Foundations of Design

Scenarios & Requirements

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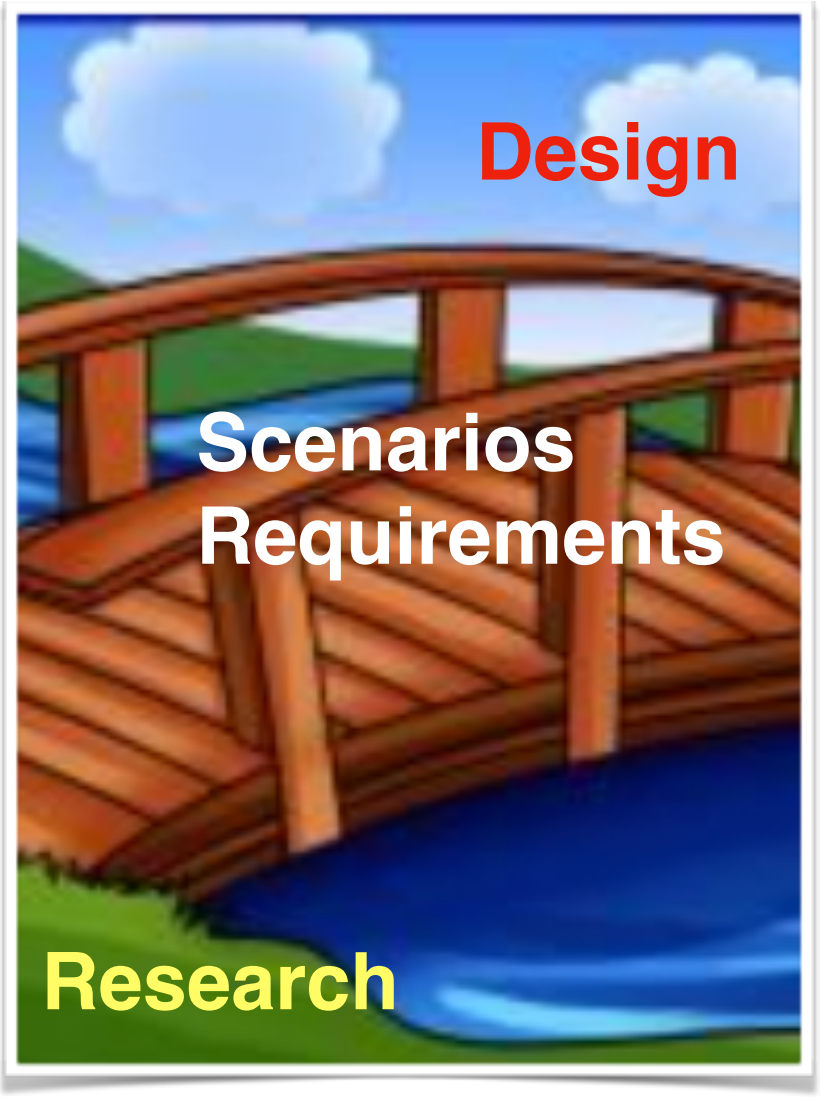
When design begins

- S & R is a bridge between research and design
- The objective is to develop the ***richness***, ***depth***, and ***magic*** of the interactive software



First two phases of design

- This design process [illegible] four activities:
  - scenarios
  - requirements
  - interaction framework (behavior)
  - visual and industrial design framework

The first two are today's topic

The glue that holds everything together: narrative

What is a scenario in design?

Scenario is a ***narrative*** (storytelling) to construct and illustrate design solution at many levels of detail.

It describes how personas ***achieve*** their goals.

