Høyskolen Kristiania

ITP2200
Introduction to Software Testing

Alberto Martín López

- alberto.martin@us.es
- Interested in Software Testing, Software Engineering, Research in general

- You? Your projects so far?
- Experience? Interests?

Høyskolen Kristiania

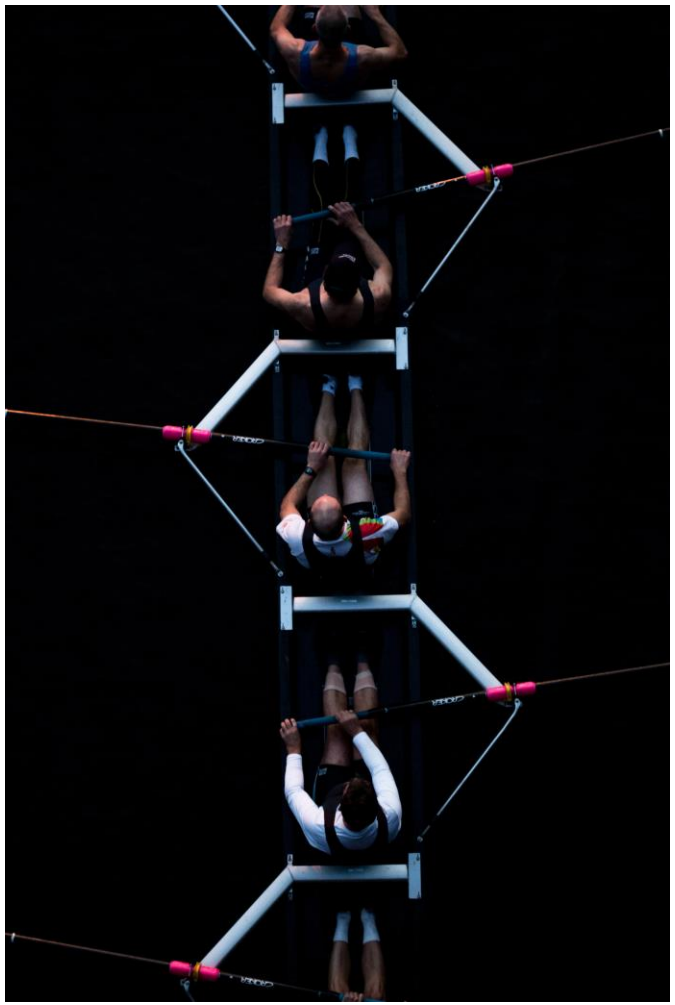
Quick bit of admin

This is my 1st time giving this course (2nd year active):

- So bear with me
- Always feel free to **ask questions**
- Collaboration is encouraged, but **contribute, understand,** and be able to **motivate**
- Always read up more than lecture notes (books, stack overflow, blogs, anything interesting – use **initiative**)
- **Reflect** on examples from other courses or your own experience
- Exam: Group home exam, more info later

Høyskolen Kristiania

Quick bit of admin



The point of the course:

- You are in an environment where **quality** is increasingly important
- You **WILL** have to test your work
- You will have use the work of others, and make your work usable to them

So you should

- Write good code (and show it's good)
- Understand how to apply testing techniques
- Learn to assess software quality
- Reason about software quality and improve software quality.

Høyskolen Kristiania

Overview of Testing

Boom slide:

- What happens when testing is not sufficient
- Financial loss
- Lives endangered

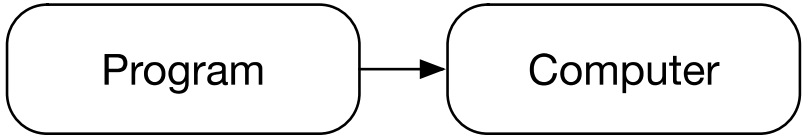
- Smaller bugs also have quite an impact

Høyskolen Kristiania

What does a Test Engineer do?

Test Engineer:

- Design Tests
- Instantiate Tests
- Run Tests
- Analyse Test Results

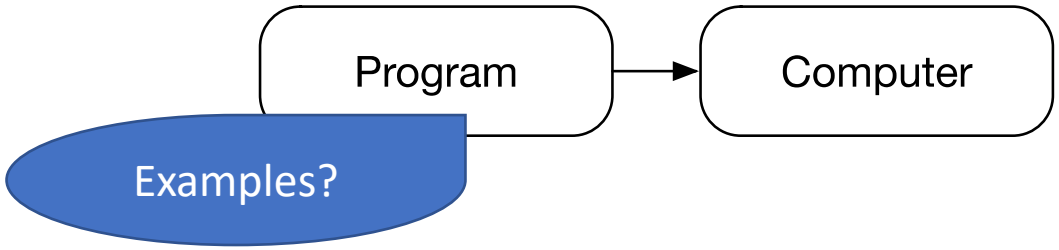


Høyskolen Kristiania

What does a Test Engineer do?

