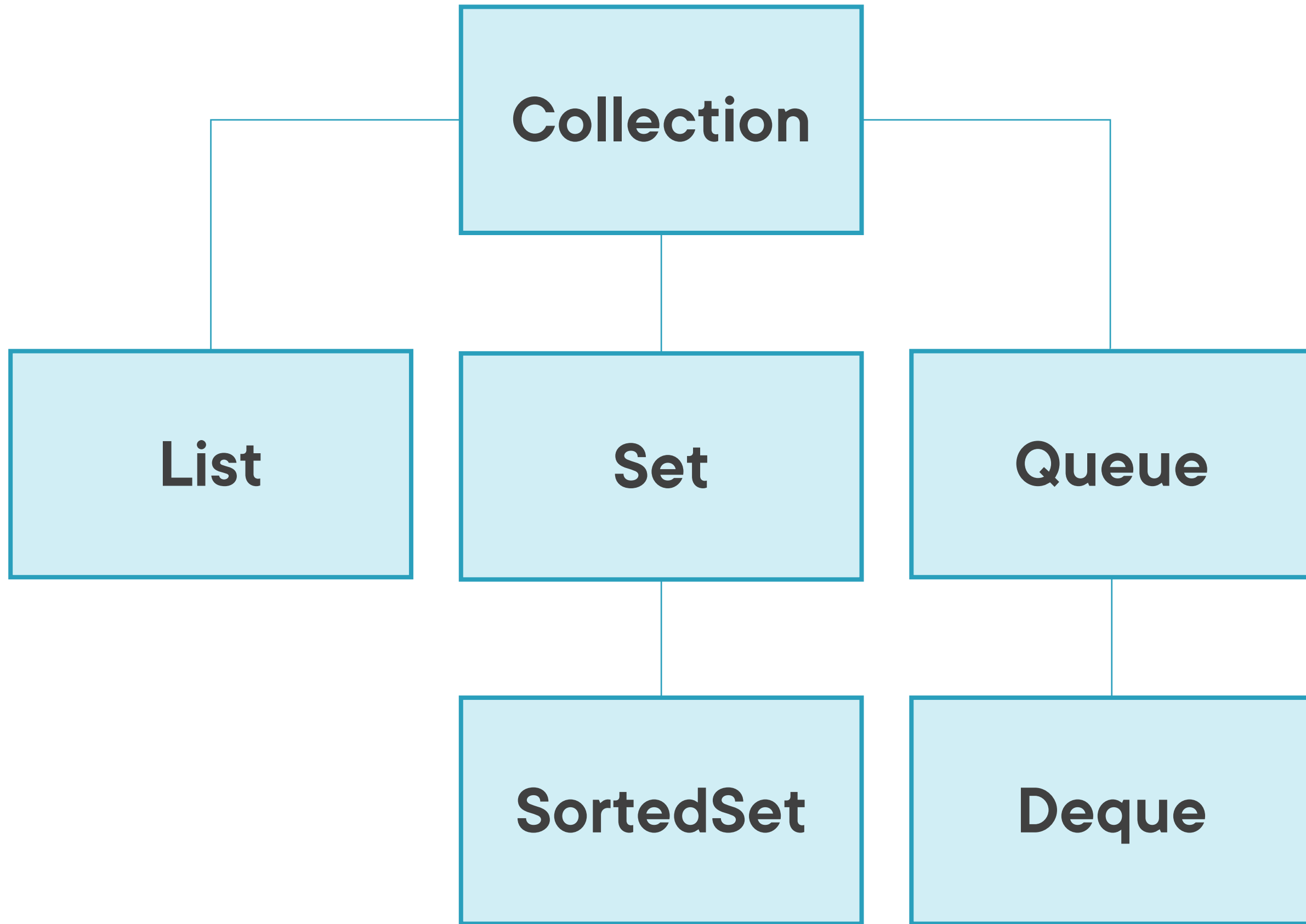


Sets: Collection with Uniqueness



Collection of Collections





