What questions do you have about things?
Have you been writing any cool code?
Have you seen anything cool in the news?
Did you do the curriculum discussion?
What do you think AI based automation is going to do to the workforce in the coming decade?
Refactoring in TDD

- Rely on your existing tests.
  - This is where the courage of TDD comes into play.
  - Unless you have Eclipse and do auto-refactoring. :)
- Still take small steps and runs tests a lot
- Expect to go from fail to pass.
Levels of Tests

- **Unit Test**
  - Tests functionality of a single unit of software.

- **Integration Test**
  - Test interactions between units.

- **System Test**
  - Test that the whole system meets specified requirements.
Test Suites

- Unit test systems allow you to define test suites.
- For JUnit use this:
  - @RunWith(Suite.class)
  - @Suite.SuiteClasses({Class1.class, Class2.class, ...})
Christopher Alexander, *Notes on the Synthesis of Form*

**Purpose**

- Control complexity
- Improve speed
- Communication
 Definitions

- **Gamma et al.**
  - Patterns are descriptions of communicating objects and classes that are customized to solve a general design problem in a particular context.

- **Beck et al.**
  - A design pattern is a particular prose form of recording design information such the designs which have worked well in the past can be applied again in similar situations in the future.
A measure of how strongly dependent on software unit is on others.

Dependencies are produced by any type of usage.

You typically want lower/weaker coupling.
Cohesion

- This is a measure of how focused a unit of software is.
- You want high cohesion. Things in a single unit should be closely related to one another.
- Applies at many different “unit” levels.
Law of Demeter

- Do not collaborate with indirect objects.
- Also called “Don't talk to Strangers”.
- Implementation, only call methods on things you have direct access to.
  - When taken a fit too far, this can lead to an opposite smell.
Can you see how UML helps for system design after seeing this material?