Chapter 10: Java Collection Framework

Collection Framework:

- The **Collection Framework** in Java, gives you
  - **lists, sets and maps**
- to satisfy most of your coding needs.
- They've been tried and tested.
- The Collections Framework in the **java.util package** is loaded with **interfaces and utilities**.

List:

List	Ordered	Sorted
ArrayList	By Index	No
Vector	By Index	No

- A List cares about the **index.**
- **ArrayList:**
  - It as a **growable array.**
  - It gives you **fast iteration and fast random access**. It is an ordered collection (by index), but **not sorted**.
- **Vector:**
  - Vector is basically the same as an ArrayList, but **Vector** methods are **synchronized** for thread safety.

Set:

Set	Ordered	Sorted
HashSet	No	No
LinkedHashSet	By insertion order	No
TreeSet	Sorted	By Natural order

- A Set cares about uniqueness—it **doesn't allow duplicates**.
- **HashSet:**
  - A HashSet is an **unsorted, unordered Set**.
- **LinkedHashSet:**
  - LinkedHashSet lets you iterate through the elements in the **order in** which they **were inserted**.
- **TreeSet:**
  - The **TreeSet guarantees** that the elements will be in ascending order, according to **natural order**.

Map:

Map	Ordered	Sorted
HashMap	No	No
LinkedHashMap	By Insertion Order	No
TreeMap	Sorted	By natural order

- A Map cares about **unique identifiers**. You map a unique **key** (the ID) to a specific **value**, where both the key and the value are, of course, objects.
- **HashMap:**
  - A HashMap is an **unsorted, unordered Set**.
- **LinkedHashMap:**
  - LinkedHashMap lets you iterate through the elements in the **order in** which they **were inserted**.
- **TreeMap:**
  - The **TreeMap guarantees** that the elements will be in ascending order, according to **natural order**.