

Dr Pawel Orzechowski,
Lecturer in Programming for Business
in the Business School (80%)



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Business School

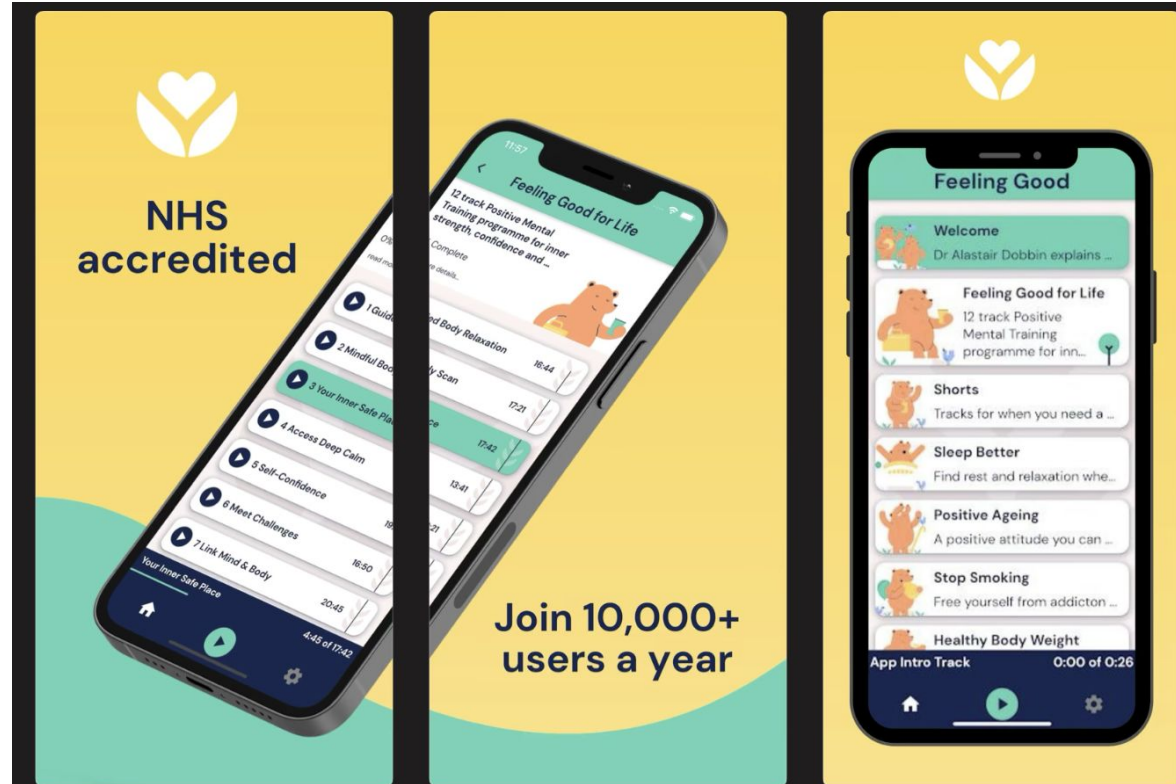
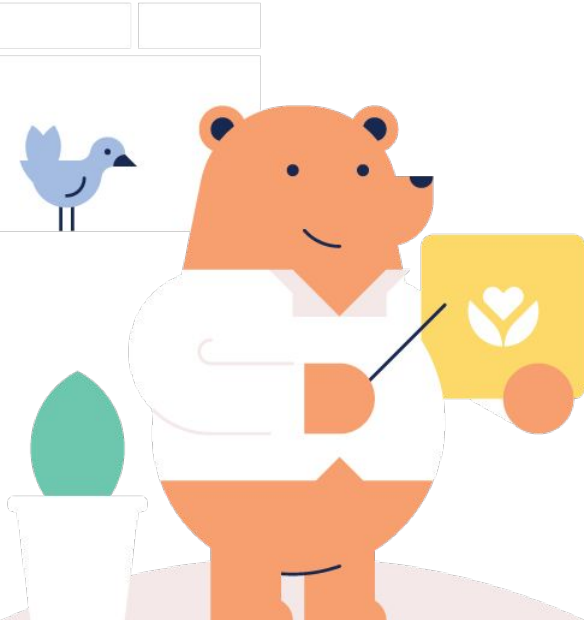
Teaching Programming to Non-programmers

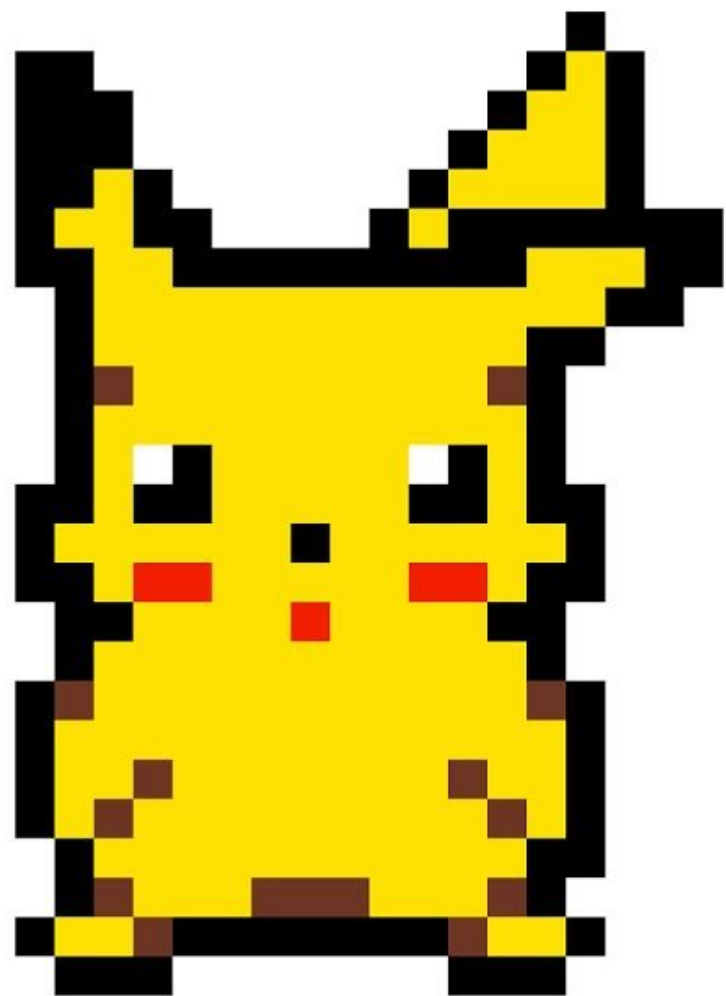
What I'll talk about:

