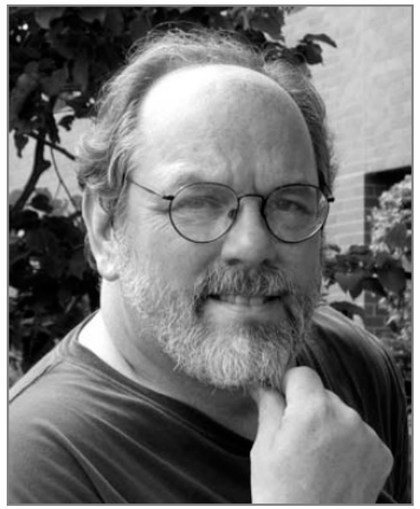
# Tech Debt

Yegor Bugayenko

Lecture #14 out of 24
80 minutes

The slidedeck was presented by the author in this YouTube Video



Ward Cunningham

"Shipping first time code is like going into debt. A little debt speeds development so long as it is paid back promptly with a rewrite. The danger occurs when the debt is not repaid. Every minute spent on not-quite-right code counts as interest on that debt."

— Ward Cunningham. Experience Report — The WyCash Portfolio Management System. In *Proceedings of the Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA)*, pages 29–30, 1992. doi:10.1145/157710.157715

# Puzzle Driven Development: Motivating Example

## Commit #1:

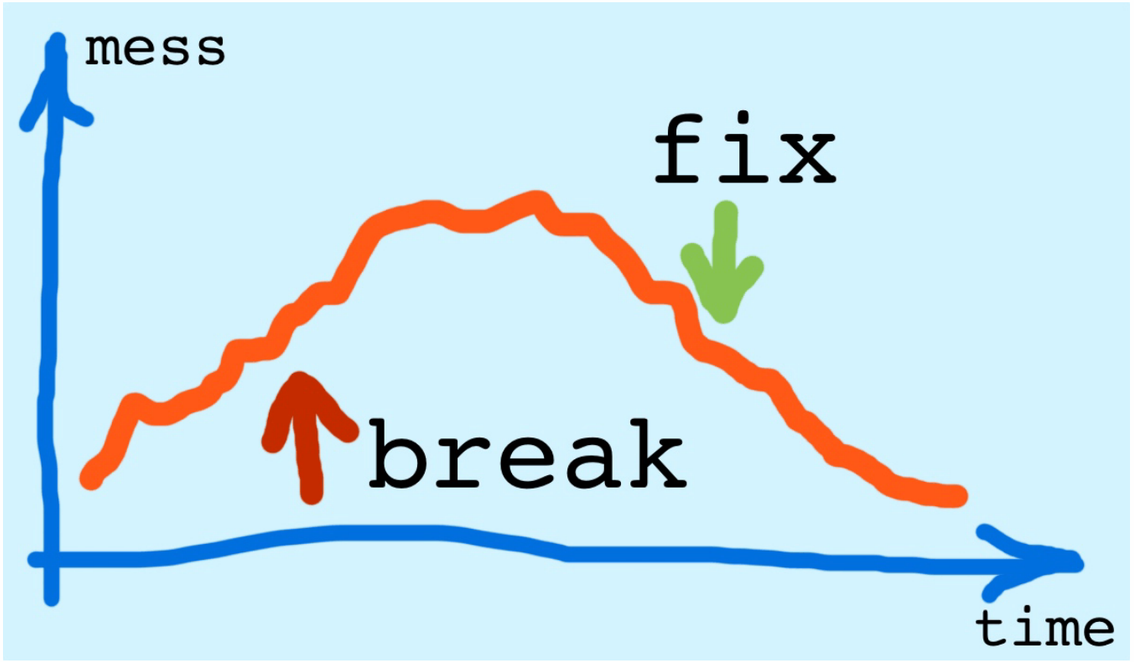
```
int fibonacci(int n) {
  if (n <= 2) {
    return 1;
  }
  // @todo I don't know
  // what to do when "n"
  // is larger than "2".
  // Implement it and uncomment
  // the assertion below.
  return 0;
}
assert fibonacci(0) == 1;
assert fibonacci(2) == 1;
// assert fibonacci(9) == 34;
```

## Commit #2:

```
int fibonacci(int n) {
  if (n <= 2) {
    return 1;
  }
  if (n == 9) {
    return 34;
  }
  // @todo Implement others
  // too, but I don't know
  // how to do it right.
  return 0;
}
assert fibonacci(2) == 1;
assert fibonacci(9) == 34;
// assert fibonacci(10) == 55;
```

```
\end{ffcode*}
}
\par\columnbreak\par
Commit \#3:\par
{\scriptsize\begin{ffcode}
int fibonacci(int n) {
  if (n <= 2) {
    return 1;
  }
  return fibonacci(n-1)
    + fibonacci(n-2);
}
assert fibonacci(0) == 1;
assert fibonacci(2) == 1;
assert fibonacci(9) == 34;
assert fibonacci(10) == 55;
```

