

TENTAMEN (EXAMINATION)

Tentamensdatum/Examination date: 17-10-19
(åå-mm-dd/yy-mm-dd)

AID-nummer
AID number

Ifylles av student

		2	0	8	3
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Completed by student

Ifylles av vakt

2	0	8	3		
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Completed by supervisor

Kurskod/Course code: IDDC88

Provkod/Exam code: TEN 1

Kursnamn/Course title: Programutvecklingsmetodik

Institution/Department: IDA

Inlämnat: antal lösblad 15 tentamensformulär
Enclosed: number of sheets exam booklet

Markera behandlade uppgifter med X/Mark tasks attempted with an X

X här/here	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	X	X	X	X	X	X	X	X	X						
Erhållna poäng Points obtained	9	10	8	10	8	7	19	9	9						
X här/here	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Erhållna poäng Points obtained															

Anvisningar/Instructions

- Skriv AID-nummer, datum, kurskod och provkod på varje blad som lämnas in/
Write AID number, date, course code and exam code on every sheet that is handed in
- På varje papper får högst en uppgift lösas om inget annat anges/
Maximum one task per sheet unless otherwise instructed
- Skriv endast på papprets ena sida om inget annat anges/
Use only one side of each sheet unless otherwise instructed
- Numrera de papper som lämnas in/Number every sheet that is handed in
- Använd inte röd penna/Do not use a red pen/pencil

Sen inlämning
Late hand in

Klockslag _____
Time

Orsak _____
Reason

Σ Poäng/Points: 104 (15) Betyg/Grade: 5

Examinator/Examiner: Mes

AID-nummer: AID-number: 2083	Datum: Date: 17/019
Kurskod: Course code: TDDC88	Provkod: Exam code: TEN 1

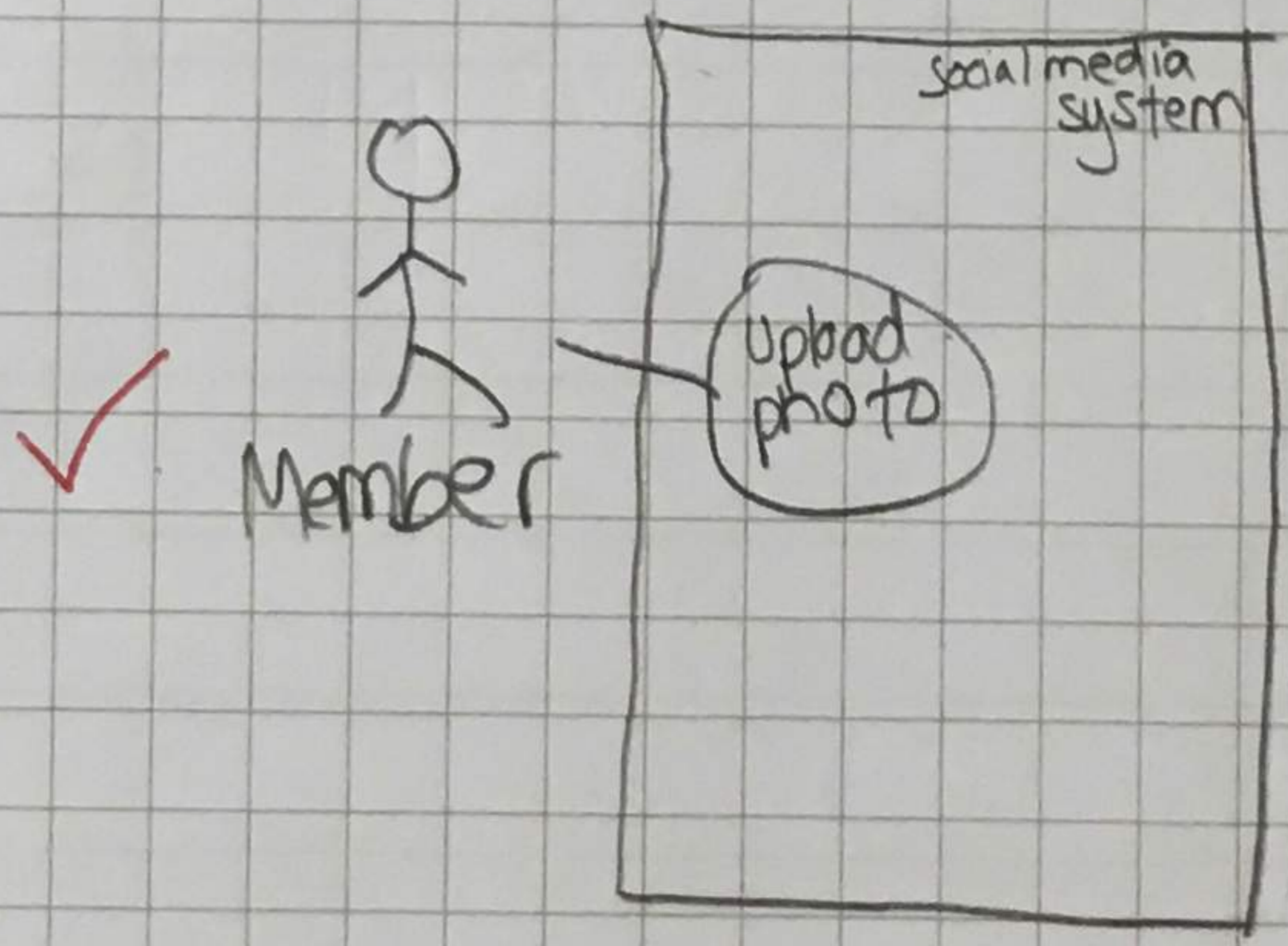
Blad nummer: Sheet number: 1
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1a) D ✓ 1