Test Engineer:

- Design Tests
- Instantiate Tests
- Run Tests
- Analyse Test Results

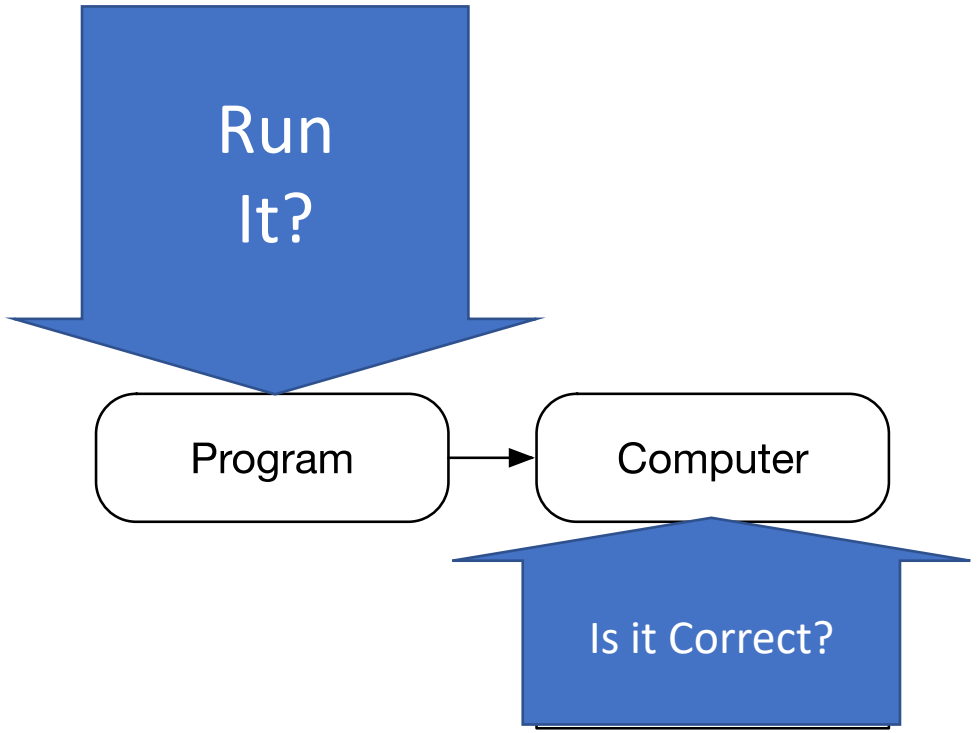


Høyskolen Kristiania

What does a Test Engineer do?

Test Engineer:

- Design Tests
- Instantiate Tests
- Run Tests
- Analyse Test Results

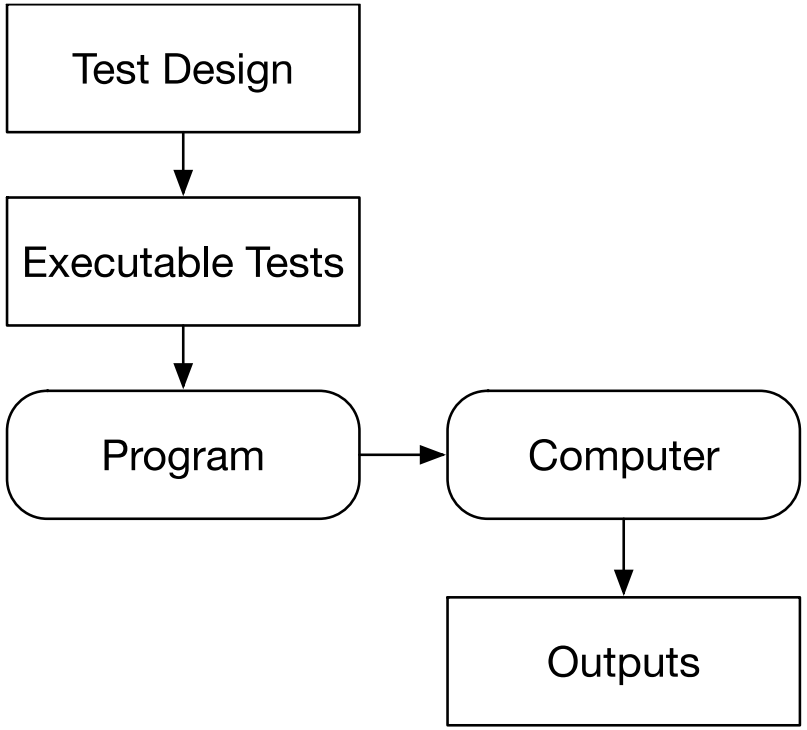


Høyskolen Kristiania

What does a Test Engineer do?

