

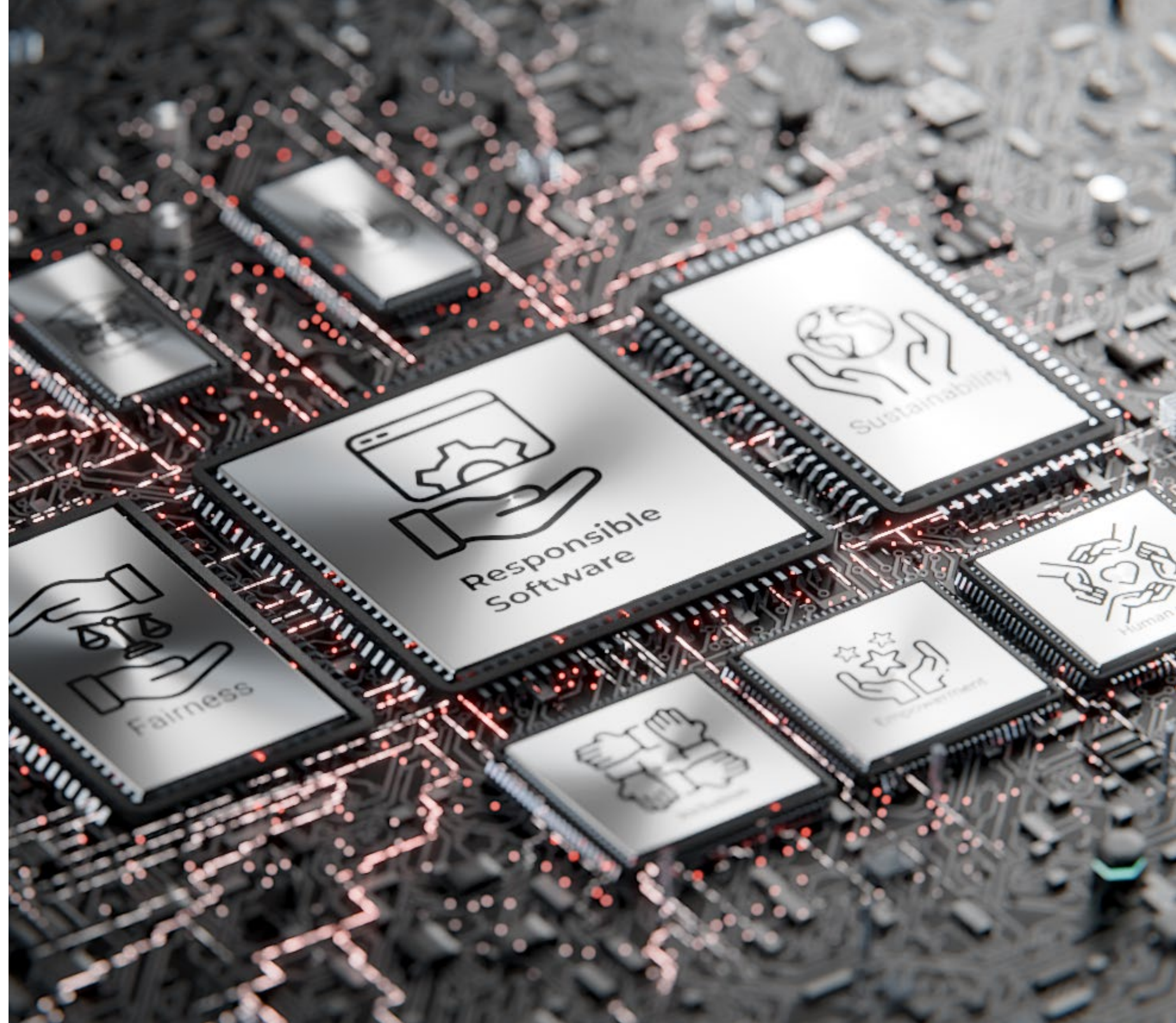
Introduction

Session

9 sept.

Cécile Hardebolle

**Responsible
Software**



Agenda for today

1. Course format and logistics: important information!
2. First case studies:
 - a) Stakeholder analysis
 - b) Ethical speculation

Your instructor

Education:

- Engineer spe. Electrical Engineering and Computer Science
- PhD in Computer Science

Experience:

- Assistant Professor in Computer Science (6 years, Supélec, FR)
+ Teaching at Polytechnique Paris and Centrale Paris
- Pedagogical Advisor and Learning Scientist (10 years, EPFL)

Passionate about **computer science**, **ethics** and **learning**!

