

# Prototyping

## Unit 5

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# Assessment

Pervasive game to support *social life*  
**in/from** the campus

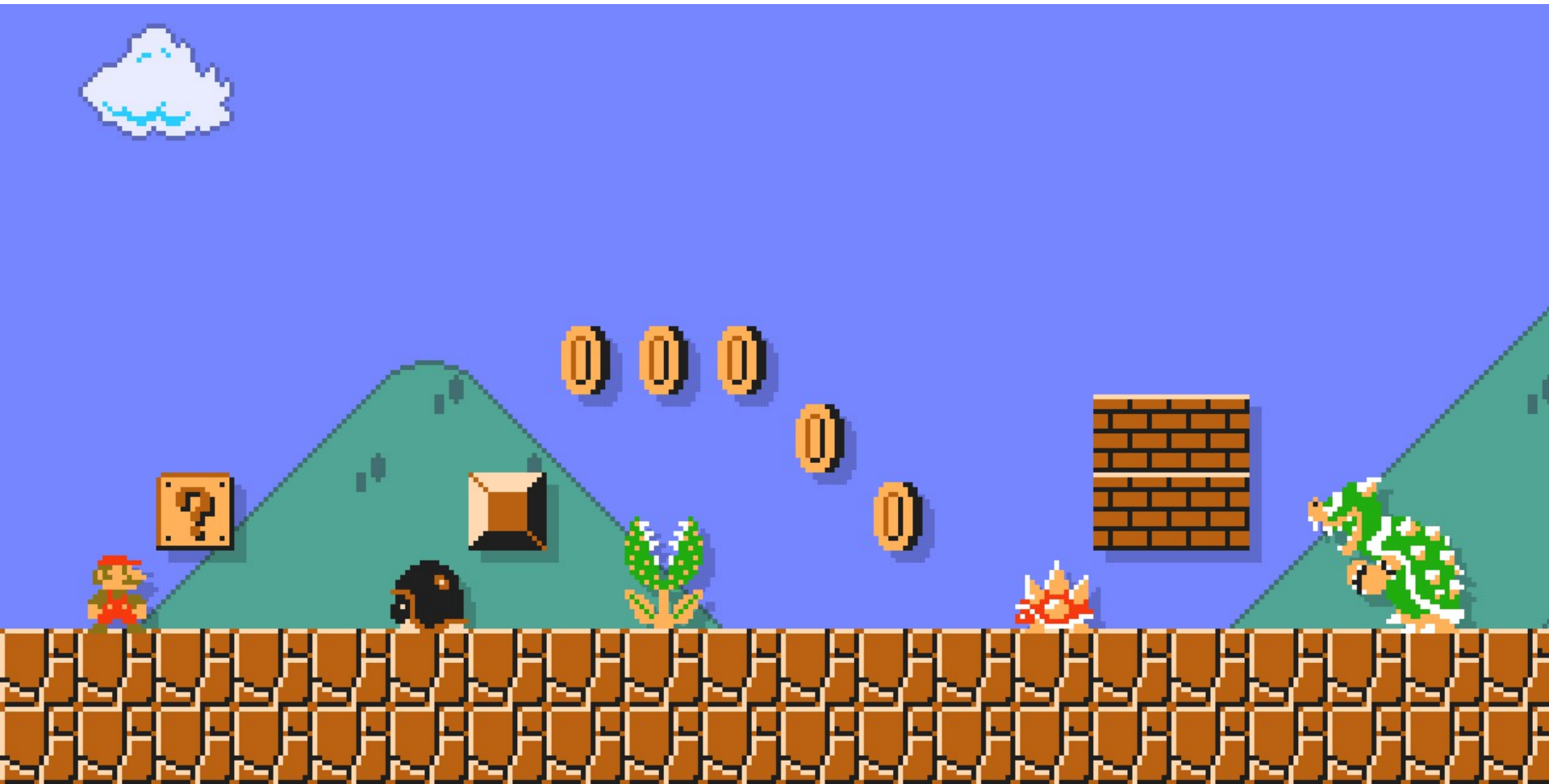
# Assessment

- video game

OR

- more gamification-oriented

# Video game



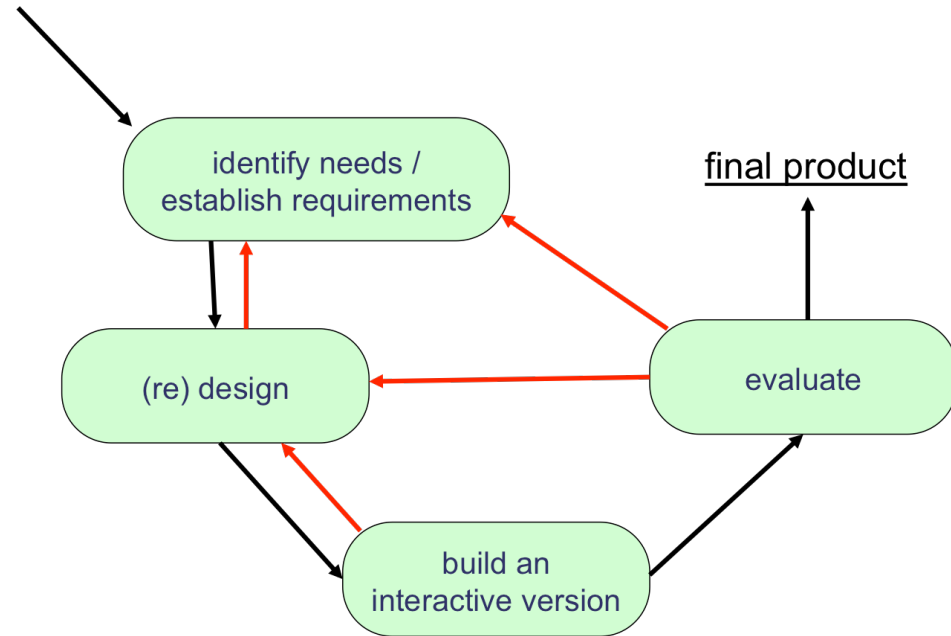
# Gamification

Gamification is the application of game-design elements and game principles in non-game contexts.



