**LinkedList in Java with Example**

LinkedList is a doubly-linked list implementation of the List and Deque interfaces. Here is the list of the tutorials published on**LinkedList class**.

LinkedList is an implementation of List interface. Earlier we learnt about[**ArrayList class**](http://beginnersbook.com/2013/12/java-arraylist/) which also implements List Interface. In this tutorial we will see an example of LinkedList along with brief description of it’s methods.

**Example of LinkedList in Java**

import java.util.\*;

public class LinkedListExample {

public static void main(String args[]) {

/\* Linked List Declaration \*/

LinkedList<String> linkedlist = new LinkedList<String>();

/\*add(String Element) is used for adding

\* the elements to the linked list\*/

linkedlist.add("Item1");

linkedlist.add("Item5");

linkedlist.add("Item3");

linkedlist.add("Item6");

linkedlist.add("Item2");

/\*Display Linked List Content\*/

System.out.println("Linked List Content: " +linkedlist);

/\*Add First and Last Element\*/

linkedlist.addFirst("First Item");

linkedlist.addLast("Last Item");

System.out.println("LinkedList Content after addition: " +linkedlist);

/\*This is how to get and set Values\*/

Object firstvar = linkedlist.get(0);

System.out.println("First element: " +firstvar);

linkedlist.set(0, "Changed first item");

Object firstvar2 = linkedlist.get(0);

System.out.println("First element after update by set method: " +firstvar2);

/\*Remove first and last element\*/

linkedlist.removeFirst();

linkedlist.removeLast();

System.out.println("LinkedList after deletion of first and last element: " +linkedlist);

/\* Add to a Position and remove from a position\*/

linkedlist.add(0, "Newly added item");

linkedlist.remove(2);

System.out.println("Final Content: " +linkedlist);

}

}

Output:

Linked List Content: [Item1, Item5, Item3, Item6, Item2]

LinkedList Content after addition: [First Item, Item1, Item5, Item3, Item6, Item2, Last Item]

First element: First Item

First element after update by set method: Changed first item

LinkedList after deletion of first and last element: [Item1, Item5, Item3, Item6, Item2]

Final Content: [Newly added item, Item1, Item3, Item6, Item2]

**Methods of LinkedList class:**

For all the examples in the below methods, consider llistobj as a reference for LinkedList<String>.

LinkedList<String> llistobj  = new LinkedList<String>();

1) **boolean add(Object item)**: It adds the item at the end of the list.

llistobj.add("Hello");

It would add the string “Hello” at the end of the linked list.

2) **void add(int index, Object item)**: It adds an item at the given index of the the list.

llistobj.add(2, "bye");

This will add the string “bye” at the 3rd position( 2 index is 3rd position as index starts with 0).

3) **boolean addAll(Collection c)**: It adds all the elements of the specified collection c to the list. It throws NullPointerException if the specified collection is null. Consider the below example –

LinkedList<String> llistobj = new LinkedList<String>();

ArrayList<String> arraylist= new ArrayList<String>();

arraylist.add("String1");

arraylist.add("String2");

llistobj.addAll(arraylist);

This piece of code would add all the elements of ArrayList to the LinkedList.

4) **boolean addAll(int index, Collection c)**: It adds all the elements of collection c to the list starting from a give index in the list. It throws NullPointerException if the collection c is null and IndexOutOfBoundsException when the specified index is out of the range.

llistobj.add(5, arraylist);

It would add all the elements of the ArrayList to the LinkedList starting from position 6 (index 5).

5) **void addFirst(Object item)**: It adds the item (or element) at the first position in the list.

llistobj.addFirst("text");

It would add the string “text” at the beginning of the list.

6) **void addLast(Object item)**: It inserts the specified item at the end of the list.

llistobj.addLast("Chaitanya");

This statement will add a string “Chaitanya” at the end position of the linked list.

7) **void clear()**: It removes all the elements of a list.

llistobj.clear();

8) **Object clone()**: It returns the copy of the list.

For e.g. My linkedList has four items: text1, text2, text3 and text4.

Object str= llistobj.clone();

System.out.println(str);

Output: The output of above code would be:

[text1, text2, text3, text4]

9) **boolean contains(Object item)**: It checks whether the given item is present in the list or not. If the item is present then it returns true else false.

boolean var = llistobj.contains("TestString");

It will check whether the string “TestString” exist in the list or not.

10) **Object get(int index)**: It returns the item of the specified index from the list.

Object var = llistobj.get(2);

It will fetch the 3rd item from the list.

11) **Object getFirst()**: It fetches the first item from the list.

Object var = llistobj.getFirst();

12) **Object getLast()**: It fetches the last item from the list.

Object var= llistobj.getLast();

13) **int indexOf(Object item)**: It returns the index of the specified item.

llistobj.indexOf("bye");

14) **int lastIndexOf(Object item)**: It returns the index of last occurrence of the specified element.

int pos = llistobj.lastIndexOf("hello);

integer variable pos will be having the index of last occurrence of string “hello”.

15) **Object poll()**: It returns and removes the first item of the list.

Object o = llistobj.poll();

16) **Object pollFirst()**: same as poll() method. Removes the first item of the list.

Object o = llistobj.pollFirst();

17) **Object pollLast()**: It returns and removes the last element of the list.

Object o = llistobj.pollLast();

18) **Object remove()**: It removes the first element of the list.

llistobj.remove();

19) **Object remove(int index)**: It removes the item from the list which is present at the specified index.

llistobj.remove(4);

It will remove the 5th element from the list.

20) **Object remove(Object obj)**: It removes the specified object from the list.

llistobj.remove("Test Item");

21) **Object removeFirst()**: It removes the first item from the list.

llistobj.removeFirst();

22) **Object removeLast()**: It removes the last item of the list.

llistobj.removeLast();

23) **Object removeFirstOccurrence(Object item)**: It removes the first occurrence of the specified item.

llistobj.removeFirstOccurrence("text");

It will remove the first occurrence of the string “text” from the list.

24) **Object removeLastOccurrence(Object item)**: It removes the last occurrence of the given element.

llistobj.removeLastOccurrence("String1);

It will remove the last occurrence of string “String1″.

25) **Object set(int index, Object item)**: It updates the item of specified index with the give value.

llistobj.set(2, "Test");

It will update the 3rd element with the string “Test”.

26)**int size()**: It returns the number of elements of the list.

llistobj.size();