The Responsible Software Team

Have prepared all the material
+ will assist for the course:

- Florian Dufour
- Noa Trojman
- Eugène Bergeron
- Mattéo Berthet
- *Rose Ndanga Nya*
- *Athina Papageorgiou Koufidou*
- *Maxime Lelièvre*

Doctoral assistants:

- Diba Hashemi
- Saqib Javed
- Lovro Nuic

Student assistants:

- Camille Lannoye
- Camille Pittet
- Clara Tavernier
- Mamoun Imgi
- Florian Kolly
- Pierre-Hadrien Levieil
- Elyes Trabelsi
- Paul Tissot-Daguette

You are in:

41% a. Bachelor 3

49% b. Bachelor 5

6% c. Master

5% d. Other

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Your prior experience with flipped classes:

26% a. I have attended several flipped classes

35% b. I have attended one flipped class

36% c. I have heard about it but never attended one

2% d. Never heard about it

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A typical “week”

Tuesday 8h15-10h: programming exercise

Experience



- ◆ Solution provided in the evening

By the next Monday:

Knowledge



- ◆ **Watch videos of theory & strategies + quizzes**
- ◆ Finish case studies from the previous week
- ◆ Finish programming exercises

Average of
5 videos / week

Monday 8h15-10h: case studies

Habits



- ◆ Interactive polling session
- ◆ Group activities & questions
- ◆ Solution provided in the evening

When watching the videos I will:

53% a. Take handwritten notes (paper, tablet)

10% b. Take typed notes on my laptop

33% c. Only watch and listen

4% d. Other

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Regarding the moment I will watch the videos:

25% a. I will schedule a fixed weekly time slot

55% b. I will adapt each week depending on my workload

18% c. I don't know yet

3% d. Other

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Evaluation

2 Graded assignments: 20% each

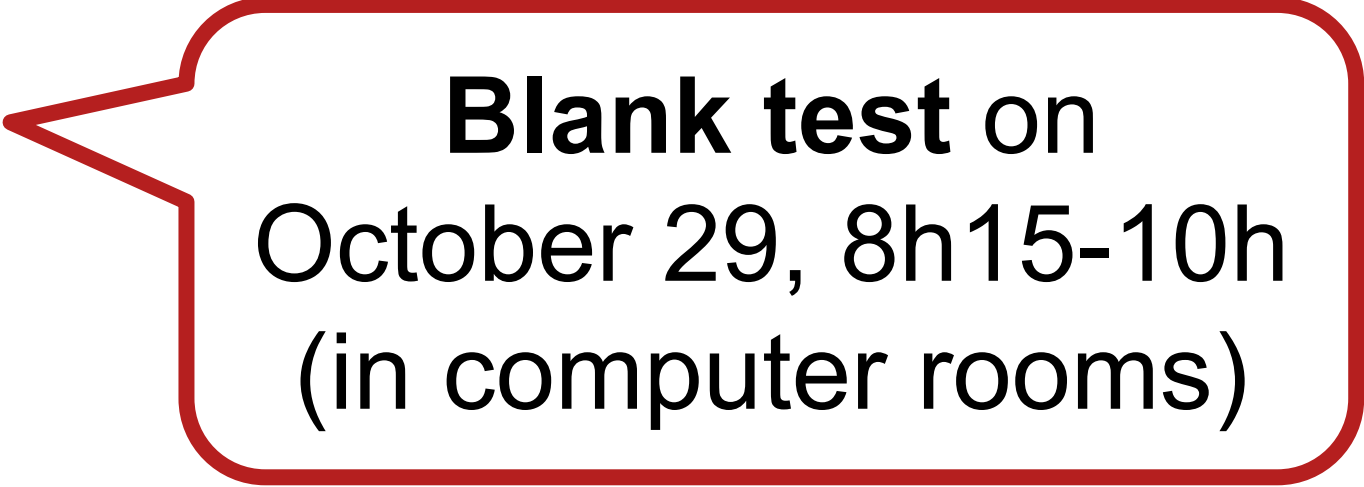
- October 15 and November 26, 8h15-10h
- Supervised, in computer rooms
- On noto
- Open book (no GenAI tool allowed!)



Better to be at ease
with noto

Final exam: 60%

- December 16, 8h15-10h
- Supervised, in lecture hall
- Pen and paper (QCM + case studies)
- Closed book, one A4 paper sheet allowed



