

Verification & Validation

Software Reliability & Testing

Introduction to the course

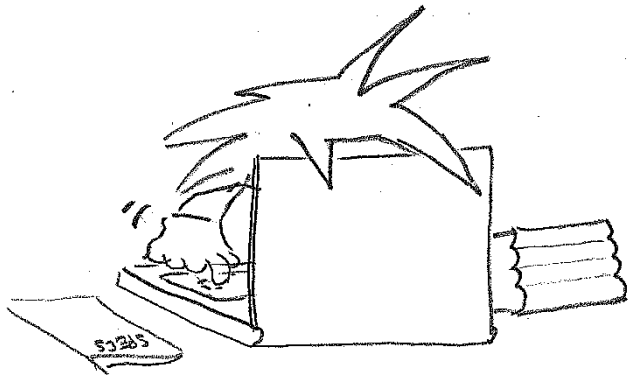
Software Reliability and Testing - Barbara Russo

SwSE - Software and Systems Engineering

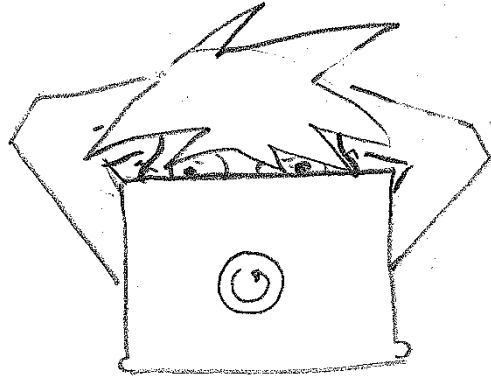
Verification & Validation

- **Verification:** Process to check the consistency of an implementation with a given specification
- **Validation:** Process to check the degree at which a software system fulfils user's requirements

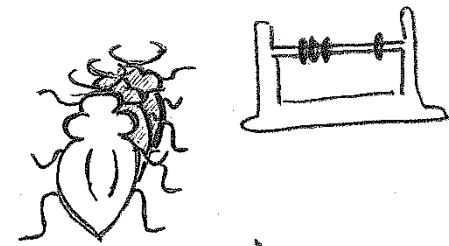
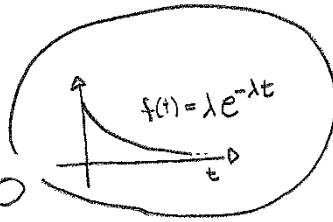
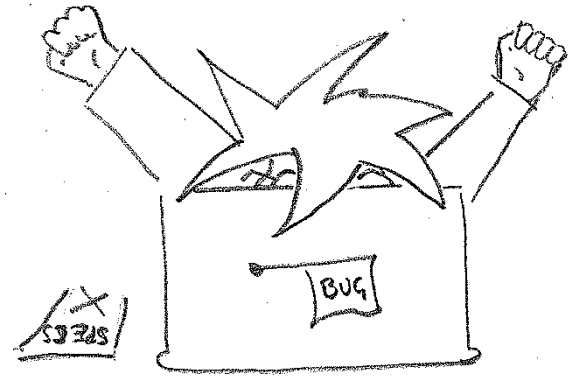
TEST



EXECUTE



FIND



RELIABILITY

Testing & Reliability

- **Testing:** a *verification* process that executes a program with the intent of finding errors
- **Reliability:** The *probability* that a system will operate without failure under given conditions for a given time interval

Milestones

- Midterm - on-line quiz
- Exam - written exam
- Lab: Project work
 - GUI testing a reporting system (client-server) at Würth Phoenix
 - Final Lab evaluation: test performance and coverage
 - Lab milestones: Skype calls

Project

- Build / execute a GUI test suite for the reporting system
- Teams: groups of four
- First lab: Friday 2nd, visit to WP
- Every lab at 15:00: Skype call to WP
- Final three-four labs at WP

Experience

- Testing GUI according to user's scenarios
- Apply combinatorial partition testing to a real environment
- Real test requirements: legacy software (not Java FX)

Assessment

- Lab (50%) (same grade for whole group) and written exam (50%)
- Midterm counts for 50% of the written exam

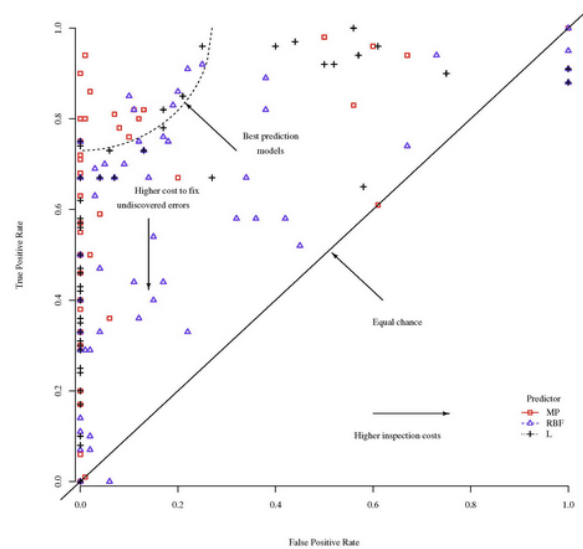
Assessment

- To access to the written exam, you must have passed the Lab with 18 or greater
- In case the Lab assessment is positive, the grade is kept for all three regular exam sessions (July, October, February)
- In case the midterm grade is positive (with 18 or greater), the grade is kept for all three regular exam sessions (July, October, February)

Web Page

Barbara Russo
Associate Professor - Free University of Bolzano

Research ▾ Teaching ▾ Tools and Stuff



I am associate professor at the Faculty of Computer Science of the Free University of Bozen-Bolzano, Italy. I was visiting researcher at the Max-Planck Institut für Mathematik in Bonn, Germany and Marie-Curie fellow at the University of Liverpool, United Kingdom.

Tweets

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Resources

- Notes of the course, news, books and references in the web site: [http://
www.inf.unibz.it/~russo/](http://www.inf.unibz.it/~russo/)

Tools

- Testing tools: JUnit, Jemmy (GUI testing), JaCoCo (code coverage)
- Reporting: R, Latex

Jemmy netbeans library

- Jemmy tutorial: http://wiki.netbeans.org/Jemmy_Tutorial
- Jemmy samples: http://wiki.netbeans.org/Jemmy_Samples
- Jemmy download: <http://hg.openjdk.java.net/code-tools/jemmy/v2/file/c7aae56a10f5/src/org/netbeans/jemmy>

JaCoCo library

- download: <http://www.eclemma.org/jacoco/>
- doc: <http://www.jacoco.org/jacoco/trunk/doc/>
- report examples: <http://www.jacoco.org/jacoco/trunk/coverage/org.jacoco.examples/org.jacoco.examples/index.html>
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