Design for Interaction

Product Prototyping

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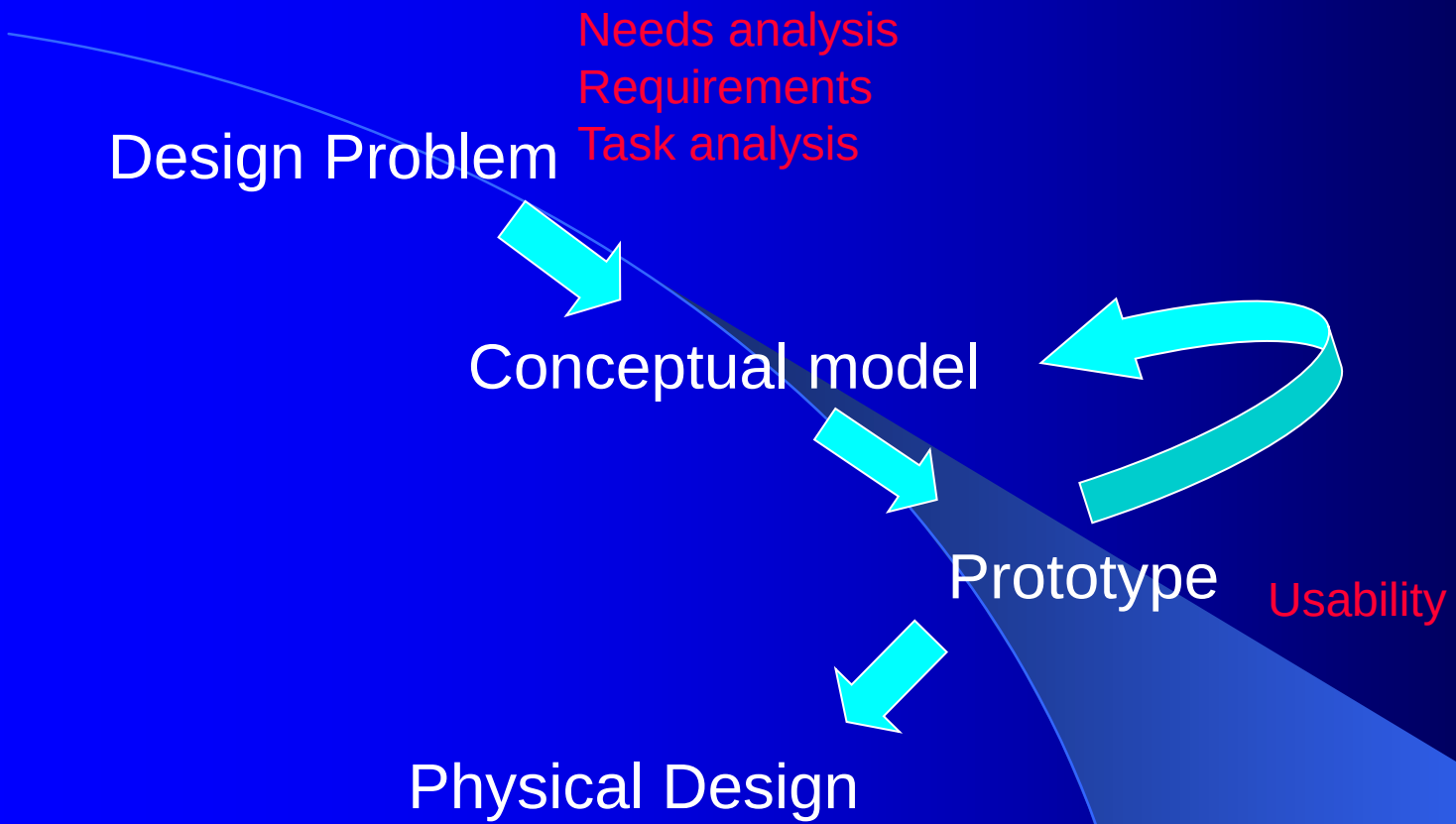
- the prototyping process
- wireframes
- storyboards

