Software Quality Assurance and Testing (SQAT)

Introduction

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The contents of these course slides is (in great part) based on:
Neil Taylor (2019) *Course presentations for Software Quality Assurance and Testing (SQAT)*, Aberystwyth University.

Some common wisdom on testing…

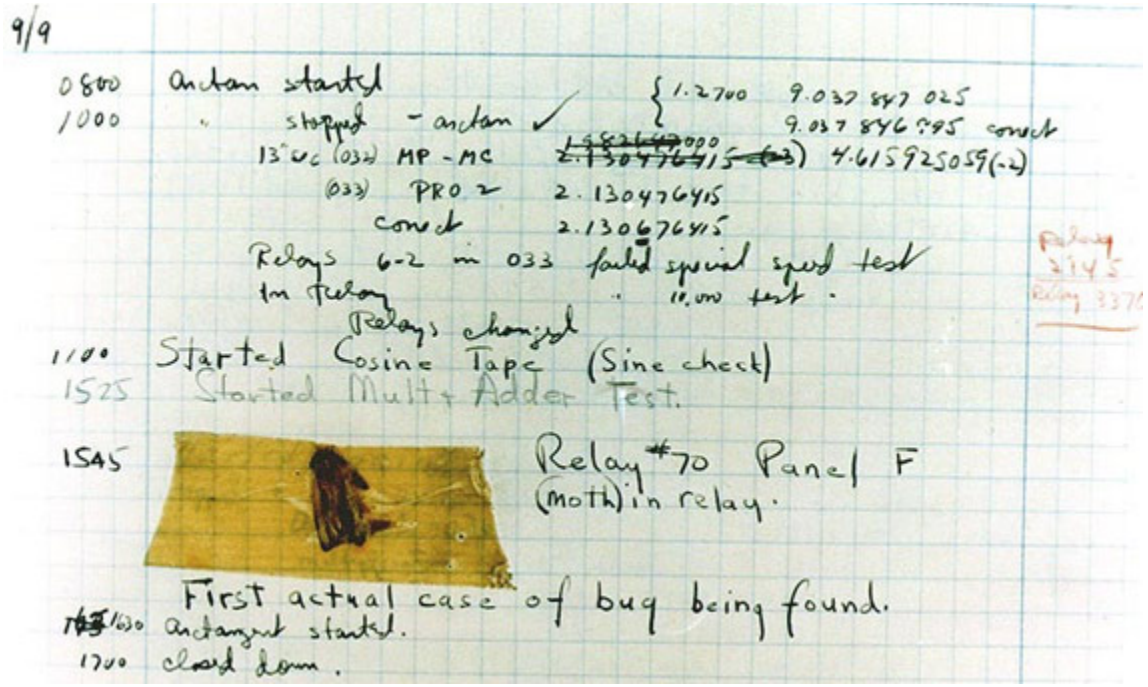
Test your software, or your users will.

Test ruthlessly. Don't make your users find bugs for you.

http://pragprog.com/the-pragmatic-programmer/extracts/tips

Famous bugs: the first Bug

- After finding a moth inside the Harvard Mark II computer on September 9th, 1947 at 3:45 p.m., Grace Murray Hopper logged the first computer bug in her log book.
- She wrote the time and the sentence: “First actual case of bug being found”.



https://www.bbvaopenmind.com/en/technology/innovation/the-5-most-infamous-software-bugs-in-history/

Famous bugs: Ariane 5

- On June 4th, 1996 and only 30 seconds after the launch, the Ariane 5 rocket began to disintegrate slowly until its final explosion.
- Simulations with a similiar flight system and the same conditions revealed that in the rocket's software (which came from Ariane 4), a 64-bit variable with decimals was transformed into a 16-bit variable without decimals.
- These variables, taking different sizes in memory, triggered a series of bugs that affected all the on-board computers and hardware, paralyzing the entire ship and triggering its self-destruct sequence.

