

Java Collections Framework - Cheat Sheet

Hierarchy:

Collection (interface)

|-- List (ArrayList, LinkedList, Vector, Stack)

|-- Set (HashSet, LinkedHashSet, TreeSet)

|-- Queue (PriorityQueue, LinkedList, ArrayDeque)

 |-- Deque (ArrayDeque, LinkedList)

Map (interface)

|-- HashMap, LinkedHashMap, TreeMap, Hashtable

Common Collection Methods:

add(), addAll(), remove(), removeAll(), retainAll(), clear(), size(), isEmpty(), contains(), containsAll(), iterator(), toArray()

Unique Methods:

List: get(), set(), add(index, e), remove(index), indexOf(), lastIndexOf(), listIterator(), subList()

Set (TreeSet): first(), last(), headSet(), tailSet(), subSet(), ceiling(), floor(), higher(), lower()

Queue: offer(), poll(), peek(), remove(), element()

Deque: offerFirst(), offerLast(), pollFirst(), pollLast(), peekFirst(), peekLast(), addFirst(), addLast(), removeFirst(), removeLast()

Map: put(), get(), remove(), containsKey(), containsValue(), keySet(), values(), entrySet(), replace(), getOrDefault(), compute(), merge()

Time Complexity (Common Ops)

Collection	Access	Insert/Delete	Search
ArrayList	O(1)	O(n) (middle)	O(n)
LinkedList	O(n)	O(1) (if ref known)	O(n)
HashSet/HashMap	O(1) avg	O(1) avg	O(1) avg
TreeSet/TreeMap	O(log n)	O(log n)	O(log n)
PriorityQueue	-	O(log n)	O(1) (peek)