THREE TYPES OF SCENARIOS

- Context scenarios - pre-design scenario focusing on users' end goals and what they have to do to achieve these goals
- Key path scenario - it is derived from context scenario; it emphasizes on interaction priorities, and introduces design vocabulary; it is refined as more detail is developed
- Validation scenarios - validation scenarios are used to test the design solution in different situations

- Notice these scenarios are used at different stages of design

How to develop context scenario

- Tell stories from persona's perspective
- Be brief or succinct
- Describes an ideal user experience
- Make it concrete (day-in-the-life scenarios)
- Cover multiple situations or context of user experience
- Focus on how persona achieves goals
- Fellow persona's mental model
- Avoid discussing technical or business constraints
- Make it magical

WHY USING STORYTELLING TO ILLUSTRATE DESIGN?

- We love listening to stories
- We use them to communicate ideas and possibilities

SCENARIOS AND USE CASES

- Similarity - both describe a user's interaction with a system
- ***Scenarios*** describe not only the functionality of the system, but also ***the priority of functions***, what the user sees and how she interacts with the system
- ***Use cases*** give ***an exhaustive*** list of functional requirements of the system

REQUIREMENT DEFINITION PHASE

Requirement definition phase determines the what of design: ***what*** information and capabilities our personas ***require*** to accomplish their goals.

REQUIREMENT DEFINITION

1. Creating problem and vision statements
2. Brainstorming (eliminate preconception and allow imagination)
3. Identifying persona expectations (mental model)
4. Constructing context scenarios
5. Identifying requirements (data, functional)
6. Conclude this process with a ***task tree***

STEP 1: PROBLEM & VISION STATEMENT

- Problem statement
  - Users need a way to configure groups of lights, music devices, and appliances into (…) because smart-home switches can control them more flexibly.
- Vision statement
  - iHome is a software app helping users to group devices that are used together into a set of ***scenes***. When a scene is activated, lights and devices will be turned on at the same time, or at a designated time.

Step 2: Brainstorming

- Old way
  - One switch, one group of devices
  - No re-grouping of devices is allowed
  - When a switch is placed in a physical location, it can never be moved unless wires are ripped out
- New way
  - All devices are controlled by IoT (internet of things) relays
  - Each relay speaks wireless protocol (zigbee)
  - Each relay can be programmed (e.g., IFTTT)
  - Groups of replays can be configured and re-configured into Scenes
  - Each scene can be activated by a mechanical switch
- Magic
  - Scenes can be activated by voice
  - Scenes can be activated by gesture

Step 3: Persona expectations

- An intuitive interface to configure and re-configure scenes
- Activate them using mechanical switches, touch screens, voice, and gesture interfaces

