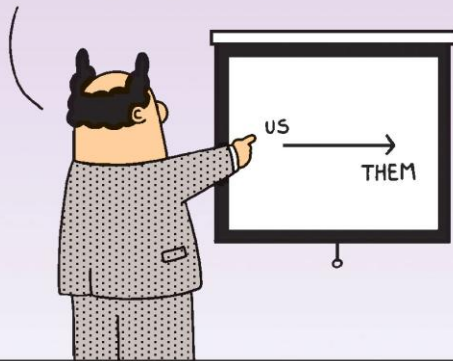


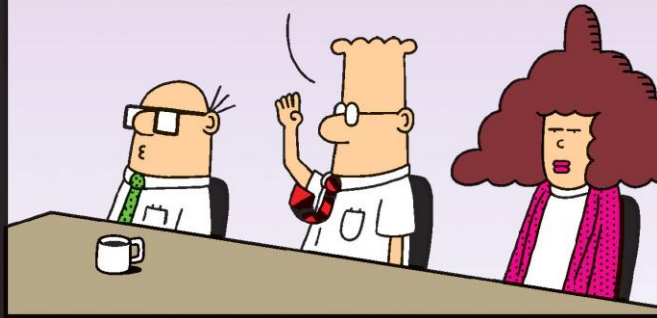
DAT255 / DIT543 SOFTWARE ENGINEERING PROJECT

IF WE WORK DAY AND NIGHT, WE CAN MATCH OUR COMPETITOR'S FEATURES WITHIN TWELVE MONTHS.



Dilbert.com DilbertCartoonist@gmail.com

ARE WE CATCHING UP TO WHERE THEY WILL BE IN A YEAR, WHICH IS UNKNOWABLE, OR WHERE THEY ARE NOW, WHICH IS STUPID?



12-09-09 © 2009 Scott Adams, Inc./Dist. by UFS, Inc.

WELL PLAYED.

I GOT THE NEXT ONE!



<https://github.com/hburden/DAT255/blob/master/README.md>

ME MYSELF & I

Håkan Burden
RISE Viktoria

Contact:
burden@chalmers.se



TODAY

What is Software Engineering?

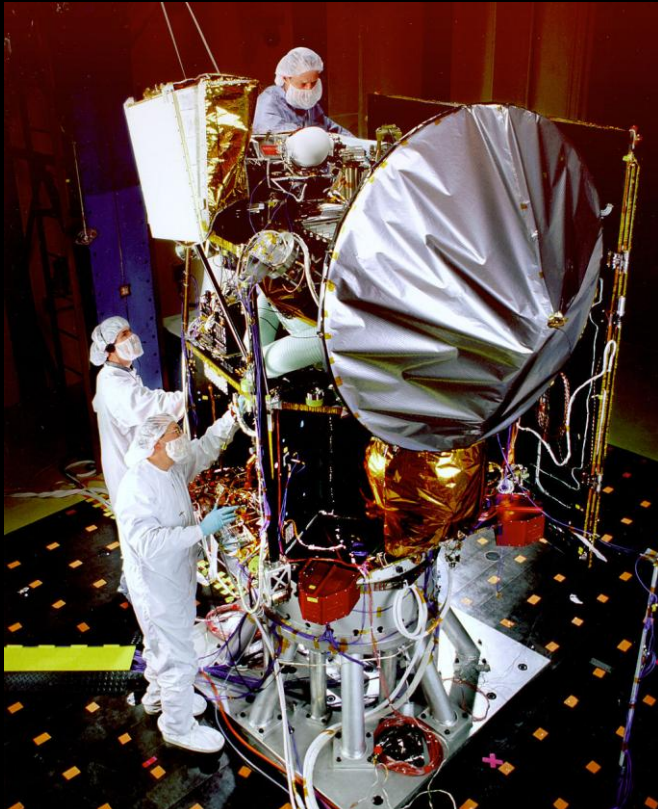
Learning goals

Learning activities

Assessment

Practical stuff





Google

The Making of a Fly: The Genetics of Animal Design (Paperback)
by Peter A. Lawrence

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All **New** (2 from \$1,730,045.91) **Used** (15 from \$35.54)

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Price + Shipping	Condition	Seller Information
\$1,730,045.91 + \$3.99 shipping	New	Seller: profnath Seller Rating: ★★★★★ 93% positive over the past 12 m (8,193 total ratings) In Stock. Ships from NJ, United States. Domestic shipping rates and return policy . Brand new, Perfect condition, Satisfaction Guaranteed.
\$2,198,177.95 + \$3.99 shipping	New	Seller: bordeebook Seller Rating: ★★★★★ 93% positive over the past 12 m (125,891 total ratings) In Stock. Ships from United States. Domestic shipping rates and return policy . New item in excellent condition. Not used. May be a publisher overstock or have slight shelf wear. Satisfaction guaranteed.

