KEY POINTS

Same as a mathematical set:

- no duplicates
- unordered
- supports membership tests.

⇒ Like keys in a map w/o aux. values.

⇒ Typically implemented using a linked list, so we need an iterator for traversal.

⇒ Has $O(n)$ space comp.

* Generic Merging

$a < b$?
$b < a$?
$a = b$?

not needed for $\cap$ aux functions for ADT

For union, an ordered set can be produced by only continuing through B if $b > a$ AND $b \neq a$.

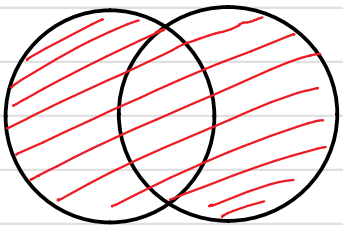
NAME/DATE/SUBJECT

Set ADT

NOTES

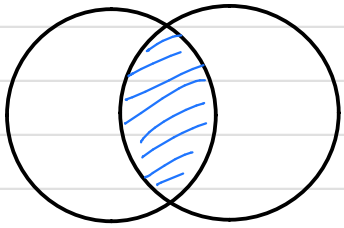
Membership tests: anything that checks if an element is part of a set.

Set operations recap:



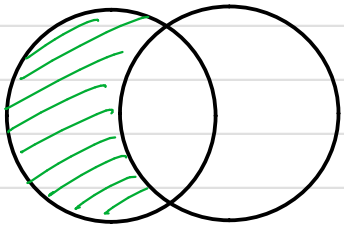
$S \cup T$

s.addAll(T)



$S \cap T$

s.retainAll(T)



$S - T$

s.removeAll(T)

Basic ADT functions:

- add(e) ↑ only if not present
- remove(e)
- contains(e)
- iterator

A set is typically created using a linked list in canonical order.

SUMMARY

A linked list with no duplicates, and can be used with set operations. They also work with efficient membership tests. The generic merge operations take place in $O(n_a + n_b)$ linear time - only if aux. are $O(1)$.