

# COMP 10066

## Week 6 Lecture

### Bug Reporting and Resolution

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# Lecture Overview

- Cost of Software Defects
- Reporting Bugs
- Bug Reporting Tracking
- Prioritizing Bugs

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# Cost of Bugs

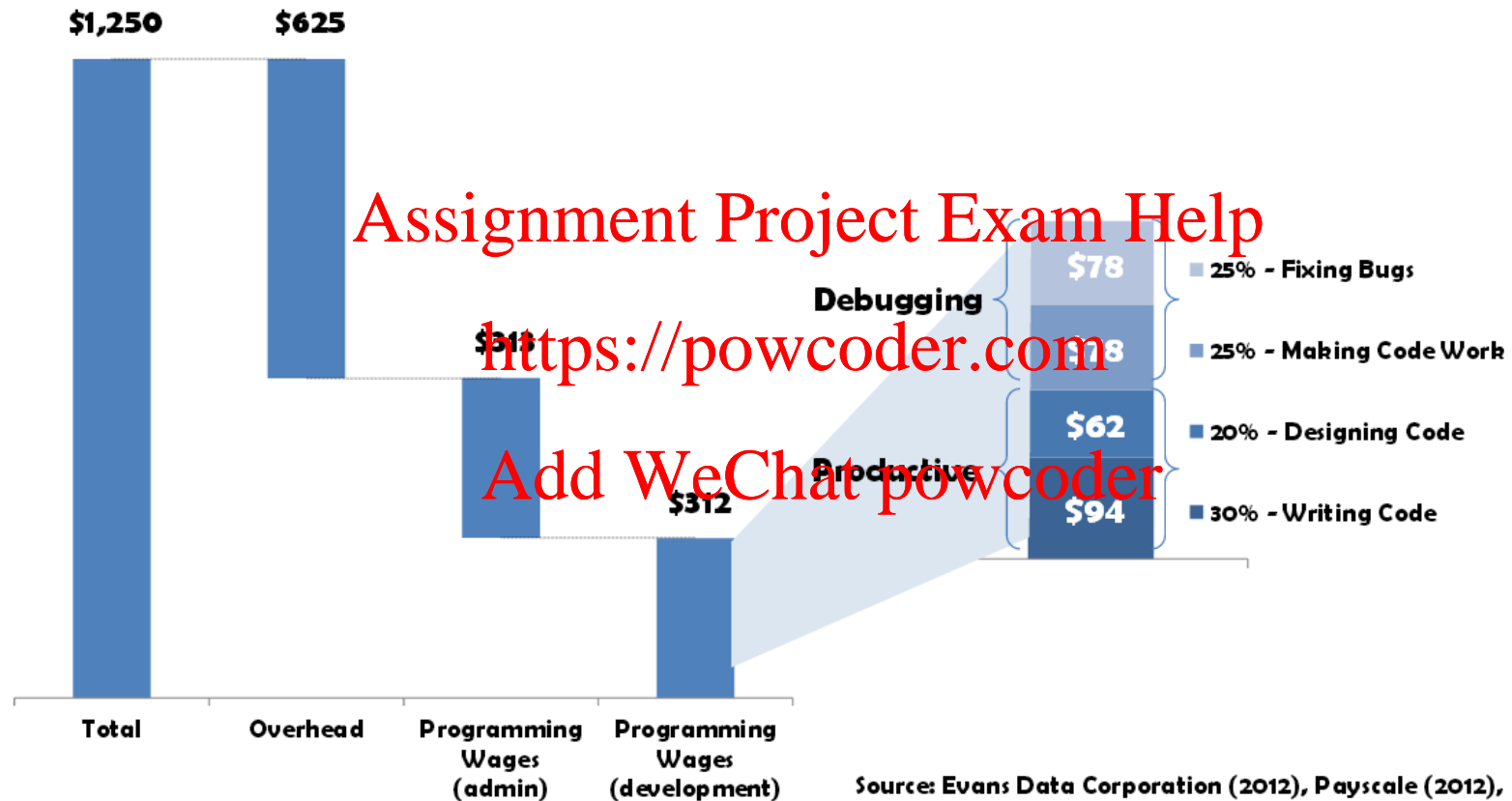
- A interesting study:
  - "Cambridge University Study States Software Bugs Cost Economy \$312 Billion Per Year"
    - <http://www.prweb.com/releases/2013/1/prweb10298185.htm>
  - **Programmers spend 50% of time debugging**