b) 1) Use-case: "Upload photo" ✓

The member logs in to the social media system through a webbrowser. The member navigates to "my photos" in the system and clicks "upload new photo". A window in the webbrowser opens and the member gets to choose a file from its computer library to upload. The member clicks "OKAY" and the webbrowser reloads showing the message "Photo successfully uploaded.". The member logs out of the system.

4



User stories:

1. As a member I want to be able to upload photos so that I can share memories with friends easier.

Priority: 2 Estimated time: 2 ✓

2. As a member I want to be able to edit photos that I upload so that they look nicer.

Priority: 3 Estimated time: 4 ✓

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1 b)

2)

Quality requirement:

The system shall run without failure for 4 hours. ✓

Design constraint: ✓

The system shall be implemented in Python. ✓

Quality req can be tested with a stress test (system performance test) to make sure it works and the design constraint can be "tested" by the quality control manager by going through the code ✓

4

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2 a)

A D

2

b)

Delphi method describes resource planning

- "Who shall do a task and with what?"

In the Delphi method there are 4 steps.

1. Experts make individual predictions secretly
2. The different estimations are shown anonymously to the group.
3. The group discusses these estimations.
4. Either they agree on one plan or the whole process starts all over again.

4

A potential limitation to this method is that there is only experts / external people deciding, who don't know the exact knowledge of the people who will do the actual tasks.

c)

Advantage: 1. Iterative model will always focus on the most critical issues (waterfall might not work with some until late)

2. The workload is spread out over time, which isn't the case for waterfall model most of the time.

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Disadvantage: 1. With all short iterations it can be hard to map customer requirements to each iteration. This was clear with waterfall model.

