CONSTRUCTOR UNIVERSITY

The Maintenance Phase
- Bug Tracking

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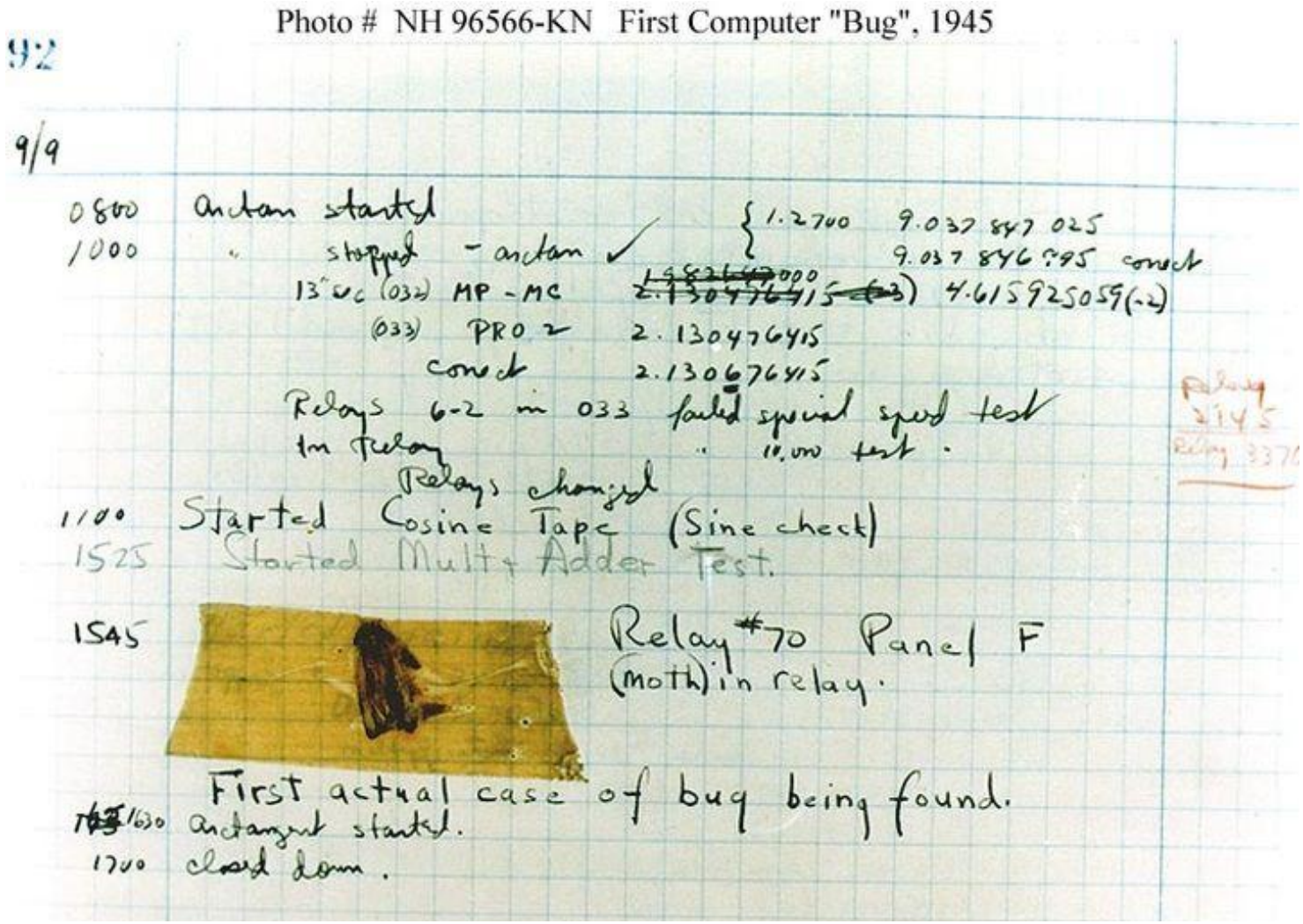
Mind Your Design!