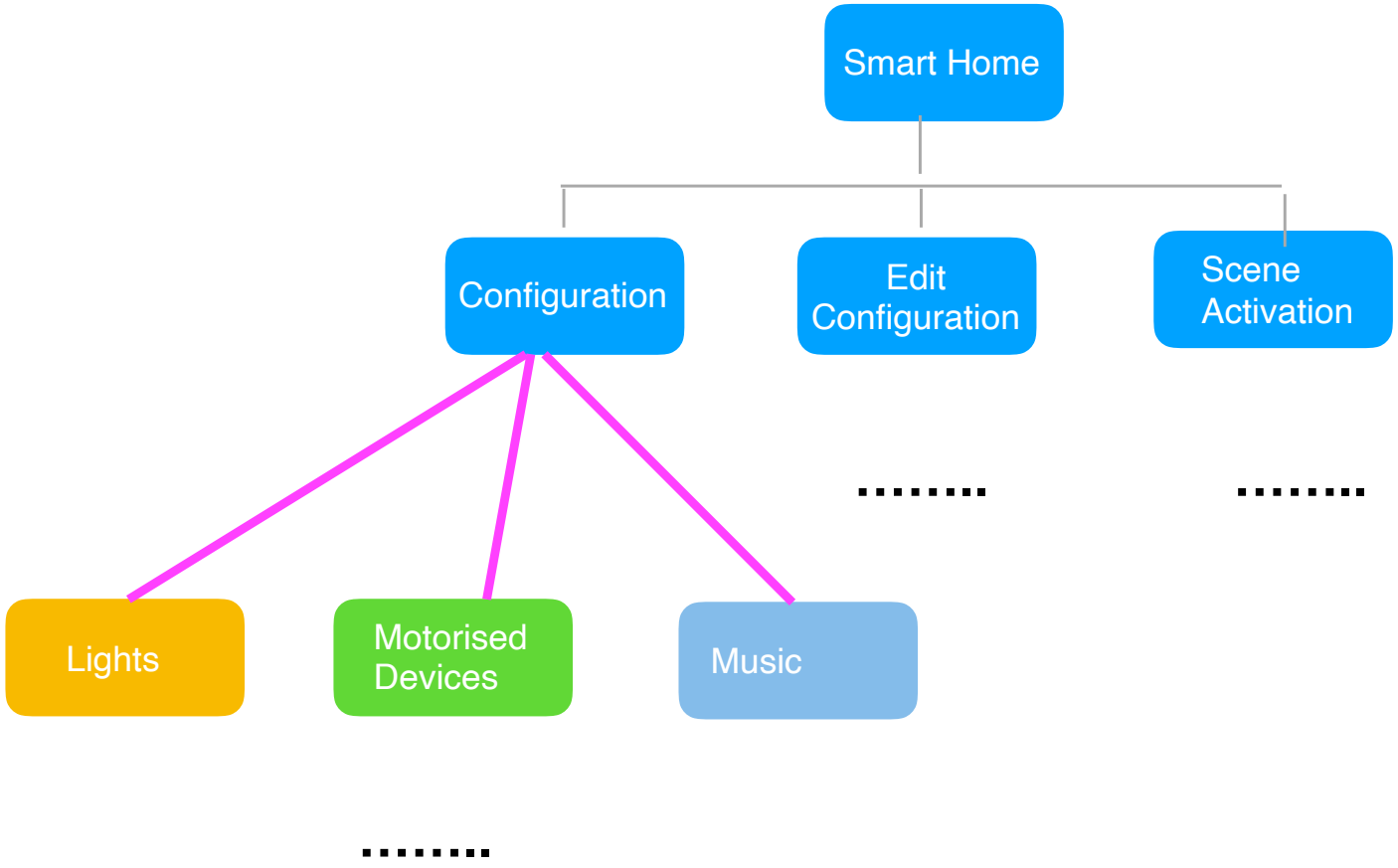
Step 4: context scenario

- Kate is a marketing executive working for an international company in Geneva. She lives in Nyon.
- Kate has configured her smart home according to her winter schedule.
- Before coming home, she opened the smart home app, and clicked on “coming home” 
  - This button is connected to cooking appliances and thermostat
- As her car pulls into the drive way, Kate uses a remote control to open the gate and the garage door. 
- Kate parks the car, and steps into the house where some ambient light is already lit and relaxing music is playing
- The house robot, Dudu, came to greet her at the door. 
- Kate goes to the touch-screen panel, and clicks “Quiet evening”, next to “Party Evening” 
- …
- Kate, while lying down in bed at 11pm, said “iHome, Good Night.” All lights are out and thermostat turns down the temperature by 2 degrees. 

CONTEXT SCENARIO WITH MAGIC

- Kate is a marketing executive working for an international company in Geneva. She lives in Nyon.
- Before coming home, she opened the smart home app, and clicked on "coming home"
  - This button is connected to cooking appliances and thermostat
- **As her car pulls into the drive way, the gate camera recognises her licence plate and opens the gate and the garage door.**
- Kate parks the car, and steps into the house where some ambient light is already lit and relaxing music is playing
- The house robot, Dudu, came to greet her at the door.
- Kate goes to the touch-screen panel, and clicks "Quiet evening", next to "Party Evening"
- …
- Kate, while lying down in bed at 11pm, said "Siri, Good Night." All lights are out and thermostat turns down the temperature by 2 degrees.

