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Overview

- Two parts:
  - antic – checks syntax
  - jlint – checks semantics
- Binaries available for Windows, source provided
  - Didn’t compile initially on OS X
  - It’s not a commercial product
Scope

- **antic** can be run on C, C++, Objective C, and Java
  - Suspicious use of operator priorities
    - `x && y & z`
  - No break in switch code
    - `switch (action) {
      case op_remove: do_remove();
      case op_insert: do_insert();
      case op_edit: do_edit();
    }`
  - Lower case l at the end of a long constant
    - `long l = 0x11111111;`
  - And more things that make code hard to read but aren’t language violations

Scope cont.

- **jlint** is run on Java only
  - Bounds checking
  - Deadlock detection
  - Race conditions
    - (Variables not declared volatile when accessed by multiple threads)
  - Catches redundant and suspicious calculations
    - `public boolean foo(int x, int y) {
      return ((x & 1) == y*2);
      // will be true only for x=y=0
    }`
Running

- $ antic –java "path to source dir"
  - Can also do antic –java *.java

- $ jlint "path to source dir"
  - Can also do jlint +verbose *.class

Errors Caught

- antic caught no errors in our code base

- jlint caught one error:
  - if(currentLine == null || currentLine == ")
  - Should have been:
    if(currentLine == null || currentLine.equals(""))
Errors Caught Cont.

- Jlint also caught two errors in the java.lang package when run on our code
  - java\lang\Double.java:1: hashCode() was overridden but not equals()
  - java\lang\Integer.java:1: hashCode() was overridden but not equals()
- These probably should have been suppressed, as it is very unlikely that either of these classes have errors with their equals() or hashCode() methods

Benefits

- Very fast
- Low learning curve
- Do not have to do any configuration
- Do not have to tell it anything about your code
  - Don’t even need the source code
    - But error messages are more descriptive with it
- Will help you write better code
  - if (x == y & 1) – there should probably be another set of parentheses for clarity
Drawbacks

- Does not cover a lot
  - Only caught one error in our code
- For synchronization it may produce too many warnings to be useful
  - They actually recommend disabling much of the synchronization warnings!

Side notes

- There’s lint like tools for other languages
  - splint for C
  - PC-Lint for C/C++
  - Matlab
- Ran the tool on some Sun code
  - They don’t mark some shared variables as volatile
- Ran the tool on a Hibernate class file
  - They don’t check for null sometimes
Conclusion

- jlint’s fairly helpful
- It does not catch many bugs, but will still save you time especially given the low overhead in learning and using it as a tool
- It would be nice to have integrated into Eclipse so it’s run on the fly and not later