Conceptual Model to Physical Design



The Prototyping Process

- key stage in product development
- a prototype may be used for:
  - demonstrating to clients
  - testing with users
  - guiding development
- different approaches:
  - “paper-based” (or sketch-based)
  - rapid prototyping software tools

Paper-based Prototypes

- designs sketched directly onto paper (or electronic equivalent)
  - very immediate and intuitive
  - generally used in early stages of development
- may allow for a more creative and flexible approach than using software
  - encourages open and honest feedback
  - generally a quick (and cheap) process

Rapid Prototyping

- term used for any tool that allows efficient creation of a design prototype
  - includes PowerPoint and Flash as well as other more specialist software
- typically allows a much more accurate representation of the end product
- allows interactivity to be simulated
- may be more impressive to a client(!)

Pros and Cons

- we are really interested in how each type of prototype contributes to the overall process
  - in particular, the quality of user feedback
- typically, the more developed a prototype appears the more reluctant users are to suggest significant changes
  - this supports use of sketch-based methods at least at an early stage
  - can develop these further using software

Interaction Design Prototypes

- for interactive systems, there is difficulty in representing a product visually
  - product may have many different states
  - users may take very varied paths
  - key aspects of interactivity can't easily be demonstrated in visual terms
- for this reason, there are many issues in defining what such a prototype consists of