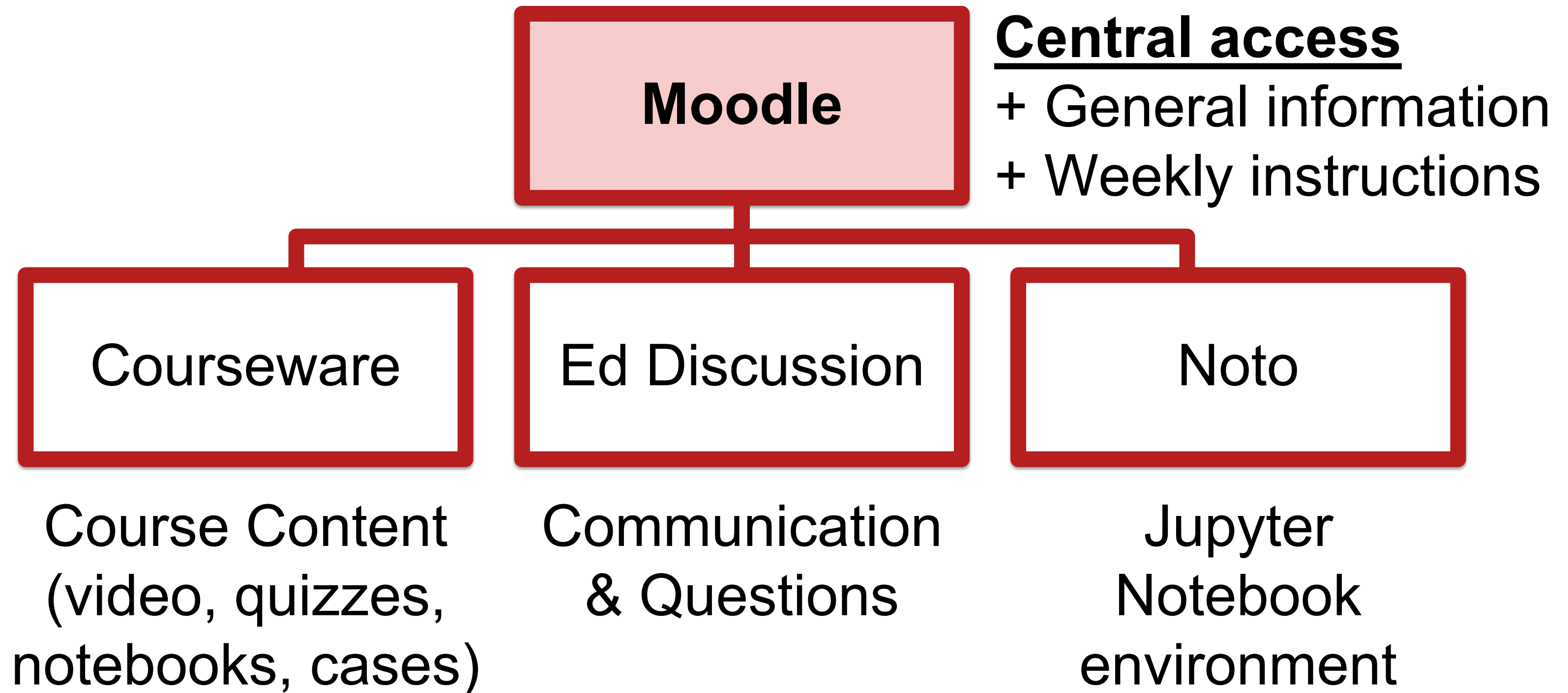
Blank test on
October 29, 8h15-10h
(in computer rooms)

Overall schedule

Date	Week	Lecture (Monday 8h15-10h)	Exercise session (Tuesday 8h15-10h)	Independent study (due before the following Monday)
09/09	1	Introduction + cases	Tutorial notebook	Introduction videos and quizzes
16/09	2	public holiday	Safety 1 notebook	Safety 1 videos and quizzes
23/09	3	Safety 1 cases	Safety 2 notebook	Safety 2 videos and quizzes
30/09	4	Safety 2 cases	Fairness 1 notebook	Fairness 1 videos and quizzes
07/10	5	Fairness 1 cases	Fairness 2 notebook	Fairness 2 videos and quizzes
14/10	6	Fairness 2 cases	Graded assignment 1	-
21/10			Autumn break	
28/10	7	Debriefing assignment	Blank test	-
04/11	8	Blank test debriefing	Sustainability 1 notebook	Sustainability 1 videos and quizzes
11/11	9	Sustainability 1 cases	Sustainability 2 notebook	Sustainability 2 videos and quizzes
18/11	10	Sustainability 2 cases	Empowerment 1 notebook	Empowerment 1 videos and quizzes
25/11	11	Empowerment 1 cases	Graded assignment 2	-
02/12	12	Debriefing assignment	Empowerment 2 notebook	Empowerment 2 videos and quizzes
09/12	13	Empowerment 2 cases	Conclusion cases	Conclusion videos and quizzes
16/12	14	Final exam	-	-

