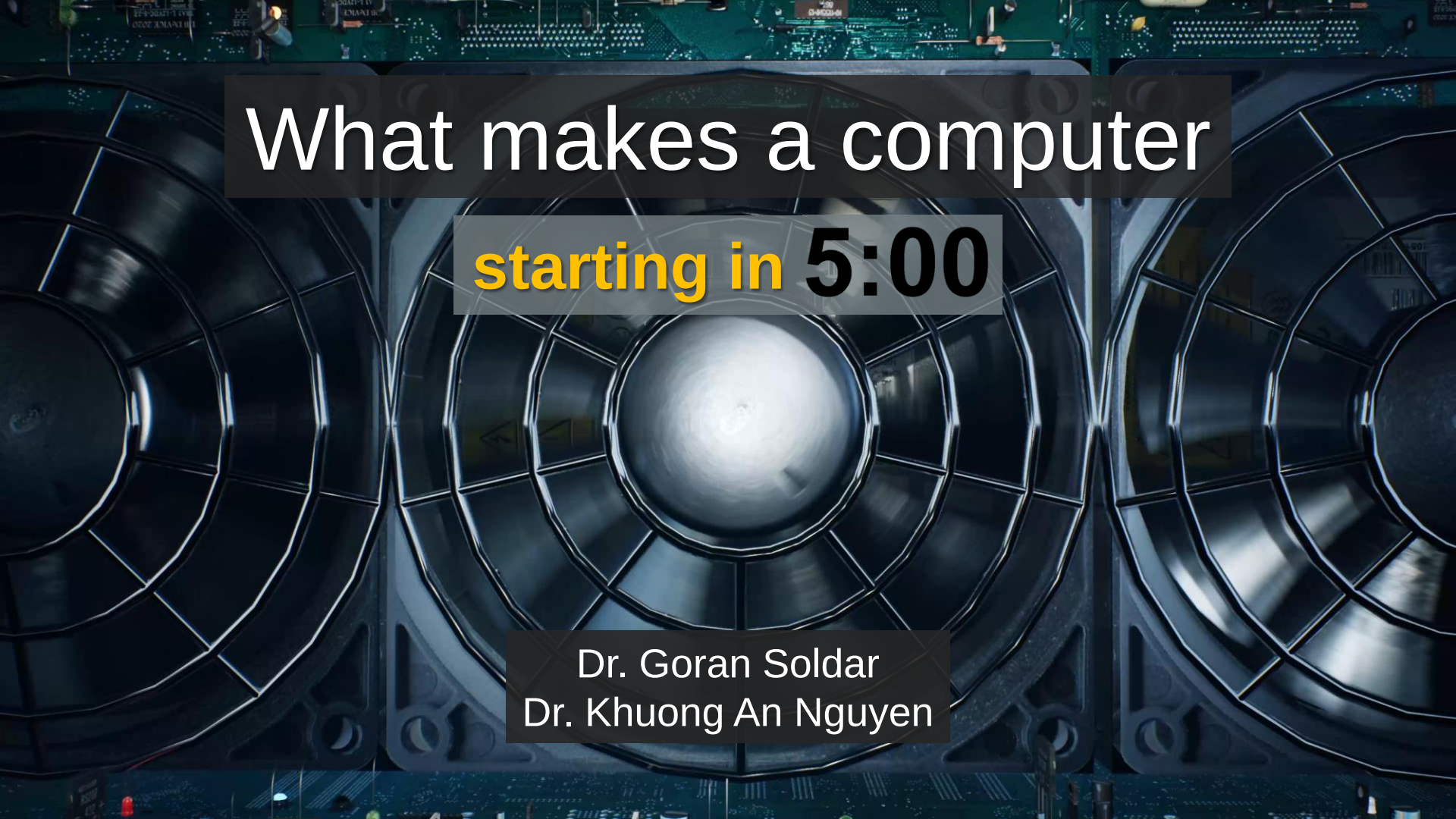