SOFTWARE CRISIS

Projects running over-budget.

Projects running over-time.

Software was very inefficient.

Software was of low quality.

Software often did not meet requirements.

Projects were unmanageable and code difficult to maintain.

Software was never delivered.



COMPLEXITY

“The complexity of software is an esse
property, not an accidental one.”

Fred Brooks, 1986

MLOC

- Simple app: 0.001
- Windows NT 3.1, 1993: 5
- Firefox: 10
- MS Office 2013: 40
- Facebook: 60
- Modern car: 100

SOFTWARE ENGINEERING

Systematic & disciplined approach
to the development and maintenance
of software
to assure quality of processes and products

WATERFALL APPROACH

Specify

- Problem and solution
- Customer expectations

Implement

- Learn tools and technology
- Docs, configs, ...

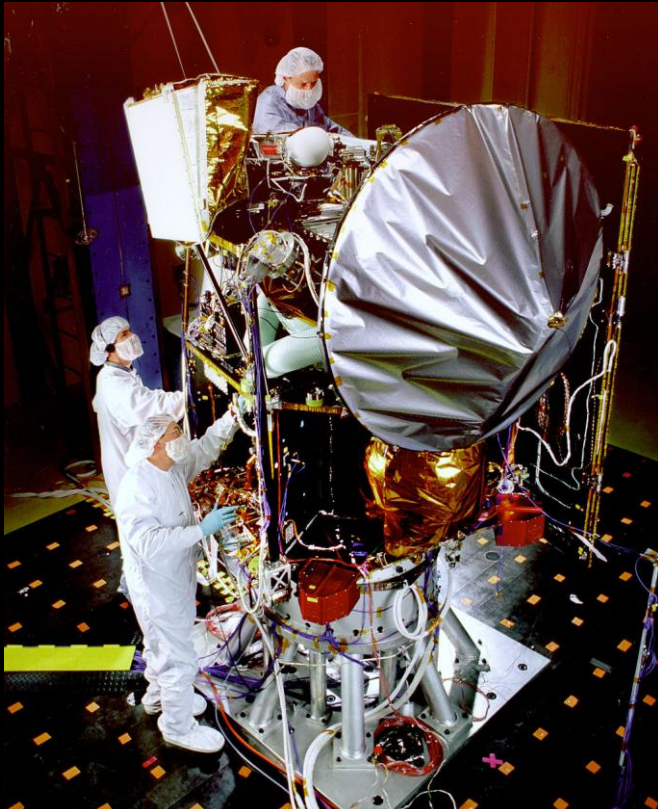
Test

- Ensure quality

Evolve

- Debug
- Refine





Google

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COMPLEXITY

“The complexity of software is an esse property, not an accidental one.”

Continuous world → discrete system

Immateriality of software

Understanding problem domain

Managing development

PRODUCTION vs CREATION



AGILE MANIFEST

We are uncovering better ways of developing software by doing it and helping others do it. Through this work we have come to value:

Individuals and interactions over processes and tools

Working software over comprehensive documentation

Customer collaboration over contract negotiation

Responding to change over following a plan

That is, while there is value in the items on the right, we value the items on the left more.

