Testing
Projects are selected!

- Happiness Map (Swift) --- 1 opening (app development)
  - Annie, Valerie, Xavier
- Blockchain E-Ticket (Python/...) --- 3 openings
  - Hayden, Ross, Samantha
- Music Workout (Python/...) --- 1 opening (python, database, cloud, ios, ...)
  - Lucy, Manasvi
- AR Mobile Game (Swift/Go) --- full
  - Oliver, Sam

How is the team forming going?
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