- 1. Badges**
- 2. Pair Programming**
- 3. Hybrid/Fusion/Mixed Learning**
- 4. Open Source / Creative Commons teaching**



20% of my time: feelinggood.app

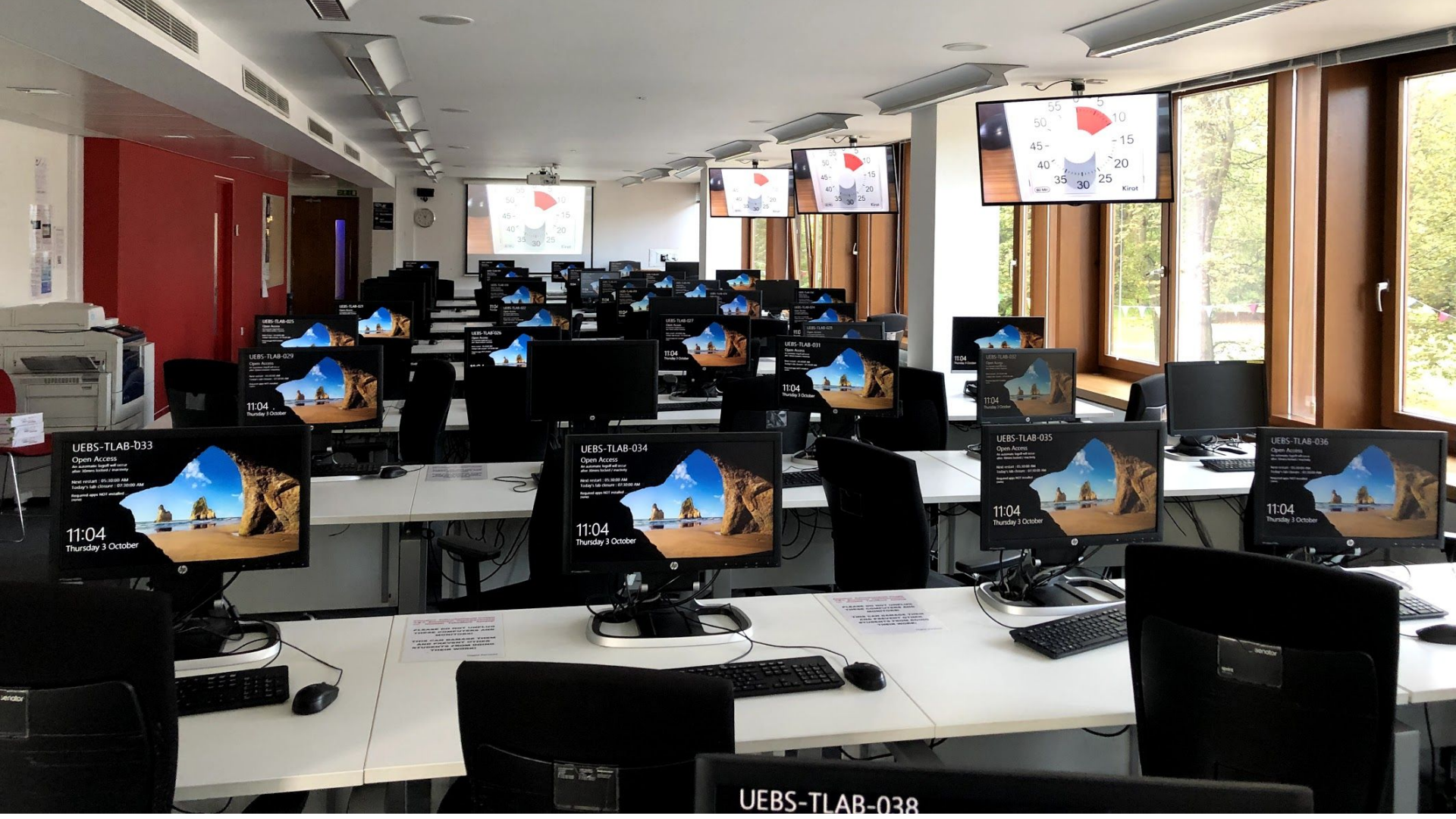












UEBS-TLAB-033

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Thursday 3 October

UEBS-TLAB-034

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Problem:



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how to teach programming to people who:

- do not know any programming**
- possibly don't care about it as a discipline**
- just need it as a tool**

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how to teach programming to people who:

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- possibly don't care about it as a discipline**
- just need it as a tool**

... without skimming over the core concepts

... without lazy coding habits



Solution



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- **gamified (a lot of small wins)**
- **modular and structured (clear context)**
- **social (in pairs & with a lot of sharing)**
- **kind and gentle**

Prototyping courses and Modular Courses



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Datakirk Data Literacy Evening Class (Adults)
EFI text mining bootcamp (Politics, Literature)
Usher Institute (Medicine)
Programming for Business (Business)

Edinburgh Medical School: Molecular, Genetic and Population Health Sciences
USHER INSTITUTE



THE UNIVERSITY OF EDINBURGH
Edinburgh Futures Institute



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1. Badges!

breaking down
teaching content,
and scaffolding it
into courses



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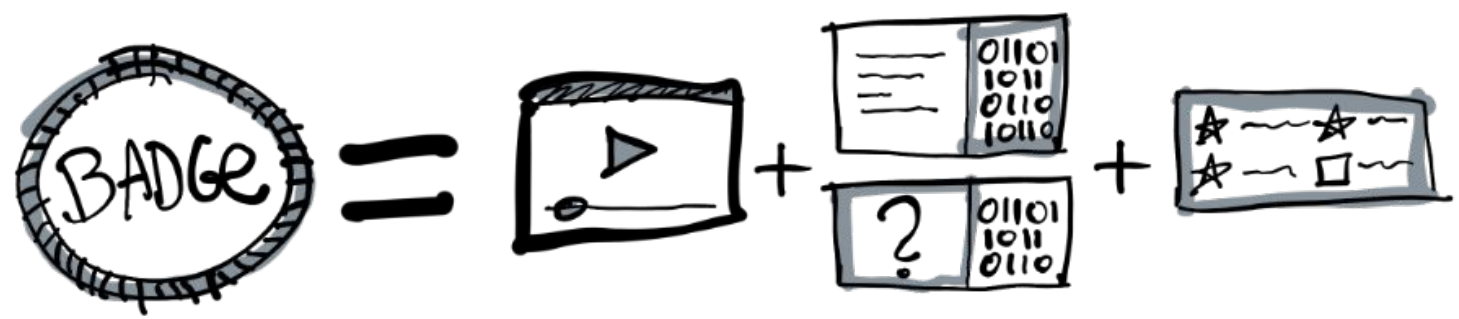




