Java Stuff

Outline

- Scanner
- ArrayList
- Sets
- PriorityQueue
- Queue
- Stack (lol)
- Comparable Interface
- ArrayDeque

Scanner

Allows for reading in from standard input or files

Scanner

Allows for reading in from **standard input** or files

Scanner

Allows for reading in from **standard input** or files

Highlights:

Scanner

Allows for reading in from **standard input** or files

Highlights:

- next()
- nextInt()
- nextDouble()
- nextLong()
- **nextLine()**
- **hasNext()**

ArrayList

Unbounded array

ArrayList

Unbounded array

Can be iterated over

ArrayList

Unbounded array

Can be iterated over

If removal if frequent, ArrayList should be avoided!

ArrayList

Unbounded array

Can be iterated over

If removal if frequent, ArrayList should be avoided!

Highlights

ArrayList

Unbounded array

Can be iterated over

If removal if frequent, ArrayList should be avoided!

Highlights

- add()
- remove()
- size()
- **isEmpty()**

TreeSet

Sorted Set

TreeSet

Sorted Set

Needs to have comparable objects

TreeSet

Sorted Set

Needs to have comparable objects

Objects with the same value can only occur once

TreeSet

Sorted Set

Needs to have comparable objects

Objects with the same value can only occur once

Highlights

TreeSet

Sorted Set

Needs to have comparable objects

Objects with the same value can only occur once

Highlights

- add()
- remove()
- contains()
- size()
- isEmpty()
- lower()
- **higher()**
- ceiling()
- floor()
- Can also be iterated over

HashSet

Theoretically better than TreeSet

HashSet

Theoretically better than TreeSet

In practice it’s not...

PriorityQueue

Pretty good heap based queue

PriorityQueue

Pretty good heap based queue

Highlights

PriorityQueue

Pretty good heap based queue

Highlights

- add()
- poll()
- **peek()**
- size()
- isEmpty()

Queue

Standard FIFO data structure

Queue

Standard FIFO data structure

Highlights

Queue

Standard FIFO data structure

Highlights

- add()
- poll()
- **peek()**
- size()
- isEmpty()

Queue

Standard FIFO data structure

Highlights

- add()
- poll()
- **peek()**
- size()
- isEmpty()

If an array can be used it should

Stack

Stack

NEVER USE JAVA’S STACK

Stack

NEVER USE JAVA’S STACK

Use ArrayDeque instead (or an array if possible)

Comparable Interface

Example

Corrections

Scanner’s nextLine() is also good (Do NOT mix token reading (nextInt, next, nextDouble, nextLong) with line reading (nextLine), unless you are adept at reading input)

Scanner’s hasNext() is also good (but probably won’t be needed for our class; I have difficulty using this with the eclipse IDE)

ArrayList isempty() should be isEmpty()

TreeSet upper() should be higher() (lol)

Queue and PriorityQueue have a useful peek() function

ArrayDeque

Double Ended Queue

ArrayDeque

Double Ended Queue

Highlights

ArrayDeque

Double Ended Queue

Highlights

- peekFirst()
- peekLast()
- pollFirst()
- pollLast()
- size()
- isEmpty()
- addFirst()
- addLast()

Map

TreeMap and HashMap are amazing, built-in, set associative arrays

Map

TreeMap and HashMap are amazing, built-in, set associative arrays

Highlights

Map

TreeMap and HashMap are amazing, built-in, set associative arrays

Highlights

- keySet()
- get()
- put()
- size()
- isEmpty()
- containsKey()