Testing
Admin stuff

• Warm-up project due soon!
• Projects are selected!
Selected Projects

• SpeedER (Python/JavaScript)
• Graffiti (Mobile App: Swift)
• Type Type Game Collection (Python)
• DivAssist (Python/JavaScript)
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
When can we stop testing?
When is sufficient?

• Exhaustive testing
Coverage

• Testing property
• Testing space
• Coverage
• Coverage criteria
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