Testing
Admin stuff

• Projects are selected!
  • A legislative voting app (iOS app)
  • Browser-Base Game Level Editor
  • Itinerary Generator
  • Project Vida

• How is the team forming going?

• Design proposal due Oct. 30th (next Tuesday)
Testing

• Who conduct testing?
  • Developers, Q&A, clients

• What are the different stages of testing?

• Why do we need testing?

• *How much resources are spent in testing?*
Testing

• Who conduct testing?
  • Developers, Q&A, clients

• What are the different stages of testing?
  • unit testing, integration testing, system testing, acceptance testing

• Why do we need testing?
  • Catch bugs (defect testing)
  • Check if I follow all the requirements (Validation testing)
  • Providing “documentation” in XP
Outline

• How to judge the quality of a test suite
• How to design test suite
  • Manually
  • Automatically
How to judge the quality of a test suite

Comprehensive
As small as possible
When can we stop testing?
When is sufficient?

• Exhaustive testing
Coverage

- Testing property
- Testing space
- Coverage (%)
- Coverage criteria (coverage > K %)
Classical coverage criteria

• Statement coverage
• Branch coverage
• Path coverage
• Condition coverage
• Data-flow coverage
• Others ...

Background: control flow graph; data flow graph
Coverage

- Statement coverage: lines of code ( # lines executed / total # of lines)
- Branch coverage: (# of branch decisions / # of branches x 2)
  - 100% stmt coverage does not mean 100% branch coverage
- Path coverage
  - Unrealistic