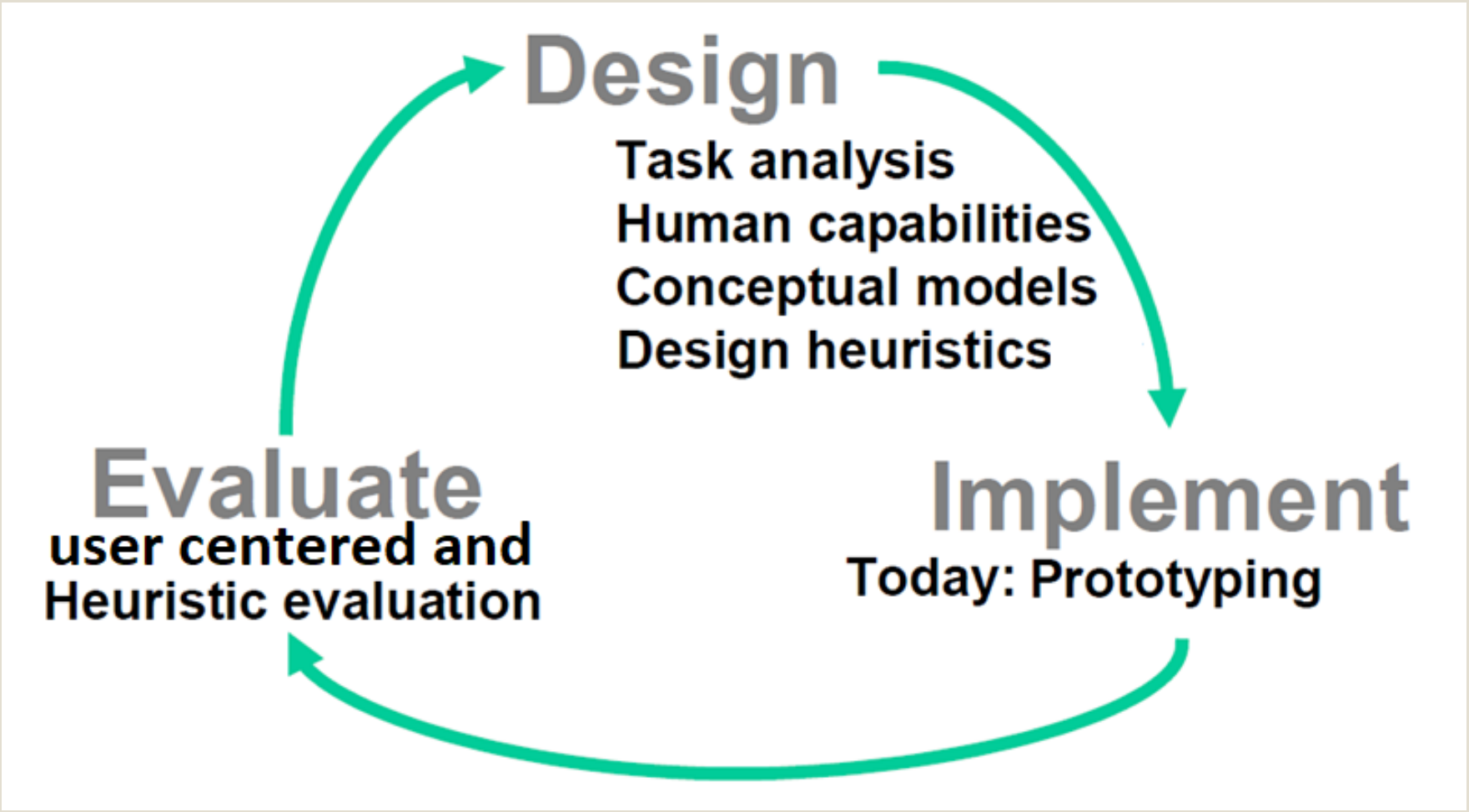
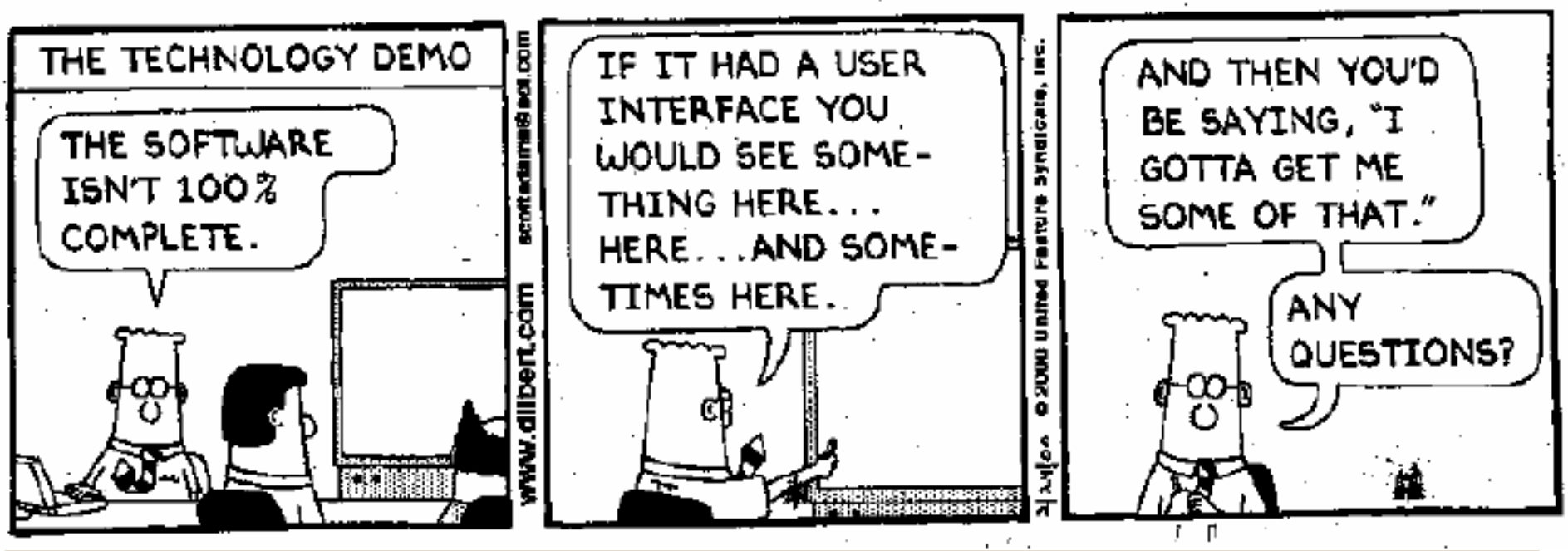
PART 6 – USER INTERFACE PROTOTYPING