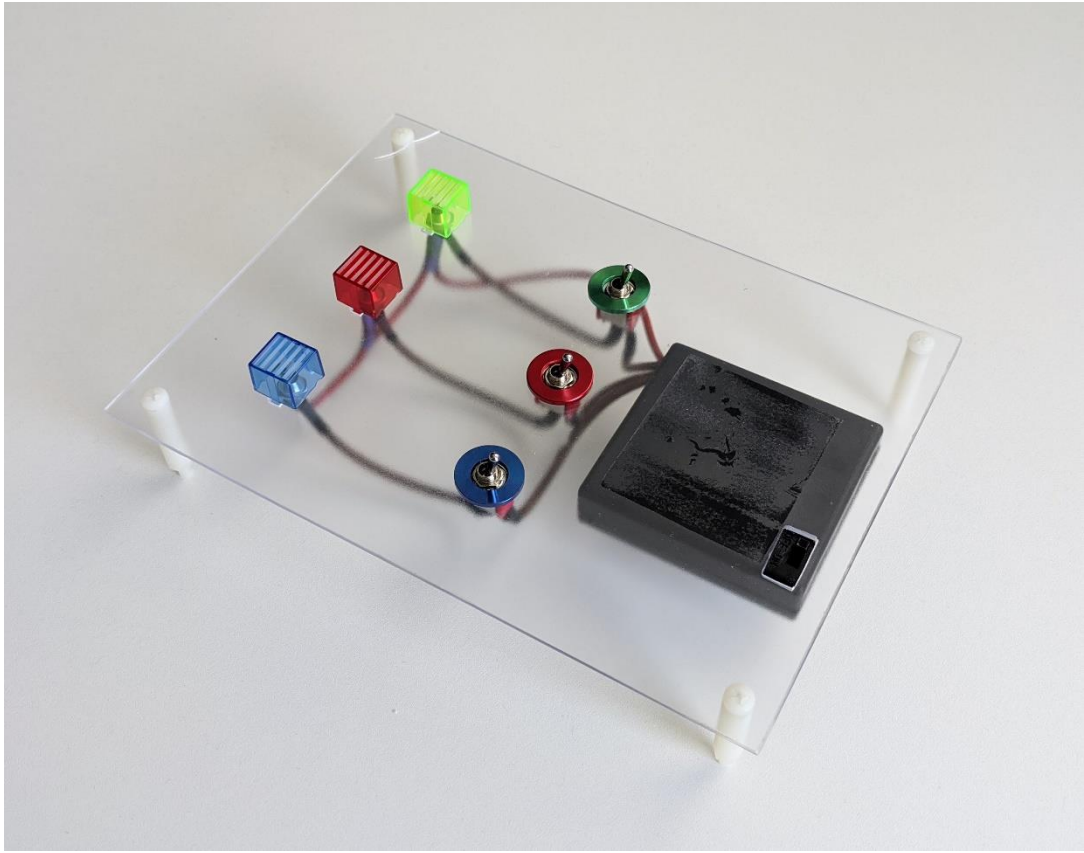

