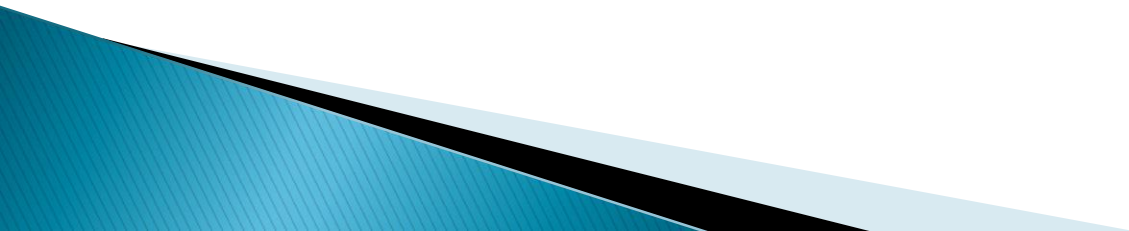


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Interacció i Disseny d'Interfícies



IDI – Organització

► Temari de teoria (HCI)

- Introducció a HCI, principis generals de disseny, percepció i color (2 sessions)
- Interacció (2 sessions)
 - Hicks, Fitts...
 - Sistemes i mètodes interacció i selecció
- Usability testing. Mètodes quantitativs per experiments (1 sessió)
- Mètodes d'interacció avançada. RV, RA (1 sessió – aquest curs no ☹)

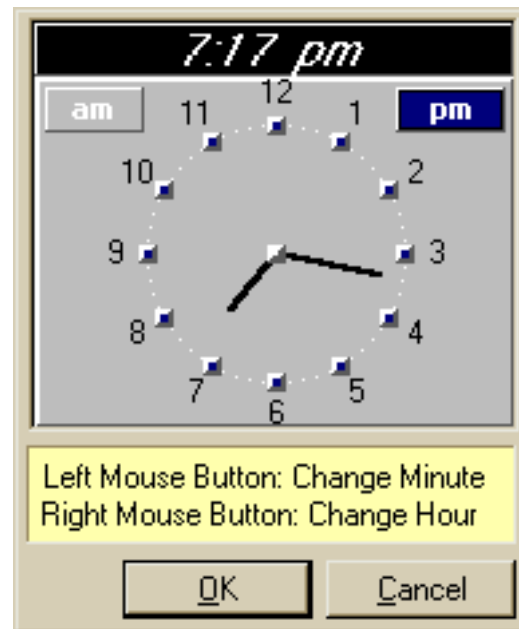
Continguts

- ▶ Apunts i transparències de suport
- ▶ Referències útils a la web:
 - <http://usability.gov>
 - <http://uxbooth.com>
 - <https://usabilitygeek.com>
 - <http://www.nngroup.com/articles/>
 - <http://www.interaction-design.org/encyclopedia/>
 - <https://uxdesign.cc/>
 - <http://uxplanet.org/>

Motivation

Enter your Social Security Number:

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Definitions: HCI

- ▶ **What does HCI mean? Which are its objectives?**
 - **Human computer interaction** is a field that deals with the study (to improve) of how humans interact with machines/devices.
 - HCI is a very relevant issue when evaluating the quality of an application.
 - An application must fulfill its requirements,
 - It has to provide an easy access to its features.

Definitions: UI

- ▶ When an application is difficult to use, it is perceived as a low-quality application.
 - **User Interfaces:** tools and methods that are used to communicate between the user and the system
 - **User Interfaces** may be determinant on ease of use perception of application

Definitions

- ▶ HCI is about
 - *understanding* and critically *evaluating* the interactive technologies people use and experience
 - understanding contemporary human practices and aspirations

HCI. Initial models

- ▶ Software crisis in the 70s lead to focus software engineering with a new view
 - Including non functional requirements such as usability and maintainability

HCI. Initial models

- ▶ One of the original focus of HCI was *usability*.
 - Originally stated as "easy to learn, easy to use"
 - More on this later today...
 - GUI: **comprehensible, accessible, easy to use**
- ▶ Helped to influence computer science and technology development more broadly and effectively
- ▶ It grew to include other areas, not restricted to computer science

Usability

- ▶ Usability: Defined in ISO 9241 standard as
 - The ability in which a product may be used by **specific** users in order to carry out **specific** tasks *effectively, efficiently, and with satisfaction* in a **specific** use environment.
 - Usability is always referred to a concrete user group and a concrete user application

Usability

- ▶ Usability:
 - **Efficacy** is the ability of correctly and completely achieving a certain goal.
 - **Efficiency** is the relation of used resources and the completeness and correctness of achieved goals.
 - **Satisfaction** is the comfort and acceptance of a system by the users and other people that are affected by its use.

