Introduction to projects

ETSN20 Software Testing
http://cs.lth.se/etsn20

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Project learning objectives

– Learn a specific area of software testing
– Collect and summarize research information
– Critical thinking beyond the written information
– Present information in a structured way
Project

- **Practical**: Use an existing technique or testing tool. Focus on technique(tool) evaluation or testing of software system.

- **Research**: solve a research problem; survey the state-of-the-art and identify the research problems in some area; develop and justify an extension to an existing technique; etc.
Suggested topics

8.1 Evaluate tools for software testing
8.2 Evaluate test methods
8.3 Test a research tool
9.1 How can different testing techniques (methods) be compared?
9.2 How Acceptance Test Harness is used to test Jenkins core and its plug-ins?
9.3 How is testing performed for Agile processes?
9.4 How do you effectively regression test your system?
9.5 Can test cases be generated automatically from the code?
9.6 How to test machine learning systems?
9.7 How to handle defect reports in large-scale software testing?
9.8 What are the minimal test practices needed in a start-up company?
9.9 Is it more efficient to generate test cases from a model?
9.10 How do you test for security?
9.11 Do Static Code Analysis tools really help in improving software code quality?
9.12 Techniques for testing Android applications
9.13 How do you know that your test cases are effective?
9.14 How can you measure that the software system is reliable?
9.15 What techniques can be used to know when to stop testing?
9.16 Testing in Continuous Integration and Deployment
Project activities

- Form group and decide on project type and subject
- Find literature
- Outline the report [-> supervisor]
- Read; perform evaluation and practical work
- Write the report [in English!]
- Consult the supervisor
- Present the report
Find literature

- Different fora has different credibility
- Scientific fora: rigorously reviewed
  - Journals
  - Conferences
  - Workshops
- Non-scientific fora:
  - Textbooks
  - Journalistist material
  - White papers
  - Web pages (incl. Wikipedia!)
  - …

- To search for scientific papers
  - http://www.lub.lu.se
  - Detective work:
    - Search broad
    - Select
    - Search deep
      - Iterate
    - Key words
    - Authors
    - References
    - Fora
Build on other’s work

Systematic Literature Reviews (SLR)
• Systematically collected and summarized research on a specific research question

Mapping study (MS)
• Collected and summarized research on a broader topic

[Garousi and Mäntylä]
Consider Threats to Validity when Reading

• Everything you read is not true – be critical!
• "Threats to Validity" sections should openly and honestly report and discuss limitations, reliability, generalizability (wider applicability), etc

Group exercise
• Read article "Failure is a Four Letter Word"
• In project group, discuss reflection questions
Report

- 5-7 pages in IEEE format (see Project description for details)

- Abstract
- Introduction
- Description of the chosen area
- Analysis
- Conclusion
- Contribution statement
- References
Cooperate, don’t copy

Submit final report to both SAM & Urkund
- etsn20@cs.lth.se
- etsn20.lu@analys.urkund.se

Policy:
http://cs.lth.se/english/education/cooperation_or_plagiarism/
Assessment

• Project graded (U, G, VG) by weighting
  – 35% work (scope, depth etc.)
  – 35% content (structure, flow, etc.)
  – 20% form (template, ref style, language etc.)
  – 10% presentation (clarity, timeliness etc.)

• Only G if second round needed
Project – important dates

- Decide on a subject: Friday Nov 9 (tomorrow!)
- Outline: Tuesday Nov 20
- Consult the supervisor course w 4-5 (book time!)
- Report: Friday Dec 14
- Presentation: Friday Dec 21, kl -12
- Update report – if needed: Jan 18
IMPORTANT for deliveries

- When submitting deliverable to etsn20@cs.lth.se
- Email subject == Deliverable {author stil ID}+
- Deliverable ==
  { Topic | Outline | Report | Lab2 | Lab4 }
- OTHERWISE your deliverable might get lost
- Send lab reports + final project report also to:
  - etsn20.lu@analys.urkund.se
Useful tips in

1. Inledning
2. Start och målformulering
3. Att välja metodik
4. Planering och uppföljning
5. Litteraturstudier
6. Verktyg för genomförande
7. Rapporten
8. Muntlig presentation
9. Opposition