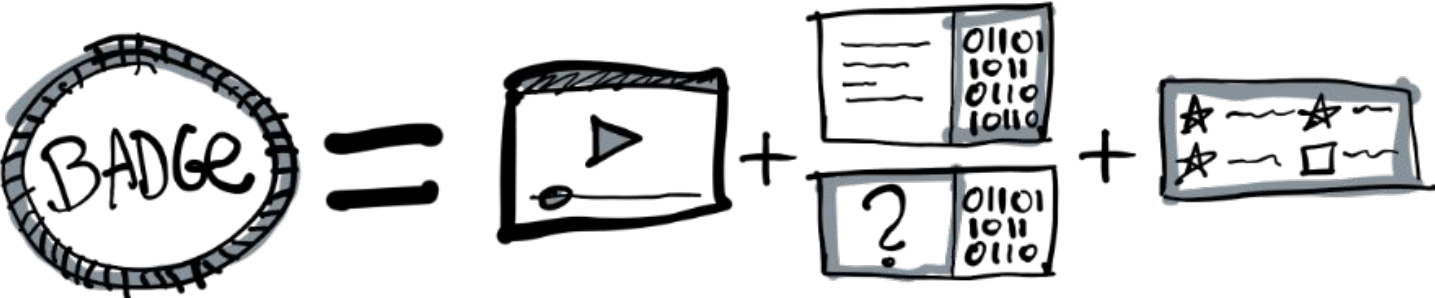


Badges

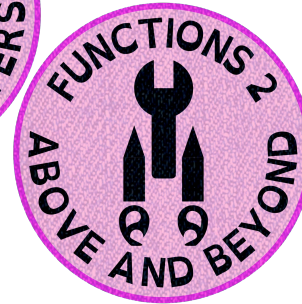
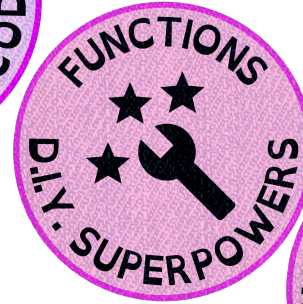
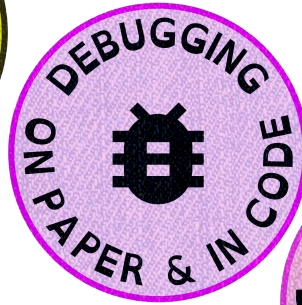
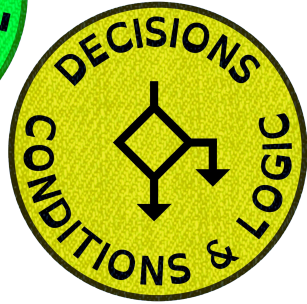
Micro-pattern

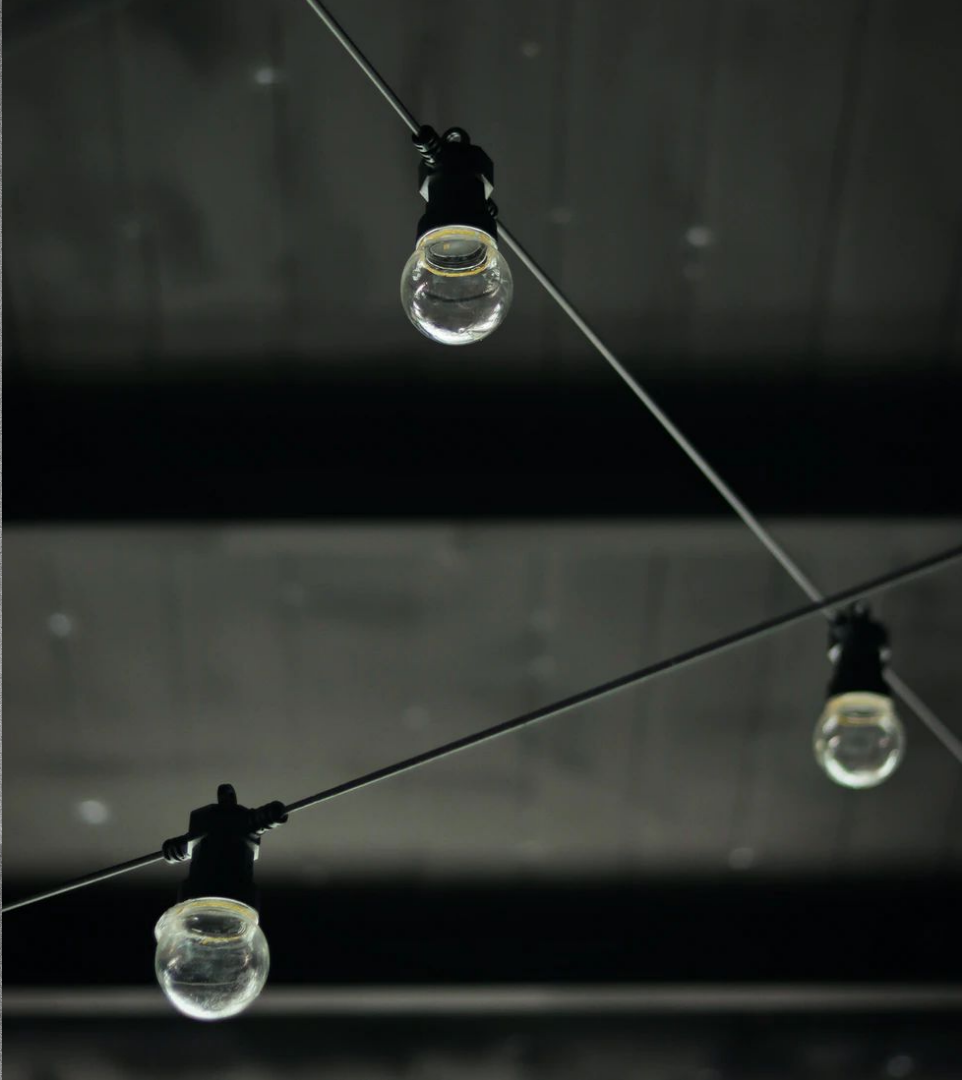
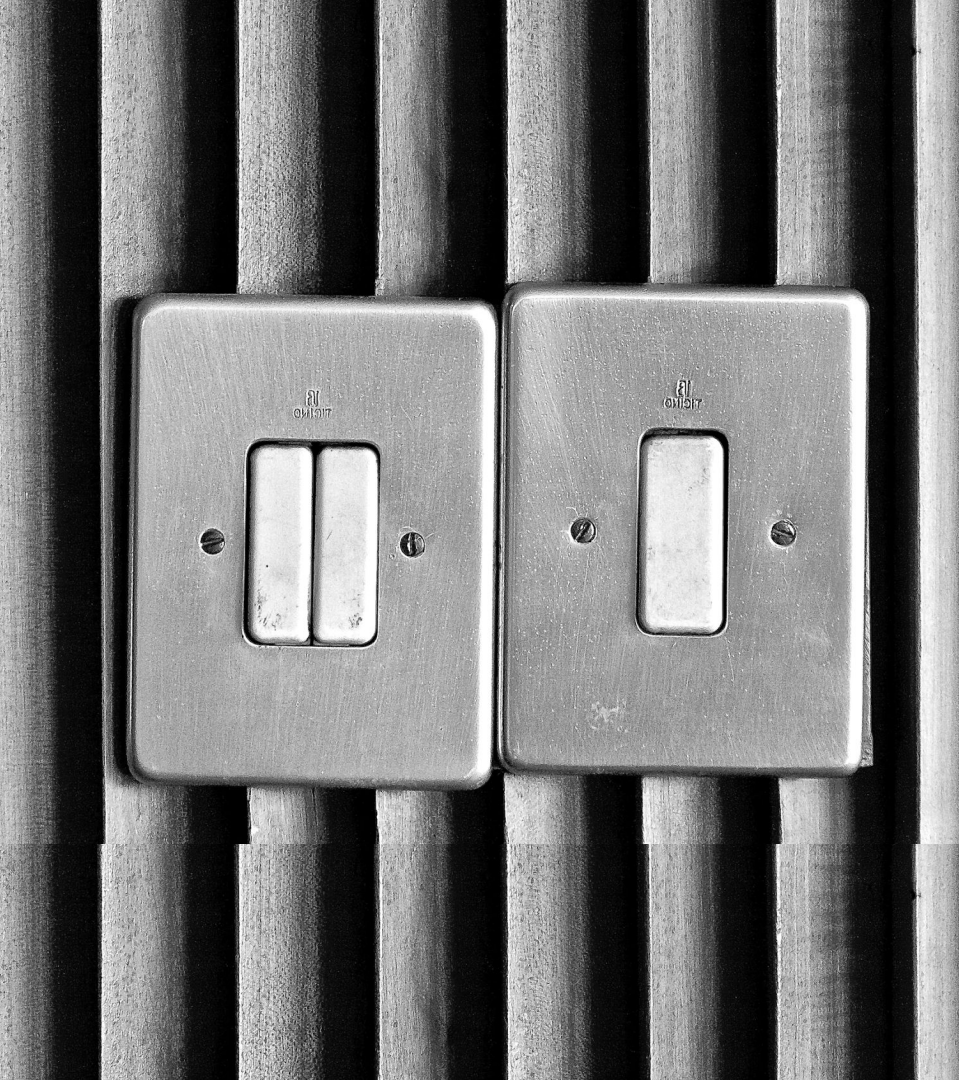