2. It can be harder manage and explain the iterative model to others since it isn't as simple.

/10

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3a) A C

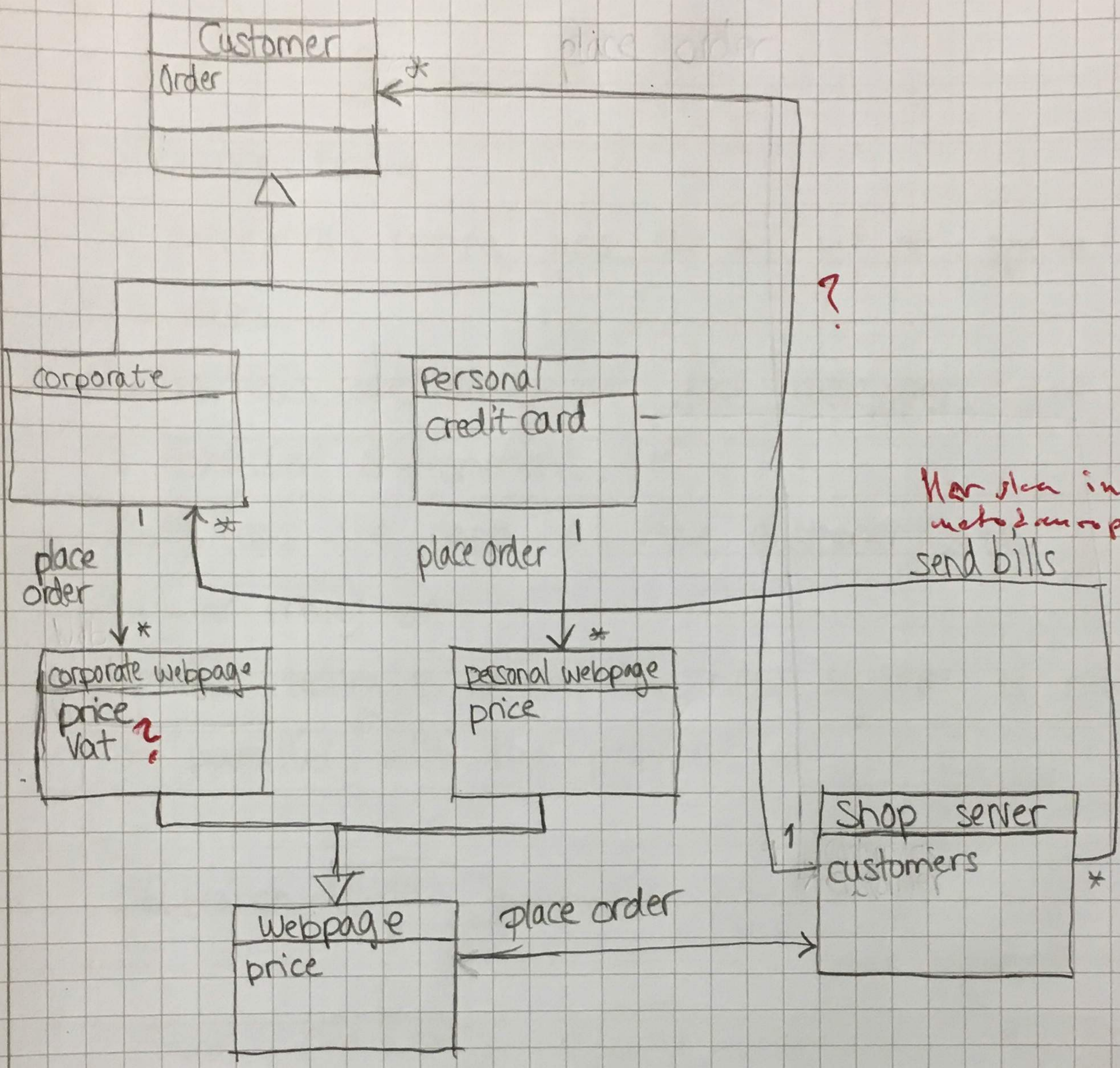
2

3b) • I will design my architecture in the style/pattern "layers". Layers are easy to reuse and enable standardization. Dependencies are kept local which means modifications will be on the local layer as well. The fact that layers are easy to reuse and can get modified locally implies better maintainability.

• When creating the architecture I will also make sure that the cohesion is high. That means that the relation between internal parts of the system is high and that they only do what they are designed to do. This leads to a more understandable system which is easier to maintain.