What makes a computer
starting in 5:00
Dr. Goran Soldar
Dr. Khuong An Nguyen

Mind reading machine



What

Why

Logistics

1 | What is a computer ?

2 | Why is it important to us ?

3 | Course information

What

Why

Logistics

Your helper

Dr. Khuong An Nguyen

C519

K.A.Nguyen@brighton.ac.uk

https://khuong.uk

- **Ph.D** in Mobile Sensing.
- **Postdoc** at Royal Holloway.
- **Undergrad and postgrad** at Royal Holloway & Cambridge University.

What

Why

Logistics

Your helper

Dr. Goran Soldar

C537

G.Soldar@brighton.ac.uk

- **Ph.D** in Information Retrieval.
- **M.Sc** at University of East London.
- **B.Sc** at University of Belgrade.
- **Senior Lecturer** at Brighton since 2001 (20 years).

What

Why

Logistics

What is this ?

What

Why

Logistics

The ENIAC

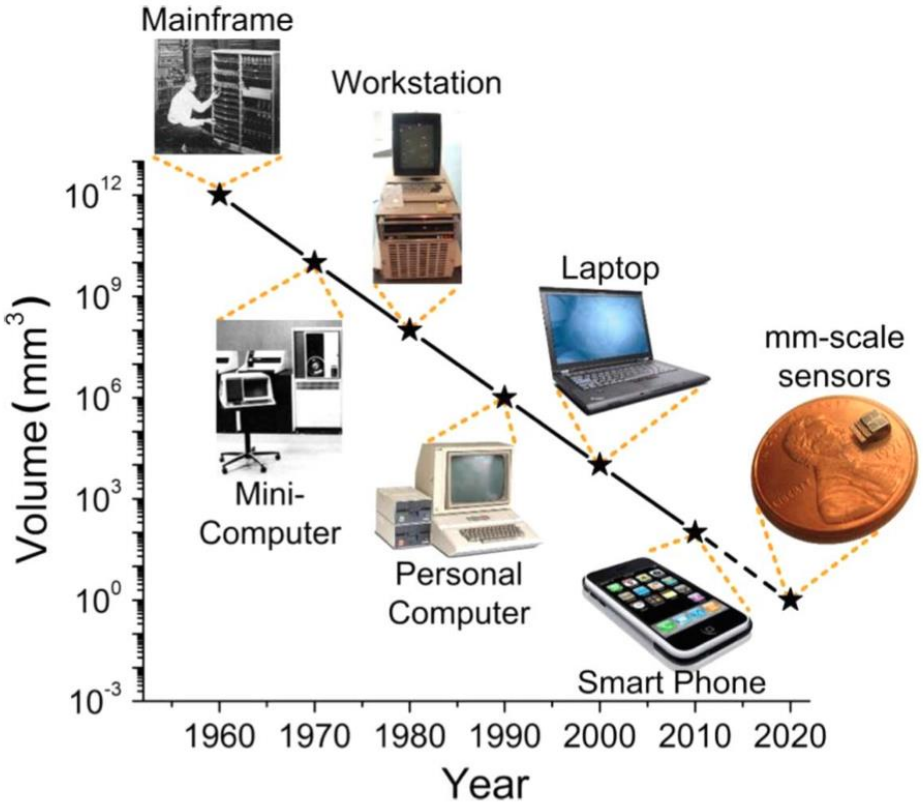
1. World's first computer in 1944.
2. 18,000 vacuum tubes.
3. 30 tonnes.

What

Why

Logistics

Bell’s law of computer class



“Every decade, a new lower priced computer class forms resulting in new usage and the establishment of a new industry.”

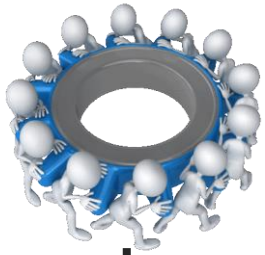
— ***Gordon Bell***

What

Why

Logistics

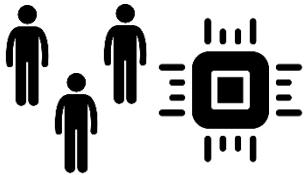
Bell's vision

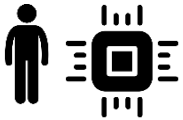


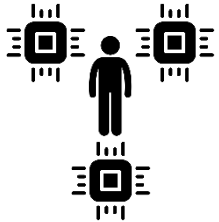
Past

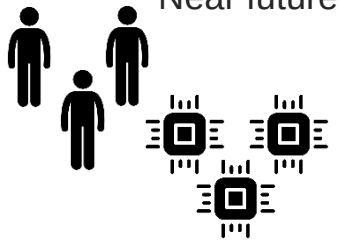
Today

Near future









What

Why

Logistics

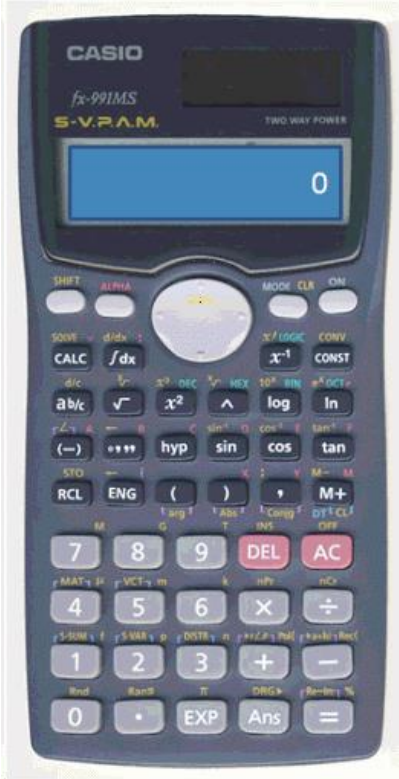
What is a computer ?