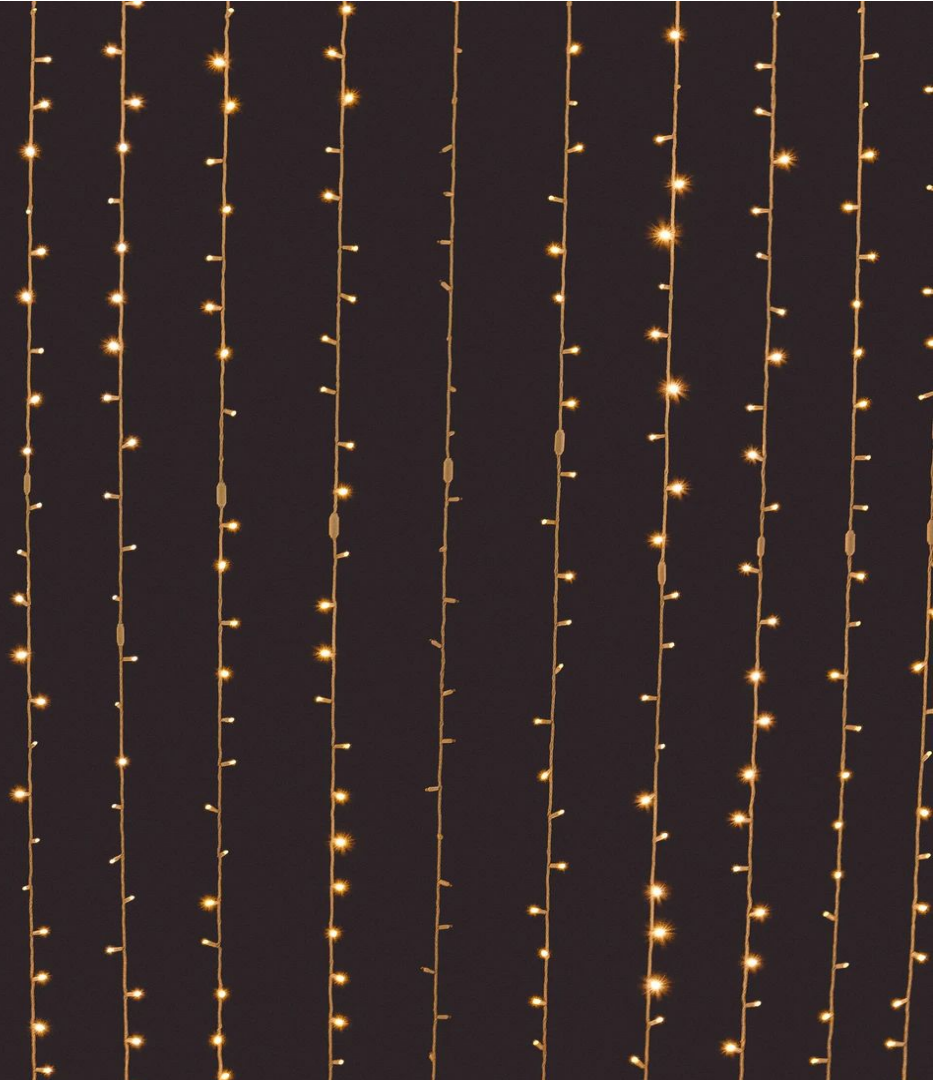
Badges
Micro-pattern



Order of content









2A

Expected



Actual

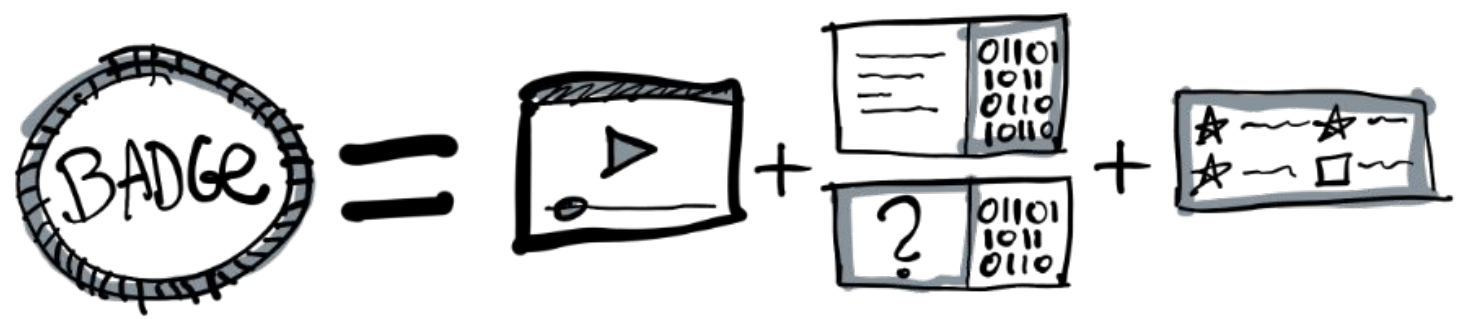


**Compare
(Assert)**



Badges

Micro-pattern



Badges

Macro-pattern

Learning Week: 4-5 Badges + Lab with Challenges



Badges

Macro-pattern