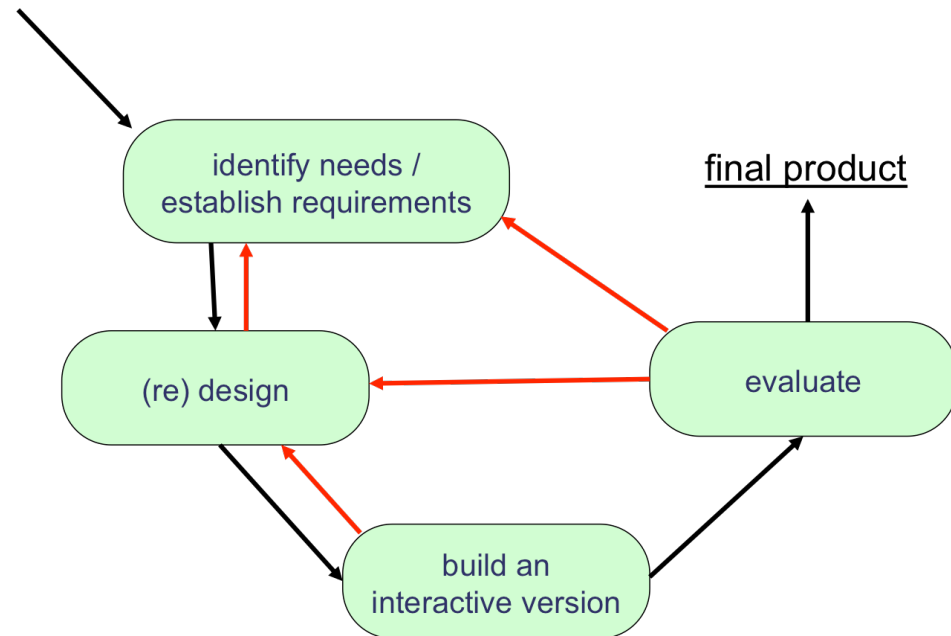
# Design process

- **Game ideation**
- User requirements
- First design
  - Prototyping
- Evaluation
- Re-design



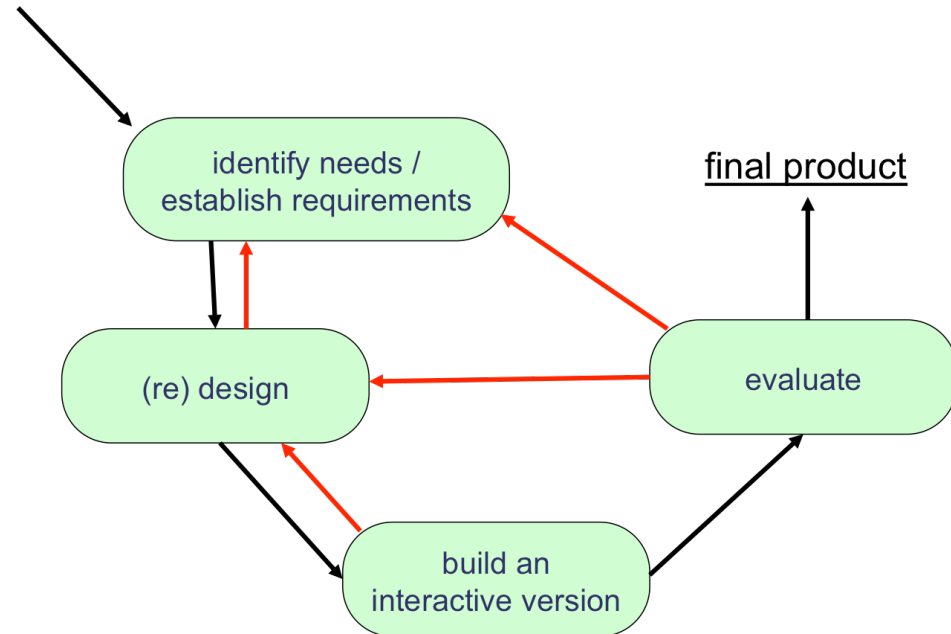
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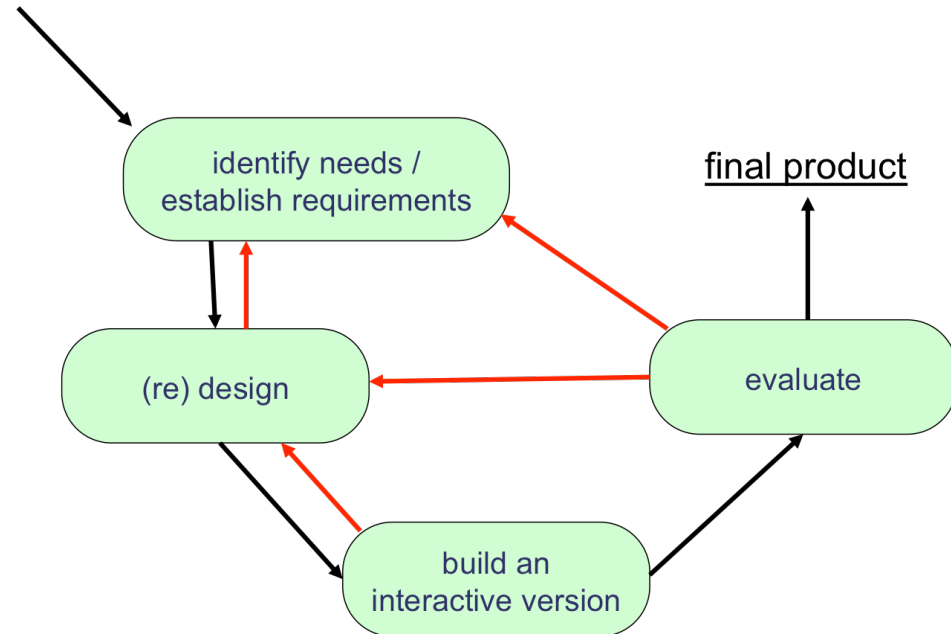
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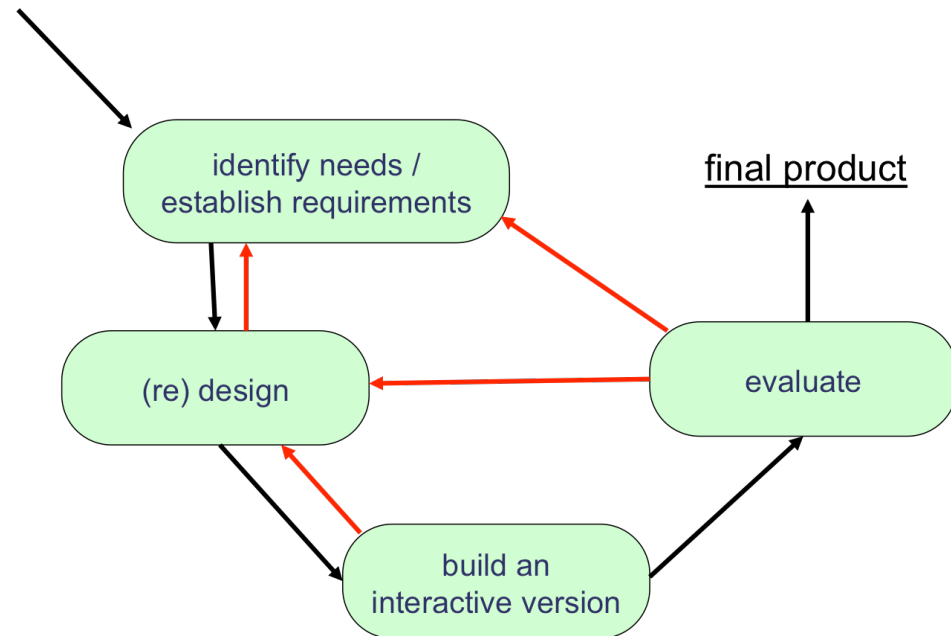
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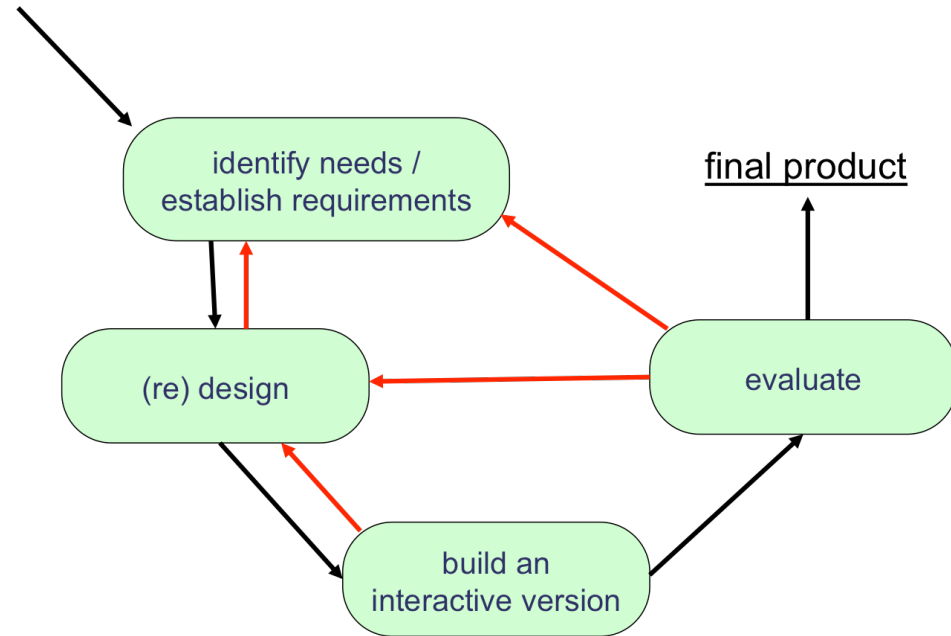
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# (mid) Presentation

