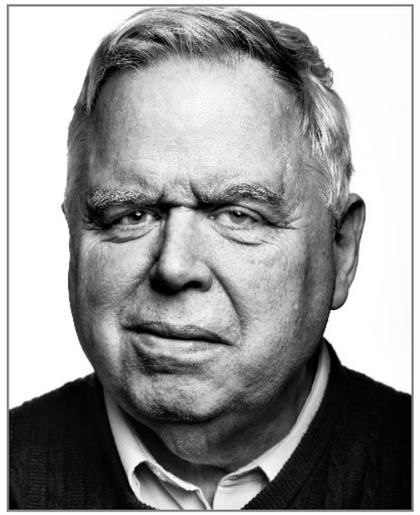
Static Analysis

Yegor Bugayenko

Lecture #23 out of 24
80 minutes



Steven Johnson

"**Lint** is a command which examines C source programs, detecting a number of bugs and obscurities. It enforces the type rules of C more strictly than the C compilers. It may also be used to enforce a number of portability restrictions involved in moving programs between different machines and/or operating systems. Another option detects a number of wasteful, or error prone, constructions which nevertheless are, strictly speaking, legal."

— Stephen C. Johnson. *Lint, a C Program Checker.* Bell Labs, 1977

Why do JavaScript developers use linters?

- Prevent Errors
- Augment Test Suites
- Avoid Ambiguous and Complex Code
- Maintain Code Consistency
- Faster Code Review
- Spare Developers' Feelings
- Save Discussion Time
- Learn About JavaScript

Source: Kristín Fjóla Tómasdóttir, Mauricio Aniche, and Arie Van Deursen. Why and How JavaScript Developers Use Linters. In *Proceedings of the 32nd International Conference on Automated Software Engineering (ASE)*, pages 578–589. IEEE, 2017

My Favorite Static Analyzers

- Java: SpotBugs, Checkstyle, PMD, Qulice[Bugayenko, 2014] for Java
- C++: Clang-Tidy
- Rust: clippy

Florian Obermüller

"We introduce the concept of code perfumes as the counterpart to code smells, indicating the correct application of programming practices considered to be good. Using a catalogue of 25 code perfumes for, we empirically demonstrate that these represent frequent practices in, and we find that better programs indeed contain more code perfumes."

— Florian Obermüller, Lena Bloch, Luisa Greifenstein, Ute Heuer, and Gordon Fraser. Code Perfumes: Reporting Good Code to Encourage Learners. In *Proceedings of the 16th Workshop in Primary and Secondary Computing Education*, pages 1–10, 2021

References

Yegor Bugayenko. Strict Control of Java Code Quality. https://www.yegor256.com/140813.html, August 2014. [Online; accessed 26-02-2024].

Stephen C. Johnson. *Lint, a C Program Checker*. Bell Labs, 1977.

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