What

Why

Logistics

Fixed program computer



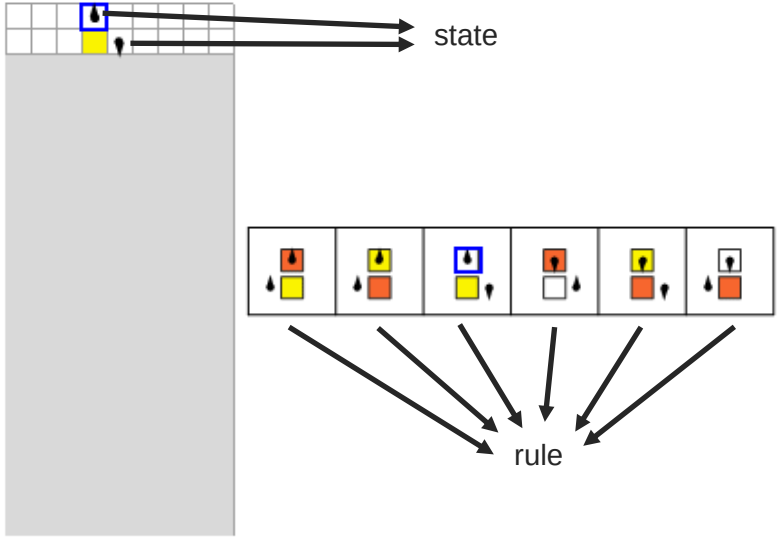
What

Why

Logistics

Turing machine

1. The theoretical model of a computer.
2. Consists a line of cells and a moving head.
3. A set of rules defines what the head should do at each step.



(Wolfram Science)

Stored program computer

Theory

Alan Turing

Practice

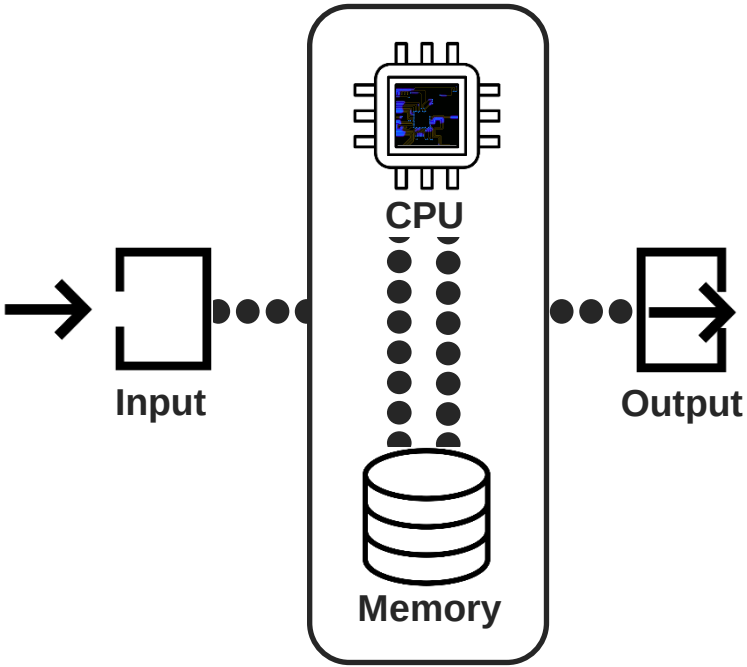
John von Neumann

What

Why

Logistics

von Neumann architecture



1. **The input** takes outside information.
2. **The memory** stores the information.
3. **The CPU** processes the information.
4. **The output** returns the processed information to the outside world.