~week IX



- Game ideation
- User requirements
- First design
- **Prototyping**
- Evaluation
- Re-design

# Learning outcomes

- Understand the uses of different types of prototypes for different kinds/stages
- ... and be able to choose appropriately
- Know the basic techniques for low-fidelity prototyping
- Choose and apply the relevant techniques for your project

# What is a prototype?

- A representation of a design before the final artifacts exist
  - Conceptual design → physical design
  - IDEA → PRODUCT
- To evoke reactions from stakeholders in the design process
  - Designers
    - Encourage communication and reflection
    - Answer questions and choose between alternatives
  - Users
    - Collect requirements, evaluate ideas
- A prototype is a model *not* a refined and finished product

- “...Prototypes provide the means for examining design problems and evaluating solutions. Selecting the focus of a prototype is the art of identifying the most important open design questions.”
- Houde and Hill – What do Prototypes Prototype?
- <http://www.viktoria.se/fal/kurser/winograd2004/Prototypes.pdf#search='Houde%20and%20hill%20prototype'>

# What are prototypes used for

- Design by doing
  - Clarify goals and requirements
  - “Reflective conversation with the materials”
- Show feasibility for buy-in
  - Proof of concept
  - Manage expectations





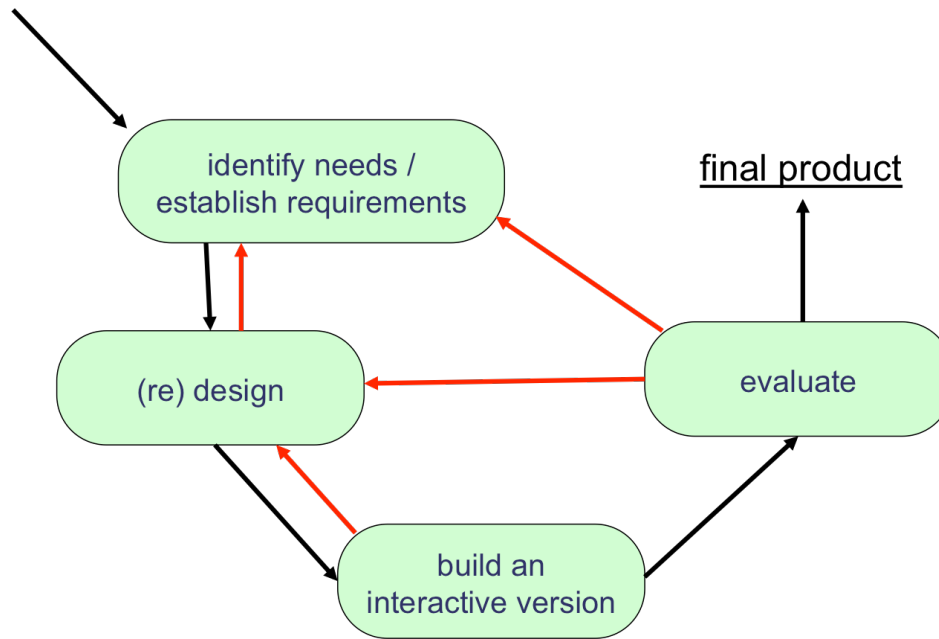
# What are prototypes used for

- Give users the experience of use
  - Look and feel
- Test specific aspects
  - Compare alternatives
  - Make changes