Test Engineer:

- Design Tests
- Instantiate Tests
- Run Tests
- Analyse Test Results

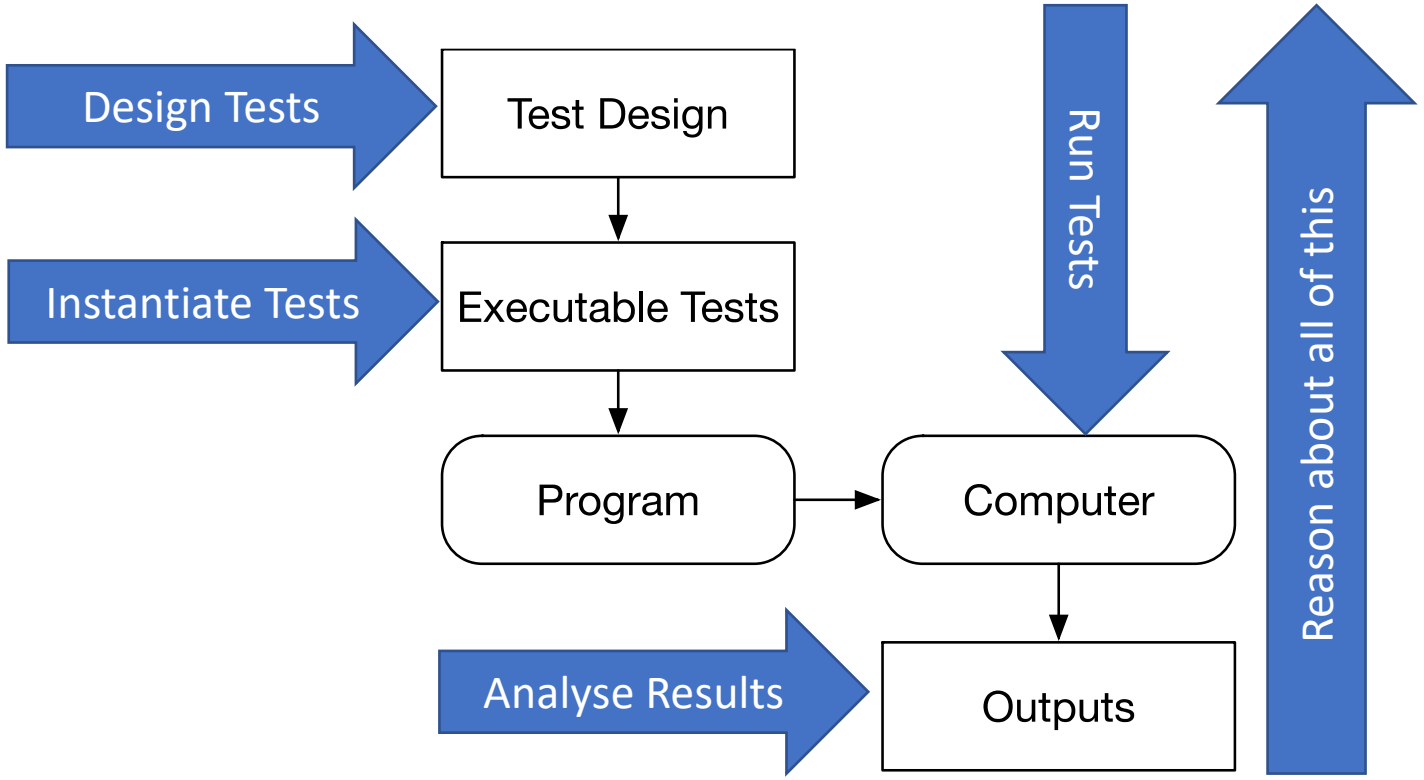


Høyskolen Kristiania

What does a Test Engineer do?

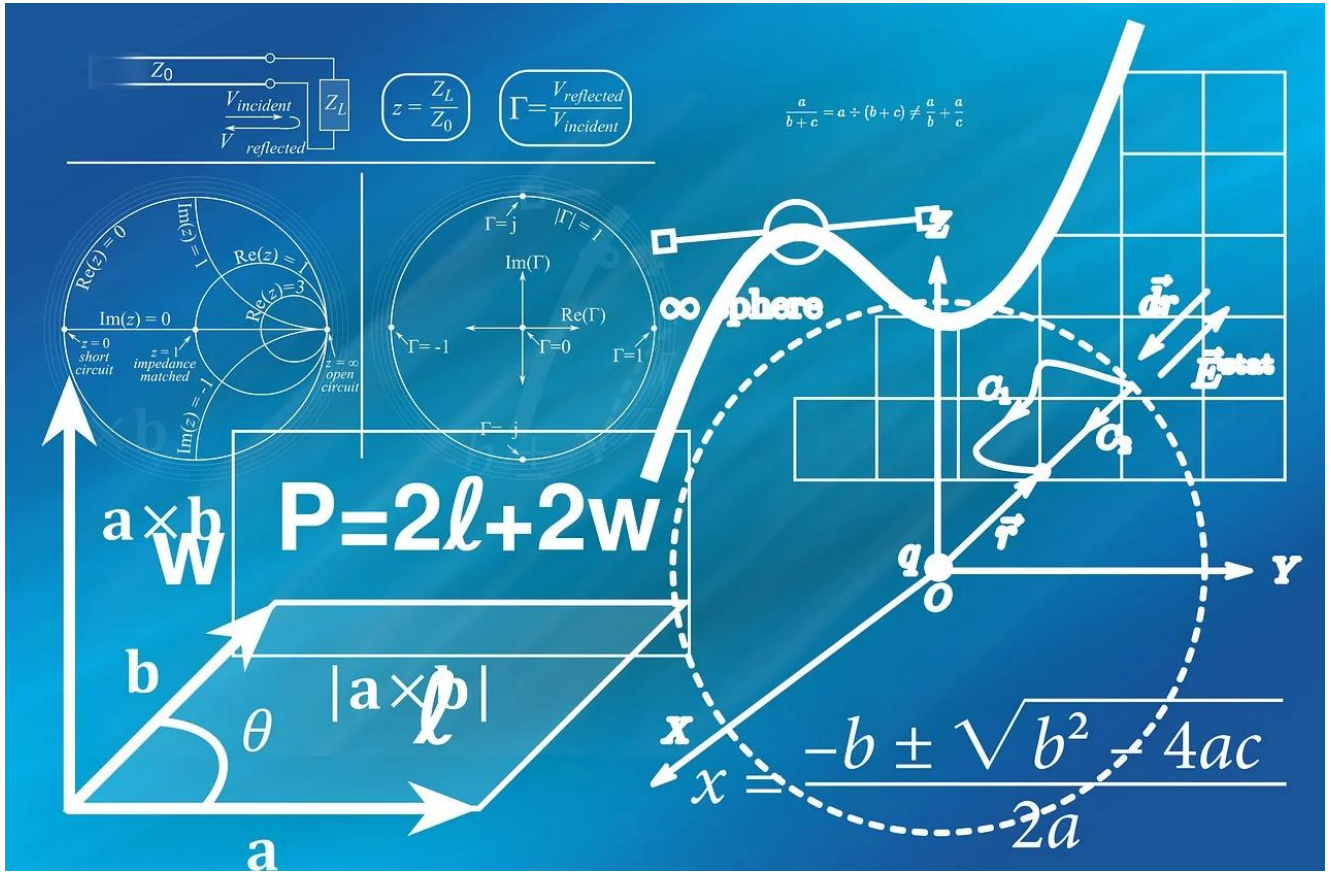
Test Engineer:

- Design Tests
- Instantiate Tests
- Run Tests
- Analyse Test Results



Høyskolen Kristiania

Is that all? That's easy.



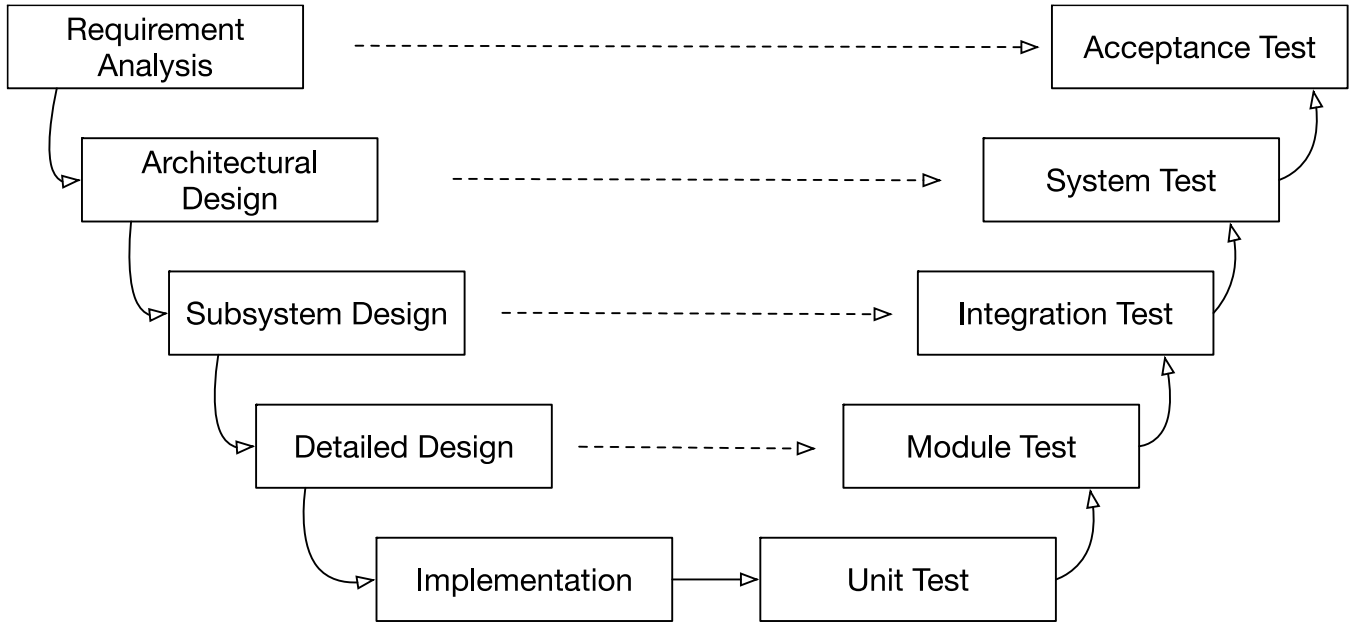
Audience participation question:

- What is the most complex* software you've worked with?

* Complex can be complicated, big, impressive, any definition you like.