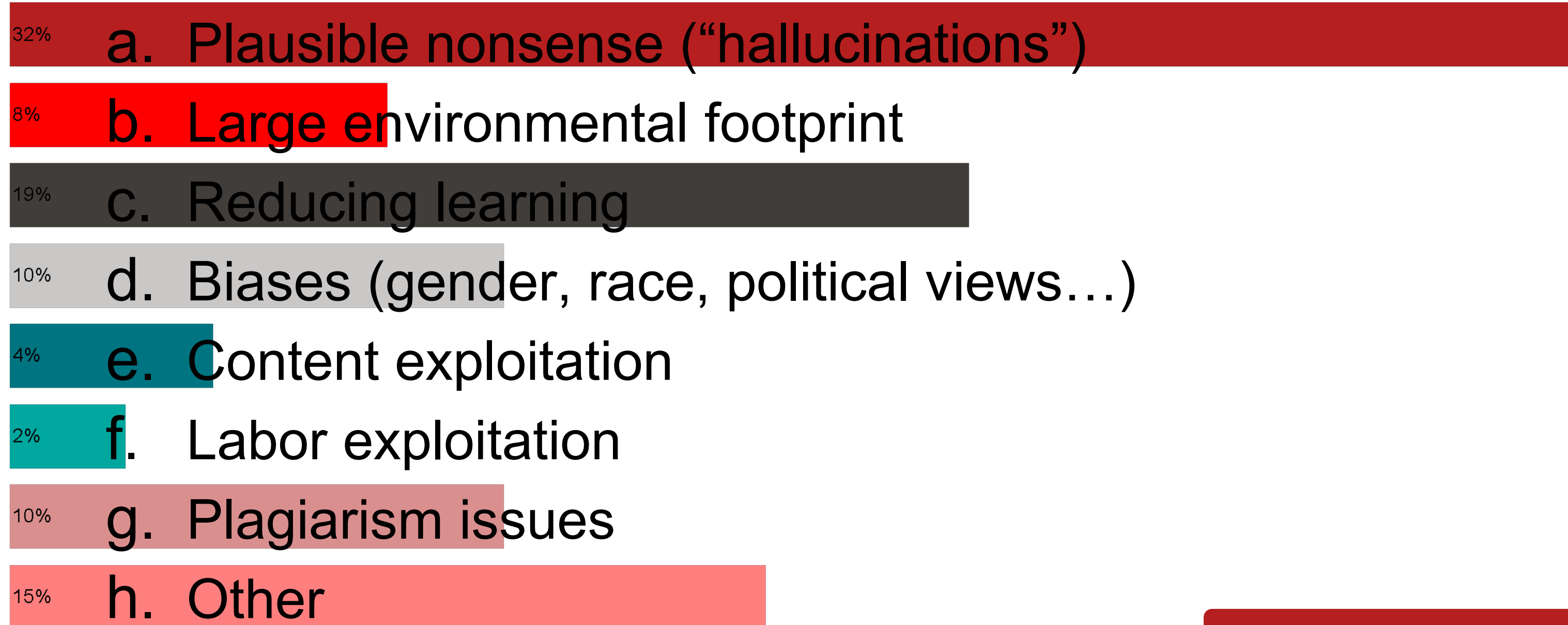
The tools we use

<https://go.epfl.ch/CS-290>



What are the drawbacks (risks) of Generative AI?

Select all that apply:



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Generative AI Policy 👉 to read!



Generative AI Policy 👉 to read!

Summary of key points:

- Can prevent you from learning:
 - Learning wrong things (“hallucinations”)
 - Removing effort = removing learning
- **Involve ethical issues:** bad environmental impact, biases, content exploitation, labor exploitation, copyright issues
- Can be **useful** in a few **cases**: programming assistance, writing blockage, brainstorming, formulation help (with caveats)
- **Prohibited** during **graded assignments** and the **exam**