4

3c



Har ska inläsa på
metoderna el. likn.
send bills

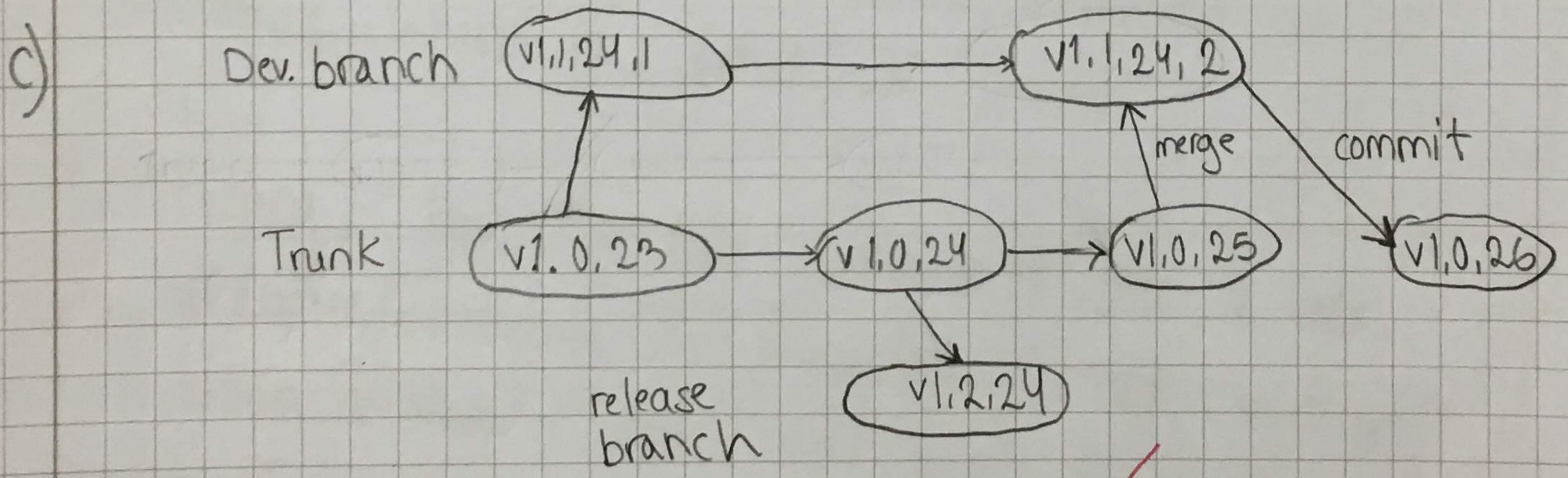
Kun2 data?
Kun2-party?
Shop?
order?

2
/

4 a) A D ✓ 2

b) Acceptance testing

- For benchmark testing you use a set of special test cases. ✓
- Alpha tests are done at the developers site in a controlled environment. ✓
- Beta tests are done at the customer site 4 (one or more) ✓
- Parallel testing is when the new system is run in parallel with the previous. ✓



4 ✓

5. a) B

b) Organizational process definition is a level 3 process area which I think could be of benefit. The areas purpose is to establish and maintain a useable set of organizational process assets, work environment standards and rules and guidelines for the team. Beside this, goals are to establish • lifecycle model description, • tailoring criteria & guidelines, • organization's measurement criteria and more.

By defining more organizational process and guidelines the organization will learn to work more efficiently, since standard procedure, and will because of that also increase its quality a lot! Therefore the amount of faulty software delivered would decrease, which is what we need.

c) Efficiency - How long time spent to complete a task.

By calculating/measuring how many tasks a user can complete in a certain amount of time, time spent in errors or number of commands used to complete a task you can get an indication of how usable the system actually is.

Attitude - How many good vs bad user comments the system gets. You can also measure the number of good and bad features recalled by user.

Both of these can be done with either a →



Datum:

Blad nummer:
Sheet number:

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Blad nummer:
Sheet number:
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5c) survey or by interviewing.

When measuring the efficiency you could either use a computer program counting tasks or commands or let an observer count.

Both metrics regarding efficiency and attitude can be used on the actual working system or by showing the user prototypes and changing "picture" when a command is made.

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6 Risk 1: The contracted medical expert gets really sick (due to high age) halfway through the project.