We Shall Discuss

- Low fidelity prototypes
- High Fidelity prototypes
- Prototyping Techniques
- Prototyping Perspectives


Design
Task analysis
Human capabilities
Conceptual models
Design heuristics
Implement
Today: Prototyping
Evaluate
user centered and
Heuristic evaluation


DILBERT
By Scott Adams
THE TECHNOLOGY DEMO
THE SOFTWARE ISN'T 100% COMPLETE.
IF IT HAD A USER INTERFACE YOU WOULD SEE SOMETHING HERE... HERE...AND SOMETIMES HERE.
AND THEN YOU'D BE SAYING, "I GOTTA GET ME SOME OF THAT."
ANY QUESTIONS?
www.dilbert.com scottadams@aol.com
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What is a Prototype?

- What is a prototype?
  - It is a concrete representation of part or all of an interactive system.
  - It is a tangible artifact, not an abstract description which requires interpretation
- Scope
  - Is it just the interface (paper and pencil, mock-up)
    - low-fidelity prototype - a prototype that is sketchy and incomplete, that has some characteristics of the target product but is otherwise simple, usually in order to quickly produce the prototype and test broad concepts

  or

  - does it include some computational component?
    - high-fidelity prototype - an interactive prototype that simulates the real system or site's functionality and design details

Why use Prototypes?

- Dilemma
  - You can't evaluate design until it's built
- But…
  - After building, changes to the design are difficult