Definitions

▶ User experience (UX):

- “Experience or User Experience is not about technology, industrial design, or interfaces. It is about **creating a meaningful experience through a device.**”
- “the perception left in someone's mind following a series of interactions between people, **devices**, and events”
- What you **remember and feel** from the use of a device

Definitions

- ▶ User experience (Peter Morville's honeycomb):



Definitions

- ▶ Interaction Design:
 - “Interaction design is about shaping digital things for people’s use”
 - How we interact with **devices** (“digital things”)



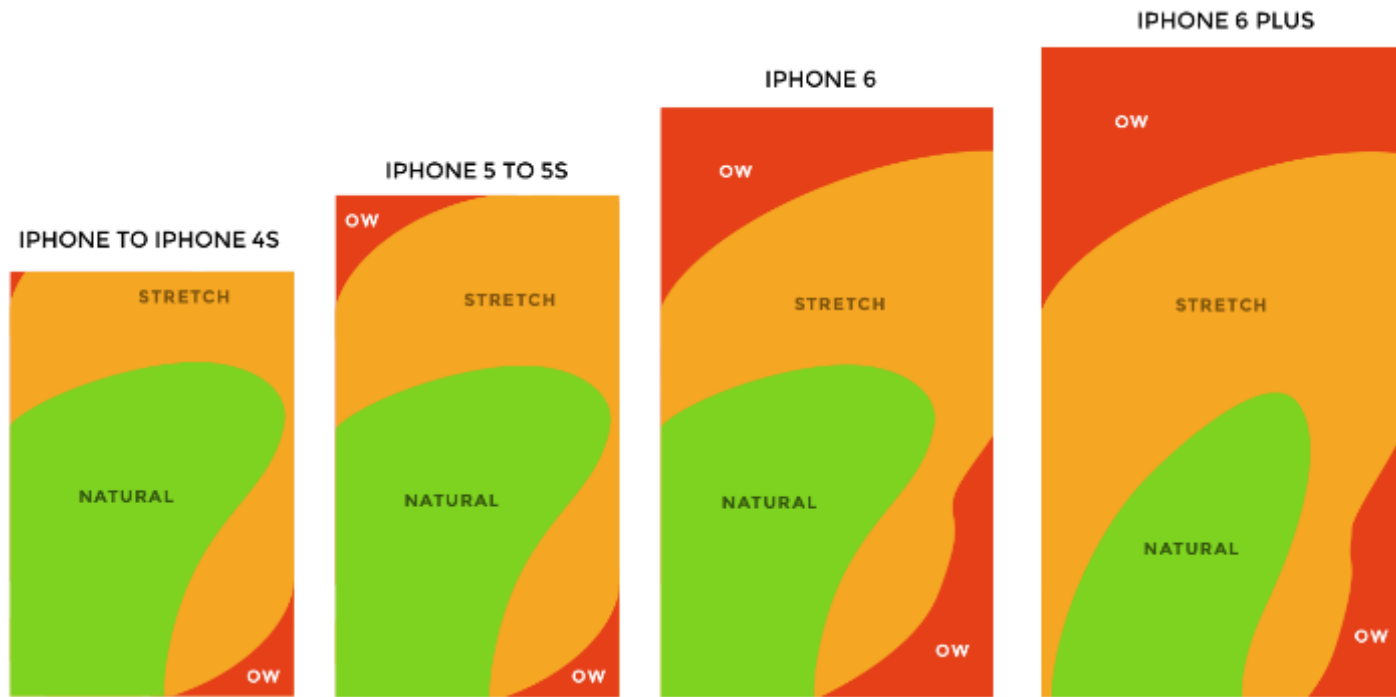
Definitions

- ▶ Interaction Design:
 - Unlock with your face?



HCI & UX. Some requirements

- ▶ For mobile take into account the thumb zones



HCI. Desktop systems

- ▶ Desktop systems:
 - Large screens
 - Space for *everything*
 - Mouse pointer
 - Keyboard
 - Adequate for creating content

HCI. Mobile systems

- ▶ Mobile systems:
 - (Relatively) Small size
 - Must carefully think on what to fit
 - Notifications often not properly solved
 - Interaction with the finger/stylus
 - (Almost) No keyboard
 - Software limitations

HCI. Mobile systems

- ▶ Tablet systems:
 - (Relatively) Large size
 - May fit what we need
 - Interaction with the finger/stylus
 - (Almost) No keyboard
 - Software limitations

HCI. GUI (& app) Programming

- ▶ Tools for Mobile Development:
 - Native tools
 - Provided by the OS designers
 - Focus on the OS features
 - Cross-platform
 - Provided by third-party institutions
 - Focus on facilitating the development
 - Other third-party software
 - Focus on facilitating the development

HCI. GUI (& app) Programming

- ▶ Two main ways to develop:
 - Web apps
 - Native OS apps

HCI. GUI (& app) Programming

▶ Web apps. Pros:

- Develop once & deploy everywhere
 - Almost any system has a capable browser
- Easy updating
 - App is loaded everytime the browser connects to the page
 - Only needed to change the server code
- Well-known tools and techniques
 - PHP, Java...