What

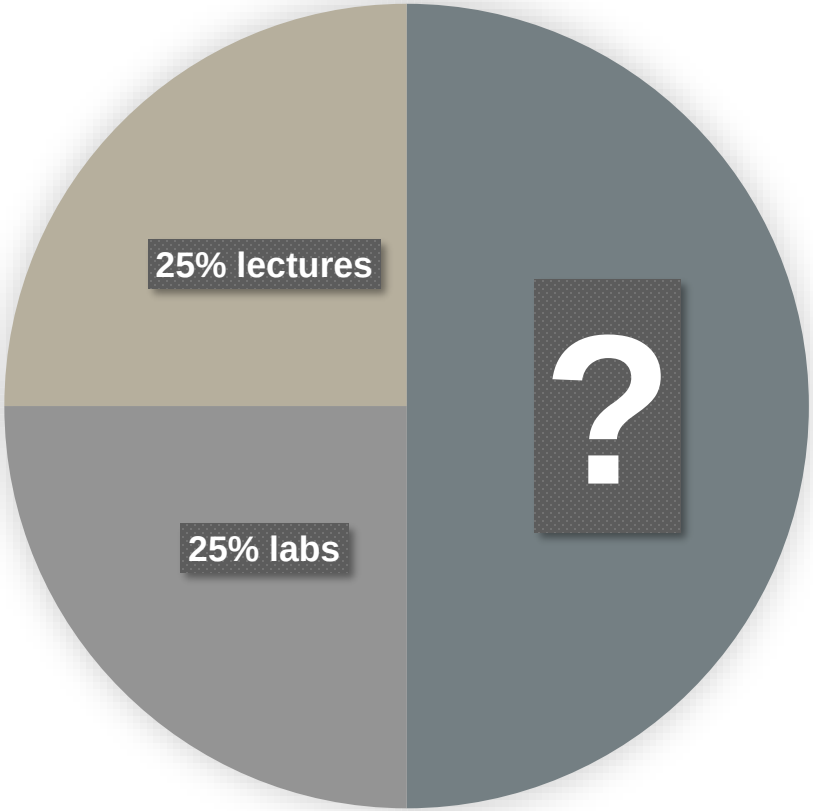
Why

Logistics

Benefit of this course

1. If we understand the hardware, we can develop **better software**.
2. If we understand the software, we can develop **better hardware**.
3. If we understand both, we can develop a **better computing system**.

