FindBugs – Tool Evaluation

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Tool Background

- A static analysis tool
- Open source under the LGPL
- Sponsored by the University of Maryland
- Differentiates itself through ease of use

The Tool

- Examines bytecode of class or JAR file
- Matches bytecode against list of programming idioms likely to be bugs
- Pattern checkers hard coded into the application

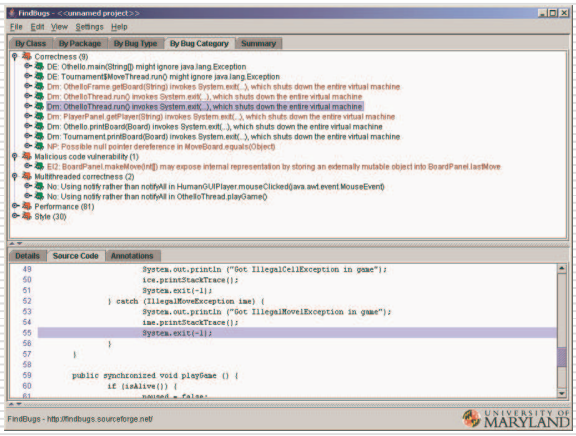
How to Use

- GUI
- Command Line
- Ant Task
- Eclipse Plugin

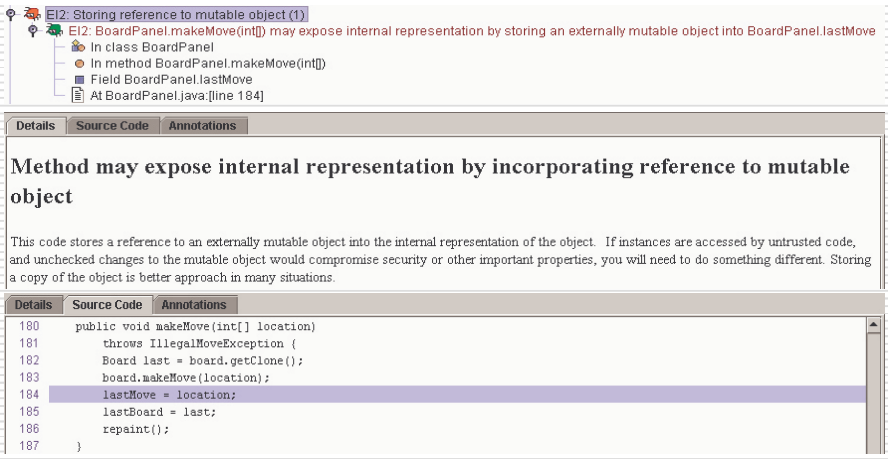
Additional Features

- Aims at integration into build process
- Filter Files
  - Select bugs for special treatment
  - Can select classes to ignore
- Bug Database
  - Tracks history of bugs
  - Records who introduces bugs

Tool Demo



Error Output



Sample Errors

- Bad casts of object references
- Dropped or ignored exception
- Dead local store
- Dubious method used
- Null pointer dereference
- Storing reference to mutable object

Benefits

- Easy to setup and use
- Clear explanation and indication of errors
- Low rate of false positives
- Integrates well into development processes

Drawbacks

- Checks the bytecode not the source
- No dynamic program checking
- Hard to add additional search patterns
- Buggy
  - Java Web Start version does not work
  - Fails to find standard classes sporadically
    - `java.lang.Object`
    - `java.lang.Thread`
    - `java.lang.Throwable`

Scope

- All java code no matter the version
- Bits and pieces of a project or the project as a whole
- Small to medium projects or companies
- Perfect supplement to code reviews

Recommendation

- Bottom Line: It's Practical
  - Limited overhead
  - Reasonable accuracy

Go for it!