Collection Design

Interfaces

Multiple data structures

Functional characteristics

Prefer as variable type

Often has a popular implementation

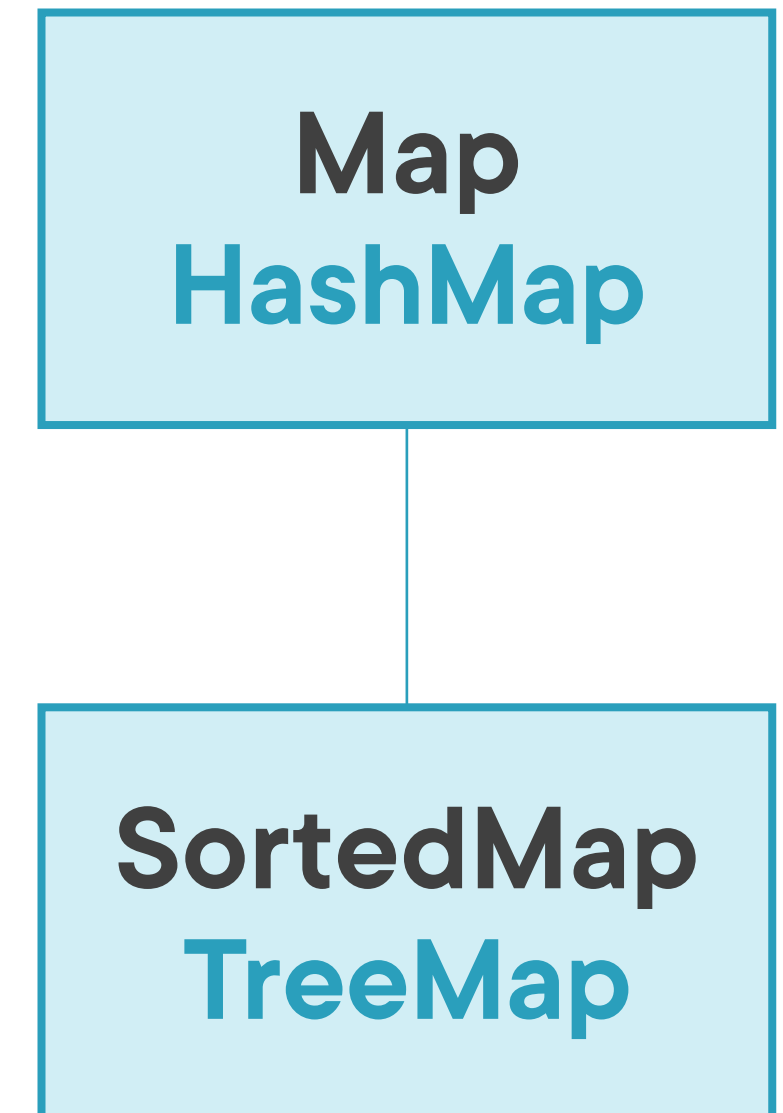
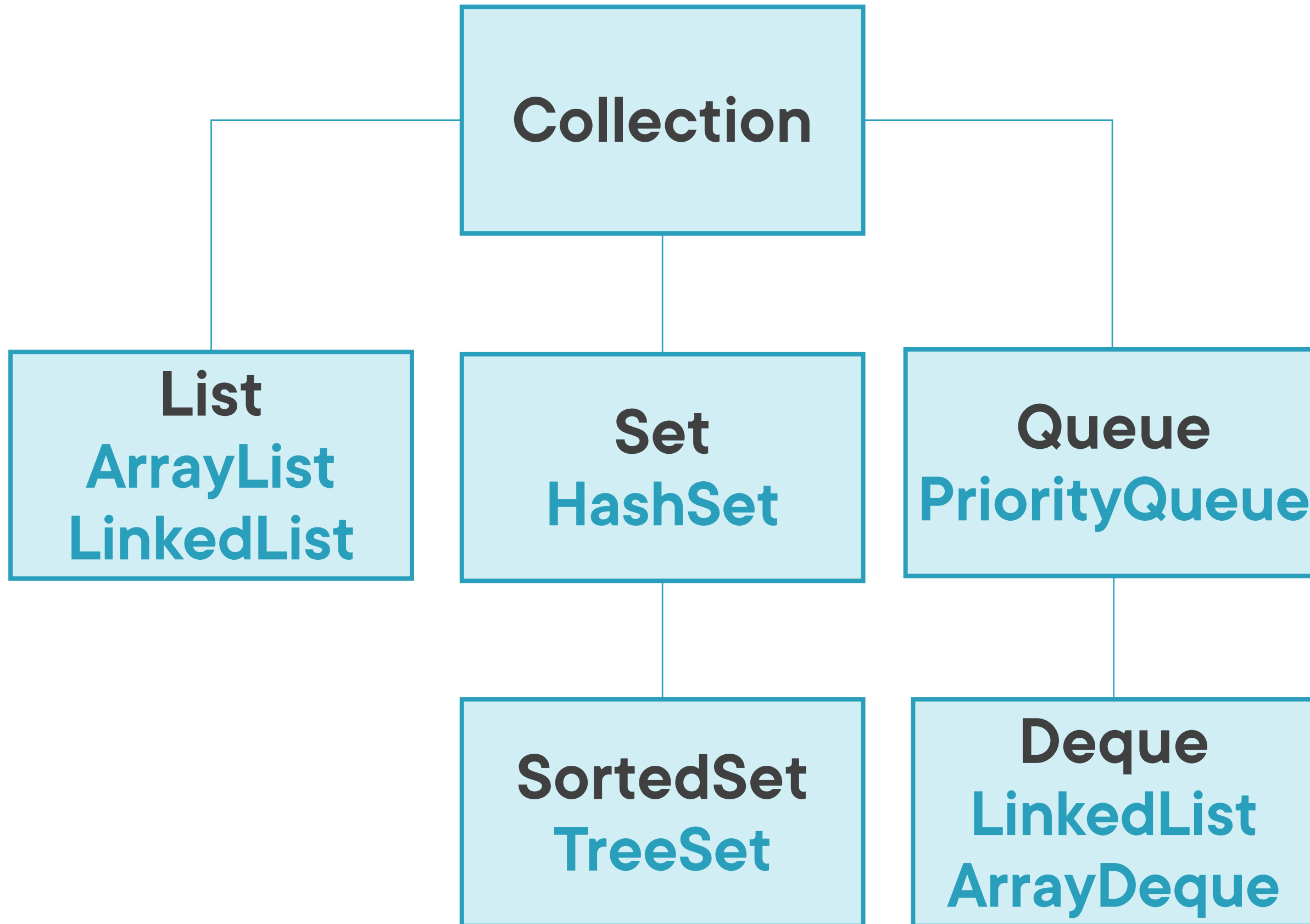
Implementation