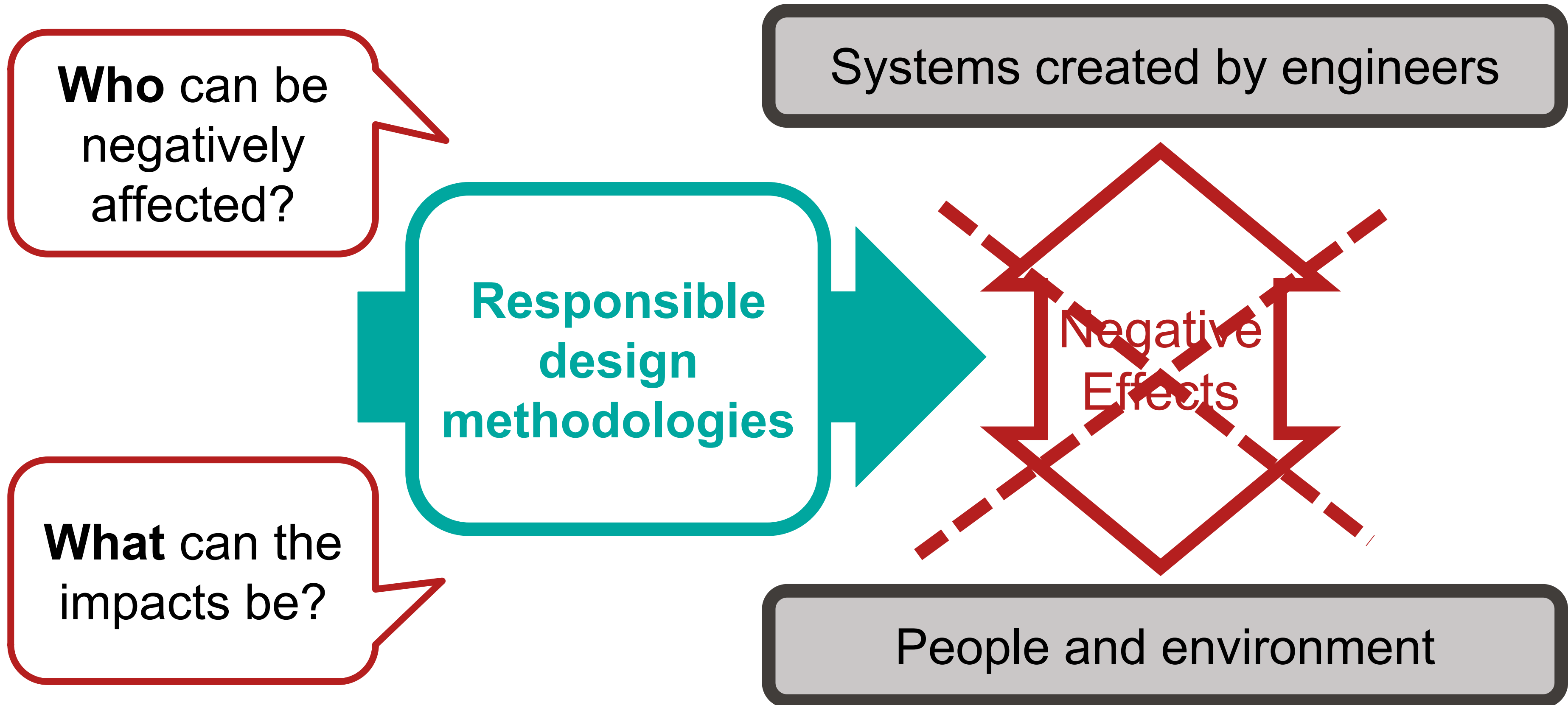
Case studies

Where to find the cases?

1. Go to **moodle**
2. Find the **link to the case studies** for today
 this link will send you to courseware
(where you can find all the course material)
3. Download:
 - The instruction sheet
 - The 2 cheatsheets
 - The template

Responsibility in engineering

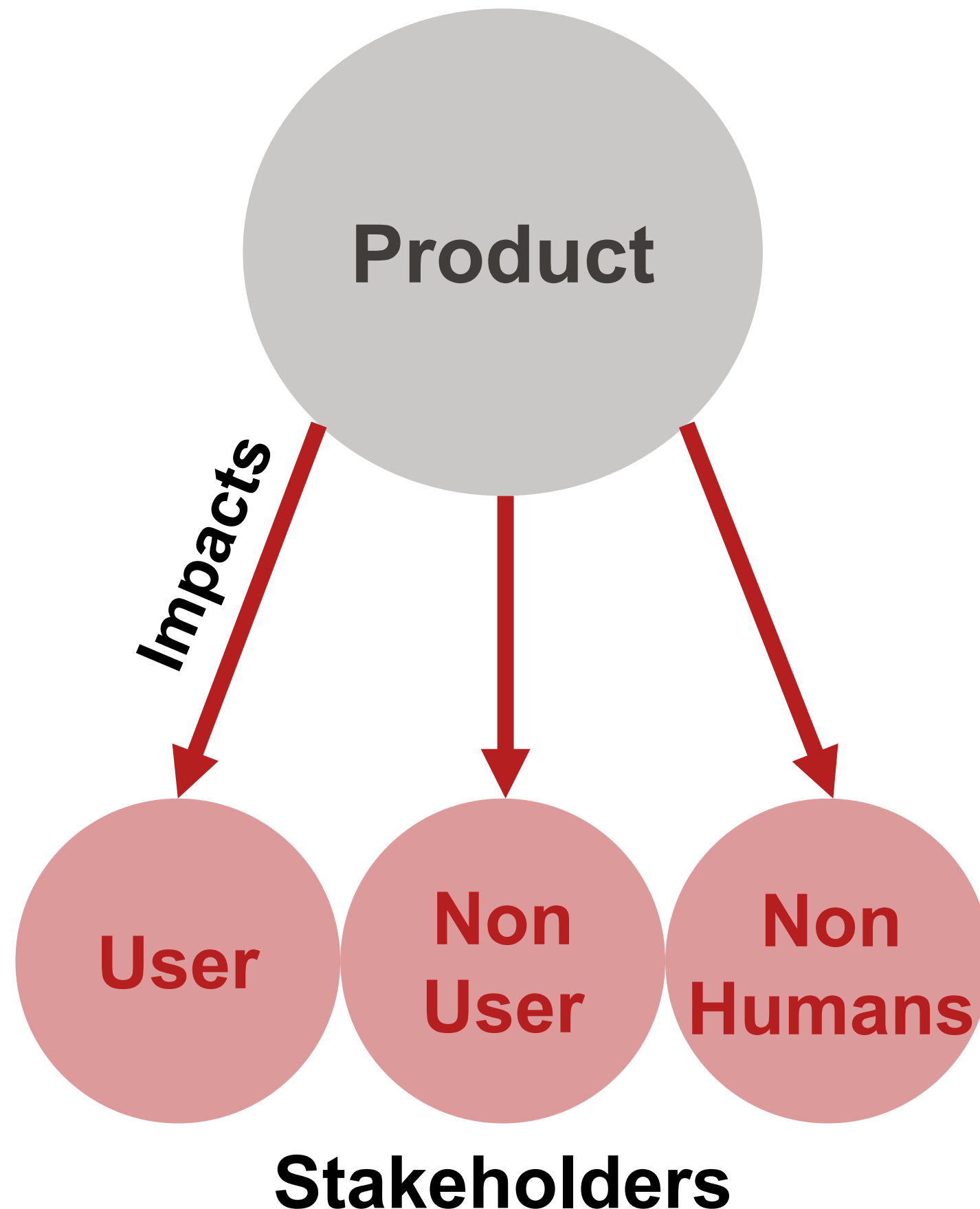
(Boehnert et al., 2022;
Gogoll et al., 2021;
Génova et al., 2007)



