Human-Computer Interaction

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Class 01

Technology is everywhere

Massified Access to Interactive Technology

It plays important roles


Interaction failures
can have a strong impact...

Interaction can be performed in a wide range of ways

Interacting with technology that is hidden in our homes

The Human Computer Interaction Discipline

“HCI investigates and tackles all issues related to the design and implementation of the interface between humans and computers.”

The Witchcraft of Cooking an Interactive System

- How is it like to design and develop a novel interactive system?
- What do you think? **Where do we start?**

Two ideas: What's the difference?

- "Frank's new smartphone supports gesture recognition, so he is going to make a system for his mom to send him messages with gestures when she is riding her bike."

- Peter often visits new cities and needs some guidance. For that, he uses maps on is smartphone. But, last week, he was in London following a map and almost was hit by a car. John made a system that provides Peter instructions by vibrating the phone.

Human Centred Technologies

- **It should not** be the technology that first drives the design. Having a new technology cannot be the reason to develop and interactive system
- **We need to focus on the needs** of those using the interactive system
- **This is how we will do it, in this module: humans first!**

Users

Is it the same to develop for any user?

Human Factors

The human senses have properties and limitations


Users are not all the same
They have different abilities

“We need to know who are the users and their characteristics”

How many apps do you have installed that you don’t use?

Why?


What do Users Want?
What is their motivation?
What do Users Need?

“We need to understand what motivates the user”

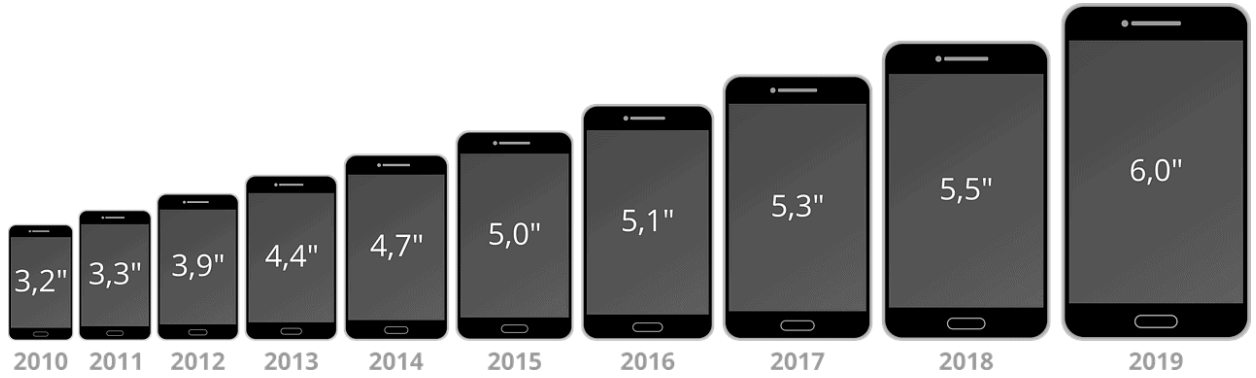
Where and How is the System Used?

- Is it the same to use a system in a train station or at home?

“We need to know the scenarios where our system will be used”