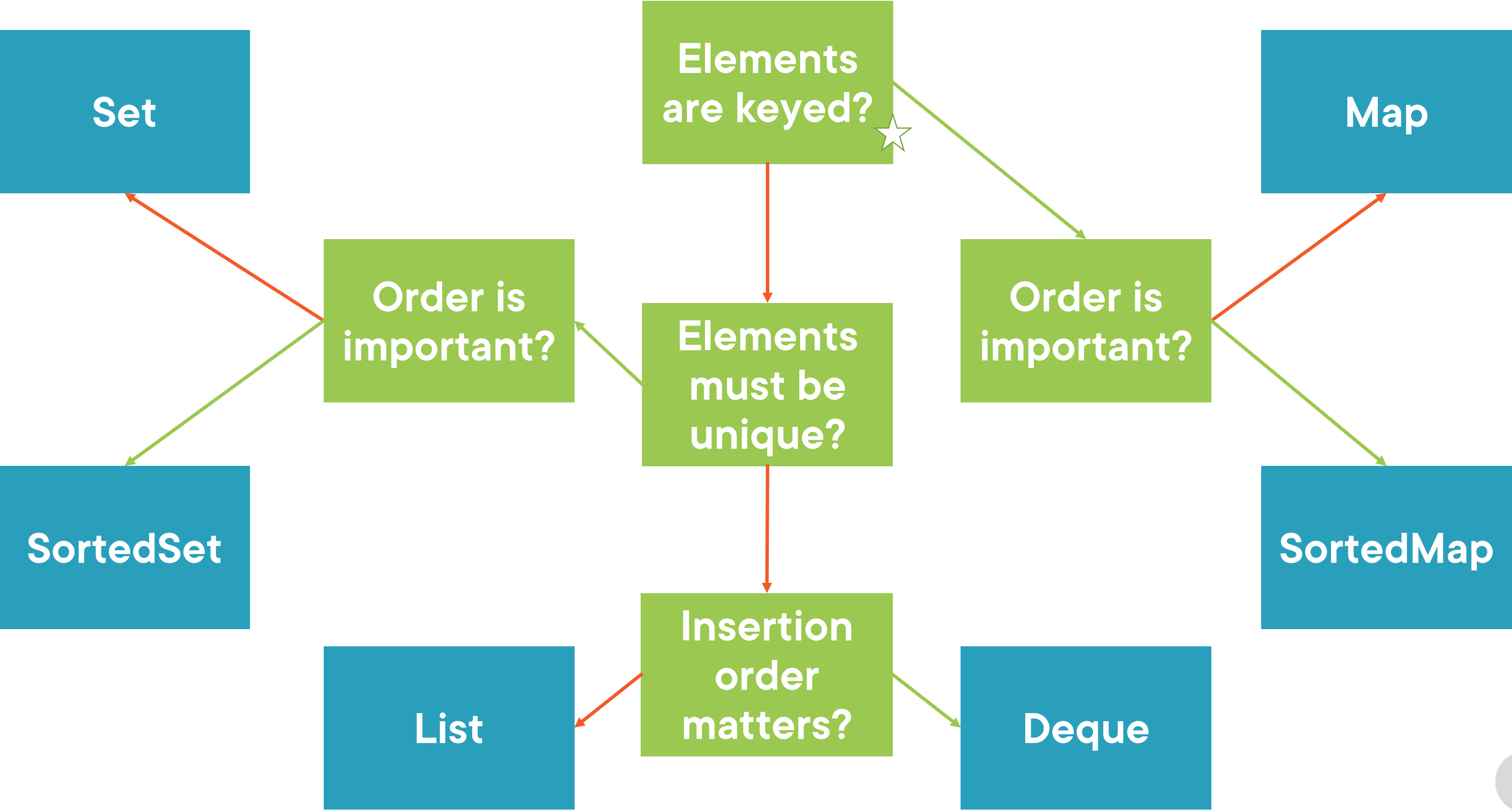
Specific data structures

Performance characteristics

Concrete and instantiable

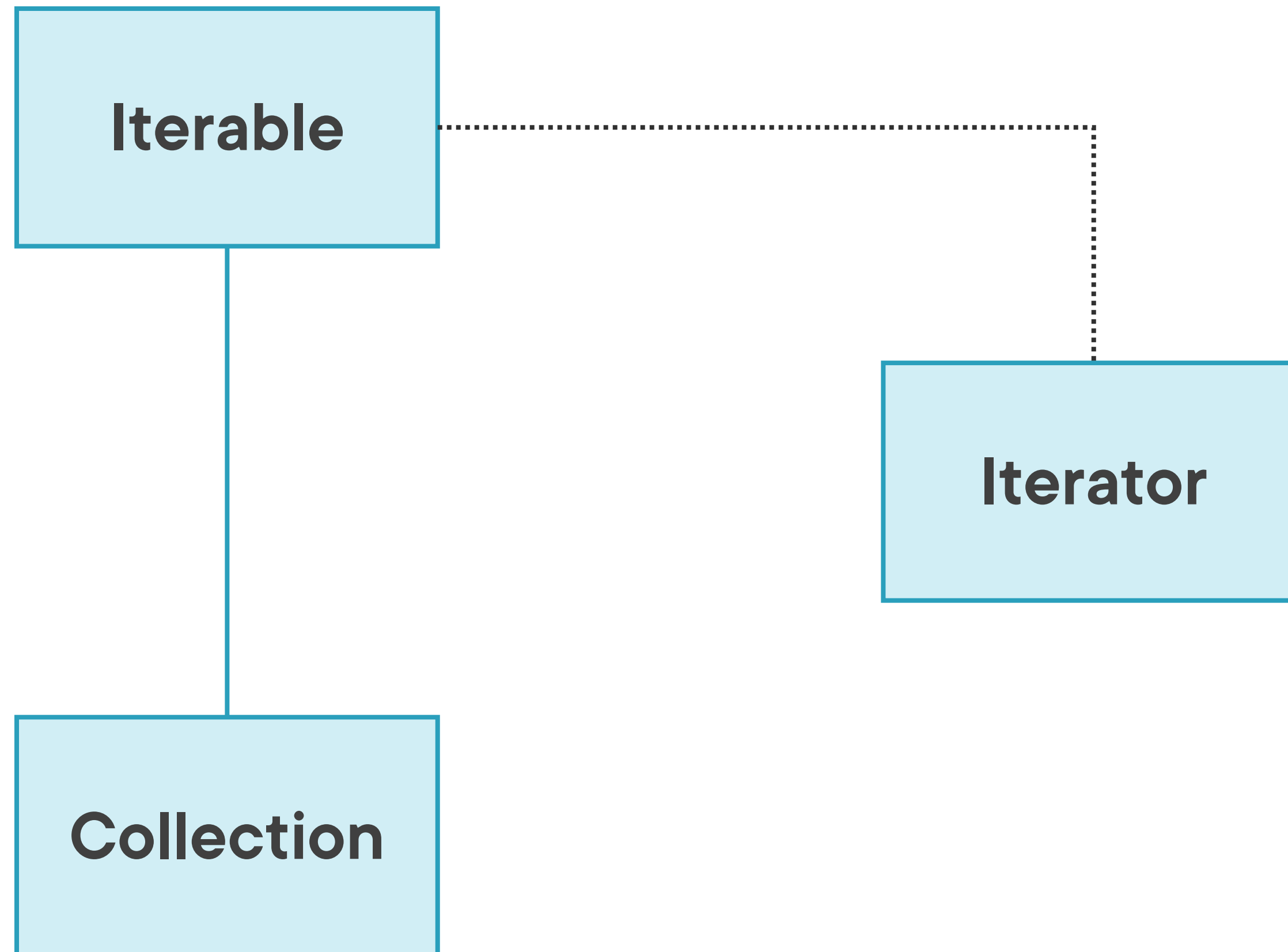






Collection Behaviors





`size()`

- ◀ **Get the number of elements in the collection**

`isEmpty()`

- ◀ **True if `size() == 0`, false otherwise**

`add()`

- ◀ **Ensure that an element is in the collection**

`addAll()`

- ◀ **Add all the elements of the argument collection to this collection**



```
remove(element)
```

```
removeAll(collection)
```

```
retainAll(collection)
```

- ◀ **Remove the element from this collection**
- ◀ **Remove all the elements of the argument collection to this collection**
- ◀ **Remove all the elements of this collection not in the argument collection**



```
contains(element)
```

```
containsAll(collection)
```

```
clear()
```

- ◀ **True if the element is in this collection, false otherwise**
- ◀ **True if all the elements of the argument collection are in this collection**
- ◀ **Remove all elements from this collection**



Summary



Java Collections are useful and versatile

There's a collection of collections

When to use specific collections

Common collection features