- High software costs are often driven by maintenance
- Code smells hint at design issues

- Source: Software 1(4)2025

Harvard Comp. Lab, Mark II log book:



Bugs

- Bug = inexplicable defect
  - engineering jargon, since 1940s
  - can even trace back to T.A. Edison, 1878: "little faults and difficulties" in an invention
- Software updates = new release to
  - cure defects (“bugs”)
  - respond to Requests for Enhancement (“RFEs”)
  - …typical incremental release includes both
- Update is either incremental ("patch") or full
  - Patch particularly critical to ascertain proper interplay of old & new components!

IETF RFC 9225: Software Defects Considered Harmful

Anatomy of a Bug Report

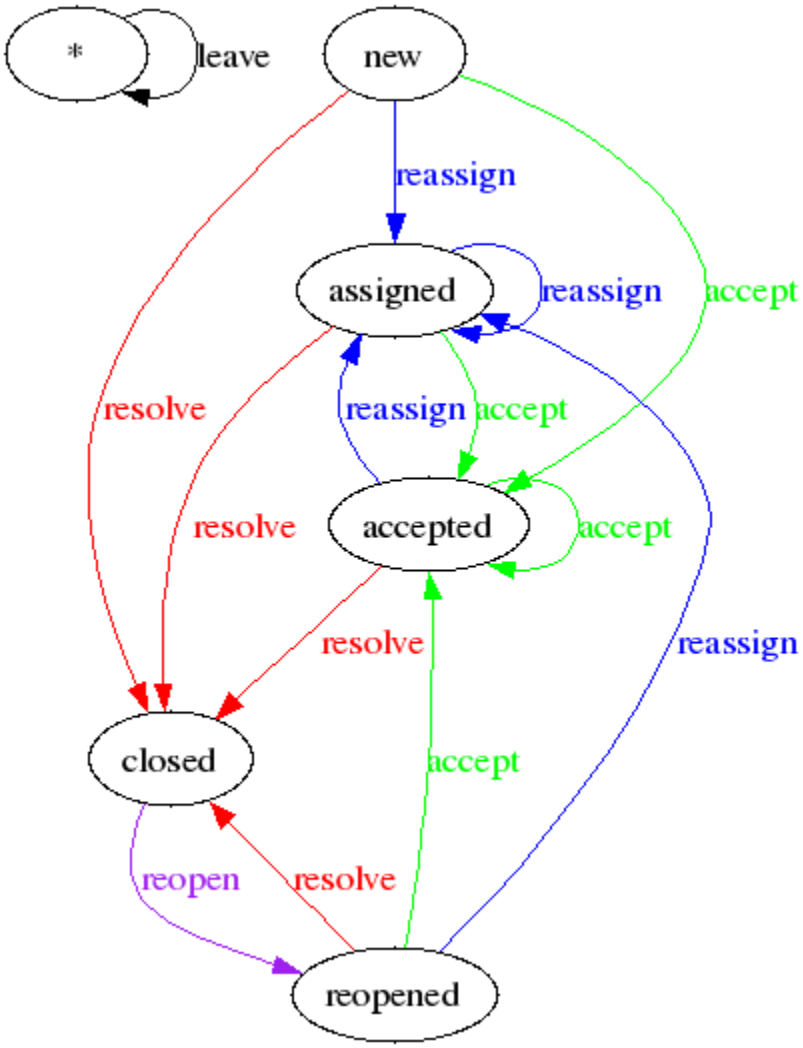
- Component: module where the bug occurred
- Status: short notes
- Keywords: e.g. test cases, help requested
- Target Milestone: estimated fix date or release version

Life Cycle of a Bug: Resolution

- Fixed bugs are marked RESOLVED and receive a resolution:
  - FIXED: source updated and tested
  - INVALID: not a bug in the code
  - WONTFIX: “feature”, not a bug
  - DUPLICATE: already reported elsewhere; include reference
  - WORKSFORME: couldn’t reproduce

Example: Trac

- Trac = integrated tool for software project management (minimalistic)
- Includes ticket management
  - Ticket types: Bug, task, feature, documentation…
  - Customizable
- open-source project
  - trac.edgewall.org



How to Write Bug Reports

- "*The more effectively a bug is reported, the more likely that an engineer will actually fix it*"
- Bug reports should be:
  - Reproducible: provide relevant detail
  - Specific: isolate the cause if possible
- Example of a good bug report: http://bugzilla.mozilla.org/show_bug.cgi?id=2683