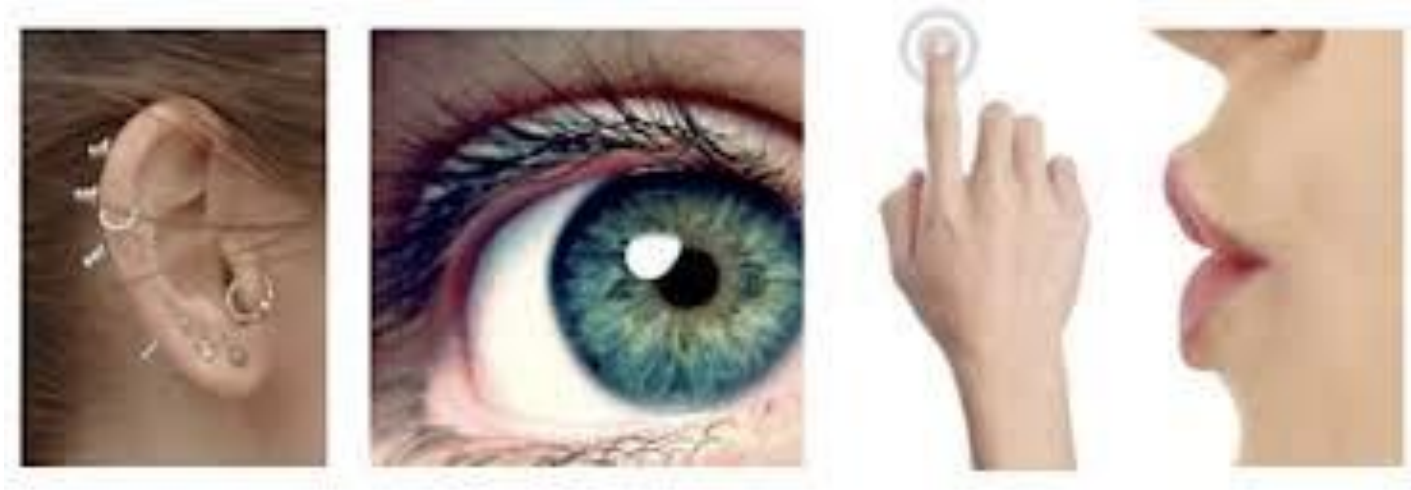
Device Characteristics

- Is it the same to use a map application in your car, on a smartphone, or on a desktop computer? Why?
- **Interaction is not just for smartphones and computers!**



Interaction Modalities

- Are all forms of interaction good for all contexts?
- Can modalities be combined?



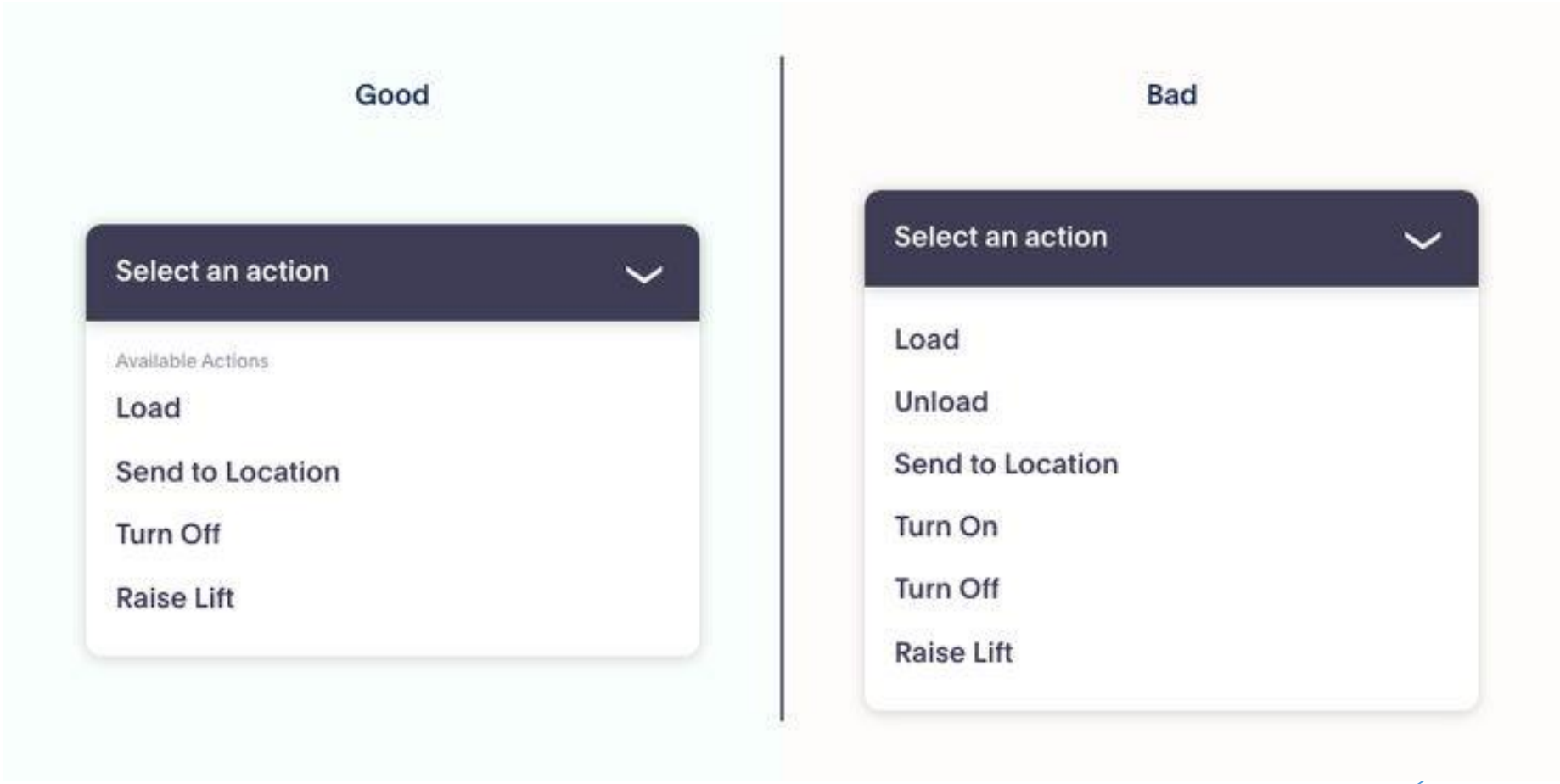
“We need to know what are the characteristics of the platform to adopt and how they influence design”