# Iterations

Quality is a function of the number of iterations and refinements a design undergoes



# What can be a prototype?

- Every form of representation
  - Sketches
  - Graphics
  - Power-point slides
  - Role Play, Acting
  - Video
  - Diagrams & Frameworks
  - Hand Made Constructions
  - Machined Constructions
  - Virtual Models
  - Packaging
  - Spaces
  - • ...
- WORK LIKE
- LOOK LIKE
- EXPERIENCE LIKE

# Prototype fidelity

- we talk about the *fidelity* of user interface prototypes: a continuum

Low fidelity

High Fidelity

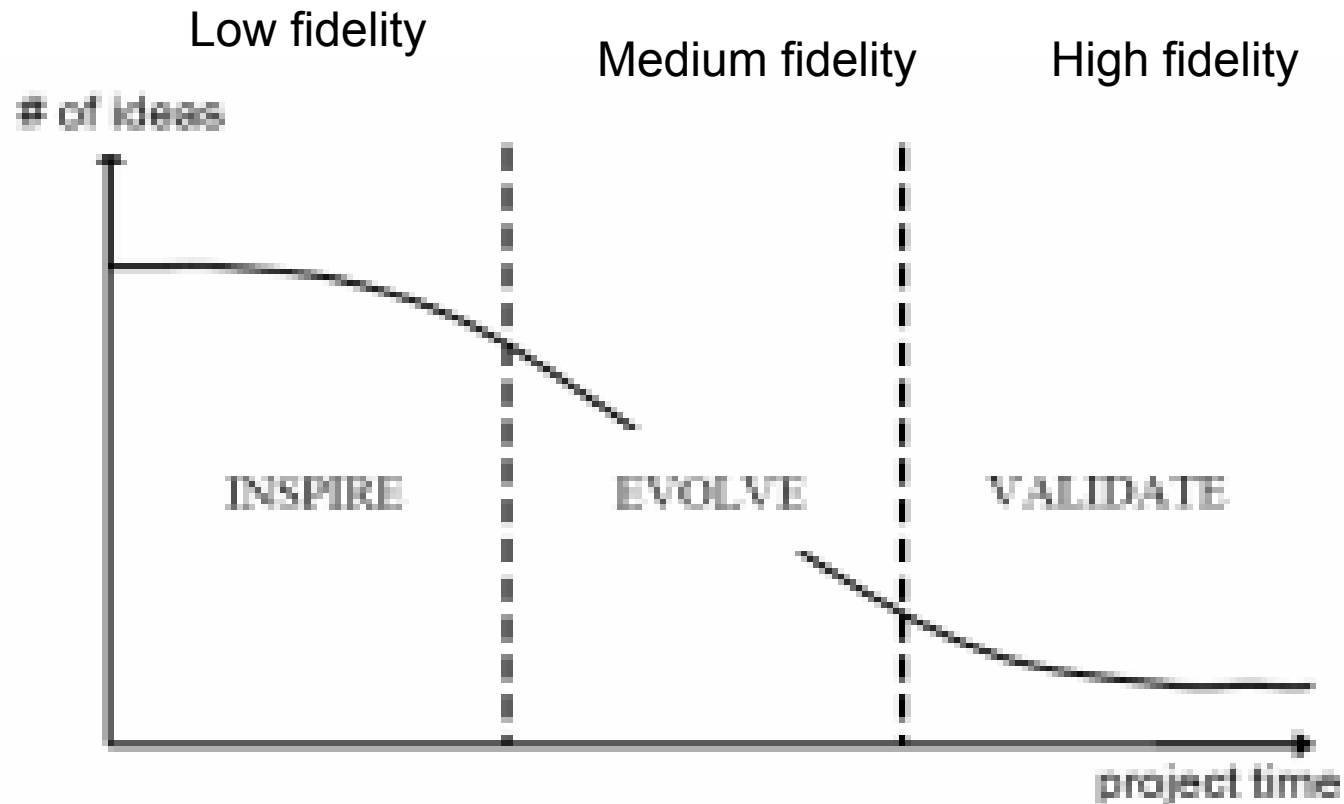
e.g. hand-drawn  
pencil sketches

e.g. Photoshop

start of design  
process

end of design

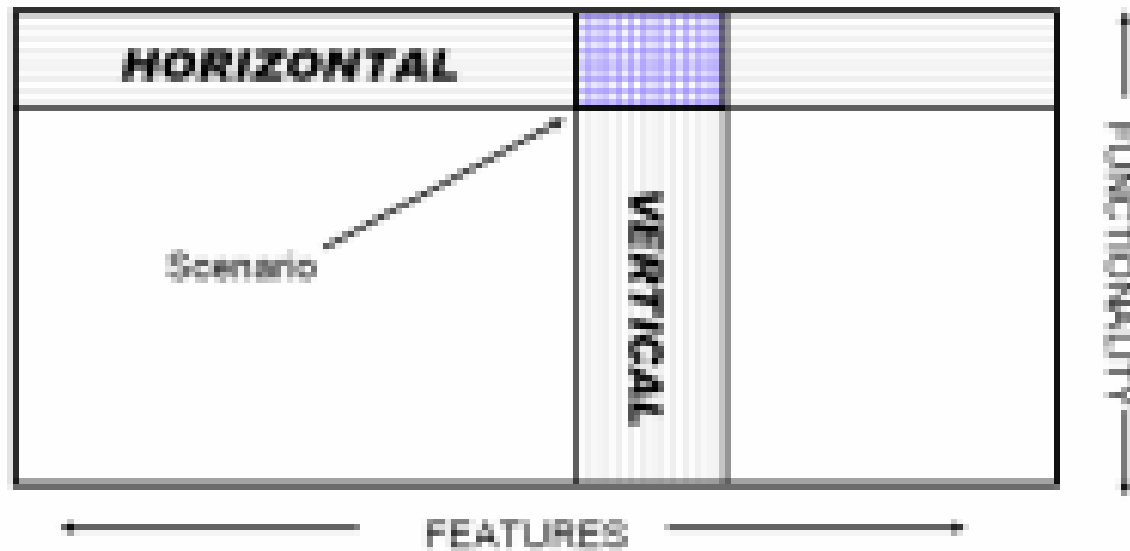
# Prototype evolution



# Compromise

## Two common types of compromise

- ‘horizontal’ prototype: provide a wide range of functions, but with little detail
- ‘vertical’ prototype: provide a lot of detail for only a few functions