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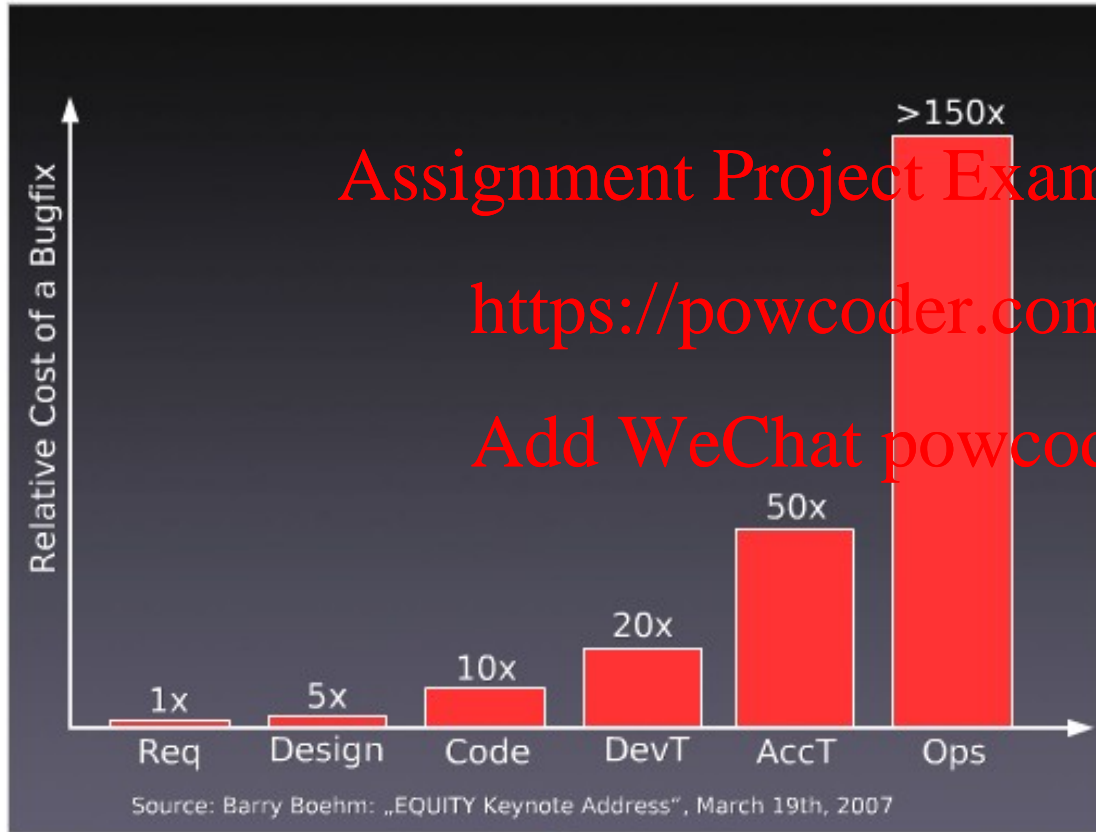
# RESULTS: The global cost of software development is US\$1.25 trillion

Software development cost structure (US\$ billion)



reference: <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.370.9611&rep=rep1&type=pdf>

# Relative Bug Cost



Legend:

Req – Requirements

DevT – Development Testing

AccT – Acceptance Testing

Ops – In Operation

\*\* some studies suggest these numbers are a little high

# Cost Of Bugs

- Are the costs really that high?
- Some argue the cost per defect calculation is not accurate
- See Cost Per Defect PDF on MyCanvas

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# Bug Reporting and Resolution

- Two important aspects of bug reporting that will increase the chances of the bug being corrected:

- When it is reported

- An effective description

- Provide a procedure to duplicate the bug

- Video is sometimes used to record steps

- <http://www.usertesting.com/>

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# Attributes for an Effective Bug Description

- Provide information that is relevant to the bug.
  - OS Version, **Software Build**
- One bug / report
  - Extra information can cause confusion.
  - Do not report more than one bug at a time.
    - Can reference another bug if there appears to be a relationship
- Document the process to reproduce the bug
  - Create as simple a case as possible to show bug.
  - Step-by-Step
  - Confirm the procedure before submitting bug.

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# Bug Report Content from the Tester Perspective

- Program Identification
- Version Information
- Date
- Reported by <https://powcoder.com>
- Suspected type of bug (Coding, Design, User Interface, Documentation)
- Problem Summary
  - Reproducible (Y/N)
  - Steps to reproduce
  - Suggestions for correction

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# Bug Report Content from the Developer Perspective

- Assigned to
- Status (Open/Closed)
- Priority
- Resolution
  - Pending, Deferred, Withdrawn, Fixed, As Designed, Need more Info, Can't reproduce, Can't be fixed!
- Resolved by with Date
- Solution Tested and confirmed with Date
  - Version / Build should be included with the fix