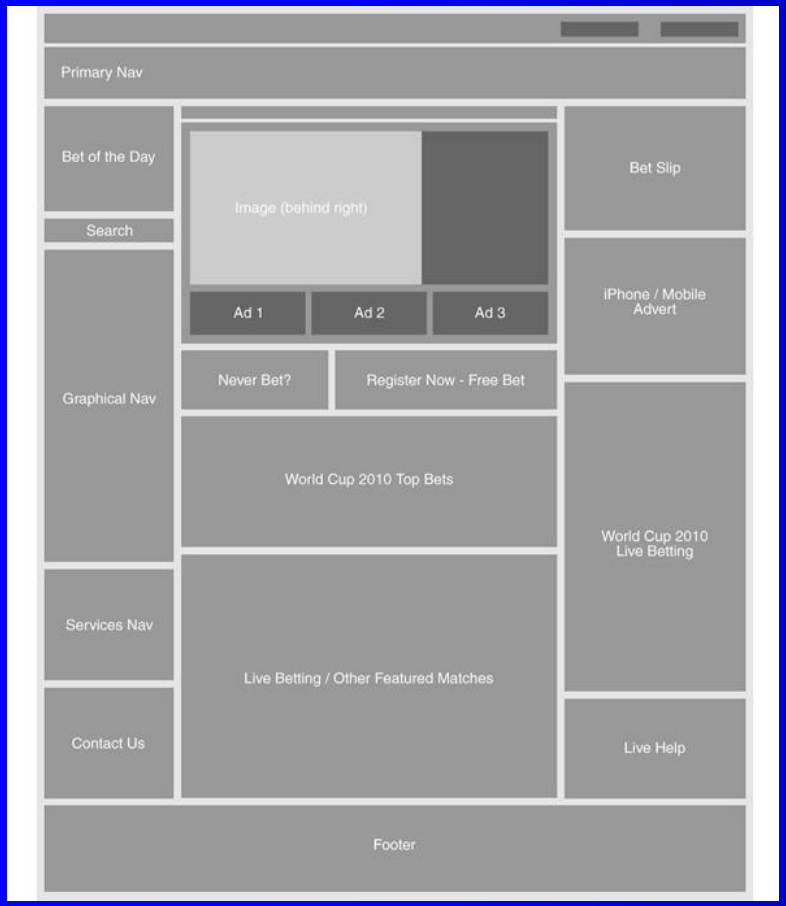
Wireframes and Storyboards

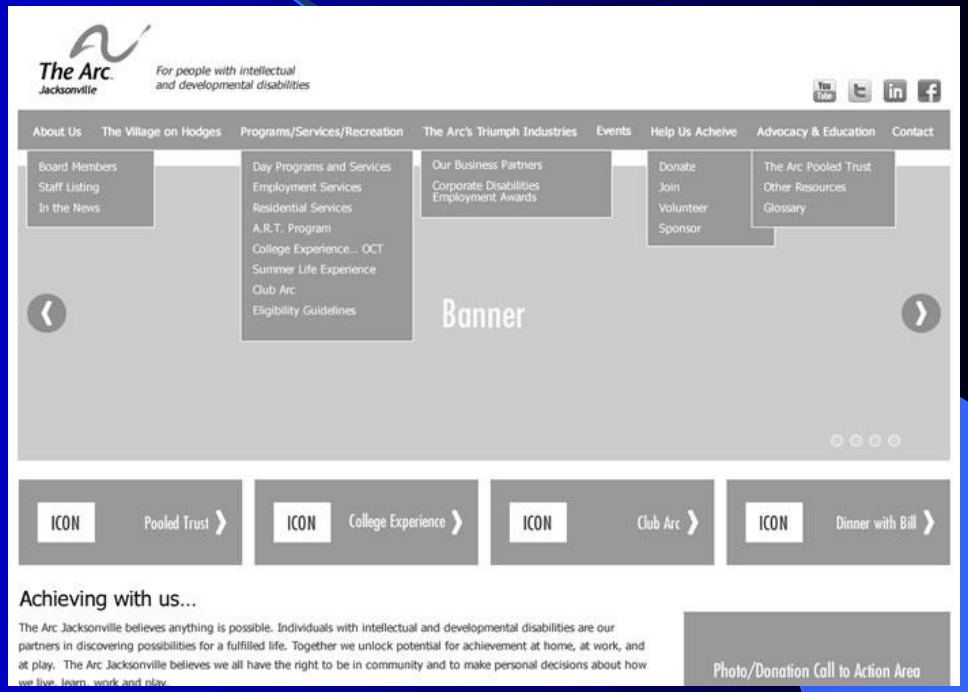
- two most commonly used terms in relation to this topic
- terms tend to be used interchangeably
  - experts disagree on the definitions!
- the idea of a storyboard comes from linear, narrative-based media
  - films, animation, books and theatre
- wireframe is a more recent term

Wireframe

- the most common definition is a diagram showing general screen layout
- we would typically create wireframes for each distinct type of screen in a product
  - no need to replicate for screens with identical purpose or layout
  - emphasis is on the function of each element
- details of graphics, colours, etc would not be required