# Low-fidelity prototype

- Purpose
  - depicts concepts NOT details
  - present design alternatives
  - suggest screen layouts, general look and feel of UI
  - find out usability issues as early as possible
- Form
  - quick, cheap and easily changed
  - Uses a medium which is unlike the final medium, e.g. paper, cardboard, post-it notes, story-board, wizard of Oz
  - sketches of screens, task sequences, etc
  - non-functional
- Use
  - design team can reason about the design
  - can be presented to sample users, although require a facilitator

# Benefits

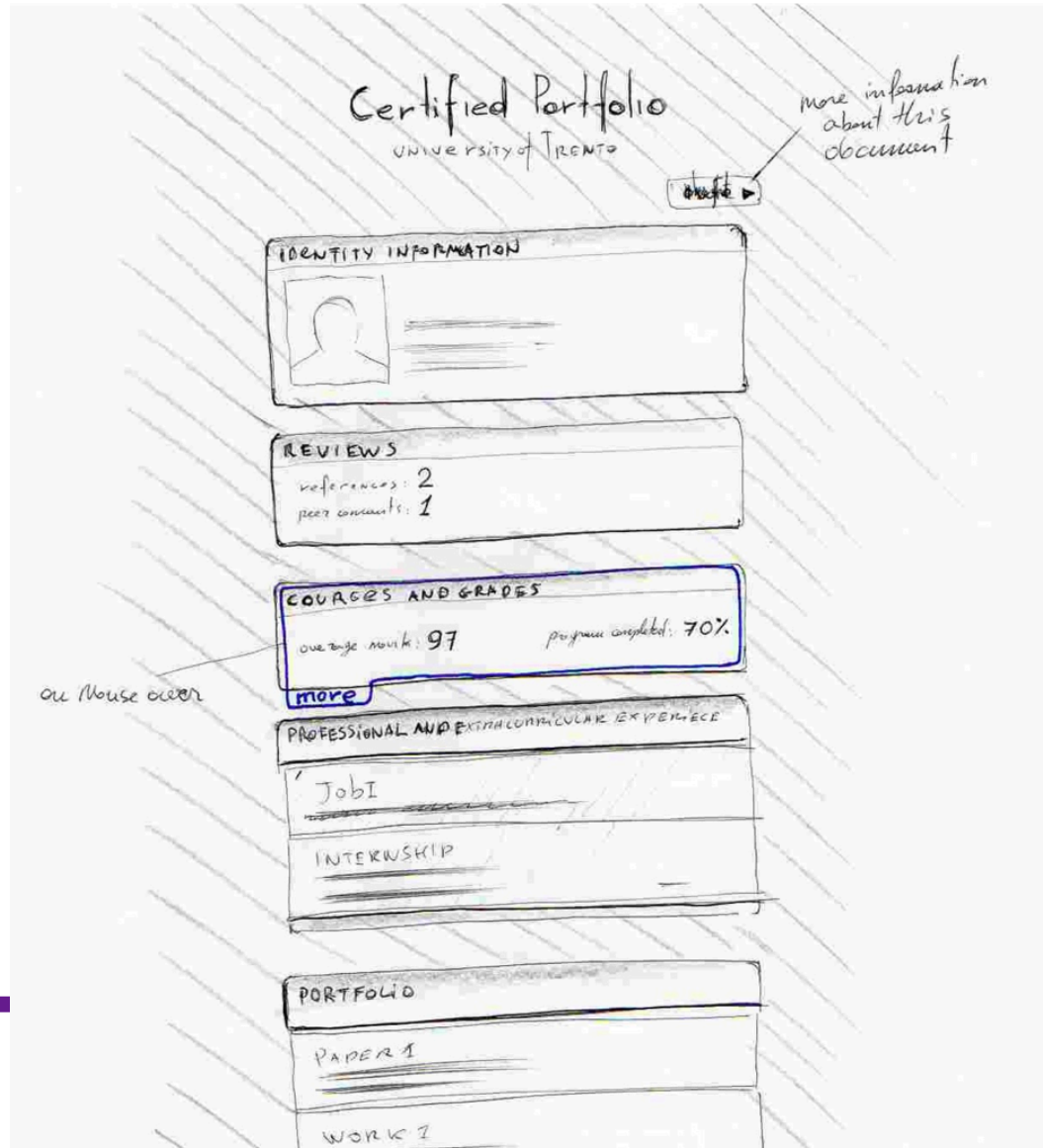
- Support exploration and discussion of contexts, needs and requirements of new interactive systems.
- Set the basis for the overall design and facilitate co-operation and communication within a multidisciplinary-team by building a shared understanding of the type of system being developed.



# Scenarios

- User stories = informal narrative description which reports about user tasks and activities.
  - Short snippets which tend to focus on the user needs and motivations to perform a task rather than on the use of a technology

# Pen and paper



My People



Vivi Trento



Viaggia Trento



LifeLog



INBox



MyCVs



Launcher



NEW NAMES

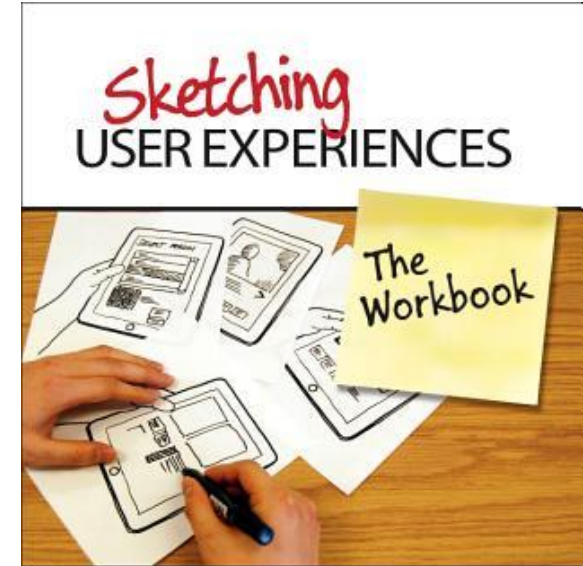
# Video-example



Example 6. Knowledge Navigator™ vision video for a future notebook computer [E6 Dubberly and Mitch '87].