Høyskolen Kristiania

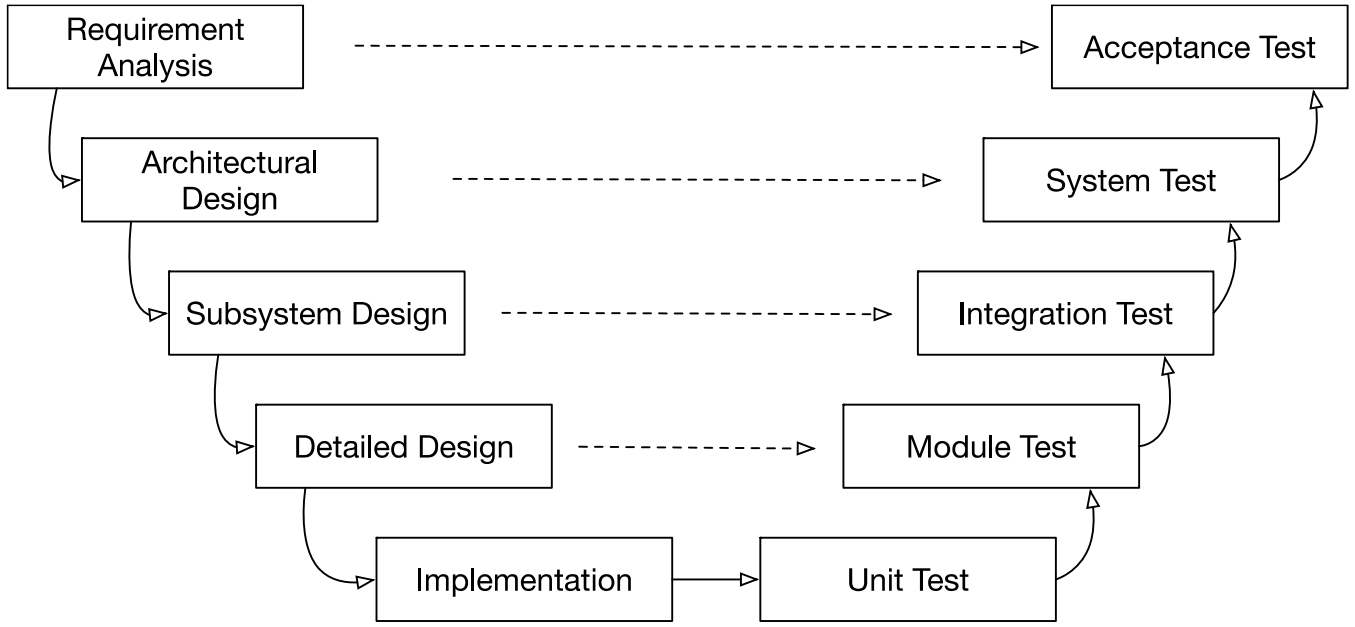
Quick intro into the V-model



- Or the one-sentence guide to the entire field of software engineering

Høyskolen Kristiania

V-model: testing from the perspective of software activities



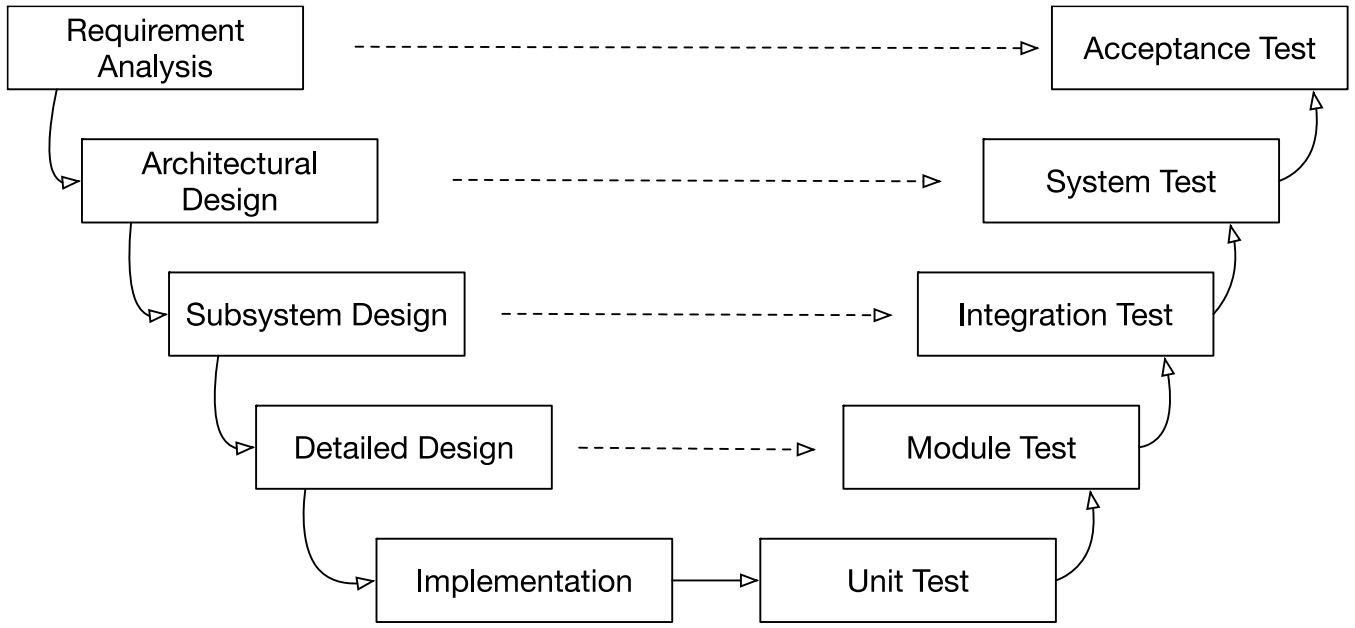
V-model :

Audience participation question:

- Where do the examples fit in this model?

