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 insureCapacity(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