STEP 5: IDENTIFY REQUIREMENTS



CASE STUDY 2 : WINE RECOMMENDATION

- Problem statement
  - Users need a system to discover wines in places where they consume wines because context (both location and food) helps users reveal more about their wine preferences
- Vision statement
  - WineExpert is a wine recommender system, helping users discover wines in ***places where they consume wines***: parties, restaurants, meals at home, and it combines an offline experience with online purchase experience
  - The primary persona is a combination of (Jacques, Kate, Eugene)

European Wine Consumer

Jacques

Manager at a software company

Almost a daily wine consumer

Wife and two college educated children

Hobby: golf and travel

Female wine consumer from US

Kate

Magazine editor

Buys exclusively online

Good income

Likes European culture, and likes to experience new things

Hobby: reading

Western Educated Asia Wine Consumer

Eugene

Works for multinational company

EPFL graduate

Went back to Hong Kong few years ago

Hobby: golf & art collection

JACQUES AND HIS CONTEXT SCENARIOS

- Jacques Boutin is a IT manager in a software company. He frequently travels to meet clients. He also travels for pleasure with his family
- He is very knowledgeable about wines and is quite confident when ordering one
- Jacques has developed personal preferences for wines. On occasions, he still likes to discover new wines from restaurants, hotel bars, wine tasting tours, and wine shows
- One day, Jacques goes to a restaurant whose owner provides tablets to his VIP customers for ordering food and wine

CONTI… (JACQUES)

- Jacque likes the roast beef on the menu. He knows that a “Châteauneuf-du-Pape”, from the domain “Clos des Papes” of the year 2003 would be great. However, he just had it 2 days ago.
- He locates that wine by giving the exact name of “Châteauneuf-du-Pape”.
- He wants a recommendation of a similar wine.

CONTI… (JACQUES)

- After dinner, he wants to provide feedback about the wine he finally ordered because he liked these fruity and woody savours. He also earns browny points for rating wines.
- He rates it on a tabletPC and provides a comment.
- He wants to remember this wine, to order them online and recommend it to his friends via social media and for future occasions.

User: Kate and her GMRT

- Kate Austen is an editor for a fashion magazine in New York city. She is very dynamic, friendly and very sociable.
- She is not an expert about wines. She just enjoys drinking wines during parties and social events.
- She likes tasting new wines from different countries.
- She is not very confident when buying a bottle. Thus she needs advises from her friends and family, and information provided by wine websites.

CONTI… (KATE)

- Kate is also a fan of new technologies and killer applications. She is equipped with smart phones, tablets, and software apps.
- During a party, she discovers a great new wine.
- She discretely takes a photo of the wine label, uploads to the site, and is able to find information about this wine on WineExpert.
- After consumption, she puts a rating/comment.
- She wants to suggest this wine to her friends on social media, and adds personal messages.

User: Eugene and his GMRT

- Eugene Huang is an expatriate and works as an assistant to the director in a multinational company in Hong Kong. He becomes an aspiring wine consumer while studying and working in Europe. He always wants to learn more about wine.
- Eugene is a weekly wine consumer. He likes tasting new wines in social events and buys those he likes to drink them at home.
- One day, as Eugene is preparing a dinner for his wife, he looks up the suggested wines that go well with “boeuf bourguignon” in WineExpert. In fact, WineExpert knows all of the wines he has in his cellar.
- WineExpert not only suggests the best wine, but also wines that are best consumed at the time of the query.

CONTI… (EUGENE)

- He wants to buy a good wine for a special occasion. He logs on and started searching and browsing. He would like to find a French red wine.
- He reads the ratings and comments. Three wines got his attention. He recognizes one of these wines and remembers that he liked it. He now wants to compare these 3 wines. He finally chooses the second one, because he never tried it and notices it is similar to the one he liked but is cheaper.