## Break-and-Fix Cycle

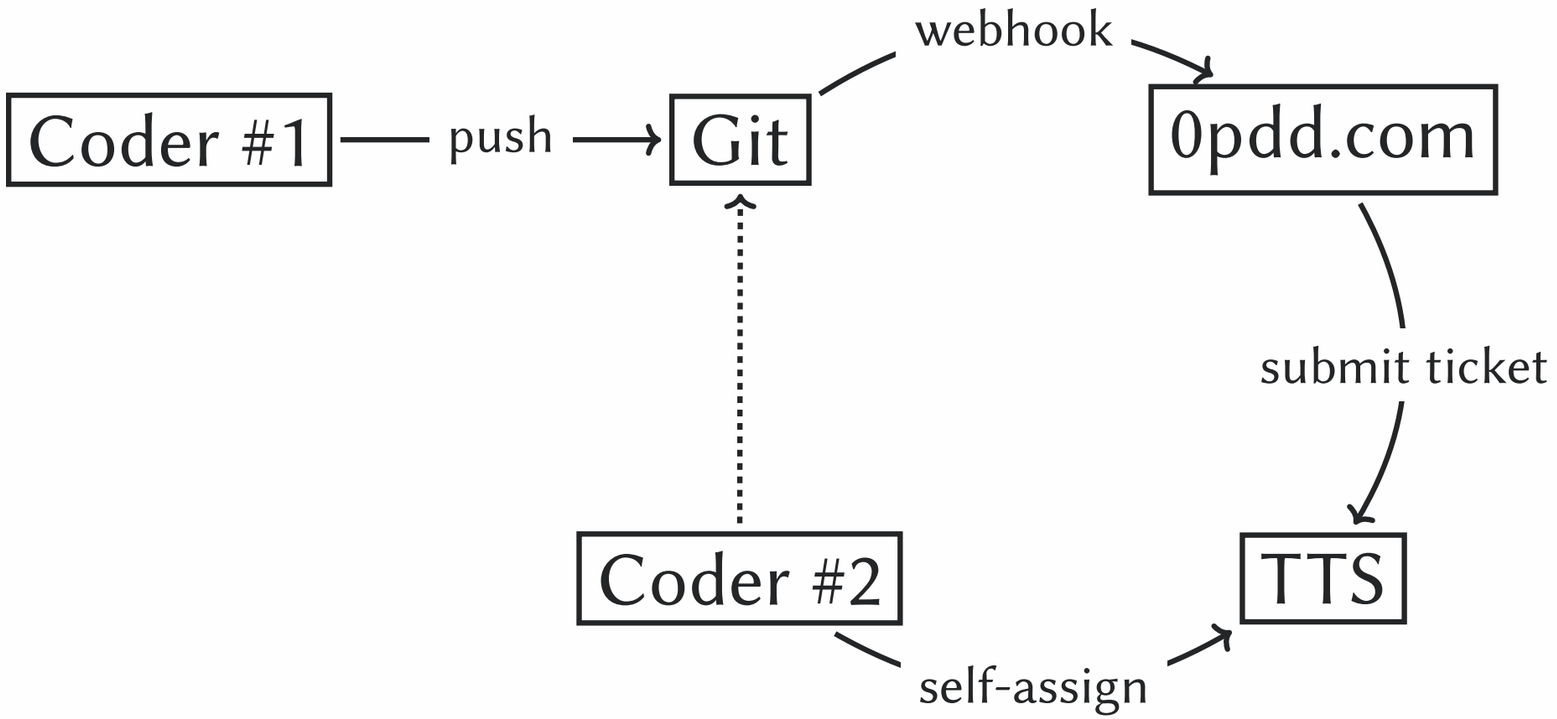



Source: https://www.yegor256.com/2014/04/12/puzzle-driven-development-by-roles.html

