



LUT
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Concept modeling and conceptual design

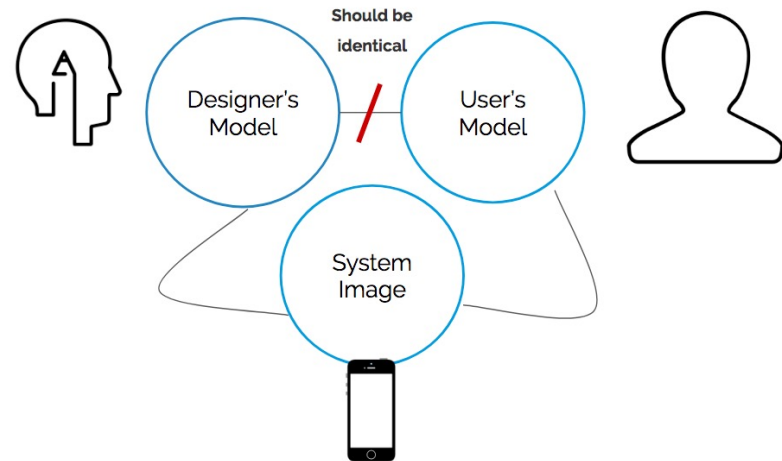
Antti Knutas & Dominik Siemon



Conceptual modeling

- Conceptual models **help to communicate** the underlying intention of the application design
- Building a mental model for the designer
- Should be constructed right at the beginning of the design
- Purpose:
 - Builds a high-level understanding
 - Maps a list of concepts and actions that are needed
 - Discovers new or alien concepts that are new for the users
 - Finds mismatches between mental model and conceptual model

CONCEPTUAL MODEL



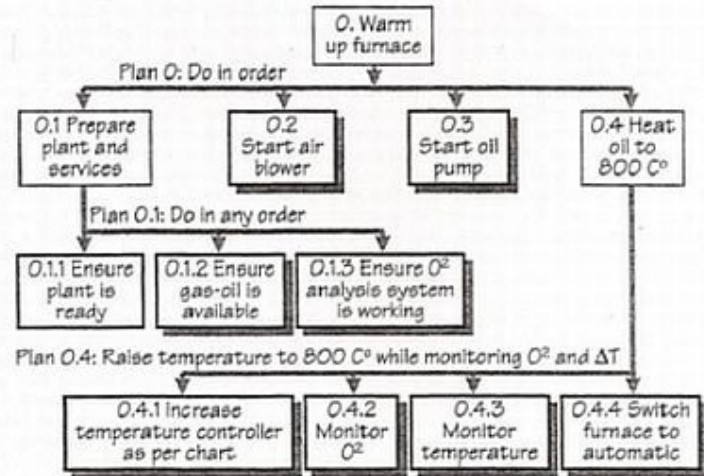
Mental models: Next lecture



Part of a conceptual model

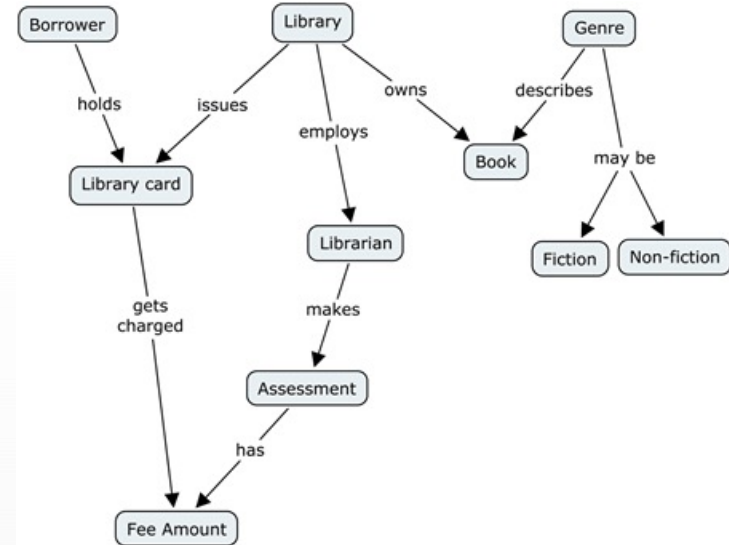
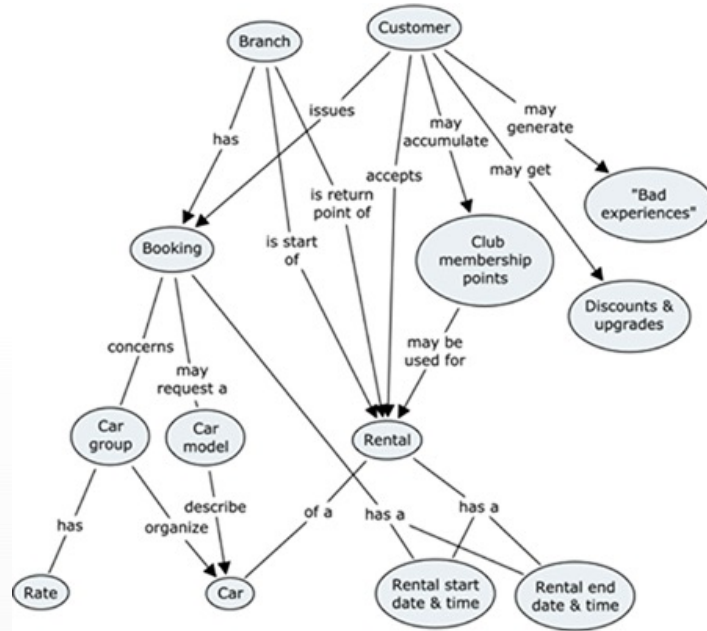
- **Tasks** – which tasks are undertaken in the system
- **Objects** – what real world objects the software relates to?
- Actions and attributes