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A bit about me…

Joost Schalken-Pinkster (joost@schalken.me)

- Lecturer in Computer & Software Engineering at Windesheim University of Applied Science
- Senior consultant at ICT Institute
- I teach topics including:
  - Logic, Programming (Java, C, C++), Software Design (UML, SysML, SE, Design Patterns), Embedded Systems (microcontrollers, RTOS, VHDL) and Quality Assurance.
- I supervise the final year projects (dissertations).
- I have commercial and academic experience.

Commercial Experience

- Software Architect at Mobile Solutions start-up (now defunct)
- Consultancy on Information Strategy for governmental agencies (VKA)
- Consultancy on Software Quality and Strategy for governmental agencies and companies (SIG)
- Consultancy on Software Due Dilligence and Information Security for SMEs and Private Equity (ICT Institute)

Previously in the Software Engineering Module

You had a group project.

On that module, you were given an overview of testing, including:

- Purpose of testing
- Examples of testing
- Ideas about creating tests and test tools available
- Documenting the tests, e.g. in the group project

This year, we go into more detail:

- of what is important in testing,
- of how to do testing
- of how testing fits into real software development

Lecture roster (provisional)

Module	Title	Module	Title
1	Introduction to Software QA and Testing	7	Performance Testing
2	Black-box Testing	8	Software Quality Assurance and Test Management
3	White-box Testing	9	Design, Testing and Agile Development
4	Unit Testing	10	Test Automation and Quality Assurance
5	Integration Testing	11	Revision
6	System Testing		

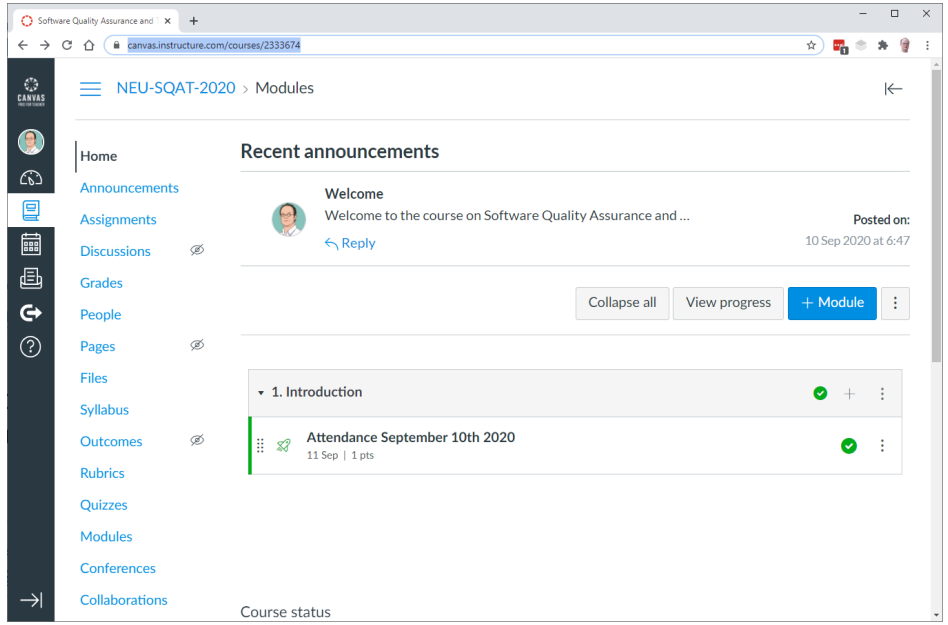
Course Materials on Canvas

Slides in PDF

Recording of lectures

Book list

Tests



URL: https://canvas.instructure.com/courses/2333674
Sign up using: https://canvas.instructure.com/enroll/TN68WD

Assessment (provisional)

Item	Weighting
Attendance Tracked using ‘quiz’ on Canvas	10%
Quizzes on Canvas Every lecture a short quiz on Canvas (except for first and last)	30%
Laboratory Notebooks Notebooks based on group work in the laboratories.	30%
Examination Final examination (form to be decided)	30%

Roster

Lectures are planned for Thursdays:

- Every Thursday

Any Questions?