Høyskolen Kristiania

Is that all? That's easy.

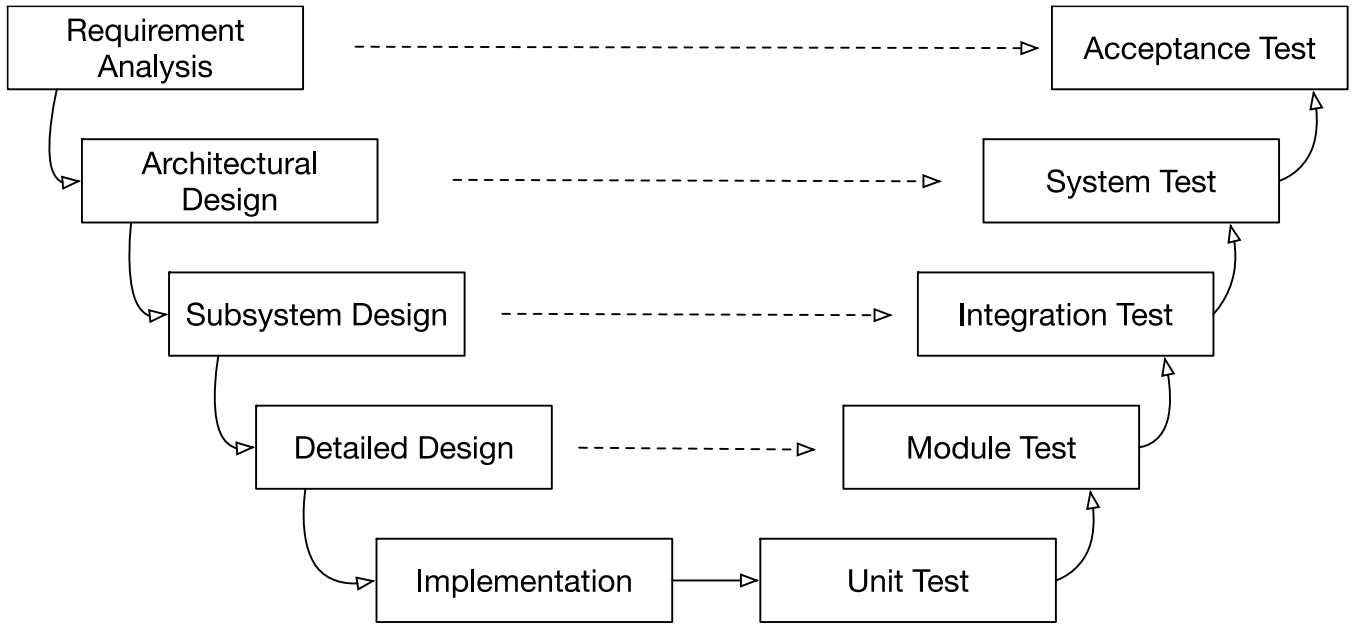


V-model:

- Vector sort?
- A particular type of vector and its operations?
- A library of vector tools?
- A set of data structures that also includes vectors?
- A system that also vectors?