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# Examples of Bug Summaries

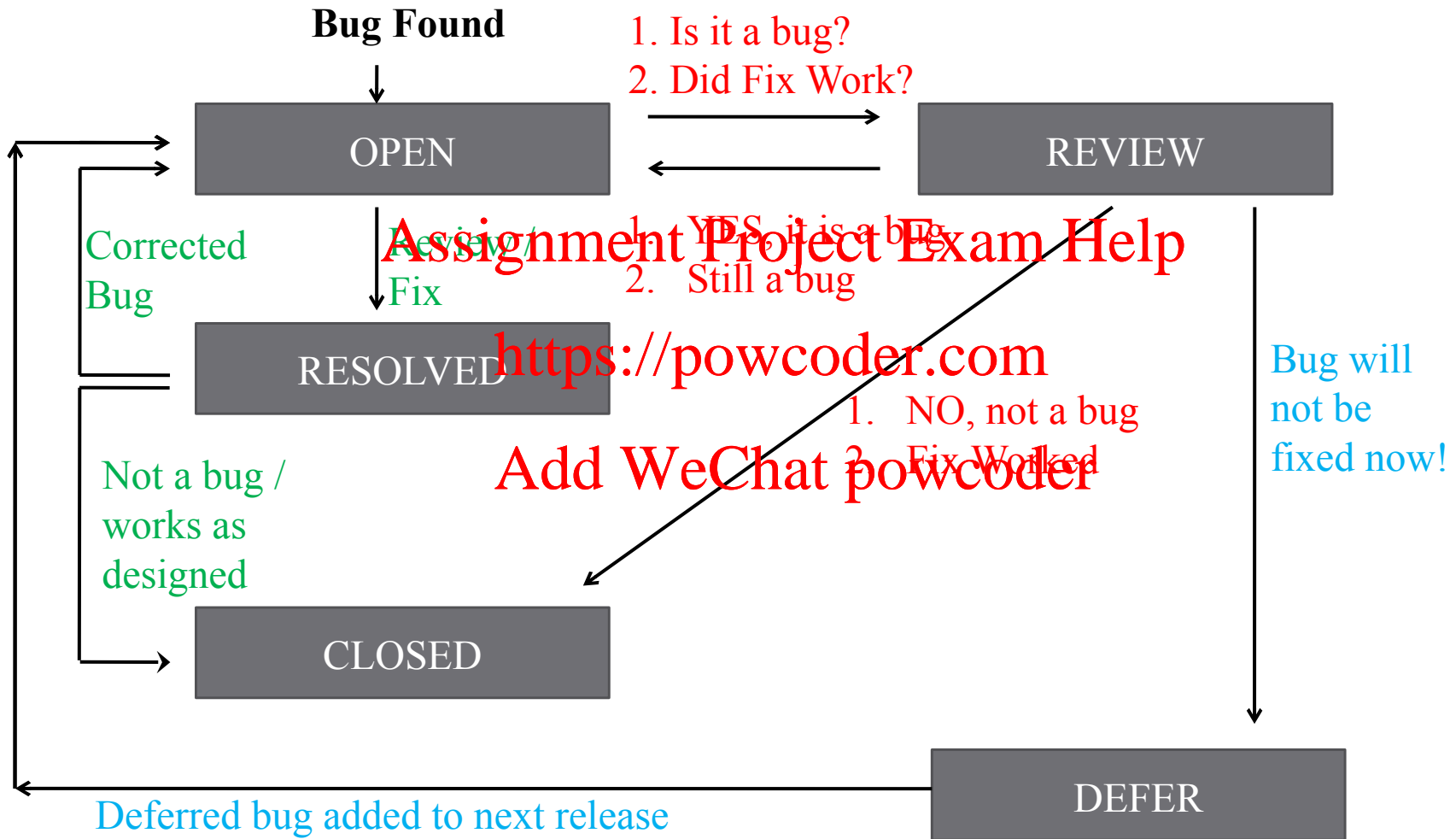
- Bug Summary Contents vary by company
- <https://www.softwaretestinghelp.com/sample-bug-report/>
- <https://usersnap.com/blog/bug-report-template/>

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# Example Bug Workflow



Green – Programmer  
Blue – Project Management  
Tester

Red -

# Responsibilities

- The programmer is responsible to confirm the bug report:

- **Not a Bug (as designed) - Move to Close**
- Bug – Defer or Resolve

The tester must confirm the bug resolution or fix:

- **The applied fix worked - Move to Close**
- Still a Bug – Fix did not work/incomplete - Move back to Open

# Reasons bug fixes are delayed or not fixed

1. Not enough time

2. Not really a bug

3. Too Risky to Fix

4. Not worth it to fix – impacts few users

5. Bug report is vague – difficult to reproduce

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