TASK TREE

- A task tree contains a single root, which is the user's ultimate end-goal.
- Below the root, you create next-level subtasks, which can be thought of as sub end-goals
- Whenever an end-goal is too big, you can divide it into sub tasks
- Some sub-trees contain an ordered set of nodes, reflecting the order with which users accomplish a super-class task above
- Some sub-trees contain alternative ways of accomplishing a super-class end-goal

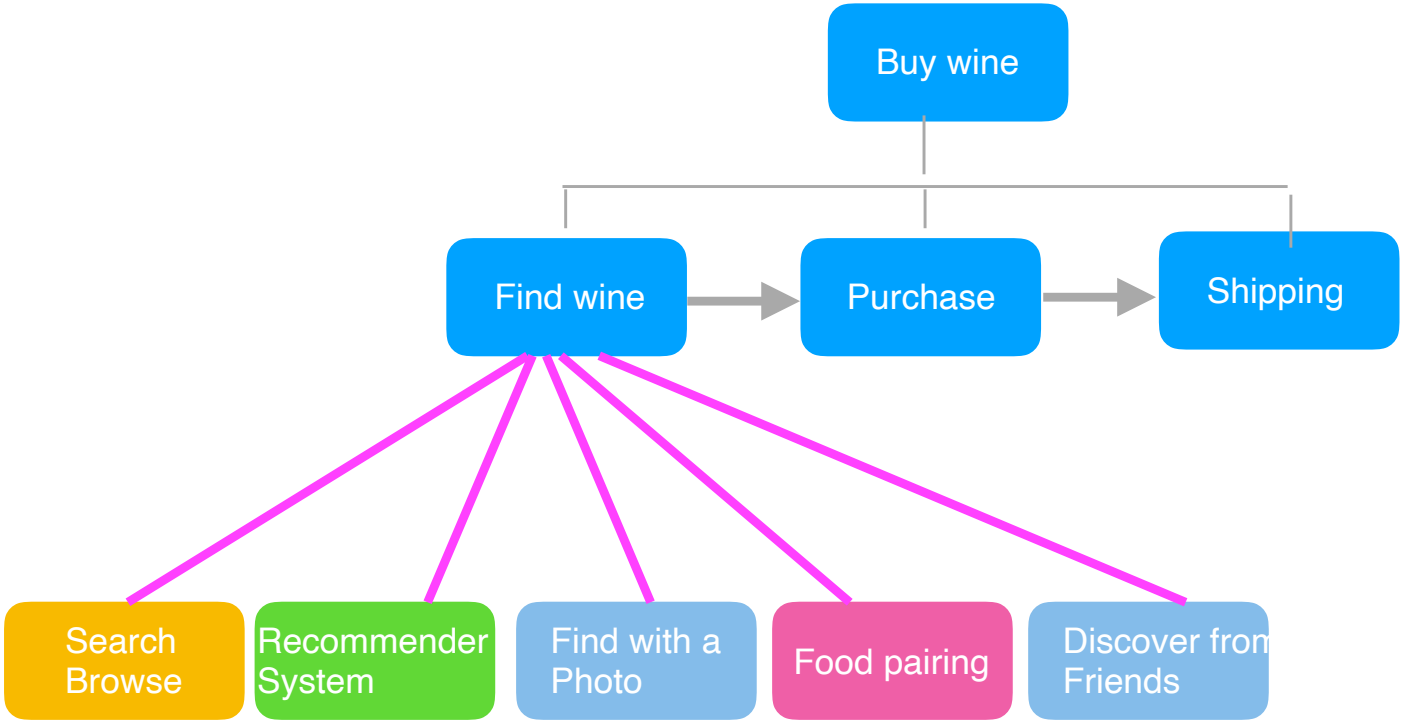
How to build a task tree

- Based on the scenarios for each persona
  - List all tasks at a higher level
    - Activities (verbs) users want to accomplish
  - If a task is too big, divide it further into subtasks
- Create a task tree
  - Group related subtasks together
  - Denote the order of tasks (ones on the left need to be done first)
  - Denote subtasks that are alternative to each other by “or” sign