# Sketching

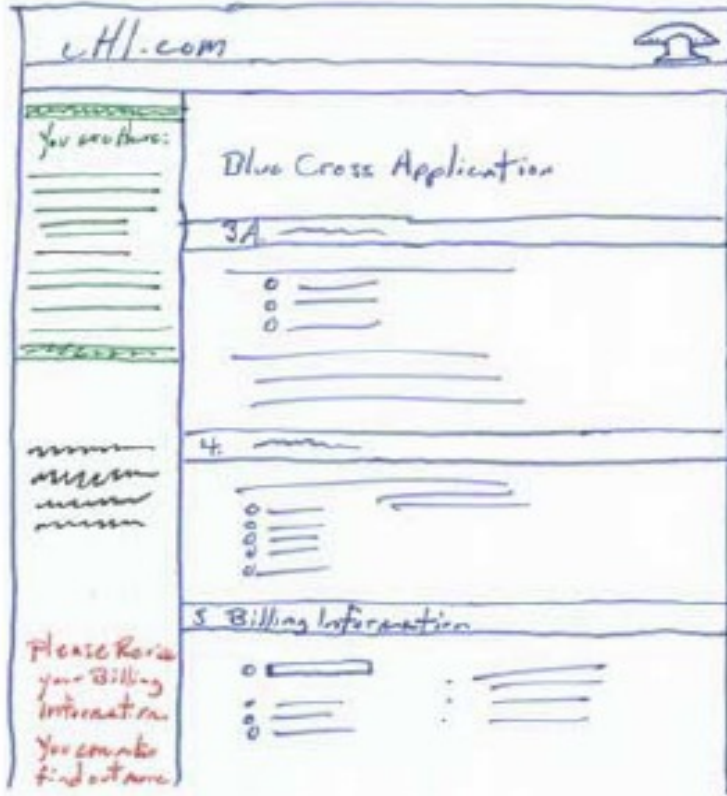
- Sketching is important to low-fidelity prototyping
- Do not be inhibited if you cannot design
  - Use simple and clear symbol
- overview of the layout without much details
  - numerous alternatives can be quickly created
  - should be produced in pencil (easily changed)
  - should be hand-drawn (rulers take too much effort)



Saul Greenberg  
Sheelagh Carpendale  
Nicolai Marquardt  
Bill Buxton

# Which one is better?

A



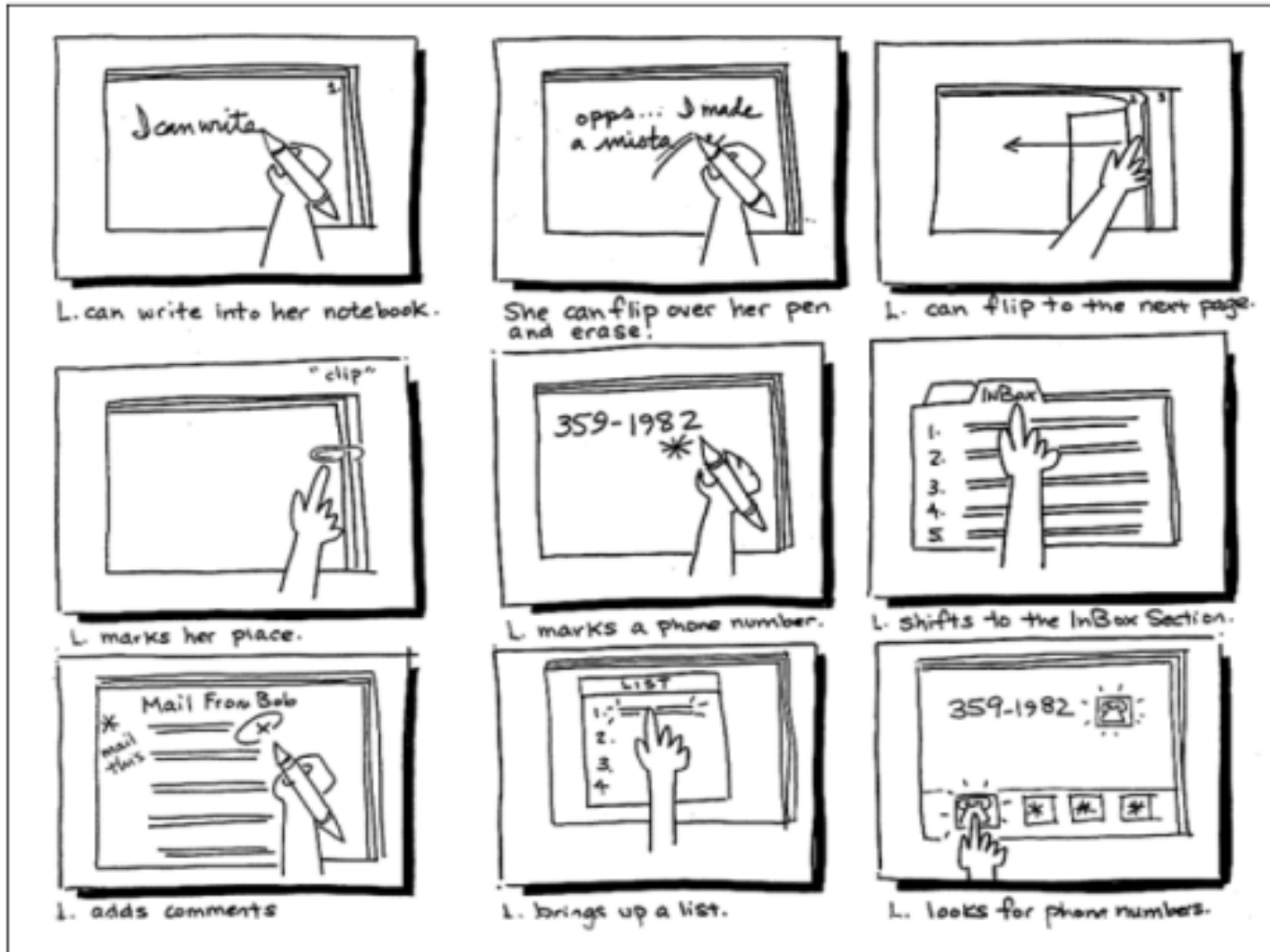
B



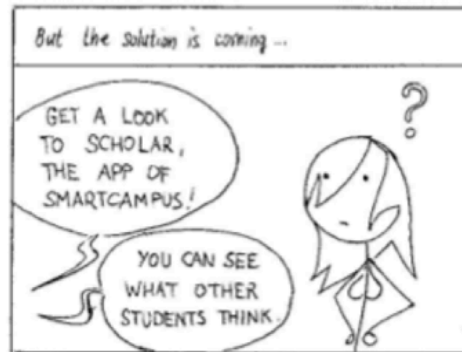
# Story-board

- It is a series of sketches showing how a user might progress through a task using the device
- sequences of activity in the Interface
  - they indicate the flow from one state or screen to the next
  - to begin with they may not include much detail of the interface
- Often used with scenarios, bringing more detail, and a chance to role play
- Used early in design