Learning Week: 4-5 Badges + Lab with Challenges



3-Week Block: 2 Learning Weeks + 1 Week with Assignment



Badges

Macro-pattern

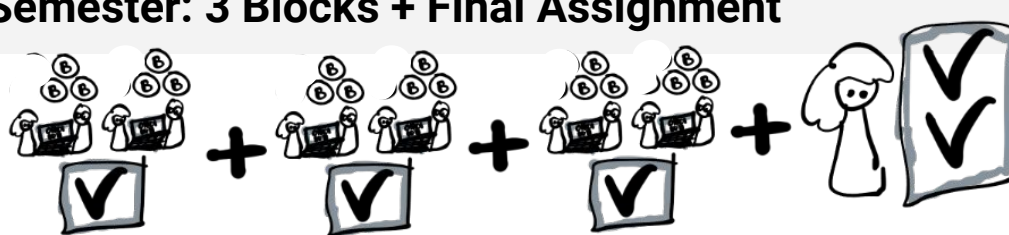
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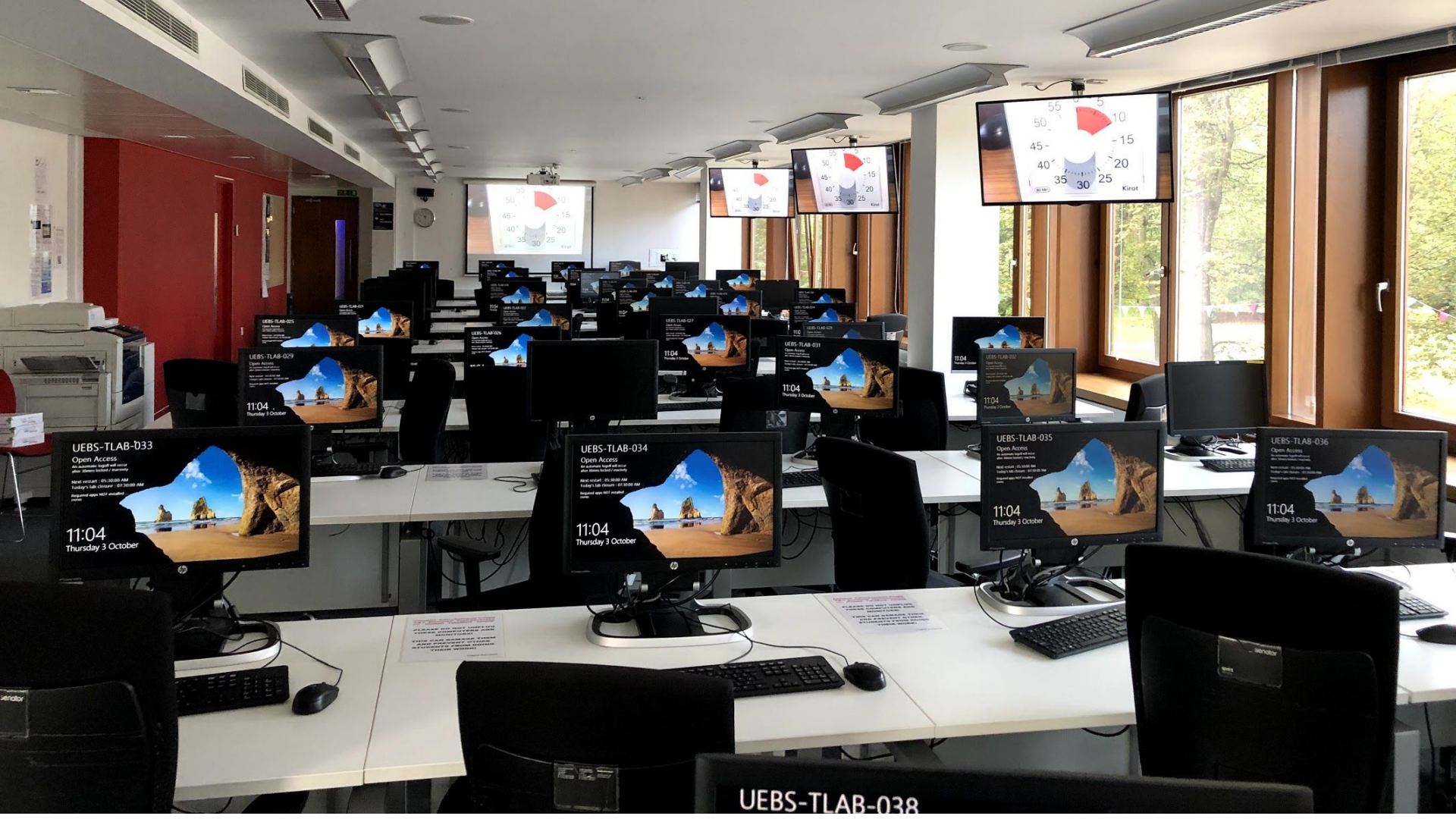
Semester: 3 Blocks + Final Assignment