- Probability: 3 Impact: 4 Risk magnitude indicator: 12
- Avoidance: Making a complete health check before the contract is signed making sure the expert is healthy with no sickness, otherwise hire a younger person. *Mitigation?*
- Transfer: Outsource to a company instead with many medical experts ready to help.
- Mitigation: Have team workouts every week making sure everyone stays fit and sending people for health checks regularly.
- Contingency: Research what other experts that are available and sign for a few hours with someone so if needed there's time to find a new expert

Risk 2: The developing company in India are broke and close their company and don't pay you back.

Probability: 2 Impact: 4 (++) RMI: 8

- Avoidance: Contract the company after going through it's whole bookkeeping ensuring they are legit. *Mitigation?*
- Transfer: Instead of contracting in India do all the development at your own company instead where you're in control. *Avoidance? Not really a transfer of risk* →

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- Mitigation: Also research the company and ask other customers for references.
- Contingency: Pay the company month by month so if they betray you there's still money left to contract another company.

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1) Short iterations

Shorter sprints (up to 4 week normally) with an end-date and fixed deliverable.

Focuses on always having a working software after each iteration and the possibility to receive feedback and changed instructions.

(working sw > documentation
 responding to change > following a plan)

The team gets to evaluate each iteration and learns what work and what doesn't.

The customer gets a chance to add new features and requirement after each Sprint, and always get a working product presented.

2) Daily scrum meeting

Short stand-up meetings where each team member updates on what he or she is working on and if problems. Keeps all members on the same track

Benefits the team because and each member can get help quick if needed.

Benefits the customer because it's efficient and helps team members work quicker → finish more tasks on the product.

(Individuals and integration > Process and tools)

Enables members to help each other and by talking eye to eye get a clear picture of what they work on.

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7.

3) Product backlog

A prioritized list of what is required, features and stories. Broken down requirements.

Good for the team to see what everyone is working on and easier to take on a broken down task

The customer can (if access) see how the different tasks are prioritized and can if he/she doesn't agree affect this. Also up-to-date on what the team is working on.

(customer collaboration > contract negotiation)

(responding to change > following a plan)

4) Product owner

Helps deciding on the finishing product and its features (can be company owner, customer etc) and give input from stakeholders.

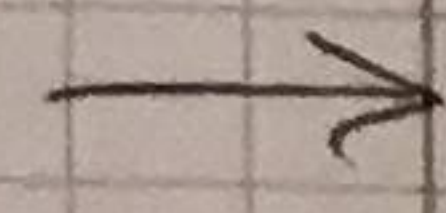
Good for the team to get help setting req and verifying they are working towards the right goal

The customer gets its voice heard.

(customer collaboration > contract negotiation)

4

3



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Blad nummer: Sheet number: 13

7

5. Sprint retrospective:

An evaluation done after each sprint where the team goes over what was good and what was bad.

Focus on responding to change and individuals and interactions.