# Story-board - example







# Storyboard tools

<https://www.pixton.com/>

<http://goanimate.com/>





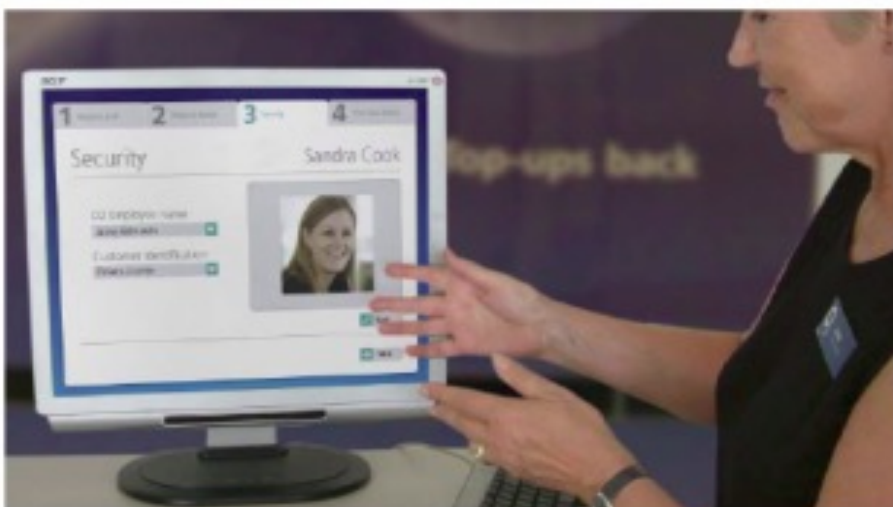
Meet Sandra. She's fed up with her telecom service and in search of a new mobile and a better deal. She heads over to O2, not knowing much about them, but the store looks inviting. It's her lunch break, so time is tight.

1 of 24



Jenny gives a 'Demo to Die For' with the actual model handset Sandra has chosen, showing off the latest iMode features. Sandra is particularly excited about being able to book cinema tickets directly. She's an avid movie buff.

2 of 24



No photocopying. No checking with managers. None of the typical delays associated with the approval process. From here on, Sandra's photo ID will confirm her identity on-screen.



Before she goes, Jenny packs the pouch, box, charger, dongle and manual into an O2 bag...

...and adds a refreshing bottle of O2 water to top off the experience.

Sandra leaves, smiling and satisfied.

16 of 24

# Experience prototyping



Figure 4: Bodystorming layouts for an airplane interior.

