Programs | Class Room Assignment-11

## Java Collection: ArrayList Exercises

**1.** Write a Java program to create an array list, add some colors (strings) and print out the collection.

**2.** Write a Java program to iterate through all elements in an array list.

**3.** Write a Java program to insert an element into the array list at the first position.

**4.** Write a Java program to retrieve an element (at a specified index) from a given array list.

**5.** Write a Java program to update an array element by the given element.

**6.** Write a Java program to remove the third element from an array list.

**7.** Write a Java program to search for an element in an array list.

**8.** Write a Java program to sort a given array list.

**9.** Write a Java program to copy one array list into another.

**10.** Write a Java program to shuffle elements in an array list.

**11.** Write a Java program to reverse elements in an array list.  
**12.** Write a Java program to extract a portion of an array list.  
**13.** Write a Java program to compare two array lists.  
**14.** Write a Java program that swaps two elements in an array list.  
**15.** Write a Java program to join two array lists.  
**16.** Write a Java program to clone an array list to another array list.  
**17.** Write a Java program to empty an array list.  
**18.** Write a Java program to test whether an array list is empty or not.  
**19.** Write a Java program for trimming the capacity of an array list.  
**20.** Write a Java program to increase an array list size.  
**21.** Write a Java program to replace the second element of an ArrayList with the specified element.  
**22.** Write a Java program to print all the elements of an ArrayList using the elements' position.

