Code Smell: What is it? When and Why does it happen?

"Code Smell This Has"
http://memegenerator.net/instance/38076475

A code smell is a surface indication that usually corresponds to a deeper problem in the system.

257/365 - feelin manly, getting my hands dirty.

This probably had a smell beforehand.

Why do we care?

ICSE 2015

International Conference
on Software Engineering

When and Why Your Code Starts to Smell Bad

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When and why are code smells introduced?

Android
Apache
Eclipse

All Git repositories
Different size
Different architectures
Different development bases

200 projects
579,671 commits mined
9,164 smell-introducing commits
4,803 issues

TABLE I
CHARACTERISTICS OF ECOSYSTEMS UNDER ANALYSIS.

Ecosystem	#Proj.	#Classes	KLOC	#Commits	#Issues	Mean Story Length	Min-Max Story Length
Apache	100	4-5,052	1-1,031	207,997	3,486	6	1-15
Android	70	5-4,980	3-1,140	107,555	1,193	3	1-6
Eclipse	30	142-16,700	26-2,610	264,119	124	10	1-13
Overall	**200**	-	-	**579,671**	**4,803**	**6**	**1-15**

TABLE 1 from page 2 of study

8 weeks
7 quadcore 2.67 GHz CPU
(28 cores)
24 Gb RAM

5 types of smells

Blob Class

Class Data Should be Private

"Mixed Messages"
(C)Ingrid Taylar
https://flic.kr/p/dLZLx8
Attribution 2.0 Generic (CC BY 2.0)
https://creativecommons.org/licenses/by/2.0/

Complex Class

#parkingproblems
@robstemm
(C)Rob Stemm
https://instagram.com/p/r-9ZREv8gD/
Used with permission

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Functional Decomposition

"Pumkin with a Positive Attitude"
(C)Kevin Krejci
https://flic.kr/p/4oxX9u
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"Mmm... spaghetti n meatballs"
(C)jeffreyw
https://flic.kr/p/8uyuuG
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Spaghetti Code

Methods

When did the code start to smell?

At least half of the smell instances were introduced when the code entity was added to version control.

Why did the code start to smell?

Commit Goal:

80% - enhancement or new feature

DEADLINE PRESSURE

Project Status:

- about 90% of smells introduced in the month before a release.

Developer stress and time-to-market pressures

Developer Status

55% of cases - high Workload.

often introduced by the Owner of the smelly file

- writing more code
- complex critical tasks

How do we deal with code smell?

Appoint a weekly Hound Dog who sniffs for code smells.

"Coakham Pack Hounds on the Trail"
(C)Cap Anderson, 2014
http://huntingdogs.us/hound-dog-breeds/
Permission to use granted

PREVENTION