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AGILE

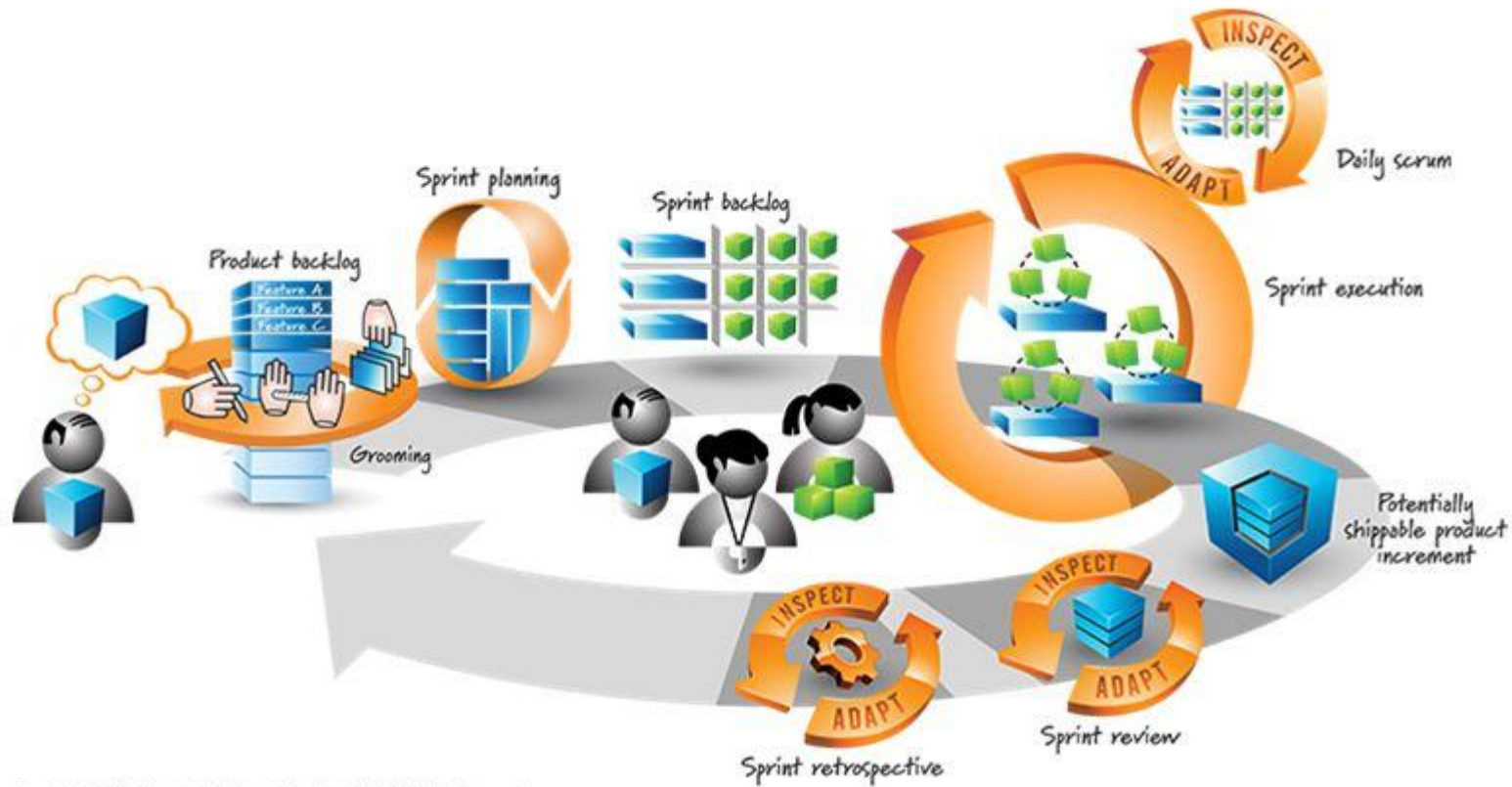
Processes

- Kanban
- XP - eXtreme Programming
- Test-driven development
- Feature-driven development
- Scrum

Practices

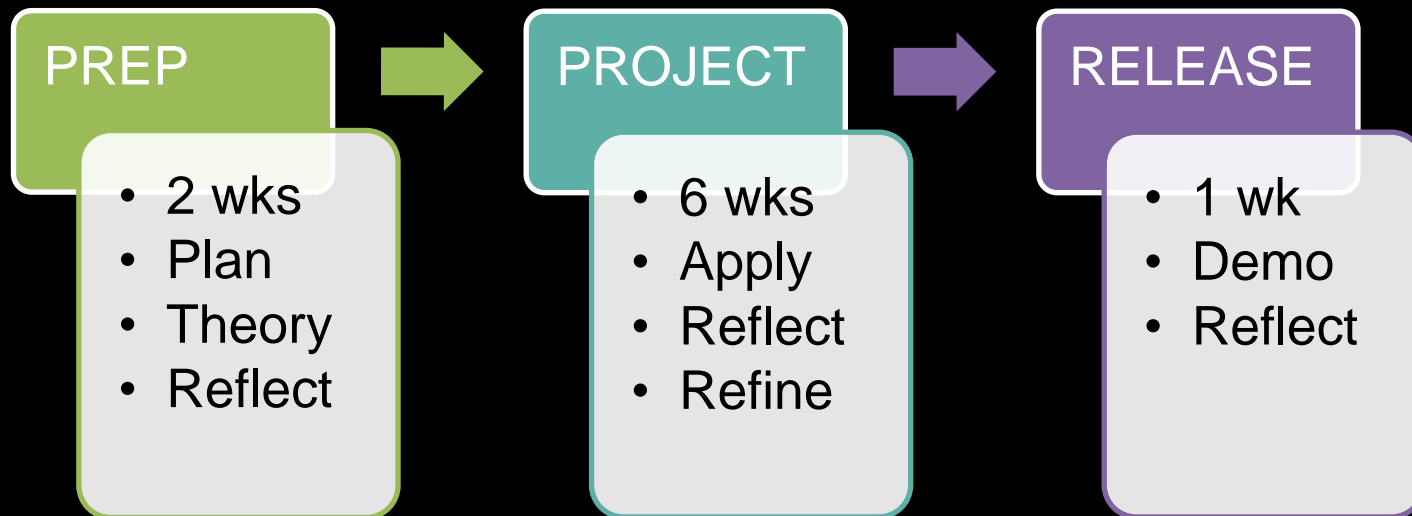
- User stories
- XFT Cross-functional Teams
- Stand-up meetings
- Short iterations
- Continuous testing
- Coding standards
- Sustainable pace
- Pair programming
- Customer value

