



# Informatik I

## Übungssession 3

Herbst 2019

# Homework

- Questions?

# Use case

A (simplified) real world example.

# The power of the future



# The power of the future

Write a program that monitors a (fictional!) fusion power plant.

# The power of the future

The plant has various sensors, measuring:

- The **temperature of the plasma** in kelvin (K), this is a floating-point number;
- the amount of **power produced** (kW), integer;
- the amount of **power required** by our customers (kW), integer.

# The power of the future

- The program is run every second;
- it SHOULD read the sensor values from input;
- it SHOULD write whether to **increase** or **decrease** the magnetic field that directs the fuel.

# The power of the future

- The containment material is only safe for temperatures lower than 28000 K;
- the state of plasma is only maintained for temperatures higher than 18000 K;
- the rate of increase / decrease in temperature is unpredictable, but it is at most 1000 K per second.



# The power of the future

The plant SHOULD produce **as much power as needed** while **minimising fuel waste**. It MUST NOT cool off or blow up.

# The power of the future

- To **increase** the field output "UP";
- to **decrease** the field output "DOWN".

# The power of the future

Code Examples → The Power of the Future (Use Case)  
<https://expert.ethz.ch/solve/bCW2h5KtkpHGWphKY>