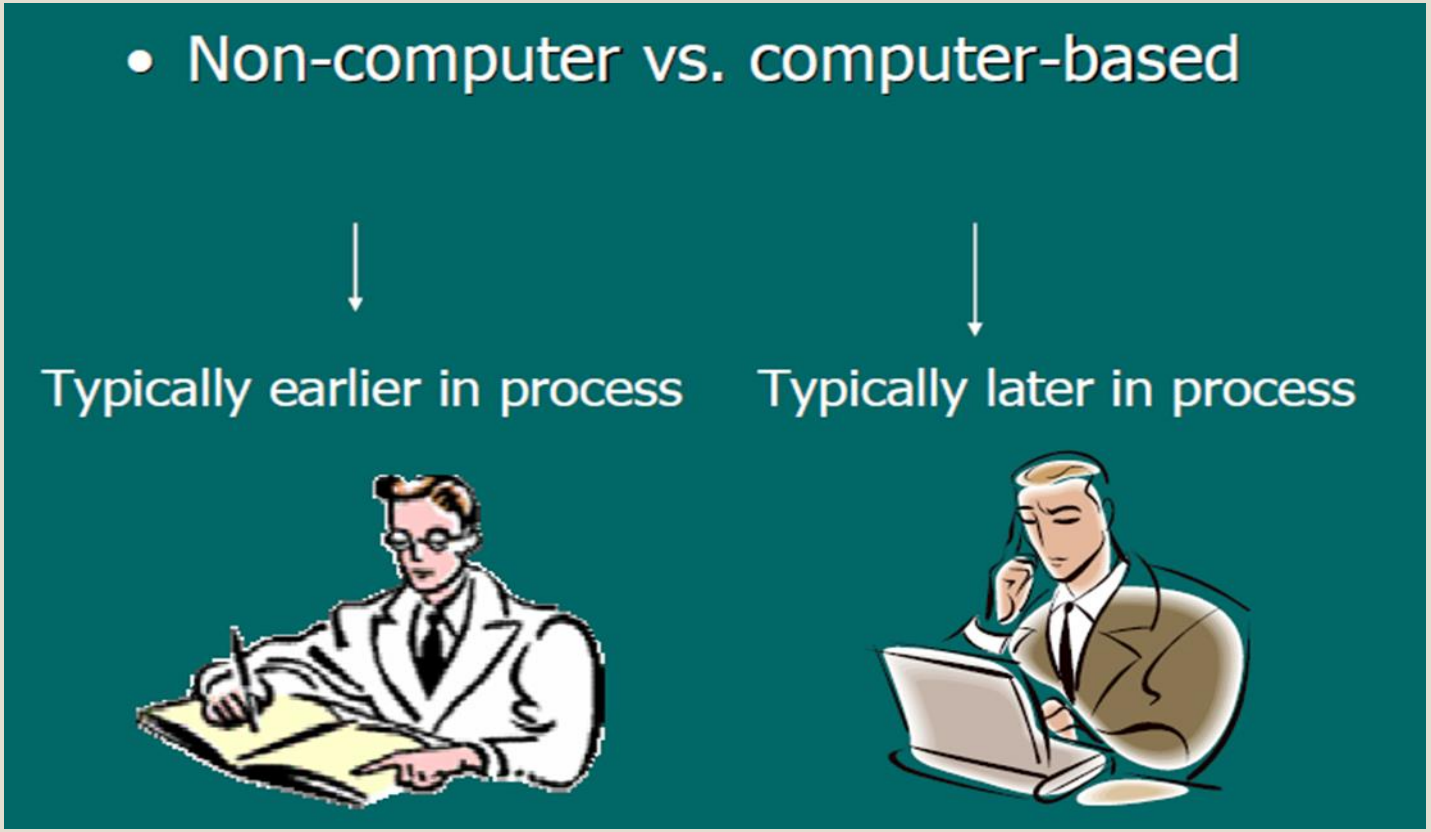
- It is easier to simulate the design, in low-cost manner using prototypes

Prototyping Goals

- A good design of a usable product is one that provides a user mental model which is the same as the designer's mental model
  - Use of prototypes enables the designer/developer to compare these two models
- Prototypes encourage communication between the designer and users and aid in collection of requirements and as a means of prompting feedback from the intended users of the product
- Prototypes promote creativity among the designers especially if they are working in groups

Prototyping Terminology

- Early prototyping vs. Late Prototyping



Prototyping Terminology

- Horizontal vs. Vertical
  - Horizontal prototype
    - They involve reducing the level of functionality and therefore many features or aspects of the interface are simulated but in a shallow manner
    - They are appropriate for understanding relationships across a broad system and for showing the range of abilities of a system
  - Vertical prototype
    - Fewer features or aspects of the interface simulated, but done in great detail
    - They are most appropriate when a certain complex feature of a system is poorly-understood and needs to be explored

Prototyping Terminology

- High-fidelity vs. low-fidelity
  - Low-fidelity prototype
    - Far from final form of system
    - Such as paper, drawings, etc.
  - High-fidelity prototype
    - Close to final form of system, much more realistic to actual application
    - Use of a software tool and can sometimes simulate computer response