Stakeholder analysis:
who can be
negatively affected?

Stakeholder analysis: why?

(Friedman & Hendry, 2019)



- **Stakeholder:** “Individuals, groups, organizations, institutions, and societies that might reasonably be affected by the technology”
- Persons or non-humans
- Affected positively or negatively
- Direct or indirect interactions

How to apply the strategy?

1. Brainstorming using questions

- 👉 List on the cheatsheet
- 👉 List on the webpage of the Markkula Center for Applied Ethics

2. Using the direct/indirect categories

- Direct = in contact with the product
- Indirect = affected but not in contact



Instructions

Individually, read the first case

Analyze the stakeholders:

1. Brainstorm a first list of stakeholders
2. Use the questions to find 6 stakeholders
3. Use the direct / indirect categories to find another 2 stakeholders
4. Which are at risk of negative impact?

Share with your neighbor:

- Did you identify the same stakeholders?
- Can you agree on a final list?

Which among these are stakeholders in the case?

Select all that apply:

17% a. Patients

17% b. Hospital staff

17% c. Hospital IT department

10% d. City administration

12% e. Paper supplier

12% f. Natural environment

3% g. Neighboring shops

12% h. Insurance companies

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Which among these are **direct** stakeholders in the case?

Select all that apply:

23% a. Patients

34% b. Hospital staff

33% c. Hospital IT department

1% d. Natural environment

9% e. Paper supplier

Debriefing

Requires a (very) good **understanding of the application context!**

- 👉 perform interviews
- 👉 ask experts
- 👉 map out existing systems, both social and technical

The direct / indirect categories are not strict, the **boundary between the two is often very fine**

- 👉 use as a help for brainstorming

Ethical speculation:
what can the impacts
be?

What is ethical speculation?

- Key question: how to **anticipate possible negative impacts?**
 - Impossible to predict everything!
 - But strategies for expanding our thinking
- **Ethical speculation:**
 - **Creative** practice, related to **fiction**
 - Goal = speculate about **future harms and consequences**
- Approach from Prof. Casey Fiesler:
“Black Mirror Writers Room”

About the “Black Mirror” TV series:

20% a. I have watched all the episodes

44% b. I have watched one or a few episodes

24% c. I have just heard about it but not watched

12% d. Never heard about it

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NETFLIX ORIGINAL

BLACK MIRROR

2019 TV-MA 5 Seasons

Watch Season 5 Now

"Nosedive"

A woman desperate to boost her social media score hits the jackpot when she's invited to a swanky wedding. But the trip doesn't go as planned.

