

Random & DD

Hands-on

CS453, Spring 2020

Randooop

- Random JUnit test generator
- Calls a random sequence of methods using random input arguments
- Two types of tests
 - Regression test cases: assumes that the current behaviour is correct, and captures it with assertions
 - Error test cases: assumes that the current behaviour is incorrect, and captures what went wrong (for example, you can specify any thrown exception to mean failures)

Test Minimisation

- Even with a fairly simple example, it becomes obvious that Randoop generates inefficient, unnecessarily long test cases.
- In Randoop's defence, developers are well aware of this weakness in random testing, and provides a minimisation tool as well.

Today's aim

- Create a fake test target with a fault (artificial exception) that random testing (Randoop) can just about detect...
- Generate error test cases (configure Randoop so that it recognises checked exception for a fault)
- Minimise it using your own implementation of Delta Debugging (or any other approach that you see fit)
- We will use the zoom breakout rooms so that each team can share screens and work together