Høyskolen Kristiania

V-model: testing from the perspective of software activities

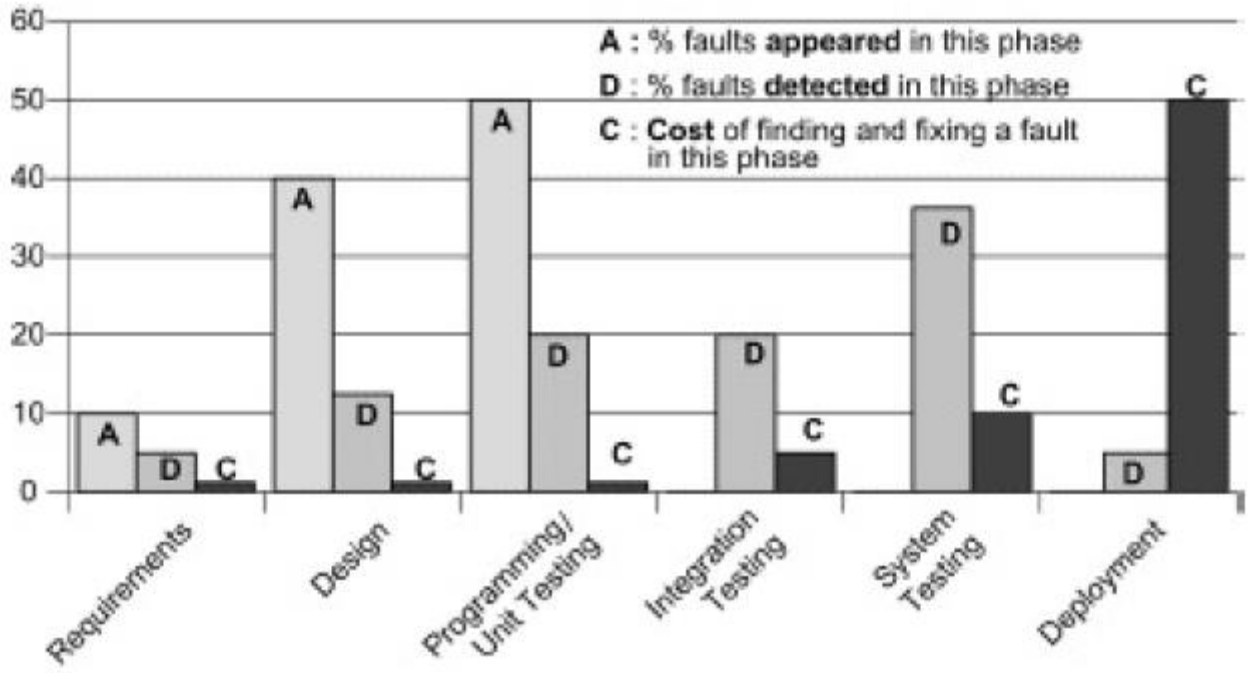


You will revisit this later, **but**

- Remember that **quality** is relevant at all steps
- Different **bugs** are found at each level
- Testing looks at different characteristics at each level

Høyskolen Kristiania

Cost of late testing



Høyskolen Kristiania

So, How do we think about testing?

Audience participation question(s):

- Did you test your code so far?
- How did you do it?
- What would you improve next time?

Høyskolen Kristiania

So, How do **we** think about testing?

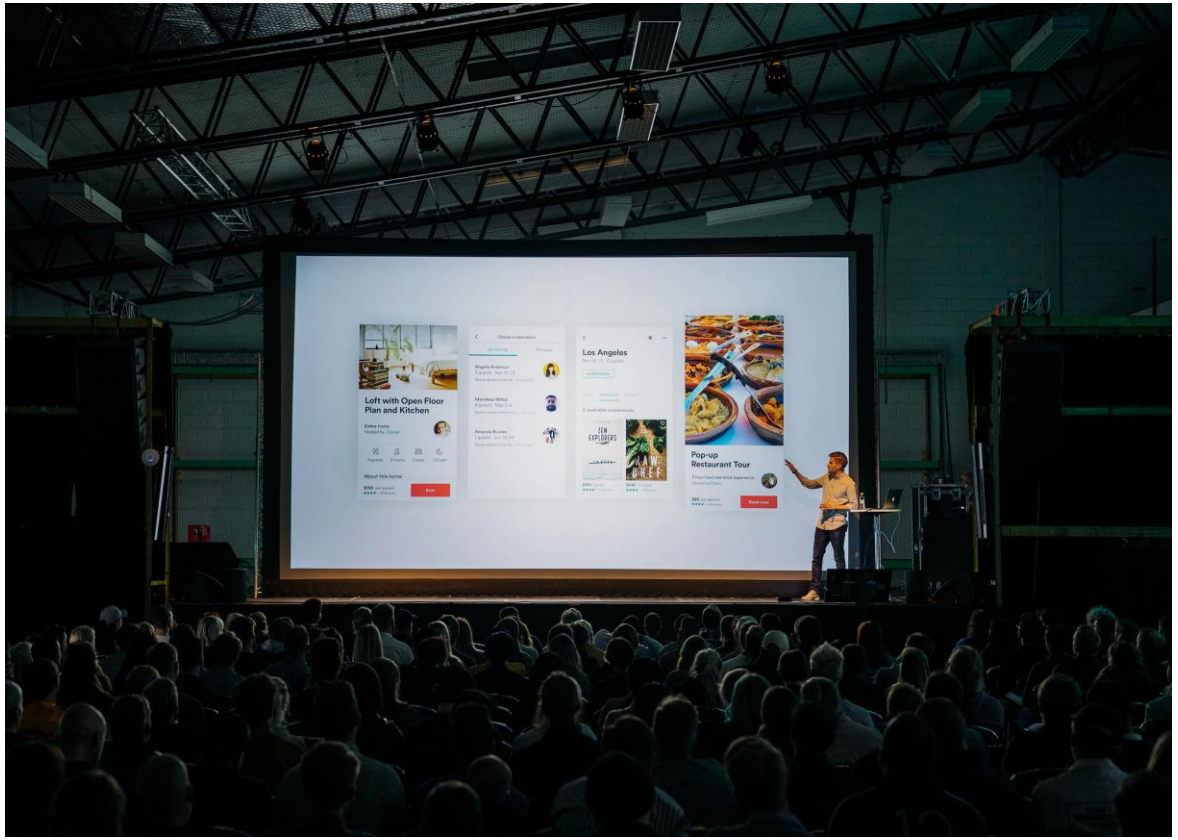
- Fix **bugs** as we find them?

