

Agenda: Discussion Week 4

April 20, 2009

- ArrayList (add, remove, get, set, size, trimToSize, ensureCapacity)
- Always deliverable (tips for coding, debugging)
- PSA 2 (SensorData, SensorReader, DataProcessor)
- Suggestions?

ArrayList (1)

- add
 - `public boolean add(Object o)`
 - `public void add(int index, Object o)`
- remove
 - `public Object remove(int index)`
 - `public void removeRange(int from, int to)`
 - `public boolean remove(Object o)`
 - `public void clear()`
- get
 - `public Object get(int index)`
- set
 - `public Object set(int index, Object o)`

ArrayList (2)

- isEmpty
 - boolean isEmpty()
- size
 - int size()
- trimToSize
 - void trimToSize()
- capacity
 - Constructors
 - default: ArrayList()
 - specify initial capacity: ArrayList(int initialCapacity)
 - Getter method?
- ensureCapacity
 - void ensureCapacity(int minCapacity)

ArrayList(3)

- equals
 - public boolean equals(Object o)
- contains
 - boolean contains(Object o)
- indexOf
 - int indexOf(Object o)
- lastIndexOf
 - int lastIndexOf(Object o)
- toArray
 - public Object[] toArray()

Goal: Always Deliverable

- Code compiles and program works
 - The part that is done works
- Coding ideas
 - Start with comments, method stubs (outline)
 - Add code in small increments, compile and test frequently
- Debugging ideas
 - At compile time:
 - Look at compiler stack trace (description, line number)
 - Comment out code (locate the problem)
 - At runtime, use print statements (or java debugger)
 - Trace program execution, values of variables
- Suggestions?

PSA 2

- Due Thursday, April 23 at 11:59pm
- Classes
 - SensorData
 - corresponds to line of input data
 - SensorReader
 - reads lines of input data from webpage
 - DataProcessor
 - processes lists of SensorData

SensorData

- Corresponds to a line of input
- Data from two ocean buoy stations
 - Oceanside
 - Torrey Pines
 - 2 sets of data
- 15 input fields → 11 SensorData fields

SensorReader

- readDataLines
 - reads lines of data from webpage
- parseDataLine
 - parses each line, constructs new SensorData object
- getDataList
 - creates ArrayList of SensorData objects
 - calls readDataLines and parseDataLine

DataProcessor

- Processes ArrayLists of SensorData
- 2 sets of data (Oceanside, Torrey Pines)
- printDataList: prints list of SensorData objects
- findGoodSailingTimes: windy, no steep waves
- sortInOrder: create list, order and filter by swell wave height
- insertInOrder: order by swell wave height
- computeAverage: average overall wave height in list
- printDataList: print average, good sailing times, sorted/filtered list
- main
 - verify command line parameters
 - for each buoy: read sensor data, find good sailing times, sort and filter the list of good sailing times, compute average overall wave heights in this list, print results