# Role play

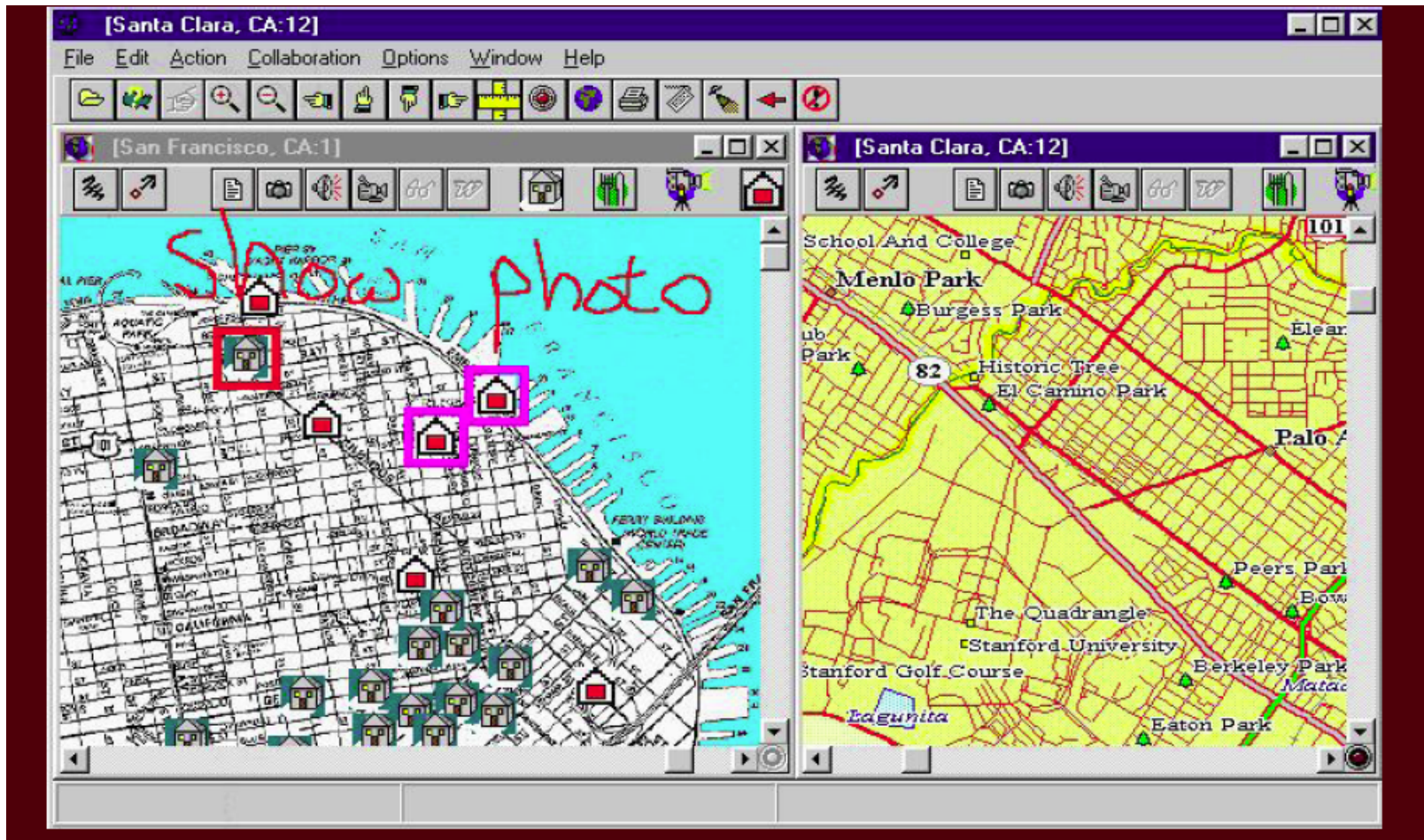


# Wizard-of OZ



- Some aspects of interface are implemented
  - Operation requires processing that is actually done by a human not visible to the user
  - The “wizard” intervention needs to be believable

# Woz for multimodal design







# Medium fidelity prototyping

- Cleaned up – but not decorated
- Power-point
- Photoshop

**What to do**  
Touch a different color,  
or scan another item.



**What you selected**



**JPG Stroller**  
For children between  
1-3 years old ...**\$98.**

Green  
 Blue  
 Red (out of stock)

<u>Item</u>	<u>Style</u>	<u>Cost</u>	
JPG Stroller	Green	98.00	Delete

tax: 6.98

**Total: \$104.98**

**All done?**

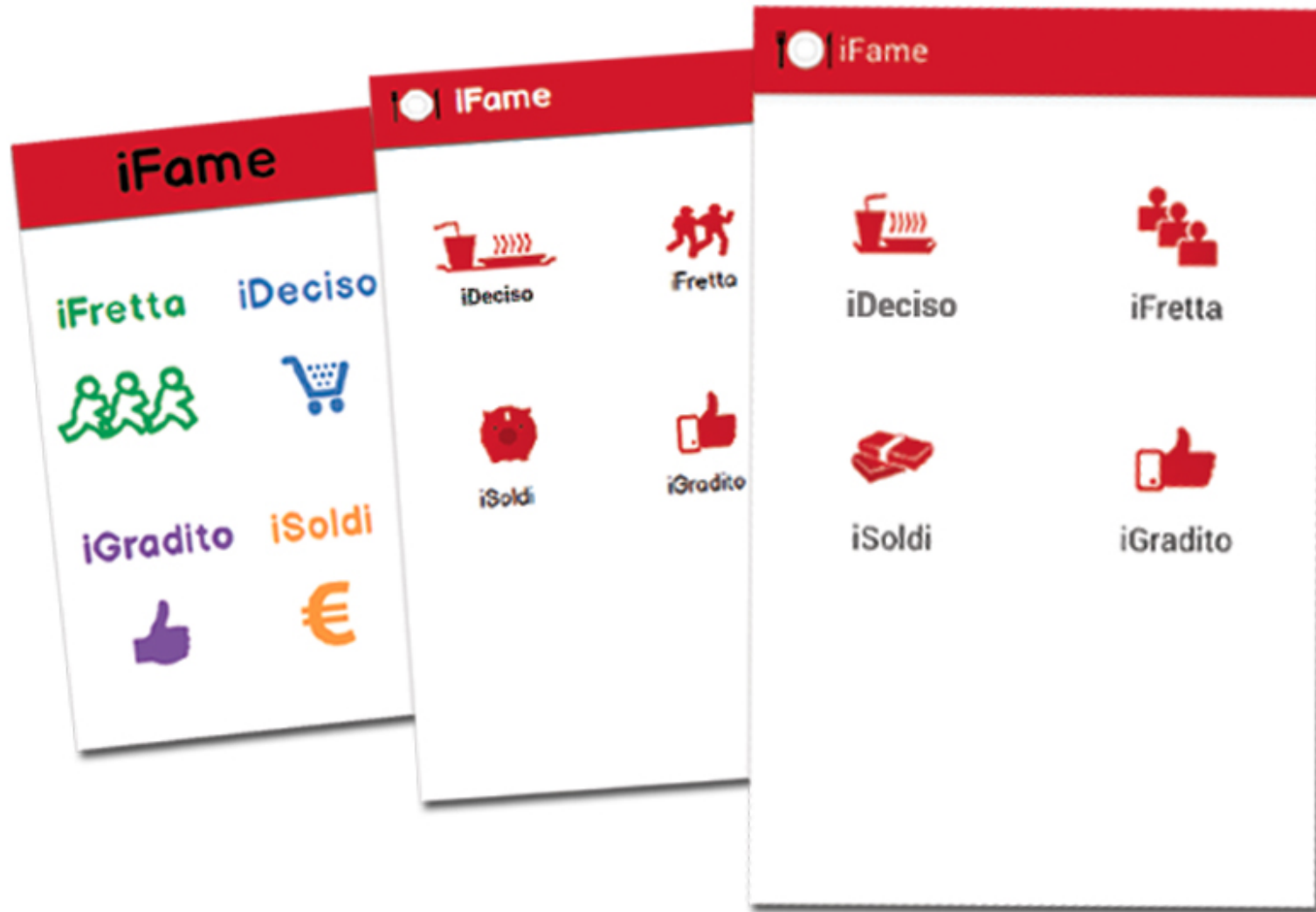
Place your order    Print this list    Throw this list away



<https://balsamiq.com/>

<http://pencil.evolus.vn>

# Prototype evolution



# High fidelity prototypes

- Uses materials that you would expect to be in the final product.
- Prototype looks more like the final system than a low-fidelity version.
- Common environments include Macromedia Director, Visual Basic, and Smalltalk.
- Danger that users think they have a full system.....

# Construction

- Taking the prototypes (or learning from them) and creating a system
- Quality must be attended to: usability,, reliability, robustness, maintainability, integrity, portability, efficiency, etc
- Product must be engineered
  - “Evolutionary’ prototyping
  - ‘Throw-away’ prototyping

# Summary points

- Different kinds of prototyping are used for different purposes and at different stages
- Prototypes answer questions, so prototype appropriately
- Construction: the final product must be engineered appropriately
- Prototypes and scenarios are used throughout design

# Reading

- Chapter 11 (2<sup>nd</sup> edition)
- Chapter 8 (1<sup>st</sup> Edition)