- What if we have a presentation? We want to show that our **code works**

- What other approaches can you think of?

(Yes, this part **IS** supposed to be interactive)

Think back to the original examples (boom slide)



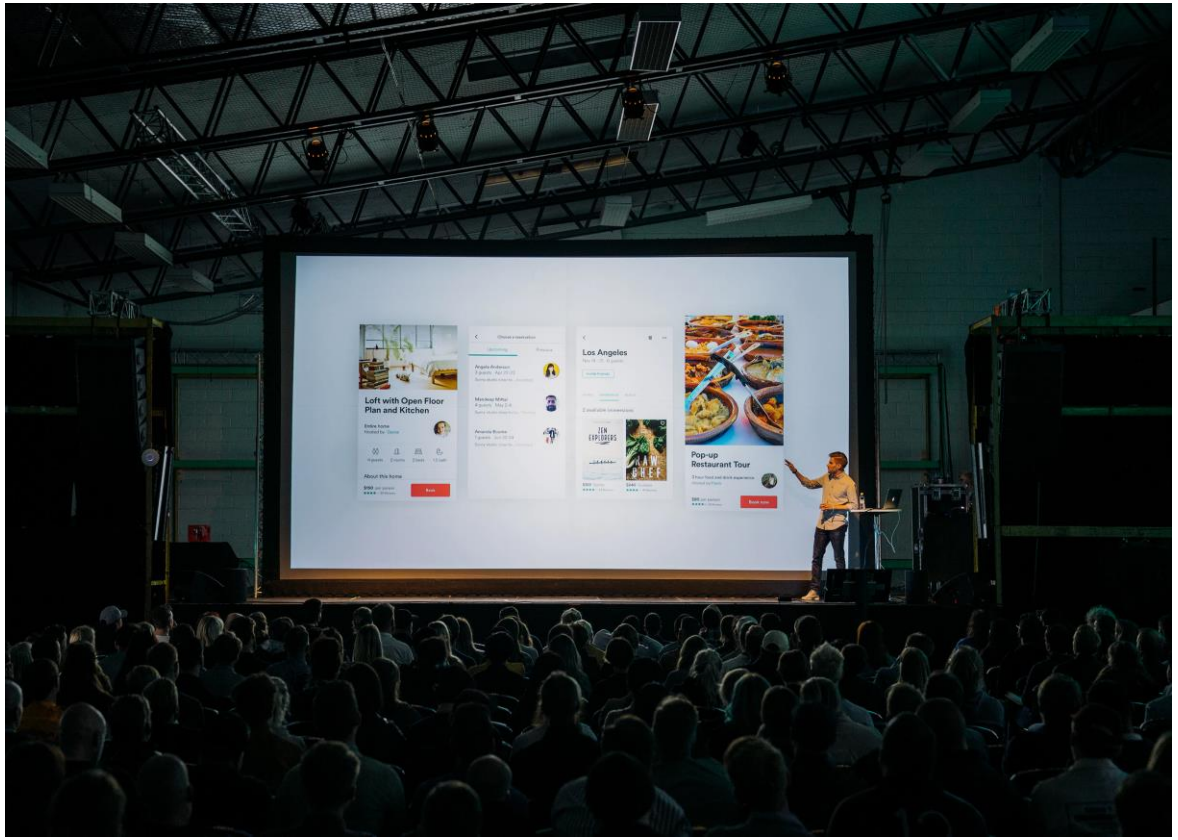
Høyskolen Kristiania

So, How do **we** think about testing?

- Who wants to take a risk that their project presentation crashes?

(Yes, this part **IS STILL** supposed to be interactive)

Think back to the original examples (boom slide)



Høyskolen Kristiania

Beizer levels

Level 0 - There's no difference between testing and debugging.
Level 1 - The purpose of testing is to show that the software works.
Level 2 - The purpose of testing is to show that the software doesn't work.
Level 3 - The purpose of testing is not to prove anything specific, but to reduce the risk of using the software.
Level 4 - Testing is a mental discipline that helps all IT professionals develop higher quality software.

Høyskolen Kristiania

Beizer levels

Level 0 - There's no difference between testing and debugging.
Level 1 - The purpose of testing is to show that the software works.
Level 2 - The purpose of testing is to show that the software doesn't work.
Level 3 - The purpose of testing is not to prove anything specific, but to reduce the risk of using the software.
Level 4 - Testing is a mental discipline that helps all IT professionals develop **higher quality software**.

Høyskolen Kristiania

Høyskolen Kristiania

Questions so far?

Quick assignment until next week (1)

Homework:

- Have a quick look at your projects from last semester.

- Try to map all the (very many, I know) definitions to those projects.

- Write a quick description and let's discuss them.

- Prepare questions about how they can be improved in terms of quality.

Høyskolen Kristiania

Quick assignment until next week (2)

Homework:

- Create a GitHub repository.
- Create a local Git project (it can be just a couple of files).
- Upload the project to GitHub.
- Change some file, commit it and push it to GitHub.
- Change a file from GitHub, then pull the changes to your local repo.

Høyskolen Kristiania

Høyskolen Kristiania

Last chance (for now) for questions!