▶ NEXT EPISODE

+ MY LIST



Creators: Charlie Brooker

OVERVIEW

EPISODES

TRAILERS & MORE

MORE LIKE THIS

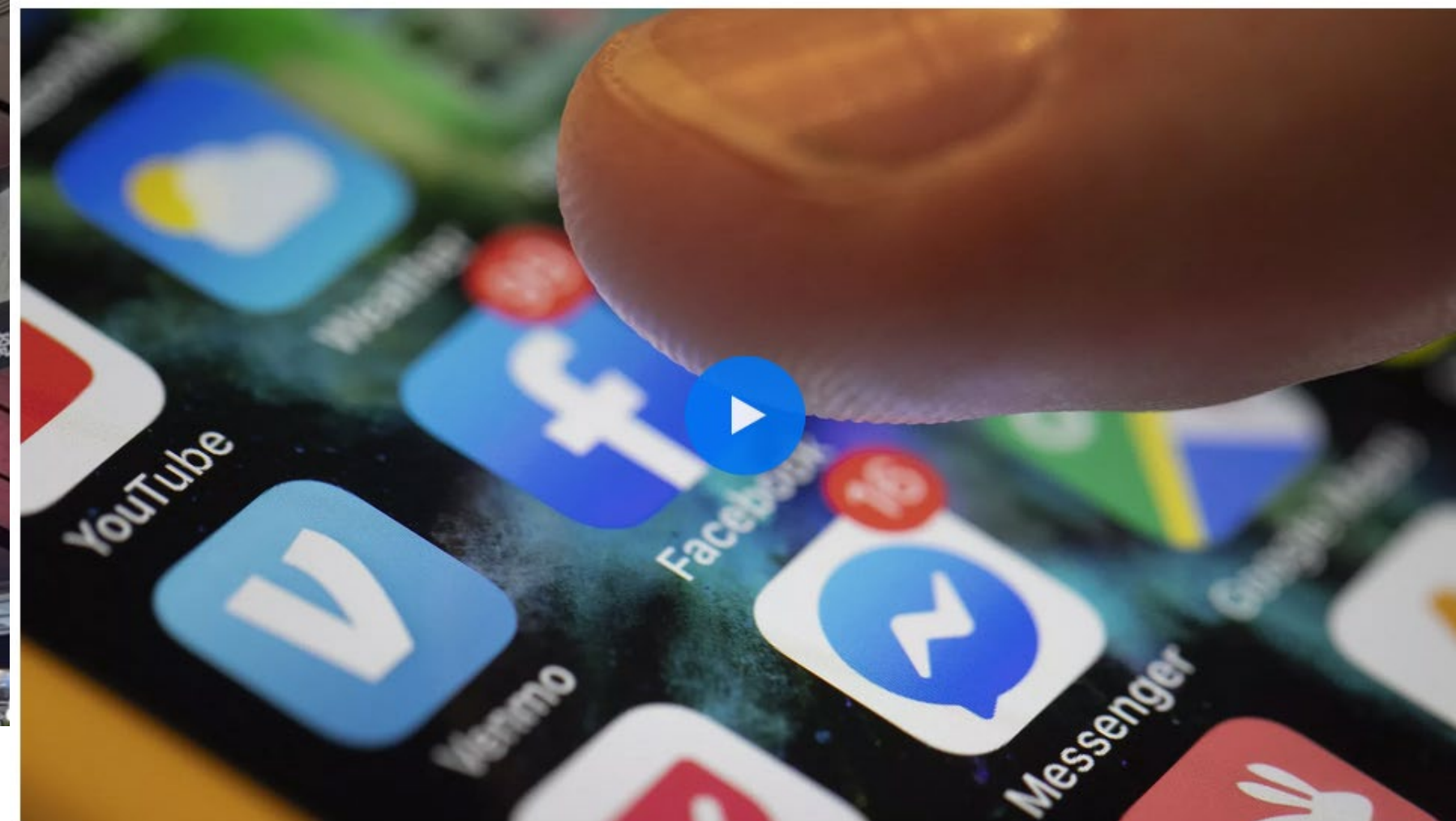
DETAILS



China's social credit system stopped millions of people from buying travel tickets



Social scoring: Could that Facebook post stop you getting a loan or a mortgage?