There is no single notation for conceptual modelling. You may use UML object notation, flowcharts, or even a simple mind map to start with.





Examples: conceptual models



Good tools: (digital) mindmapping, (digital) whiteboards

Other term: schemantic representation



Slightly different: conceptual design

- Conceptual design: What people can do with a product and what concepts are needed to understand it? (**affordances!**)
 - First step into interface design and prototyping, based on conceptual model
- **Consider**
 - Which interface metaphors will help the user understand it?
 - Which interaction types?
 - Do different interface types suggest alternative design options?
- **Five common interaction types**
 - Instructing, conversing, manipulating, exploring, and responding.
- **Interface types**
 - Computer / mobile / shareable / wearable?
- **Interface metaphors**
 - Maps, buttons, icons, symbols, sliders, windows...

Affordance: action possibilities with an object based on users' (physical) capabilities (Gibson 1977)

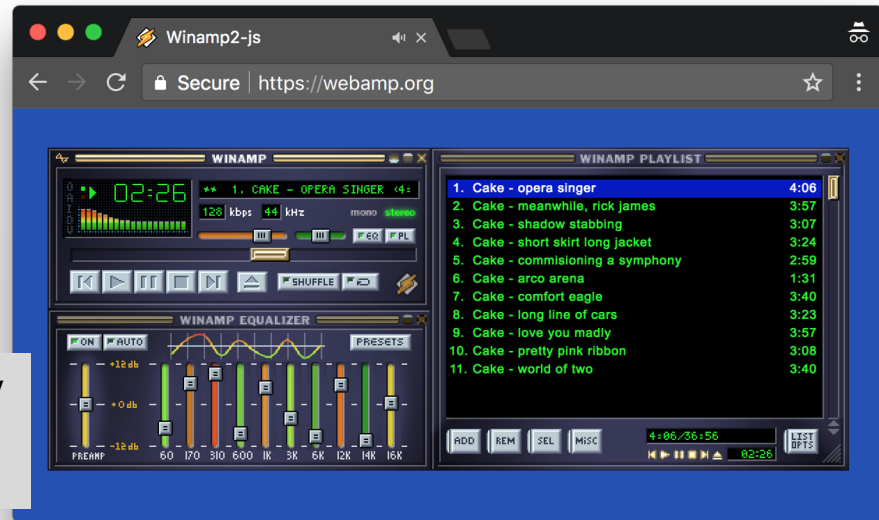


Conceptual design: Interface metaphor example

- Metaphors can put abstract concepts in concrete terms
- Metaphors create familiarity
- Metaphors can trigger emotions
- Metaphors can draw attention of users
- Metaphors can motivate users into action

Metaphors can be used creatively to explain complex or uncommon concepts.

Do sliders or cassette player style buttons really have anything to do with decoding MP3 codec with a microprocessor?



<https://www.webfx.com/blog/web-design/5-reasons-why-metaphors-can-improve-the-user-experience/>



Summary and thoughts

- **Start** with conceptual modeling
- No need to use established modeling languages
- Create a conceptual design
- Think about **affordances**
- Use design metaphors **deliberately**

Metaphors can be interpreted differently

Remember who you are designing for

