

^_^ CSE 143 MIDTERM EXAM CHEAT SHEET ^_^

Constructing Various Collections

```

List<Integer> list = new ArrayList<Integer>();
Queue<Double> queue = new LinkedList<Double>();
Stack<String> stack = new Stack<String>();
Set<String> words = new HashSet<String>();
Map<String, Integer> counts = new TreeMap<String, Integer>();
    
```

Methods Found in ALL collections (Lists, Stacks, Queues, Sets, Maps)

| | |
|-----------------------------|---|
| clear() | removes all elements of the collection |
| equals(collection) | returns true if the given other collection contains the same elements |
| isEmpty() | returns true if the collection has no elements |
| size() | returns the number of elements in the collection |
| toArray() | returns an array of the elements in this collection |
| toString() | returns a string representation such as "[10, -2, 43]" |

Methods Found in both Lists and Sets (ArrayList, LinkedList, HashSet, TreeSet)

| | |
|--------------------------------|---|
| add(value) | adds value to collection (appends at end of list) |
| contains(value) | returns true if the given value is found somewhere in this collection |
| iterator() | returns an Iterator object to traverse the collection's elements |
| remove(value) | finds and removes the given value from this collection |
| removeAll(collection) | removes any elements found in the given collection from this one |
| retainAll(collection) | removes any elements <i>not</i> found in the given collection from this one |

List<E> Methods (10.1)

| | |
|-----------------------------|--|
| add(index, value) | inserts given value at given index, shifting subsequent values right |
| indexOf(value) | returns first index where given value is found in list (-1 if not found) |
| get(index) | returns the value at given index |
| lastIndexOf(value) | returns last index where given value is found in list (-1 if not found) |
| remove(index) | removes/returns value at given index, shifting subsequent values left |
| set(index, value) | replaces value at given index with given value |
| subList(from, to) | returns sub-portion at indexes from (inclusive) and to (exclusive) |

Stack<E> Methods

| | |
|----------------------|---|
| peek() | returns the top value from the stack without removing it |
| pop() | removes the top value from the stack and returns it; peek/pop throw an EmptyStackException if the stack is empty |
| push(value) | places the given value on top of the stack |

Queue<E> Methods

| | |
|---------------------|--|
| add(value) | places the given value at the back of the queue |
| peek() | returns the front value from the queue without removing it; returns null if the queue is empty |
| remove() | removes the value from the front of the queue and returns it; throws a NoSuchElementException if the queue is empty |

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Map<K, V> Methods (11.3)

| | |
|----------------------------|---|
| containsKey (key) | true if the map contains a mapping for the given key |
| get (key) | the value mapped to the given key (null if none) |
| keySet () | returns a Set of all keys in the map |
| put (key, value) | adds a mapping from the given key to the given value |
| putAll (map) | adds all key/value pairs from the given map to this map |
| remove (key) | removes any existing mapping for the given key |
| toString () | returns a string such as "{a=90, d=60, c=70}" |
| values () | returns a Collection of all values in the map |

String Methods (3.3, 4.4)

| | |
|---------------------------------|---|
| charAt (i) | the character in this String at a given index |
| contains (str) | true if this String contains the other's characters inside it |
| endsWith (str) | true if this String ends with the other's characters |
| equals (str) | true if this String is the same as <i>str</i> |
| equalsIgnoreCase (str) | true if this String is the same as <i>str</i> , ignoring capitalization |
| indexOf (str) | first index in this String where given String begins (-1 if not found) |
| lastIndexOf (str) | last index in this String where given String begins (-1 if not found) |
| length () | number of characters in this String |
| startsWith (str) | true if this String begins with the other's characters |
| substring (i, j) | characters in this String from index <i>i</i> (inclusive) to <i>j</i> (exclusive) |
| toLowerCase (), toUpperCase () | a new String with all lowercase or uppercase letters |

Random Methods (5.1)

| | |
|------------------------|---|
| nextBoolean () | random true/false result |
| nextDouble () | random real number between 0.0 and 1.0 |
| nextInt () | random integer |
| nextInt (max) | random integer between 0 and <i>max</i> |