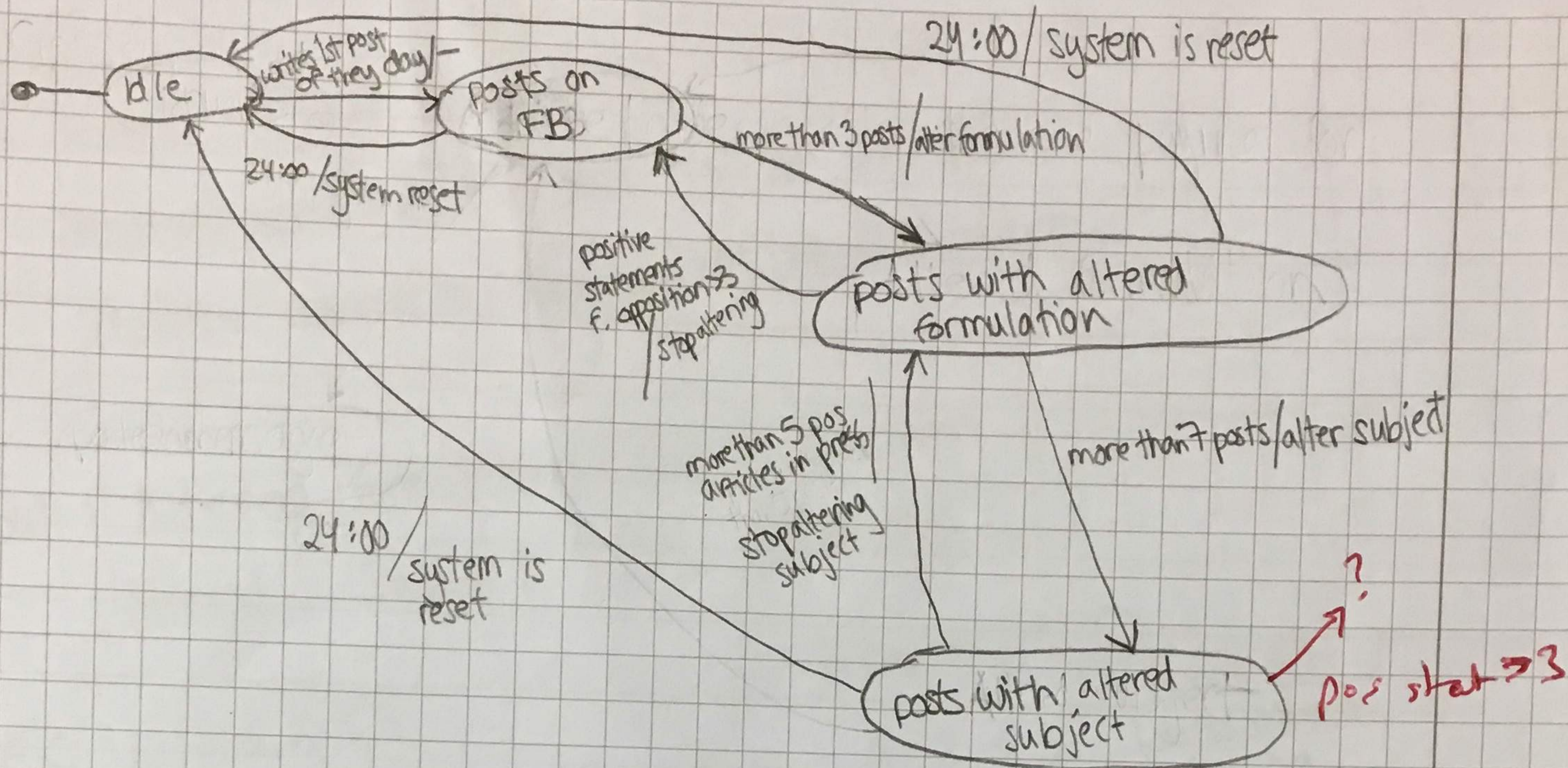
Good for the team so that they learn what worked well and what they should focus on improving next sprint.

Good for the customer since the team gets a chance to go over the feedback given from customer and improve this for next sprint.

4

19

8



I assume the bot start altering AFTER 3 messages
 => first altered message is the 4th

ap

9

Input: Posts of the day (x) - Integer
 Positive comments from press (y) - Integer
 Positive comments from opponent (z) - Integer

Time?

Output: Altered formulation (u) - Boolean
 Altered Subject (w) - Boolean

EC 1: $0 \leq x \leq 3$

EC 5: $5 < y$

EC 2: $3 < x \leq 7$

EC 6: $0 \leq z \leq 3$

EC 3: $7 < x$

EC 7: $3 < z$

EC 4: $0 \leq y \leq 5$

Assum bot starts altering after 3rd message
 → first altered is the 4th

yes!

Test case	Input	expected output	Equivalence class
1	x=2 y=0 z=0	u=false w=false	EC 1, EC 4, EC 6
2	x=4 y=1 z=0	u=true w=false	EC 2
3	x=8 y=2 z=1	u=true w=true	EC 3
4	x=8 y=6 z=1	u=true w=false	EC 5
5	x=9 y=6 z=5	u=false w=false	EC 7

Don't know how to cover all "states" with only 5 EC therefore I made more, Only test the main ones though.

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