Example Wireframes



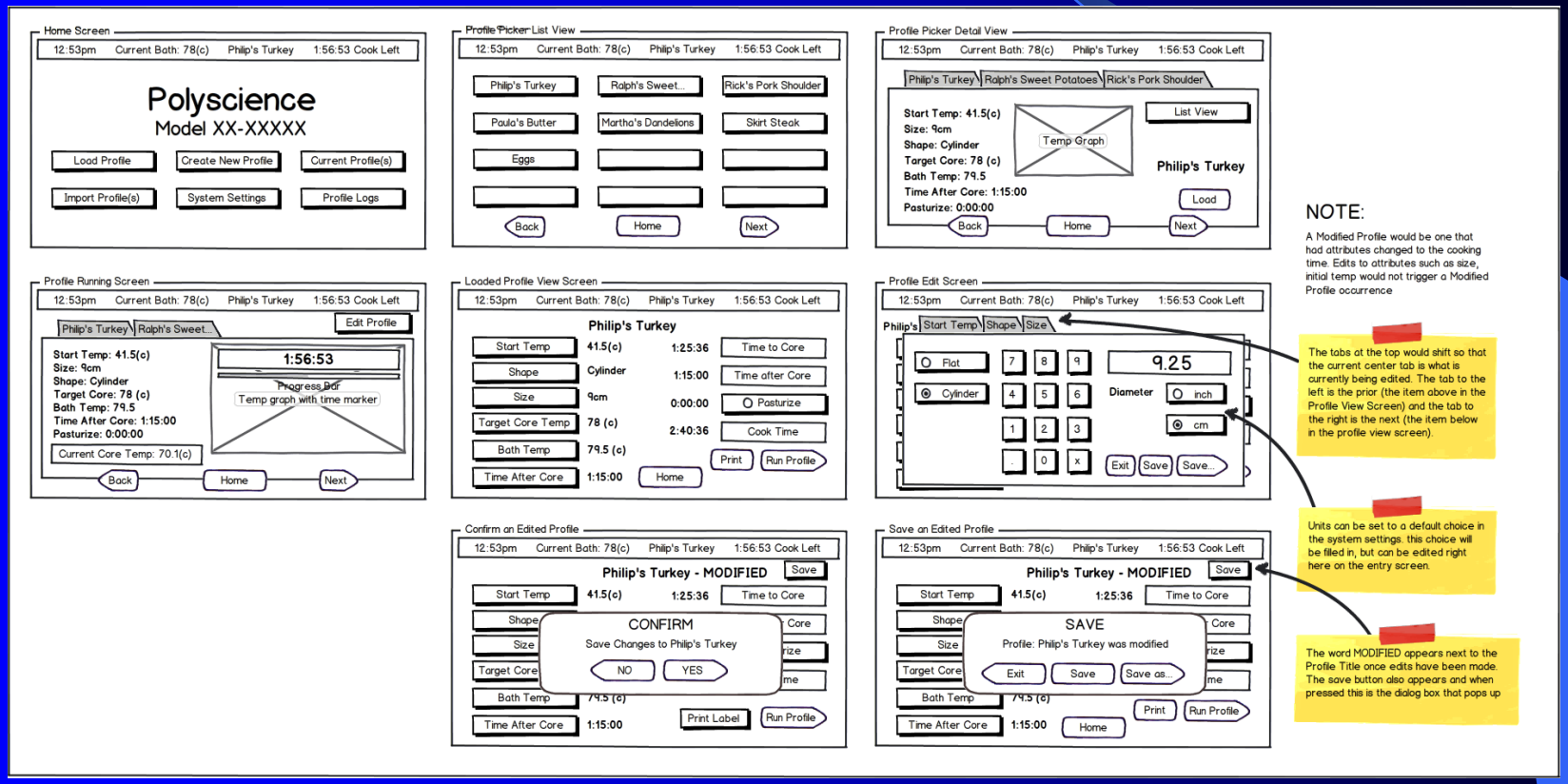


in each case the screen layout and the purpose of each element are clearly defined

Wireframing a Project

- as stated, wireframes are required for each distinct screen layout
- obviously, we should try and maintain consistency in an interface
  - where possible, elements should stay the same in each screen
- it is not necessary to specify how the wireframes may be linked together