HCI. GUI (& app) Programming

► Web apps. Cons:

- Limited user interfaces
- Not as rich as native apps in terms of:
 - UI
 - Communication
 - Access to local resources
 - camera, GPS, ...
- Inefficient and insecure communication protocol
- Mainly designed for large displays with mouse

HCI. GUI (& app) Programming

▶ Native apps. Pros:

- Richer UI
- Many controls
- Safe and fast access to local resources
 - GPS, camera, files...
 - Efficient communication
 - Any protocols allowed
- Smaller variety in languages and tools (SDK)
- Designed for small screens and touch controls

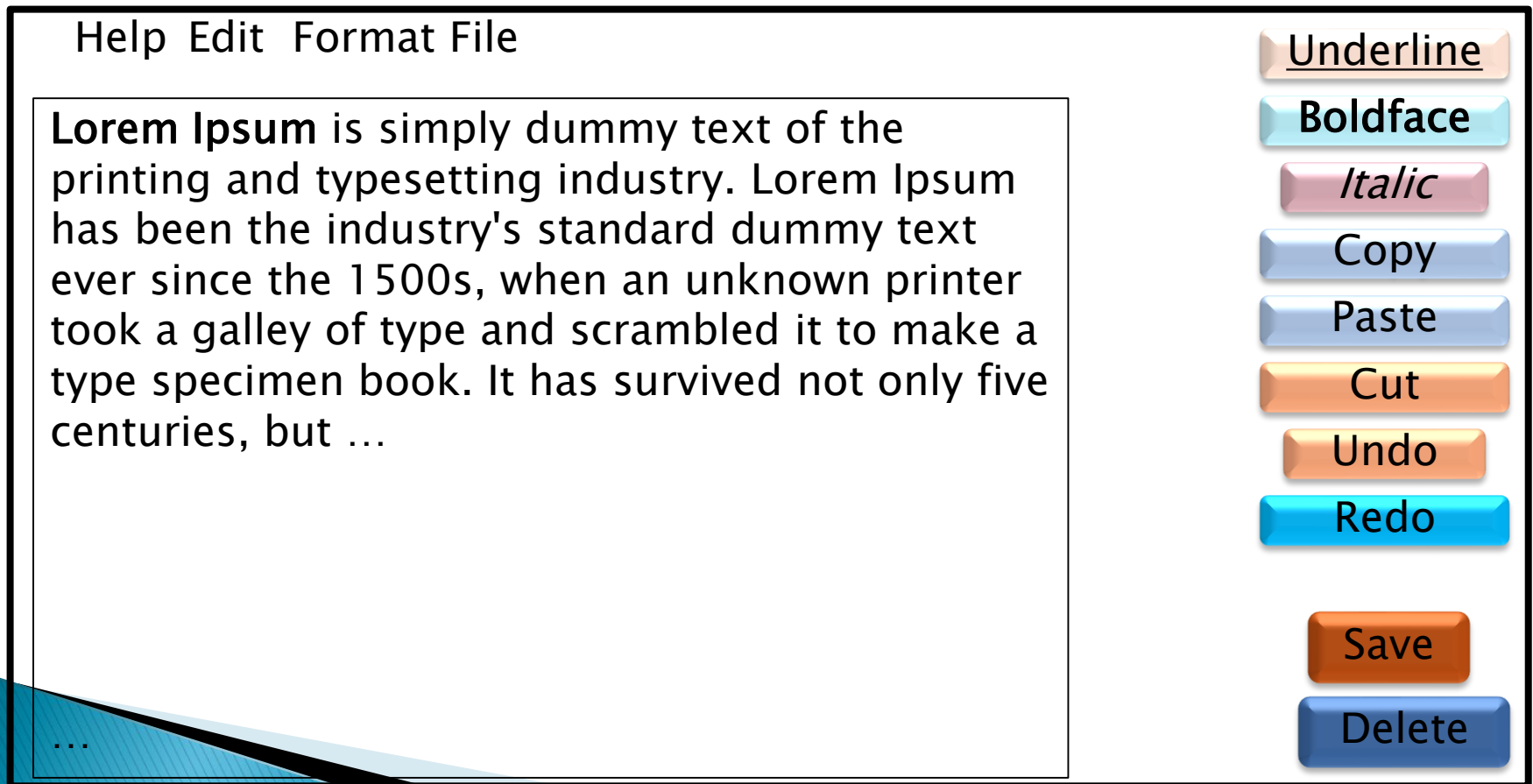
HCI. GUI (& app) Programming

▶ Native apps. Cons:

- No universal access
 - Each OS has a different app format and development environment
- Difficult to manage updates
 - Require individual (user guided) updates per device
- Less general than desktop programming
 - Though a lot of new material is on the web

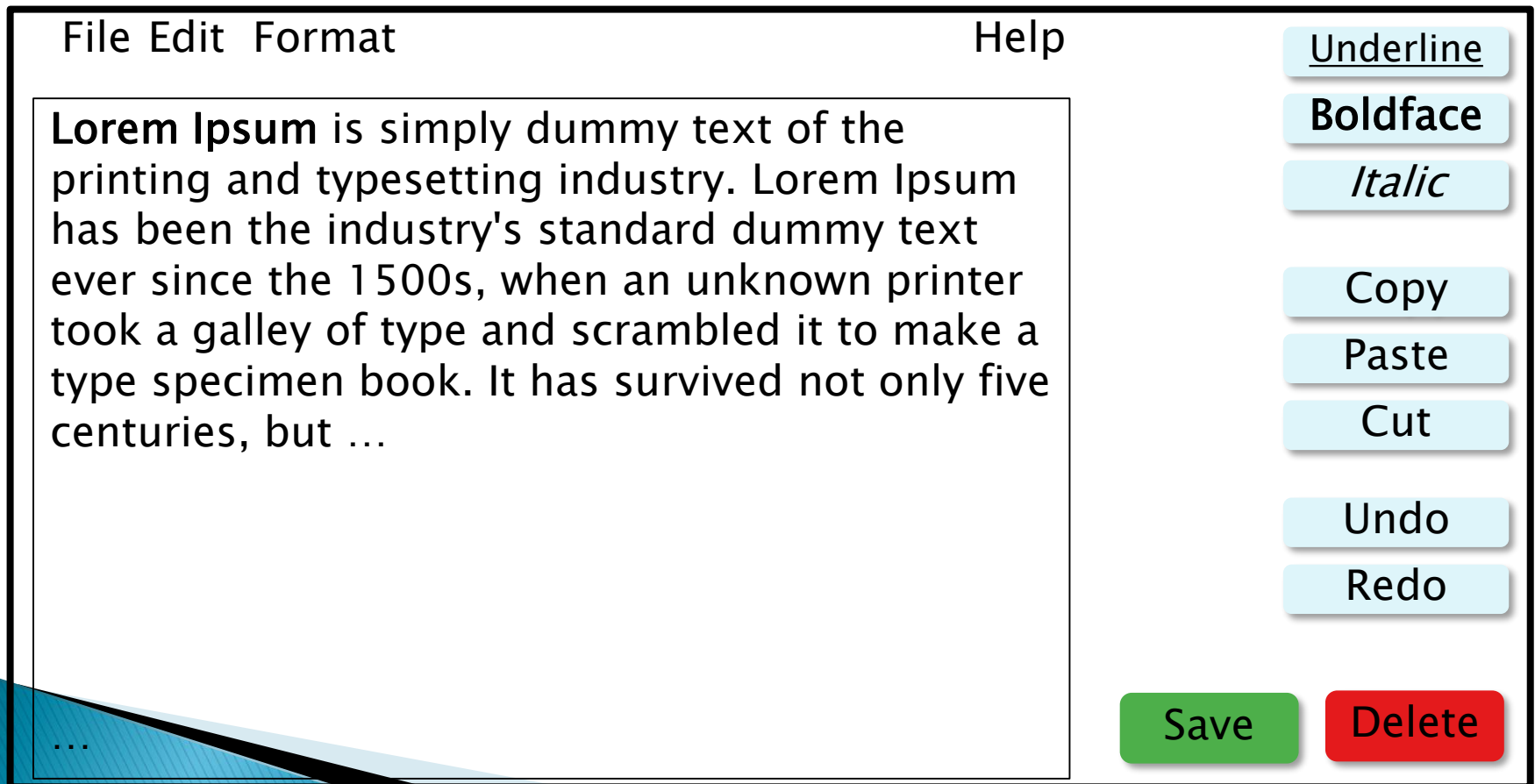
UI Example. Redesign

What's wrong with this simple text editor?



UI Example. Redesign

Better design:



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