Now I just need to design the interface.
What can go wrong?

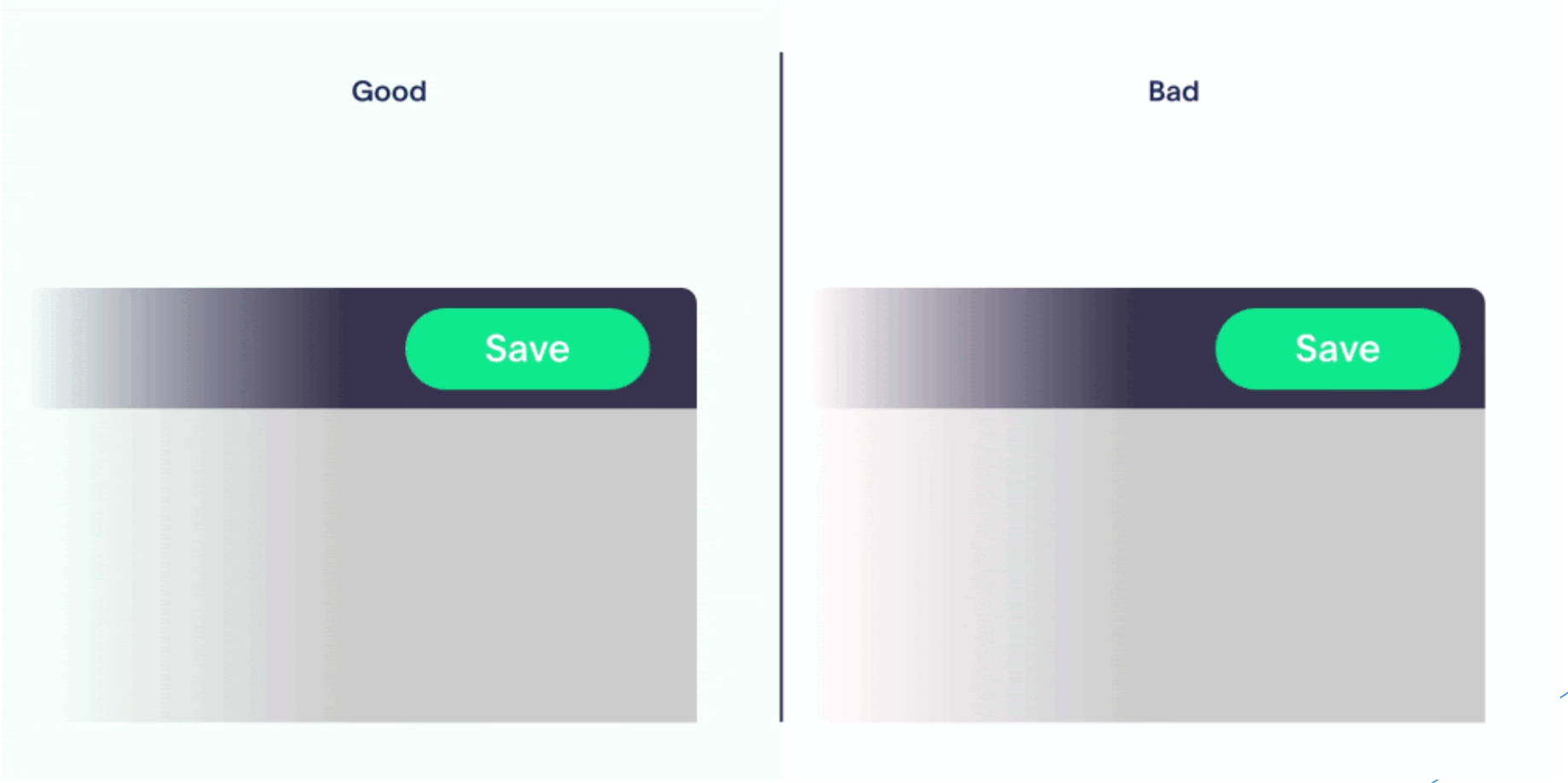
Everything

But some mistakes can be avoided by looking into good practises

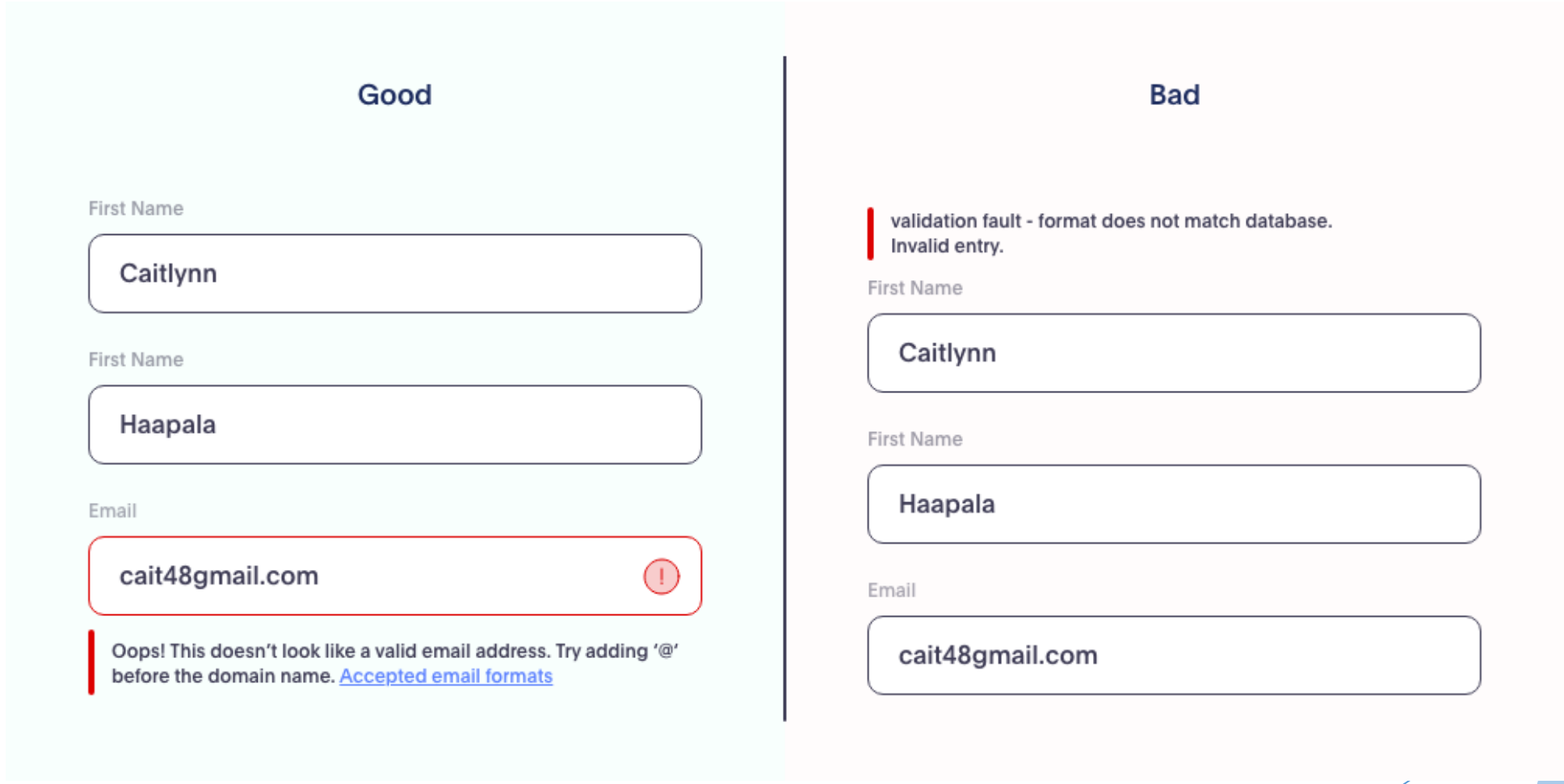
Usability Principles



Usability Principles



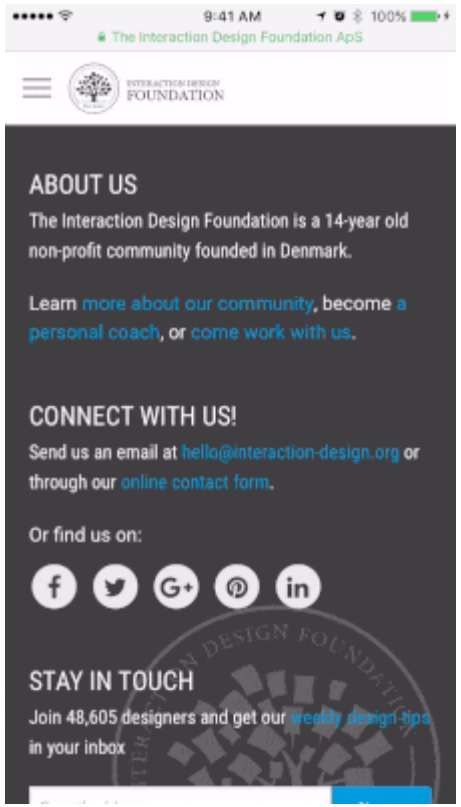
Usability Principles



Sometimes, evolving is getting back to basics

https://ellis.fyi/

We can learn a lot from simple details



Friction

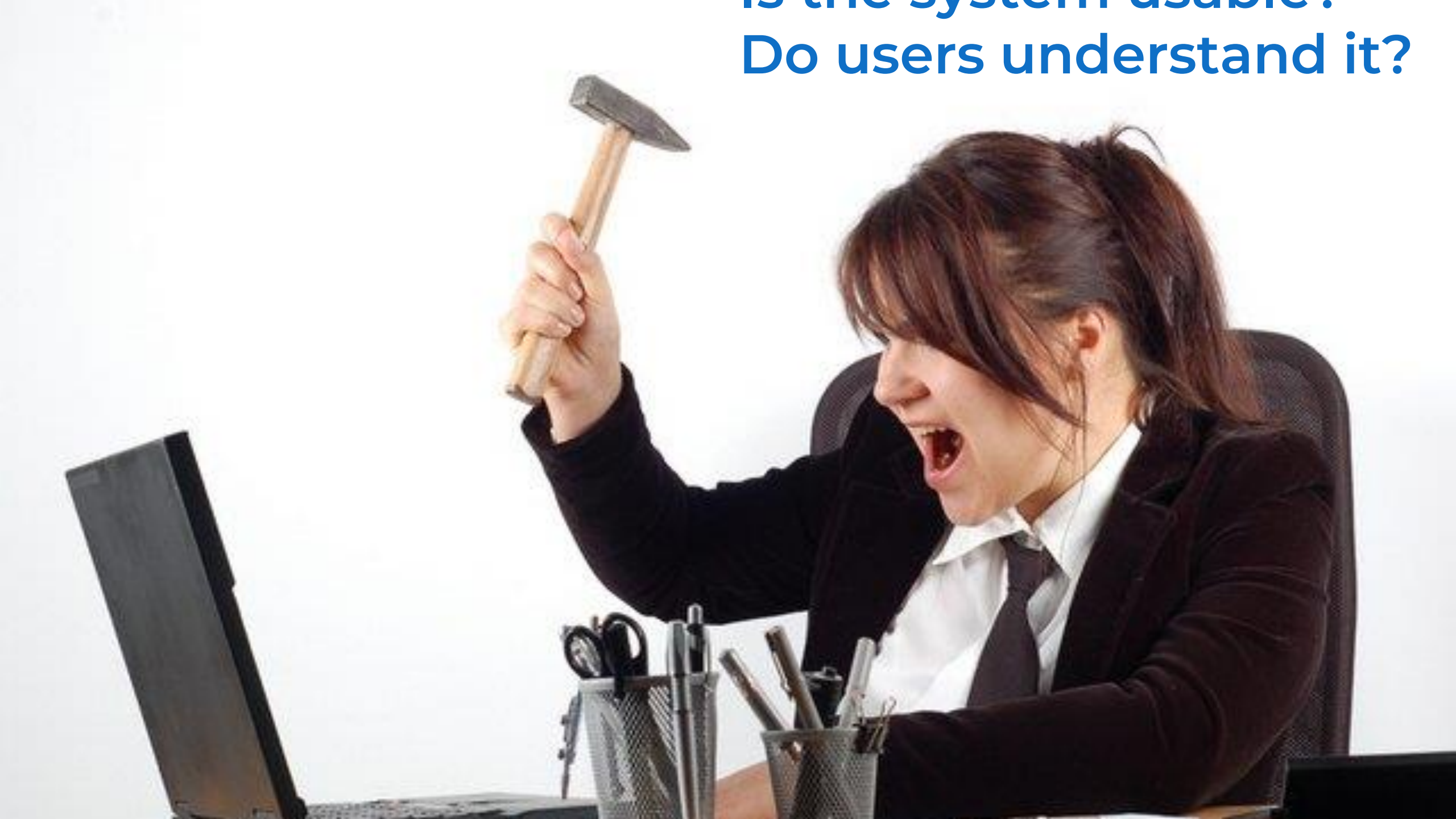
Material You

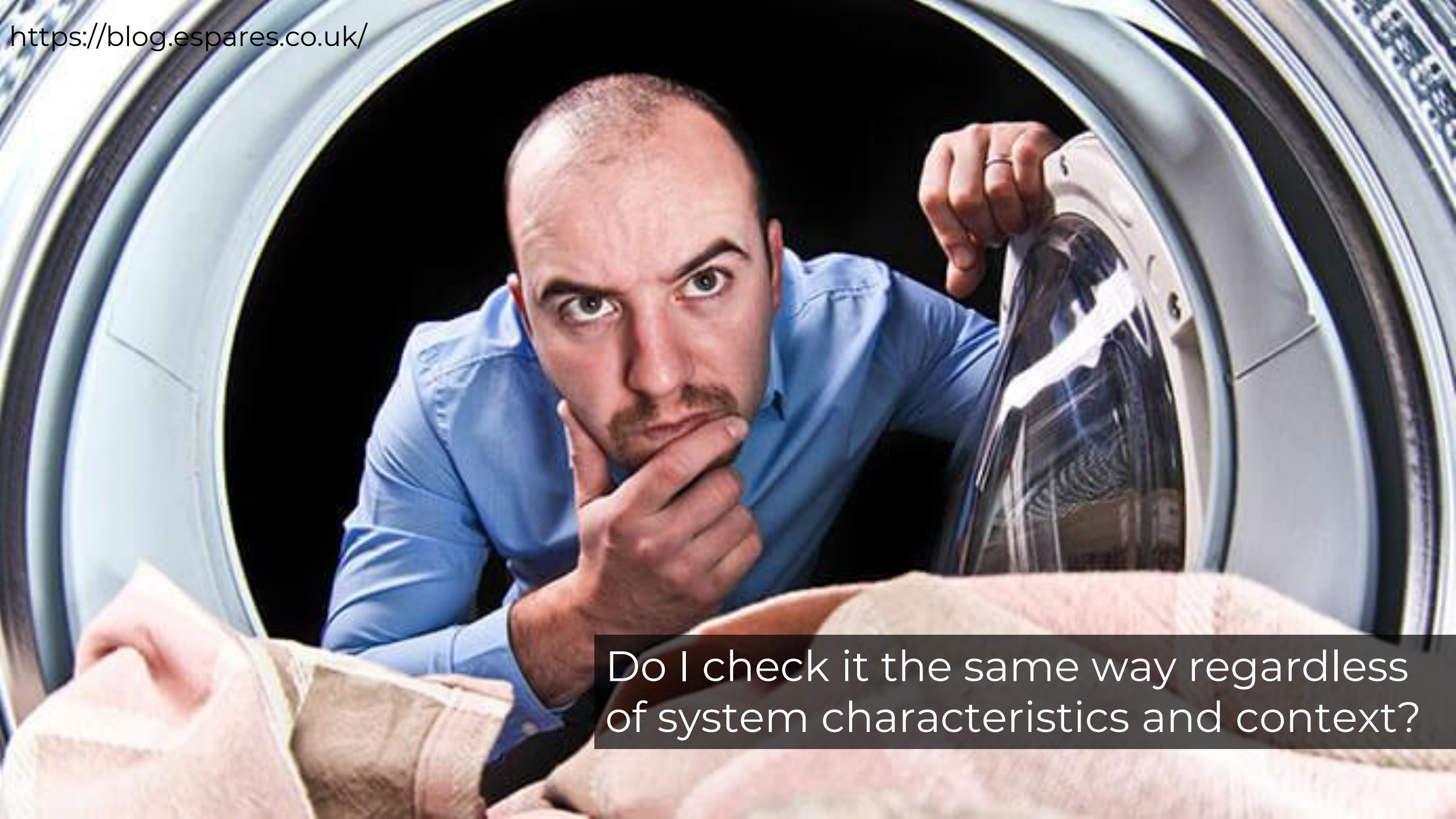