Teaching approach



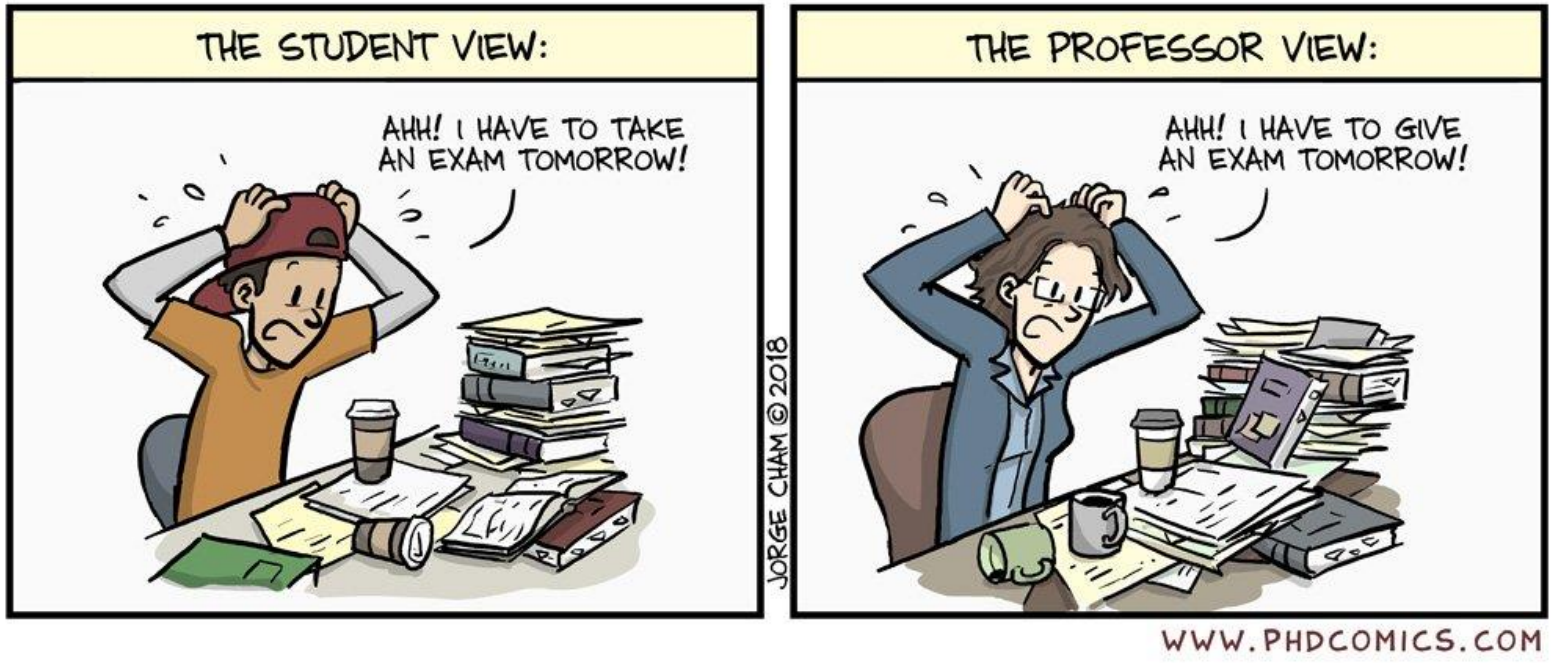
Our expectations

1. Takes notes during lectures.
2. Complete the weekly learning journal.
3. Ask questions.
   We are here to help.

Assessment (no exam!)

Learning journal (60%)

Your learning journal based on weekly lab exercise (1,750 words).

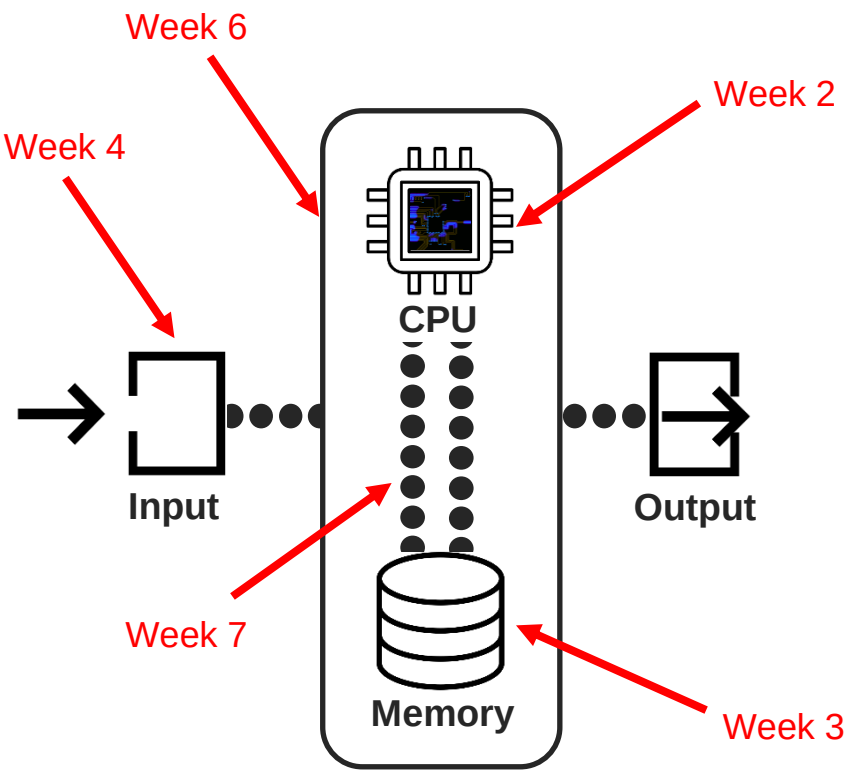


What

Why

Logistics

Road map



Week 1: What makes a computer

Week 2: The greatest invention

Week 3: Memory

Week 4: The “magic” of things

Week 5 : Mobile computing

Week 6: The logic of computers

Week 7: Data communication

Hardware architecture

EASTER BREAK

Week 8: Version control system

Week 9: Remote collaboration

Week 10: The ancient language

Software tooling

Questions, feedback

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C537 (Goran)

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