

Java Collection Classes - Built-in Methods

1 ArrayList Methods

- `add(E e)` — add element at end
- `add(int index, E e)` — add at specific index
- `get(int index)` — get element
- `set(int index, E e)` — replace element
- `remove(int index)` — remove by index
- `remove(Object o)` — remove by value
- `clear()` — remove all elements
- `size()` — current size
- `isEmpty()` — check if empty
- `contains(Object o)` — check existence
- `indexOf(Object o)` — first index
- `lastIndexOf(Object o)` — last index
- `toArray()` — convert to array
- `clone()` — shallow copy
- `subList(int, int)` — view part list
- `ensureCapacity(int)` — ensure capacity
- `trimToSize()` — trim capacity
- `iterator()`, `listIterator()` — iterators
- `forEach(Consumer)` — apply action
- `removeIf(Predicate)` — remove by condition
- `replaceAll(UnaryOperator)` — replace elements
- `sort(Comparator)` — sort list
- `addAll(Collection)` — bulk add
- `retainAll(Collection)` — keep common
- `removeAll(Collection)` — bulk remove
- `containsAll(Collection)` — bulk contains

2 LinkedList Methods

- Same as ArrayList + below
- `addFirst(E e)` — add at front
- `addLast(E e)` — add at end
- `getFirst()` — get front
- `getLast()` — get end
- `removeFirst()` — remove front
- `removeLast()` — remove end
- `offer(E e)` — add (queue)
- `poll()` — remove front (queue)
- `peek()` — view front

3 Vector Methods

- Same as ArrayList + below
- `capacity()` — current capacity
- `ensureCapacity(int)` — ensure capacity
- `trimToSize()` — trim capacity
- `elements()` — Enumeration iterator

4 Stack Methods

- `push(E e)` — add to top
- `pop()` — remove top
- `peek()` — view top
- `empty()` — check empty
- `search(Object o)` — 1-based position from top

5 HashSet / LinkedHashSet Methods

- `add(E e)` — add element
- `remove(Object o)` — remove element
- `contains(Object o)` — check existence
- `isEmpty()` — check empty
- `size()` — size
- `clear()` — clear set
- `iterator()` — get iterator
- `addAll(Collection)` — bulk add
- `retainAll(Collection)` — keep common
- `removeAll(Collection)` — bulk remove
- `containsAll(Collection)` — bulk contains

6 TreeSet Methods

- Set + below
- `first()` — first element
- `last()` — last element
- `higher(E e)` — next higher
- `lower(E e)` — next lower
- `ceiling(E e)` — \geq element
- `floor(E e)` — \leq element
- `headSet(E e)` — less than e
- `tailSet(E e)` — greater than or equal e
- `subSet(E e1, E e2)` — between e1 and e2

7 HashMap / LinkedHashMap Methods

- `put(K k, V v)` — add/update pair
- `get(K k)` — get value
- `remove(K k)` — remove pair

- `containsKey(K k)` — has key
- `containsValue(V v)` — has value
- `size()` — size
- `isEmpty()` — empty check
- `clear()` — clear map
- `keySet()` — get keys
- `values()` — get values
- `entrySet()` — get pairs
- `putAll(Map)` — bulk put

8 TreeMap Methods

- `firstKey()` — first key
- `lastKey()` — last key
- `ceilingKey(K k)` — $\geq k$
- `floorKey(K k)` — $\leq k$
- `higherKey(K k)` — $> k$
- `lowerKey(K k)` — $< k$
- `headMap(K k)` — $< k$ map
- `tailMap(K k)` — $\geq k$ map
- `subMap(K k1, K k2)` — between keys

9 PriorityQueue Methods

- `add(E e)` — add
- `offer(E e)` — add (queue-style)
- `peek()` — view head
- `poll()` — remove head
- `remove(Object o)` — remove element
- `contains(Object o)` — check existence
- `clear()` — clear queue
- `size()` — size

10 ArrayDeque Methods

- `addFirst(E e)` — add front
- `addLast(E e)` — add rear
- `removeFirst()` — remove front
- `removeLast()` — remove rear
- `peekFirst()` — view front
- `peekLast()` — view rear
- `offerFirst(E e)` — queue front add
- `offerLast(E e)` — queue rear add
- `pollFirst()` — queue front remove
- `pollLast()` — queue rear remove