Example


Home Screen
12:53pm Current Bath: 78(c) Philip's Turkey 1:56:53 Cook Left
Polyscience
Model XX-XXXXX
Load Profile
Create New Profile
Current Profile(s)
Import Profile(s)
System Settings
Profile Logs
Profile Picker List View
12:53pm Current Bath: 78(c) Philip's Turkey 1:56:53 Cook Left
Philip's Turkey
Ralph's Sweet...
Rick's Pork Shoulder
Paula's Butter
Martha's Dandelions
Skirt Steak
Eggs
Back
Home
Next
Profile Picker Detail View
12:53pm Current Bath: 78(c) Philip's Turkey 1:56:53 Cook Left
Philip's Turkey
Ralph's Sweet Potatoes
Rick's Pork Shoulder
Start Temp: 41.5(c)
Size: 9cm
Shape: Cylinder
Target Core: 78 (c)
Bath Temp: 79.5
Time After Core: 1:15:00
Pasturize: 0:00:00
Temp Graph
List View
Philip's Turkey
Load
Back
Home
Next
Profile Running Screen
12:53pm Current Bath: 78(c) Philip's Turkey 1:56:53 Cook Left
Philip's Turkey
Ralph's Sweet...
Edit Profile
Start Temp: 41.5(c)
Size: 9cm
Shape: Cylinder
Target Core: 78 (c)
Bath Temp: 79.5
Time After Core: 1:15:00
Pasturize: 0:00:00
1:56:53
Progress Bar
Temp graph with time marker
Current Core Temp: 70.1(c)
Back
Home
Next
Loaded Profile View Screen
12:53pm Current Bath: 78(c) Philip's Turkey 1:56:53 Cook Left
Philip's Turkey
Start Temp 41.5(c) 1:25:36 Time to Core
Shape Cylinder 1:15:00 Time after Core
Size 9cm 0:00:00 Pasturize
Target Core Temp 78 (c) 2:40:36 Cook Time
Bath Temp 79.5 (c)
Time After Core 1:15:00
Home
Print
Run Profile
Profile Edit Screen
12:53pm Current Bath: 78(c) Philip's Turkey 1:56:53 Cook Left
Philip's
Start Temp
Shape
Size
Flat
Cylinder
9.25
Diameter
inch
cm
Exit
Save
Save...
Confirm an Edited Profile
12:53pm Current Bath: 78(c) Philip's Turkey 1:56:53 Cook Left
Philip's Turkey - MODIFIED
Save
Start Temp 41.5(c) 1:25:36 Time to Core
CONFIRM
Save Changes to Philip's Turkey
NO
YES
Time After Core 1:15:00
Print Label
Run Profile
Save an Edited Profile
12:53pm Current Bath: 78(c) Philip's Turkey 1:56:53 Cook Left
Philip's Turkey - MODIFIED
Save
Start Temp 41.5(c) 1:25:36 Time to Core
SAVE
Profile: Philip's Turkey was modified
Exit
Save
Save as...
Time After Core 1:15:00
Home
Print
Run Profile
NOTE:
A Modified Profile would be one that had attributes changed to the cooking time. Edits to attributes such as size, initial temp would not trigger a Modified Profile occurrence
The tabs at the top would shift so that the current center tab is what is currently being edited. The tab to the left is the prior (the item above in the Profile View Screen) and the tab to the right is the next (the item below in the profile view screen).
Units can be set to a default choice in the system settings. this choice will be filled in, but can be edited right here on the entry screen.
The word MODIFIED appears next to the Profile Title once edits have been made. The save button also appears and when pressed this is the dialog box that pops up