2. Pair Programming

**students talking
through their
code together**





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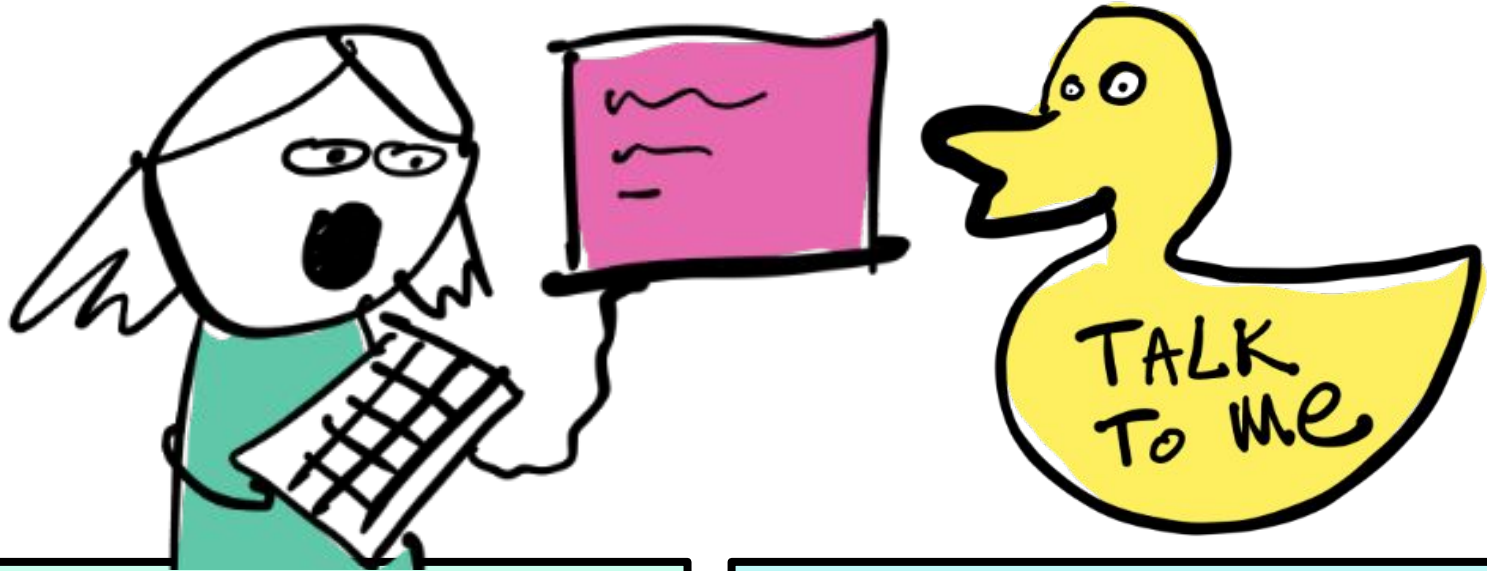
UEBS-TLAB-036

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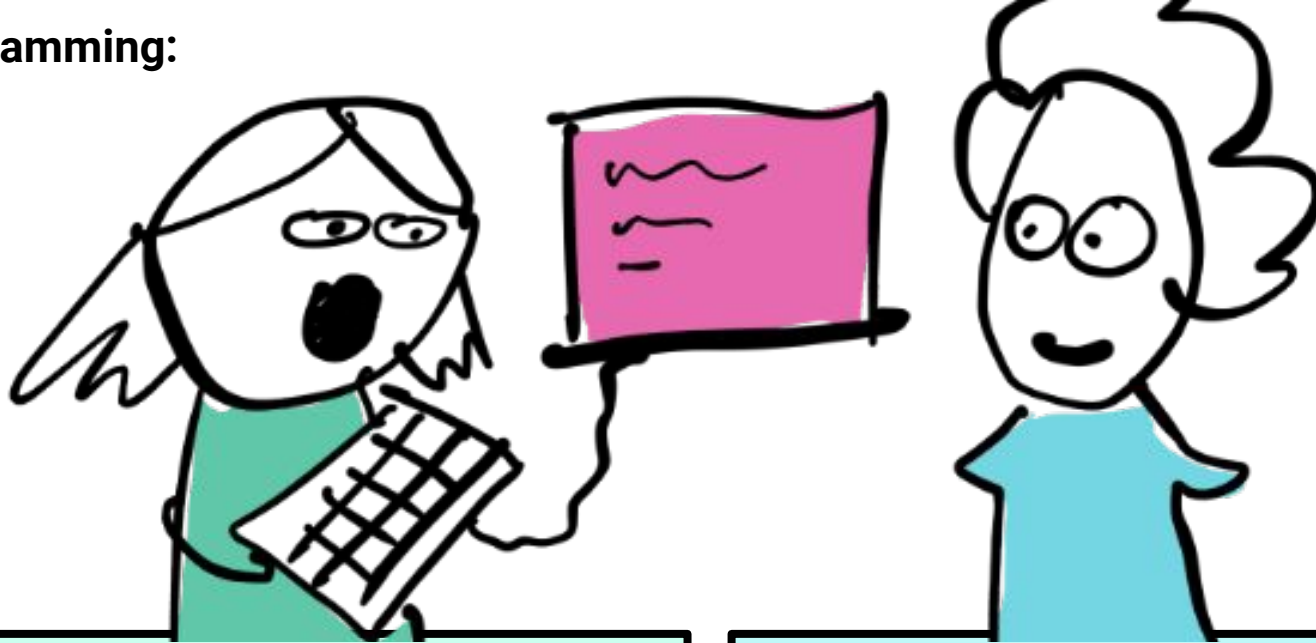
Pair programming:



the Driver = active person,
problem-solving, thinking out loud

the Navigator = reflective person,
looks out for bugs, is a Rubber-Duck*

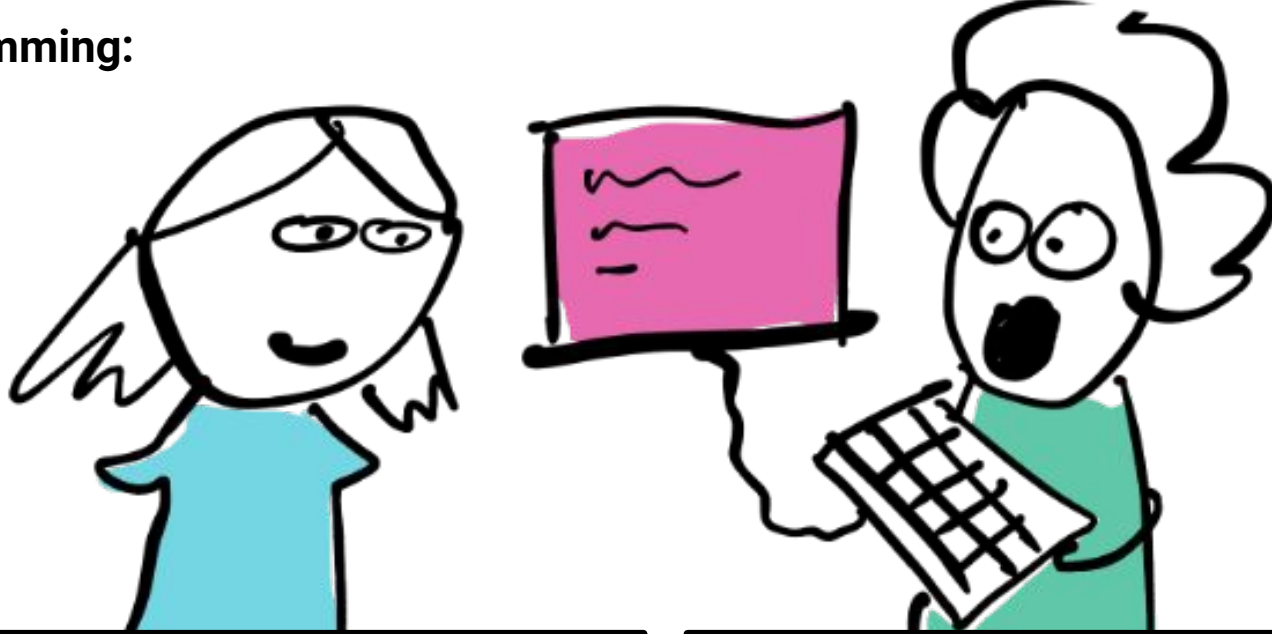
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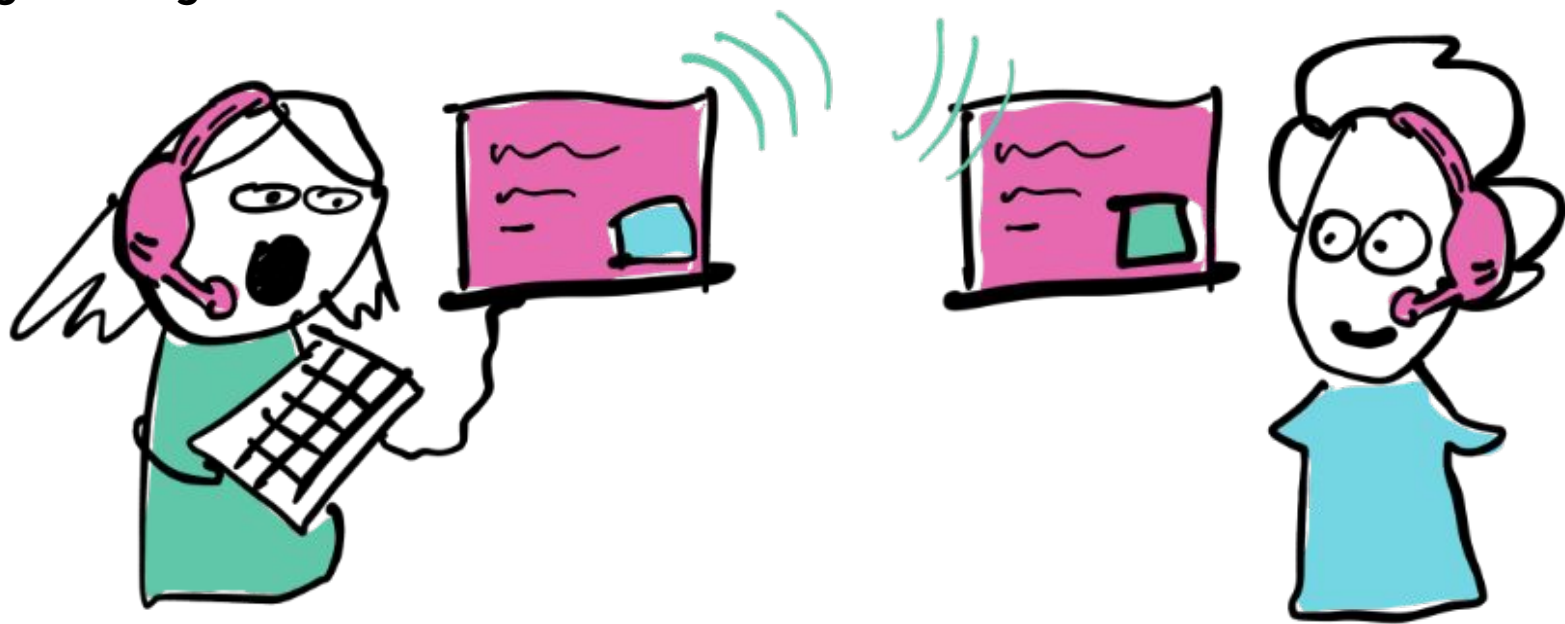
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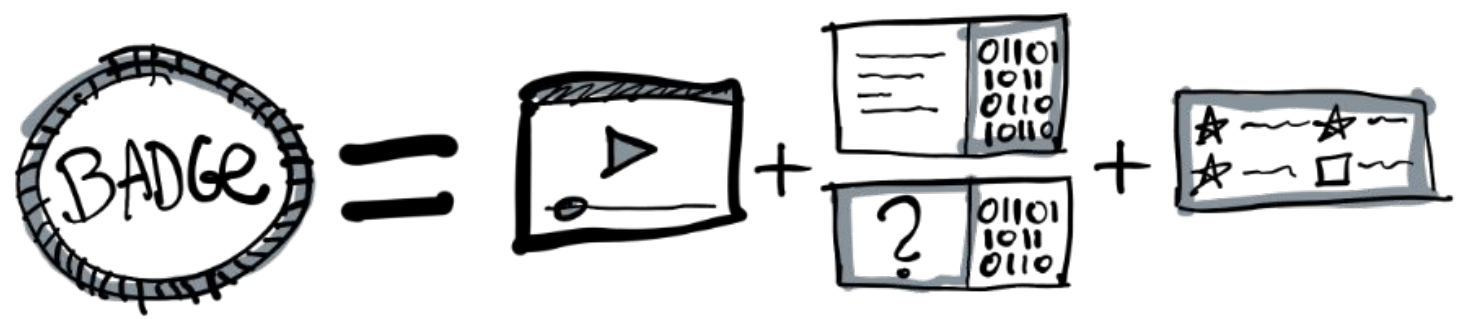