## Java Collection: LinkedList Exercises

**1.** Write a Java program to append the specified element to the end of a linked list.

**2.** Write a Java program to iterate through all elements in a linked list.

**3.** Write a Java program to iterate through all elements in a linked list starting at the specified position.

**4.** Write a Java program to iterate a linked list in reverse order.

**5.** Write a Java program to insert the specified element at the specified position in the linked list

**6.** Write a Java program to insert elements into the linked list at the first and last positions

**7.** Write a Java program to insert the specified element at the front of a linked list.

**8.** Write a Java program to insert the specified element at the end of a linked list.

**9.** Write a Java program to insert some elements at the specified position into a linked list.

**10.** Write a Java program to get the first and last occurrence of the specified elements in a linked list.

**11.** Write a Java program to display elements and their positions in a linked list.

**12.** Write a Java program to remove a specified element from a linked list.

**13.** Write a Java program to remove the first and last elements from a linked list.

**14.** Write a Java program to remove all elements from a linked list.

**15.** Write a Java program that swaps two elements in a linked list.

**16.** Write a Java program to shuffle elements in a linked list.

**17.** Write a Java program to join two linked lists.

**18.** Write a Java program to copy a linked list to another linked list.

**19.** Write a Java program to remove and return the first element of a linked list.

**20.** Write a Java program to retrieve, but not remove, the first element of a linked list.

**21.** Write a Java program to retrieve, but not remove, the last element of a linked list.

**22.** Write a Java program to check if a particular element exists in a linked list.

**23.** Write a Java program to convert a linked list to an array list.

**24.** Write a Java program to compare two linked lists.

**25.** Write a Java program to check if a linked list is empty or not.

**26.** Write a Java program to replace an element in a linked list.

## Java Collection: HashSet Exercises

**1.** Write a Java program to append the specified element to the end of a hash set.

**2.** Write a Java program to iterate through all elements in a hash list.

**3.** Write a Java program to get the number of elements in a hash set.

**4.** Write a Java program to empty an hash set.

**5.** Write a Java program to test if a hash set is empty or not.

**6.** Write a Java program to clone a hash set to another hash set.

**7.** Write a Java program to convert a hash set to an array.

**8.** Write a Java program to convert a hash set to a tree set.

**9.** Write a Java program to find numbers less than 7 in a tree set.

**10.** Write a Java program to compare two hash set.

**11.** Write a Java program to compare two sets and retain elements that are the same.

**12.** Write a Java program to remove all elements from a hash set.

## Java Collection: TreeSet Exercises

**1.** Write a Java program to create a tree set, add some colors (strings) and print out the tree set.

**2.** Write a Java program to iterate through all elements in a tree set.

**3.** Write a Java program to add all the elements of a specified tree set to another tree set.

**4.** Write a Java program to create a reverse order view of the elements contained in a given tree set.

**5.** Write a Java program to get the first and last elements in a tree set.

**6.** Write a Java program to clone a tree set list to another tree set.

**7.** Write a Java program to get the number of elements in a tree set.

**8.** Write a Java program to compare two tree sets.

**9.** Write a Java program to find numbers less than 7 in a tree set.

**10.** Write a Java program to get the element in a tree set which is greater than or equal to the given element.

**11.** Write a Java program to get the element in a tree set less than or equal to the given element.

**12.** Write a Java program to get the element in a tree set strictly greater than or equal to the given element.

**13.** Write a Java program to get an element in a tree set that has a lower value than the given element.

**14.** Write a Java program to retrieve and remove the first element of a tree set.

**15.** Write a Java program to retrieve and remove the last element of a tree set.

**16.** Write a Java program to remove a given element from a tree set.

## Java Collection: PriorityQueue Exercises

**1.** Write a Java program to create a priority queue, add some colors (strings) and print out the elements of the priority queue.

**2.** Write a Java program to iterate through all elements in the priority queue.

**3.** Write a Java program to add all the elements of a priority queue to another priority queue.

**4.** Write a Java program to insert a given element into a priority queue.

**5.** Write a Java program to remove all elements from a priority queue.

**6.** Write a Java program to count the number of elements in a priority queue.

**7.** Write a Java program to compare two priority queues.

**8.** Write a Java program to retrieve the first element of the priority queue.

**9.** Write a Java program to retrieve and remove the first element.

**10.** Write a Java program to convert a priority queue to an array containing all its elements.

**11.** Write a Java program to convert a Priority Queue element to string representations.

**12.** Write a Java program to change priorityQueue to maximum priority queue.

## Java Collection: HashMap Exercises

**1.** Write a Java program to associate the specified value with the specified key in a HashMap.

**2.** Write a Java program to count the number of key-value (size) mappings in a map.

**3.** Write a Java program to copy all mappings from the specified map to another map.

**4.** Write a Java program to remove all mappings from a map.

**5.** Write a Java program to check whether a map contains key-value mappings (empty) or not.

**6.** Write a Java program to get a shallow copy of a HashMap instance.

**7.** Write a Java program to test if a map contains a mapping for the specified key.

**8.** Write a Java program to test if a map contains a mapping for the specified value.

**9.** Write a Java program to create a set view of the mappings contained in a map.

**10.** Write a Java program to get the value of a specified key in a map.

**11.** Write a Java program to get a set view of the keys contained in this map.

**12.** Write a Java program to get a collection view of the values contained in this map.

## Java Collection: TreeMap Exercises

**1.** Write a Java program to associate the specified value with the specified key in a Tree Map.

**2.** Write a Java program to copy Tree Map's content to another Tree Map.

**3.** Write a Java program to search for a key in a Tree Map.

**4.** Write a Java program to search for a value in a Tree Map.

**5.** Write a Java program to get all keys from a Tree Map.

**6.** Write a Java program to delete all elements from a Tree Map.

**7.** Write a Java program to sort keys in a Tree Map by using a comparator.

**8.** Write a Java program to get a key-value mapping associated with the greatest key and the least key in a map.

**9.** Write a Java program to get the first (lowest) key and the last (highest) key currently in a map.

**10.** Write a Java program to get a reverse order view of the keys contained in a given map.

**11.** Write a Java program to get a key-value mapping associated with the greatest key less than or equal to the given key.

**12.** Write a Java program to get the greatest key less than or equal to the given key.

**13.** Write a Java program to get the portion of a map whose keys are strictly less than a given key.

**14.** Write a Java program to get the portion of this map whose keys are less than (or equal to, if inclusive is true) a given key.

**15.** Write a Java program to get the least key strictly greater than the given key. Return null if there is no such key.

**16.** Write a Java program to get a key-value mapping associated with the greatest key strictly less than the given key. Return null if there is no such key.

**17.** Write a Java program to get the greatest key strictly less than the given key. Return null if there is no such key.

**18.** Write a Java program to get a NavigableSet view of keys in a map.

**19.** Write a Java program to remove and get a key-value mapping associated with the least key in a map.

**20.** Write a Java program to remove and get a key-value mapping associated with the greatest key in this map.

**21.** Write a Java program to get the portion of a map whose keys range from a given key (inclusive) to another key (exclusive).

**22.** Write a Java program to get the portion of a map whose keys range from a given key to another key.

**23.** Write a Java program to get a portion of a map whose keys are greater than or equal to a given key.

**24.** Write a Java program to get a portion of a map whose keys are greater than a given key.

**25.** Write a Java program to get a key-value mapping associated with the least key greater than or equal to the given key. Return null if there is no such key.

**26.** Write a Java program to get the least key greater than or equal to the given key. Returns null if there is no such key.