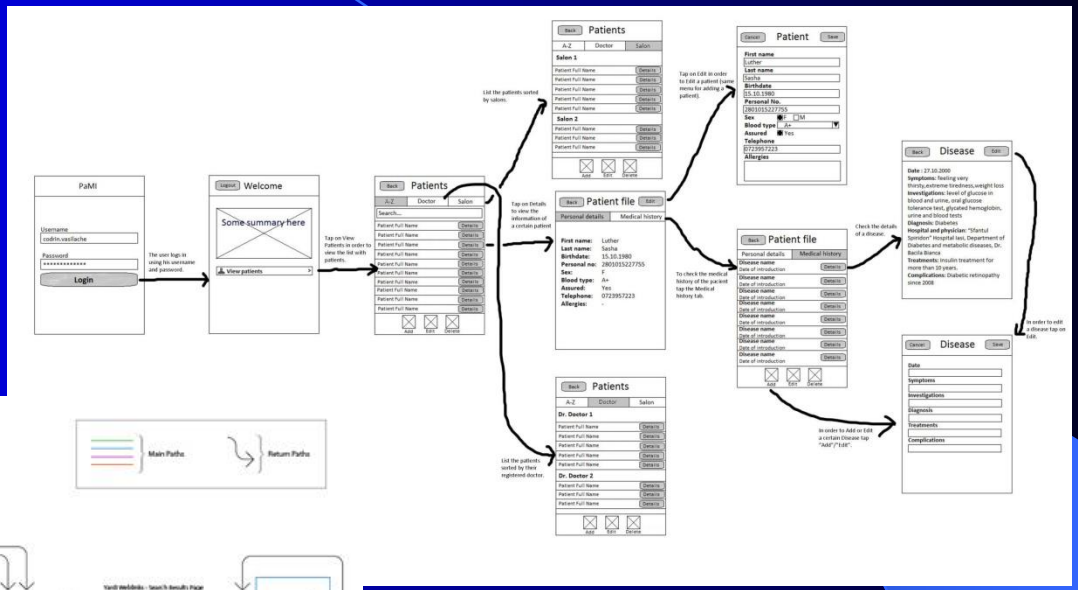
Storyboards

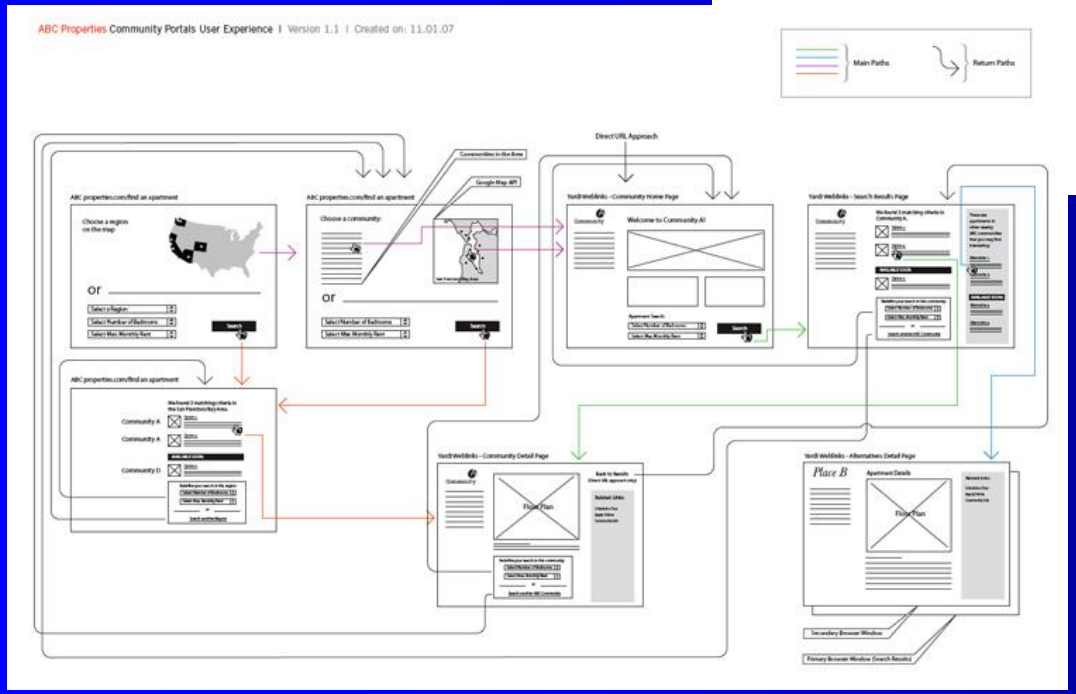
- storyboards come in different types
- linear (film, TV, animation): series indicating the shots making up the piece
  - sequence dictated by rules of storytelling
- nonlinear: indicates how key elements of a product are linked
  - usually represented in some form of flowchart
  - shows how a user may navigate through the available functionality

Linear Storyboard Example

storyboard may be more or less detailed visually (depending on the needs of the production), but the narrative must be clear

Nonlinear Examples





Interactive Prototyping

- for interactive media, the process will be informed by task description and analysis, as discussed last week
- can use task analysis to decide how the various interactions are linked
  - use this as the basis for prototyping
- the nature of the process will depend on the structure of the product

Product Structures

- where interaction with a product may fall into a number of set patterns, storyboards may be most suitable
  - identifies typical sequences of interactions
- if user experience is less clearly structured, a series of wireframes may work better
  - no real need to tie content into a narrative
- more on these issues in future lectures!