Infrastructure

-  **Noteable (Session Sharing, GitHub)**
-  **Jupyter Notebooks ('No Drama' Setup)**
-  **Collaborate (Screen Sharing, Whiteboard)**
-  **Learn (Achievements)**

Badges

Micro-pattern















3 stars and a Wish (mini-diary)



3 stars and a Wish (mini-diary)

Badge 10: Doing Useful Things with Loops	 Pawel Orzechowski	Published	21	21	22
Badge 09: Repeating things with Loops	 Pawel Orzechowski	Published	25	25	26
B08 Badge 08 - List Comprehensions	 Pawel Orzechowski	Published	28	28	29
B07 Badge - Collections	 Pawel Orzechowski	Published	37	36	38
Badge 06: Test Driven Development	 Pawel Orzechowski	Published	41	40	42
Badge 05: Functions 2: Above and Beyond	 Pawel Orzechowski	Published	37	37	38
Badge 04: Functions, your D.I.Y. Superpowers	 Pawel Orzechowski	Published	40	39	41
Badge 03 - Debugging + Variable Types - In your own words: 3 Stars and a Wish	 Pawel Orzechowski	Published	47	47	48
Badge 01 - Write code, Run code - In your own words: 3 Stars and a Wish	 Pawel Orzechowski	Published	48	48	50
Badge 02 - Conditions and Logic - In your own words: 3 Stars and a Wish	 Pawel Orzechowski	Published	48	48	49

Relentless Feedback

🔥 I found it difficult 🔥🔥🔥	
Not at all	Very Much
😊 I feel positive about it 😊😊😊	
Not at all	Very Much
👩🎓 I learned a lot 👩🎓👩🎓	
Not at all	Very Much
🧩 I can connect it with the rest of the course 🧩🧩🧩	
Not at all	Very Much
👤 I benefited from working with my partner 👤👤👤👤	
Not at all	Very Much
🧑🏫 Hybrid environment (online/in-person) works 🧑🏫🧑🏫🧑🏫	
Not at all	Very Much

on
line

in
room

BADGE

1

x

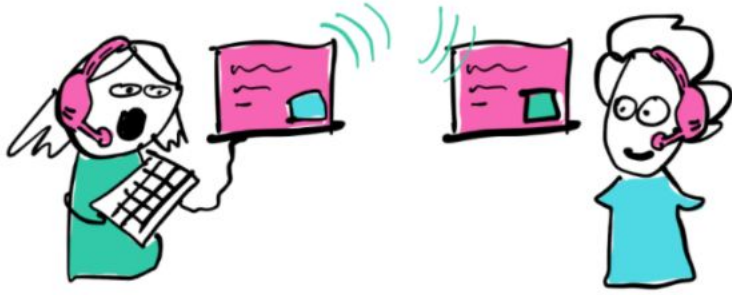
3. Hybrid / Fusion / Mixed

online students
working with
in-person students





Groups: Mixed-Space/Same-Space

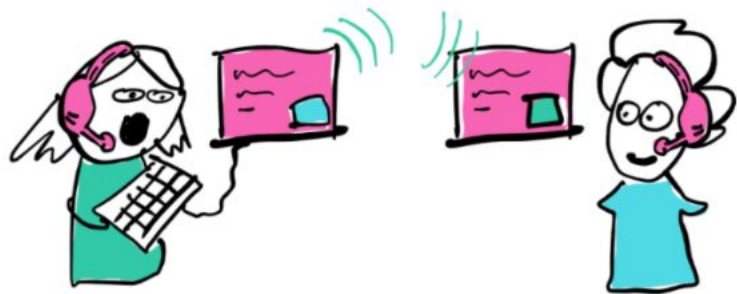


Both Online

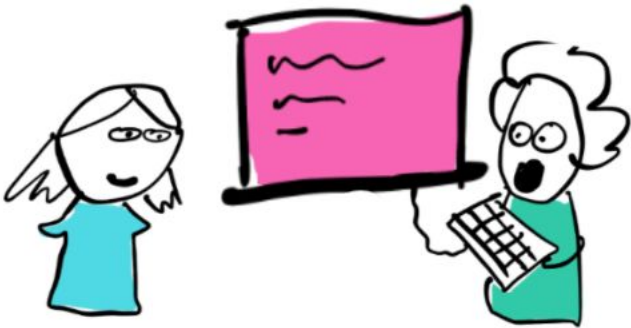


Both In Person

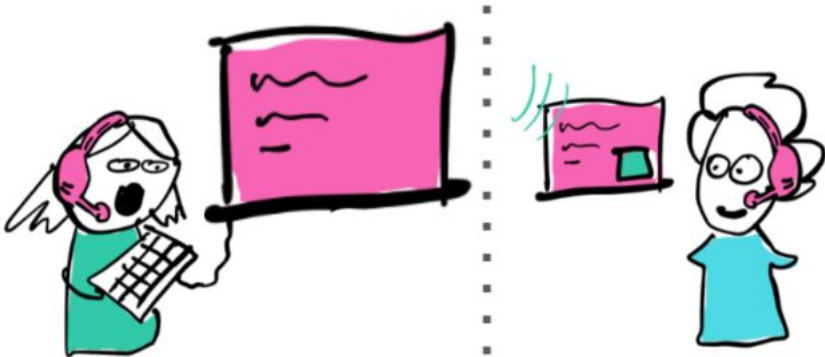
Groups: Mixed-Space/Same-Space



Both Online



Both In Person



One Online - One in Person

Ghost Helper



4. Open Teaching Materials

making all my videos
and notes
Creative Commons
/ OpenSource

So that the world gets to benefit from the
'slightly simpler' version of what we do



Freemium Model

...while Business School Students get these extra:

- Weekly Tutorials**
- Pair programming partners**
- Academic Credits**
- Extra content (Assignments, Exam)**
- Help from instructors**
- Admin support**
- Online Forums**