“We need to understand the principles that make good interfaces and apply them”

Is my System Good?

- When is my system good?
- How do I measure this?
- When do I check it?

Is the system usable?
Do users understand it?




https://blog.espares.co.uk/
Do I check it the same way regardless of system characteristics and context?

“We need to work with users to evaluate and improve our designs”

What will I be doing for the next month?

A Month Spent on ….

- **Understanding the basic ideas and principles** of Human-Computer Interaction
- Get an understanding about the **importance of designing good user interfaces**
- Having a **hands-on contact with the different stages of designing, developing, and evaluating** an interactive system
- Take the opportunity to **be creative and have fun**!

In groups of **5** people,

develop a **small project** where you propose an **idea** for a **novel interactive system** and follow the steps up to having a **validated** non-functional version of your interface

HCI Module

- **Experiment** with methods that will help you in **several stages** of interactive system design and development:
  - Characterize your users
  - Explore how your new system will be used
  - Define what features the system needs to provide
  - Know about basic usability principles
  - Apply methods to have first prototypes
  - Evaluate how the system serves the users

Lectures

- **Presentation and discussion of key concepts** and information that will help you complete one more step of your project (~30-40 min.)

- **Hands-on work**, whether for discussing what you have and/or start your next task (~30-40 min.)

Materials for the Module

- **eLearning**
  - **Slides** used in class
  - **Additional readings** that may help you improve your knowledge and perform your weekly tasks better
  - **Bibliography** (many available online)

elearning.ua.pt

Course Evaluation

Evaluation

- Each group will have a **logbook** for their project
  - **Template** provided soon in **eLearning**
- **Each stage** of the work has a **corresponding section in the log book**
- The logbook **can be improved** throughout the module
- **Deliver project logbook for assessment** at the end of the module + Pith presentation (still deciding)