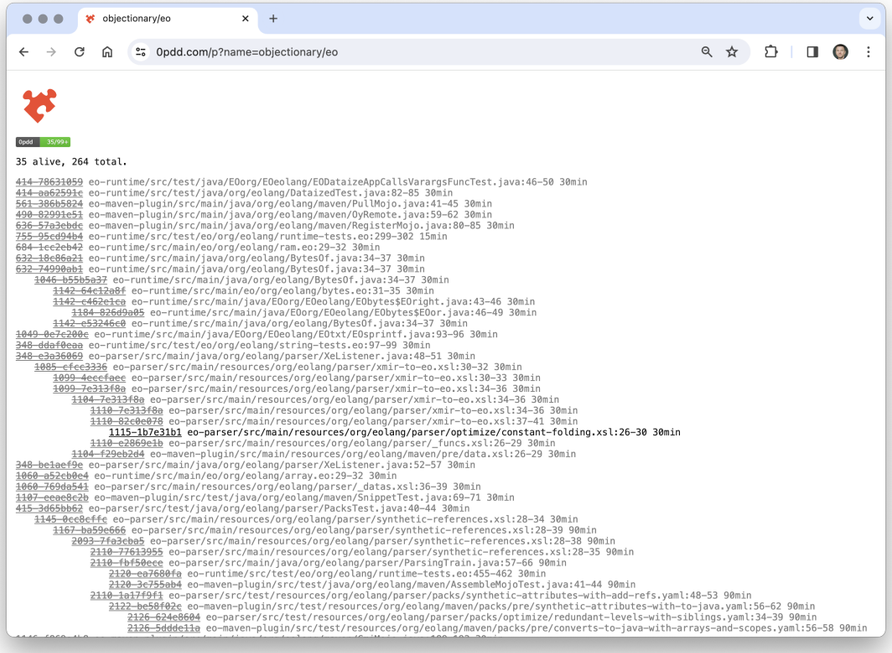
# www.0pdd.com


0pdd
0pdd.com
PDD puzzles collector.
How does it work?
Recent commits:
zold-io/zold-score zold-io/zold-ruby-sdk zold-io/zold.github.io zold-io/zold zold-io/wts.zold.io zold-io/quick zold-io/papers zold-io/java-api zold-io/blog.zold.io zerocracy/farm
Made by @yegor256 for Zerocracy.
96.0006%
0/81
stars 120
BUILD 2.34.1 3.1.4
4561

## PDD Pipeline

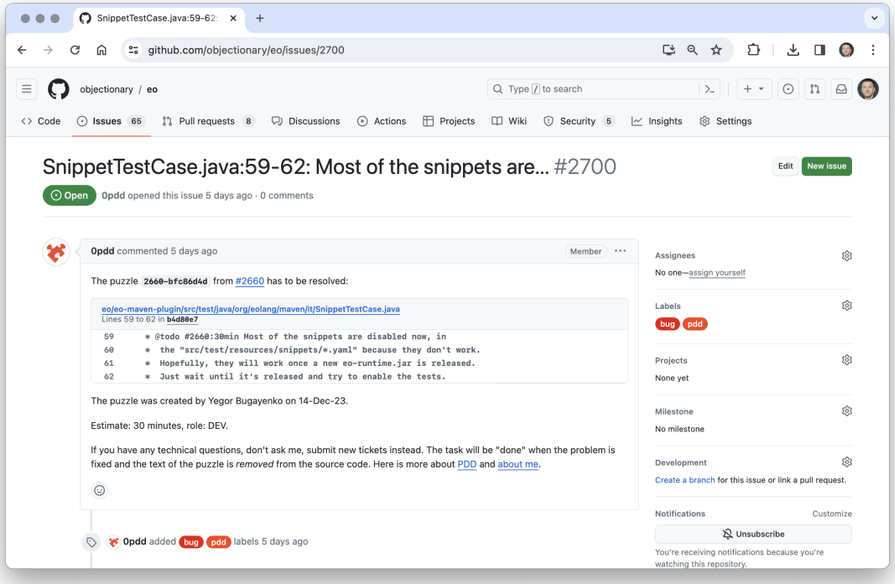


# 250+ Puzzles in objectionary/eo




Source: https://www.0pdd.com/p?name=objectionary/eo

# Sample Ticket Submitted by 0pdd.com to objectionary/eo




Source: https://github.com/objectionary/eo/issues/2700

Giancarlo Succi

“This paper presents the benefits of considering the entire backlog when prioritizing tasks. We employ an iterative approach using Particle Swarm Optimization to optimize a linear model with various preprocessing methods to determine the optimal model for task prioritization within a backlog.”

— Yegor Bugayenko, Mirko Farina, Artem Kruglov, Witold Pedrycz, Yaroslav Plaksin, and Giancarlo Succi. Automatically Prioritizing Tasks in Software Development. *IEEE Access*, 2023. doi:10.1109/access.2023.3305249

## Read this:

Puzzle Driven Development (2010)

PDD by Roles (2014)

PDD in Action (2017)

# References

Yegor Bugayenko, Mirko Farina, Artem Kruglov, Witold Pedrycz, Yaroslav Plaksin, and Giancarlo Succi. Automatically Prioritizing Tasks in Software Development. *IEEE Access*, 2023. doi:10.1109/access.2023.3305249.

Ward Cunningham. Experience Report — The WyCash Portfolio Management System. In *Proceedings of the Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA)*, pages 29–30, 1992. doi:10.1145/157710.157715.