

## Linked Lists Summary

A linked list is typically used for collecting sequences of objects requiring the need for efficient addition and removal of elements from the middle of the sequence. Linked lists are created by generating series of nodes that contain the values or references of the information needing to be stored. Because of the use of many nodes, linked lists require more storage space than ArrayLists. When updating linked lists only the previous and following node needs to be updated to accept a new node or if a node is removed, no other data must be changed. In contrast arraylists require the relocation of every data set after the updated piece to sustain a connected series of data. The down side of using linked lists is access to the individual nodes are linear so for example, to access node five, one through four must first be accessed, therefore random access is not possible solely through the list's features.

Linked lists therefore must utilize iterators to describe and access positions within the interior of the list. Similar to arrayLists, linked lists are generic classes that require input to determine the type of data that will be stored and both do have the ability to add or remove items in the middle of the series but for linked lists the methods to do so belong to the iterators that traverse the lists instead of the linkedList class. Arrays do not need to use iterators because they have direct access to the interior data sets of their class through their own supplied methods.