Work Outside Class

The goal is that you **learn by making something real**

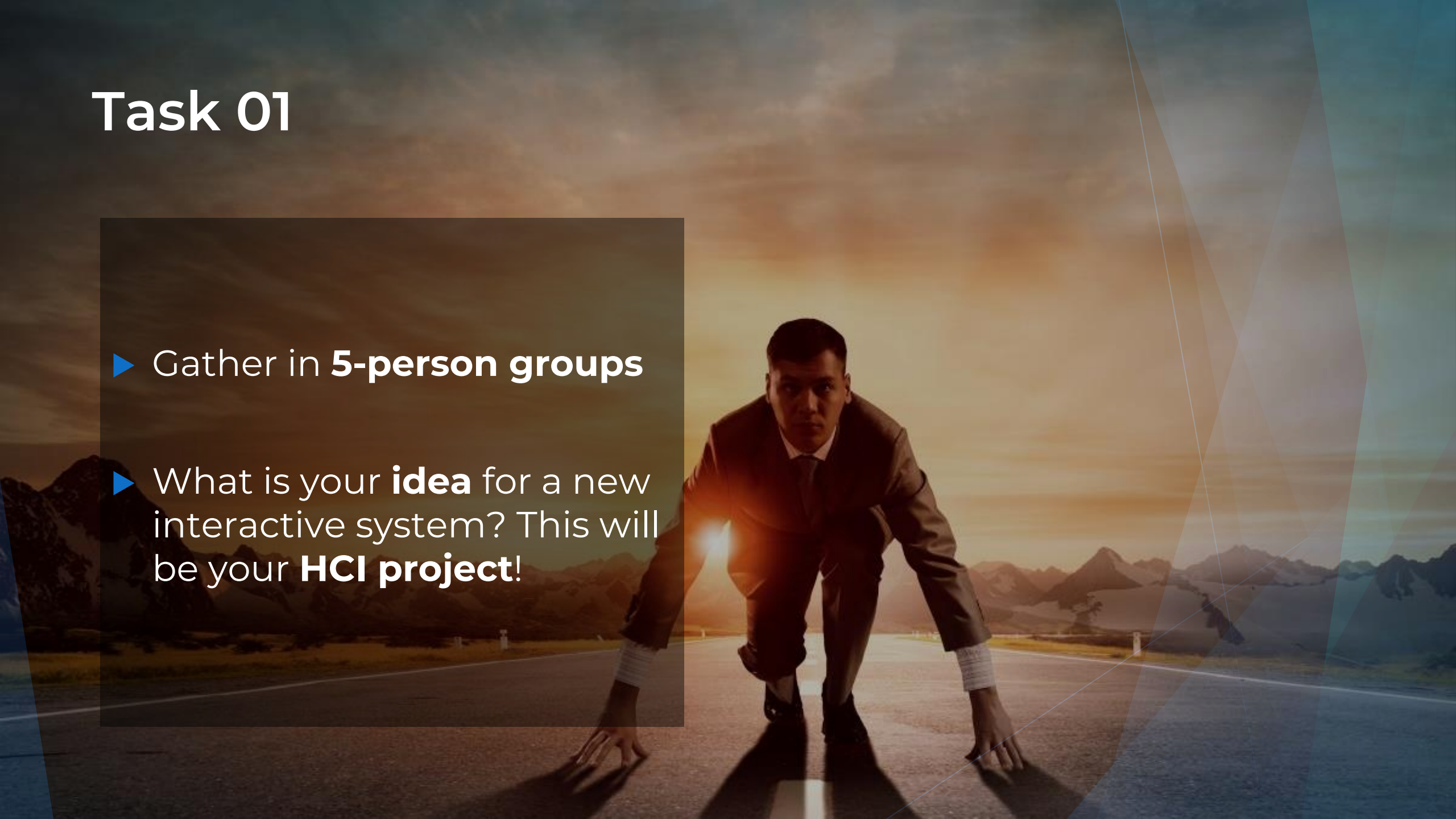
- You **MUST** devote some time to this module **outside the class**
- **3-4h**, per week (each element of the group)

Presence in Classes

- I **strongly advise you to be present** during the lectures

- I will take note about **who is not present, when I discuss tasks** with the groups
  - Group members that are absent may have up to **2 points less in their evaluation**

Task 01



- Gather in **5-person groups**
- What is your **idea** for a new interactive system? This will be your **HCI project**!