

Code Smells

A **code smell** is a feature of the code that makes suggests something is wrong. They were introduced in the refactoring¹ book (chapter 3), and also extended and discussed in the clean code² book, chapter 17.

Comment smells • Obsolete comments or comments that hold information better maintained by other means like a version control system.

- Redundant comments that do little more than restate what the code says.
- Commented-out code

Function smells • Too many arguments on a function.

- Flag arguments (booleans).
- Wrong Levels of Abstraction. The code in each method should be at the same level of abstraction.
- Feature Envy. A function that uses more methods from another class than its own possibly belongs to that other class.
- Inappropriate Static functions. When creating static functions, make sure they would not more naturally be housed in the class of one of their parameters.
- Function names that don't correctly say what the functions do

Behavioral smells • Obvious behavior not implemented: Functions should implement reasonably expected behavior.

- Incorrect Behavior at the Boundaries.
- Code Duplication should be avoided (Don't Repeat Yourself)
- Parts of the code that have too much knowledge
- Dead code
- Artificial Coupling. Don't make parts of your application know about each other if they don't have to.
- Misplaced Responsibility. Code should go where it is most expected to be found, not where it is most convenient for the programmer. -Hidden temporal couplings.

Form • Vertical Separation. Variables and functions should be close to their use.

- Inconsistency. Do things in similar ways when possible.
- Obscured Intent. Various aspects of the code make it hard to discern the code's intent.
- Lack of Explanatory Variables. Make variables or functions out of complicated expressions.
- Magic numbers.
- Complex conditional tests that are not extracted as functions.

¹<https://learning.oreilly.com/library/view/refactoring-improving-the/9780134757681/ch03.xhtml>

²<https://learning.oreilly.com/library/view/clean-code/9780136083238/chapter17.html>