TASK TREE FOR WINEEXPERT

- Search wine with its specific name and year etc.
- Browse wine by types, years, terrier, reviews, and ratings
- Get recommendation using content similarity or purchase pattern
- Find wine with a photo
- Food wine paring recommendation based on food
- Discover from friends
- Info: get wine information
- Info: wines users already ordered
- Share: suggest wine to friends
- Rate and comment a wine
- Remember a wine
- Compare several wines

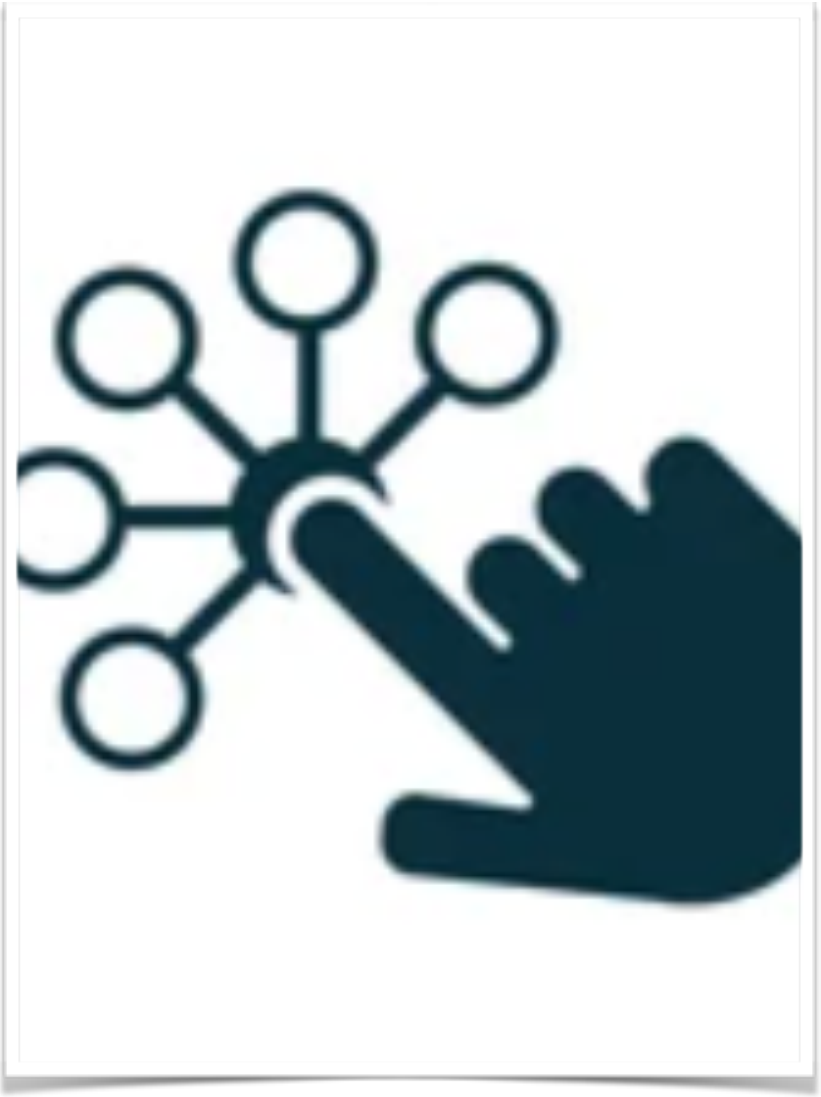
Task tree for WineExpert



- Pretend the interface is magic
  - If your persona has goals and the product has magical powers to meet them, “how simple could the interaction be?”

Touch points

- When a user interacts with a technology, it's a touch point
- Count the number of touch points in the context scenario
- If it's too many, likely the interaction design can be simplified
- If it's too few, likely the design is not rich enough; try to brainstorm more to make the story more elaborate and cover more context



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