Copyright AP Photo/Jenny Kane

POLICY / US & WORLD / TECH

EU should ban AI-powered citizen scoring and mass surveillance, say experts

New recommendations have also been criticized as lacking enforceability

By James Vincent | Jun 26, 2019, 7:30am EDT

Instructions

Scenario A:
personalized medicine

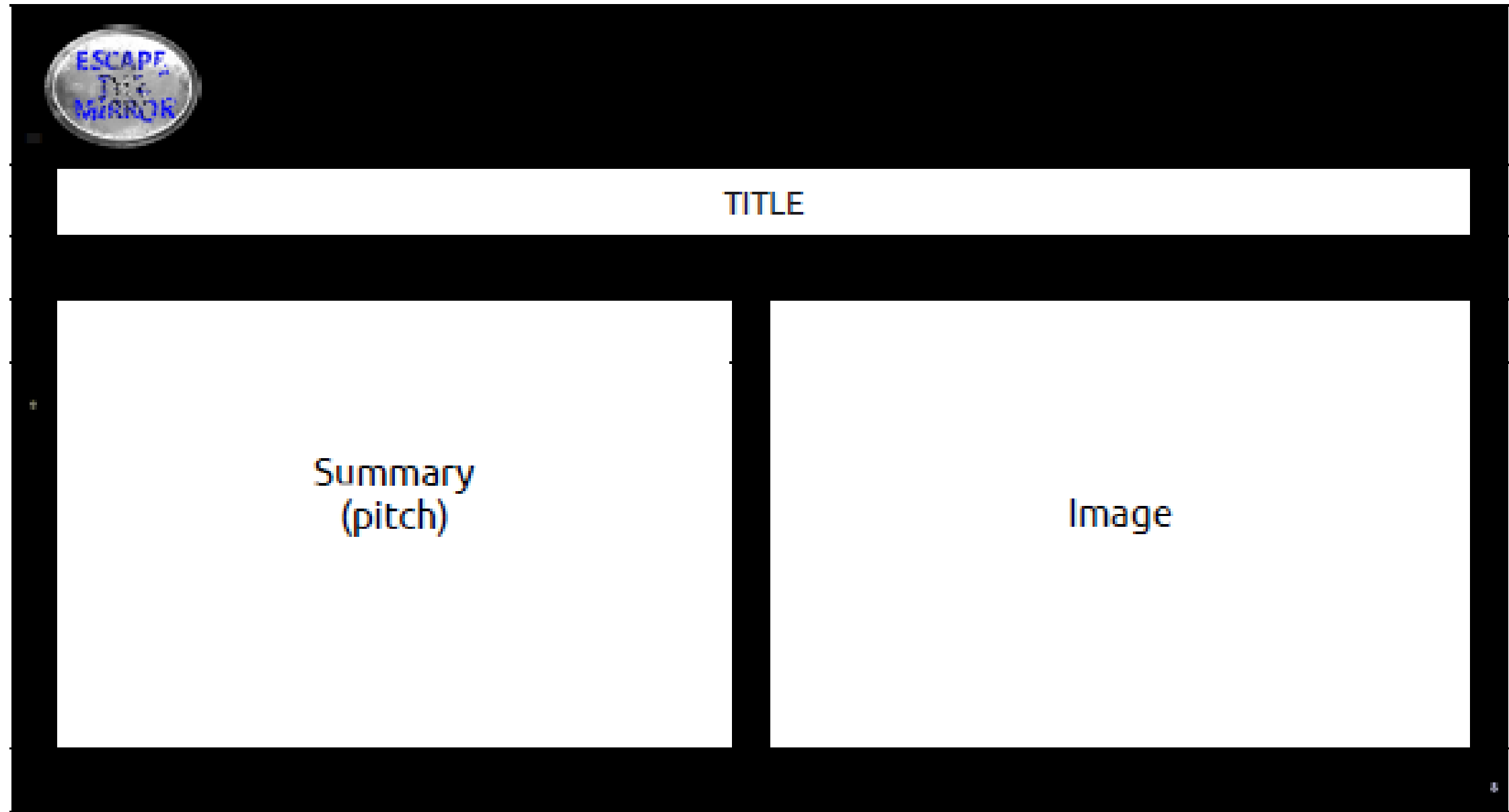
Scenario B:
dating apps

Part I – The dark and pessimistic story

Read the scenario

With your neighbor:

1. Brainstorm a **story** and **main character**
2. Write the **pitch** and invent an **attractive title**
3. Illustrate with a picture – e.g., pexels or unsplash



ESCAPE THE MIRROR

TITLE

Summary (pitch)

Image

The image shows a template for a story pitch card. It has a black background with white text. At the top left, there is a circular logo with the text "ESCAPE THE MIRROR". Below the logo, there is a white rectangular box labeled "TITLE". Below the title box, there are two white rectangular boxes side-by-side. The left box is labeled "Summary (pitch)" and the right box is labeled "Image".

Part II – The happy ending

1. Identify the **ethical issues** (1 or 2) and develop 1 or 2 sentences on:

- Immediate harms
- Future consequences

2. Imagine a way to **prevent the issues**

👉 Write a **happy ending** for your main character

	
TITLE	
Immediate and Future Consequences	Solution and/or Positive Consequences

Why do we do this?

Goal = **anticipating possible negative impacts**

What is a “good” ethical speculation story?

- Relates to at least 1 **ethical issue**
- Lists at least 2 **harms / negative consequences**
- Relatively **realistic**

For the fun:

- Post screen captures of your Part I on Ed Discussion
- Vote for the most realistic stories

What's next?

Computer rooms

Room	AEs	TA
INF 1 (≈ 100 seats - <u>no computers</u>)	Eugène Bergeron Elyes Fares Trabelsi Mamoun Imghi	Lovro Nuic
BC 07 (≈ 35 seats)	Clara Tavernier	Diba Hashemi
BC 08 (≈ 35 seats)	Florian Kolly	
CO 4 (≈ 30 seats)	Camille Pittet	Saqib Javed
CO 5 (≈ 40 seats)	Paul Tissot-Daguet Camille Lannoye	
CO 6 (≈ 40 seats)	Noa Trojman Pierre-Hadrien Levieil	

Choose a room by **voting on moodle** and try to stick to it throughout the semester (it helps us organize!)

You will need a **computer** with a recent **web browser** (Firefox or Chrome)

Virtual machine:
IC-Windows-Cours2

Programming exercises

To do before the session tomorrow:

- Go to moodle
- Click on the link for the programming exercise
- Click on the link to the notebook, which will launch noto
 **check that you have access!**
If not, post on Ed Discussion, category “technical issue”

By next Monday:

- Watch **videos 0.1 to 0.5** + do the **quizzes**
- Finish the case studies
- Finish the programming exercise

References

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