• Snarf the code for today’s class

• Look at the code
Announcements

• APT Set 1 - Due Jan 17
• Hangman - Due Jan 24

• Midterm 1 - FRIDAY, FEBRUARY 15
Today

- Lists
- Sets
- Tradeoffs

- Next time (Wednesday 1/23)
  - How to measure “speed”
  - Reading assignment posted
Data Structures

- Array
- ArrayList
- Set
- Map
misses left: 7

guesses so far:
# What letter do you want to guess: e
no e
Hangman

-- -- -- -- -- -- --
misses left:  6
guesses so far:  e
# What letter do you want to guess:  a
no a
Hangman

- What to keep track of
  - Secret word
    - showing blanks and correct guesses
  - Number of misses left until hanging occurs
  - Letters that have been guessed incorrectly

- What data structures???????????
Hangman

- What to keep track of
  - Secret word
    - showing blanks and correct guesses
  - Number of misses left until hanging occurs
  - Letters that have been guessed incorrectly

- What data structures???????????
• In Hangman
  • You have a secret word. How do you save it?

• [‘_’, ‘_’, ‘_’, ‘_’];
• [“_”, “_”, “_”, “_”];
• “_ _ _ _”;

• What are the tradeoffs?
Hangman

• What to keep track of
  • Secret word
    • showing blanks and correct guesses
  • Number of misses left until hanging occurs
  • Letters that have been guessed incorrectly

• What data structures???????????
Guessed letters

- How do we store already guessed letters in Hangman?

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<tr>
<th>Data Structure</th>
<th>How</th>
<th>Tradeoff</th>
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Guessed letters

- Array
  - Fixed size. How big should it be?
  - How many items are in array?
  - How do we search?
Guessed letters

• Array
  • Fixed size. How big should it be?
  • How many items are in array?
  • How do we search?
Guessed letters

• List
  • Add elements with .add
  • Query with .contains
  • Cannot store primitives!
    • int, char, double, boolean
  • Can store objects
    • Integer, Character, Double, Boolean, String
ArrayList

ArrayList<String> list = new ArrayList<String>();

// add to ArrayList
boolean canAdd = list.add("hello");

// check if element is in ArrayList
boolean inList = list.contains("hello");
Guessed letters

• Set
  • Add elements with .add
  • Query with .contains
  • Cannot store primitives!
    • int, char, double, boolean
  • Can store objects
    • Integer, Character, Double, Boolean, String

• Does not allow duplicates
HashSet<String> set = new HashSet<String>();

// add to HashSet
boolean canAdd = set.add("hello");

// check if element is in HashSet
boolean inSet = set.contains("hello");
Code

- Snarf the code for today’s class
- Run the code
Questions

• Answer the questions here:
  • [http://goo.gl/kcF8p](http://goo.gl/kcF8p)
Tradeoffs

• Array or ArrayList or HashSet?

• Memory and Speed
  • How do we measure “speed”?
Today

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• Sets
• Tradeoffs

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