Announcements

- Project #3 is due Thursday
**this (continued...)**

2. **Using “this” to call a constructor from another**
   Must be the first statement in the constructor

**Examples:**
- Rewrite the constructors from Student class
Visibility and “API”

Who are the “users” of classes we write?

Visibility:
- public
- private

What is “API”?
Examples:
- Scanner API
- MyGrid API
- API for BattleField class
Public vs. Private

Which members should be private?

Key idea: API should be a small and simple as possible!
Why? Two reasons...
Data Encapsulation (Demonstration)

Reason #1: We maintain control over state of our objects.

Let’s “encapsulate” the data in Student class:

1. Make the instance variables private
2. Provide getters and setters
3. Modify SubmitServer code so that it works again

Why is this better?

Example: Let’s enforce the policy that tokenLevel can never be negative (without modifying our API – Why is this important?)
Data Encapsulation (Demonstration 2)

Reason #2: Wider latitude for modifying what’s “under the hood” without having to re-code external modules.

Key Idea: Encapsulate things that might change with an interface that won’t change.

• What is “spaghetti code” (and why is it awful)?
• How should our projects be organized?

Demonstration:
Let’s modify the underlying data for a Student so that it uses a String to store the idNumber (without modifying the API!)