SCRUM



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OVERVIEW



REFLECTION

What is

in relation to what might or should be and
includes feedback to reduce the gap

R. Smith. Formative Evaluation and the Scholarship of Teaching and Learning.
New Directions for Teaching and Learning, vol. 88, 2001, pp. 51-62

LEARNING GOALS

Knowledge and understanding
Skills and abilities
Judgement and approach

KNOWLEDGE AND UNDERSTANDING

The student should be able to

- identify the complexities of software design and development
- describe the fundamentals of software engineering, such as stakeholders and requirements
- describe the difference between the Customer, the Solution, and the Endeavour as well as the different methods used for each

Course evaluation 2014:

“I ' d r e w r i t e i t a s ' B e i n g
able to efficiently adapt
the codebase to
customer requirement
changes' .”

SKILLS AND ABILITIES

The student should be able to

- elicitate requirements from and design a solution to a real-world problem
- plan and execute a small software development project in a team
- apply skills from programming courses and other relevant courses in a project-like environment
- learn new tools and APIs on his/her own

Course evaluation 2014:

“Are you kidding me? We had to not only organize the project ourselves, search for information through teachers, supervisors, Volvo and the internet (of which only the last seemed to have any constructive answers). We also had had to learn how to make an app for android, from scratch.”

**~ 20
h/week**

JUDGEMENT AND APPROACH

The student should be able to

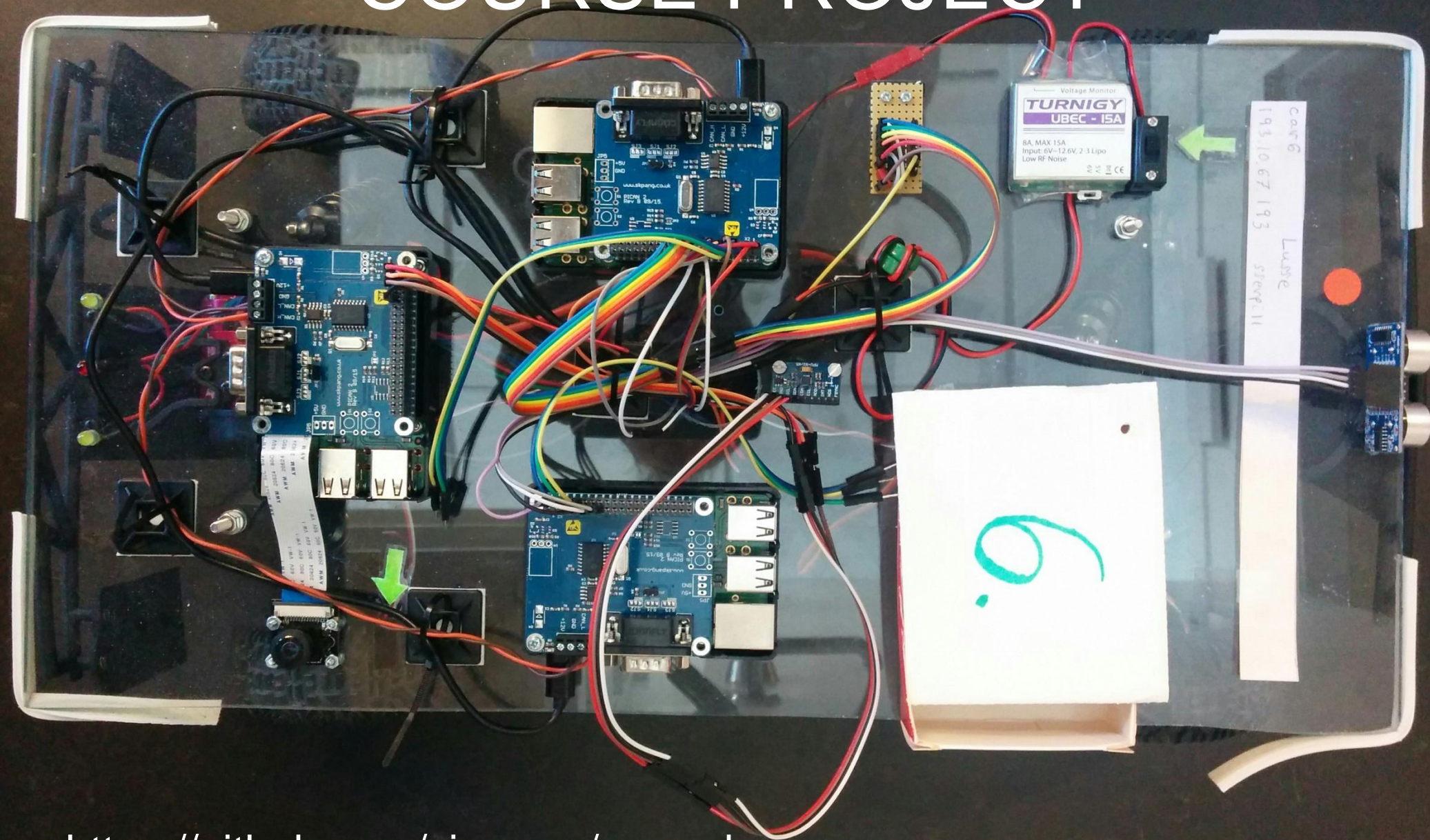
- reflect on the choice of software engineering methods used in the project

Course evaluation 2014:

“S c r u m w a s i n t r o d u c e t o late and therefor mine group had to change our way to work to late in the course.”



COURSE PROJECT



<https://github.com/sics-sse/moped>

PLATOONING



ASSESSMENT

TEAM PASS / FAIL

STAKEHOLDER VALUE
PROTOTYPE
REFLECTION REPORT

STUDENT PASS / FAIL

TEAM PASS / FAIL

Deliver all five deliverables
within designated deadline

D1: Wk1 – Apply Scrum

D2: Wk2 – Initial backlog

D3: Wk5 – Half-way evaluation

D4: Wk8 – Demonstration

D5: Wk9 – Reflection report

STAKEHOLDER VALUE

Completeness

GUI

Relevance

Acceptance

PROTOTYPE

Code quality
Tests
Design rationale
Overview
User stories

REFLECTION REPORT

Application of Scrum

Reflection on sprint retrospectives

Reflection on sprint reviews

Best practices

Reflection on prototype-process-value

Relation to literature etc.

Reflection on hand-ins

Process metrics

TEAM GRADES

Stakeholder value, 12p

Prototype, 15p

Reflection report, 23p

U: 00 - 20p

3/G: 21 – 30p

4: 31 – 40p

5/VG: 41 - 50p

INDIVIDUAL GRADE

Based on team grade
+/- for personal contribution

Evidence for active contribution

PERSONAL CONTRIBUTION

Individually

Total = size(Team) x 10
Score in range(0, Total)

	Eva	Per	Li	Jay	Foo	
Eva	12	5	11	14	8	50
Per	14	14	5	10	7	50
Li	13	12	5	10	10	50
Jay	14	12	5	14	7	50
Foo	15	10	5	13	7	50
	68	51	31	61	39	

Upload using link on course homepage

Code contribution: gitinspector

REALITY CHECK

What was purpose of lecture?

Which learning objectives were covered? How?

What was the relationship to the course assessment?

THIS WEEK

Monday:	First exercise at 10:00 in HC4
Wednesday:	Scrum Lego exercise in Mållgan
Friday:	Hand in D1

<https://github.com/hburden/DAT255/blob/master/README.md>

QA

'Questions don't have to make sense, Vincent', said Miss Susan.

'But answers do'

Terry Pratchett
Thief of Time, 2001