Low-Fidelity Prototypes

- To develop these prototypes designers use paper, glue, index cards, tape, stickies, colored markers, pencils, etc.
- Early stage of development – prototyping for the conceptual design
- Advantages:
  - Easy and inexpensive to build
  - Easy and cheap to change, many times
  - Lack of polish does not affect user opinion of prototype (obviously isn't finished product)

Low-Fidelity Prototypes

- Disadvantages:
  - Need to set up and explain conventions for user
  - Don't simulate computer response time accurately
  - Don't show well to management

Examples

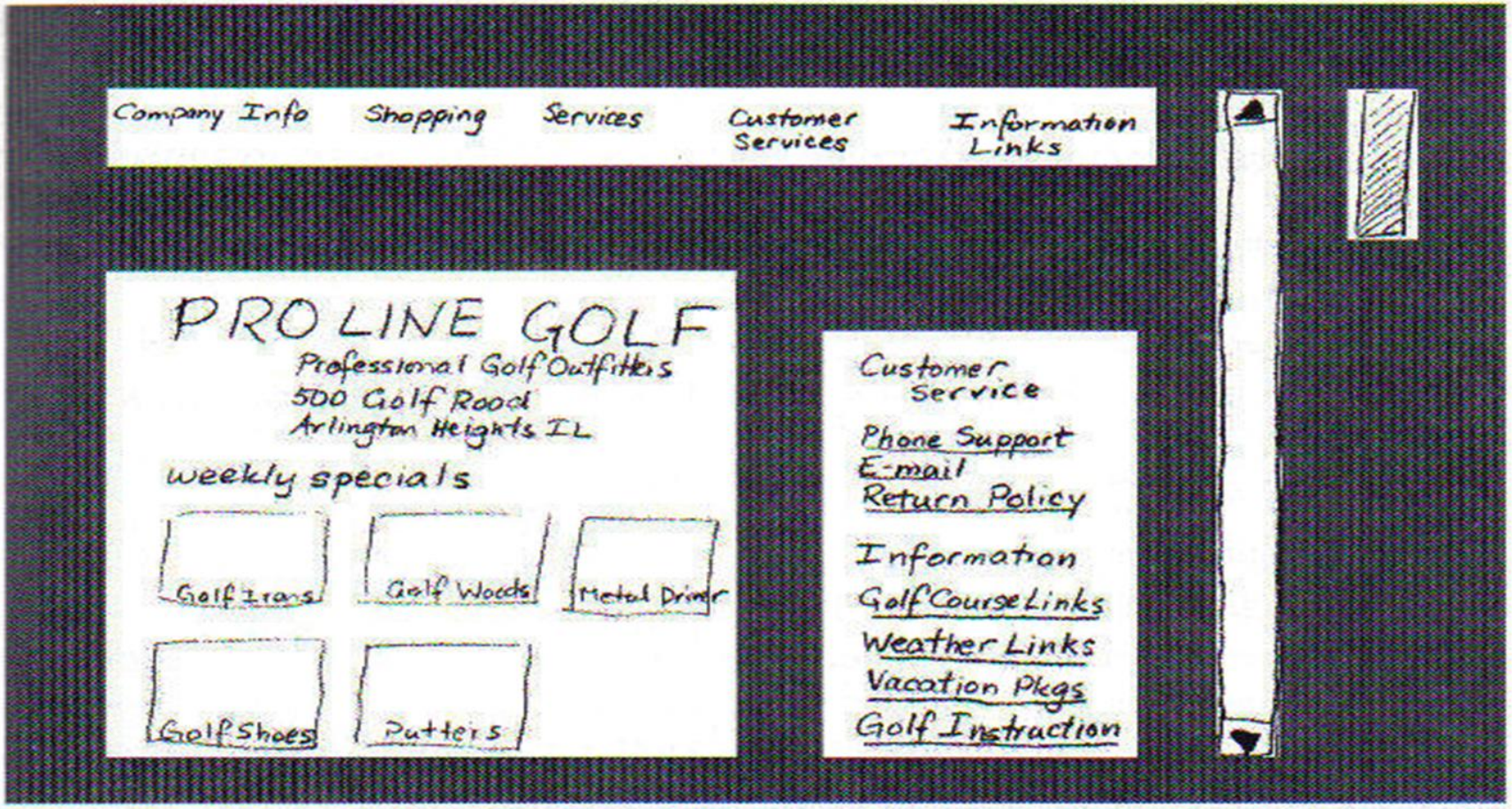
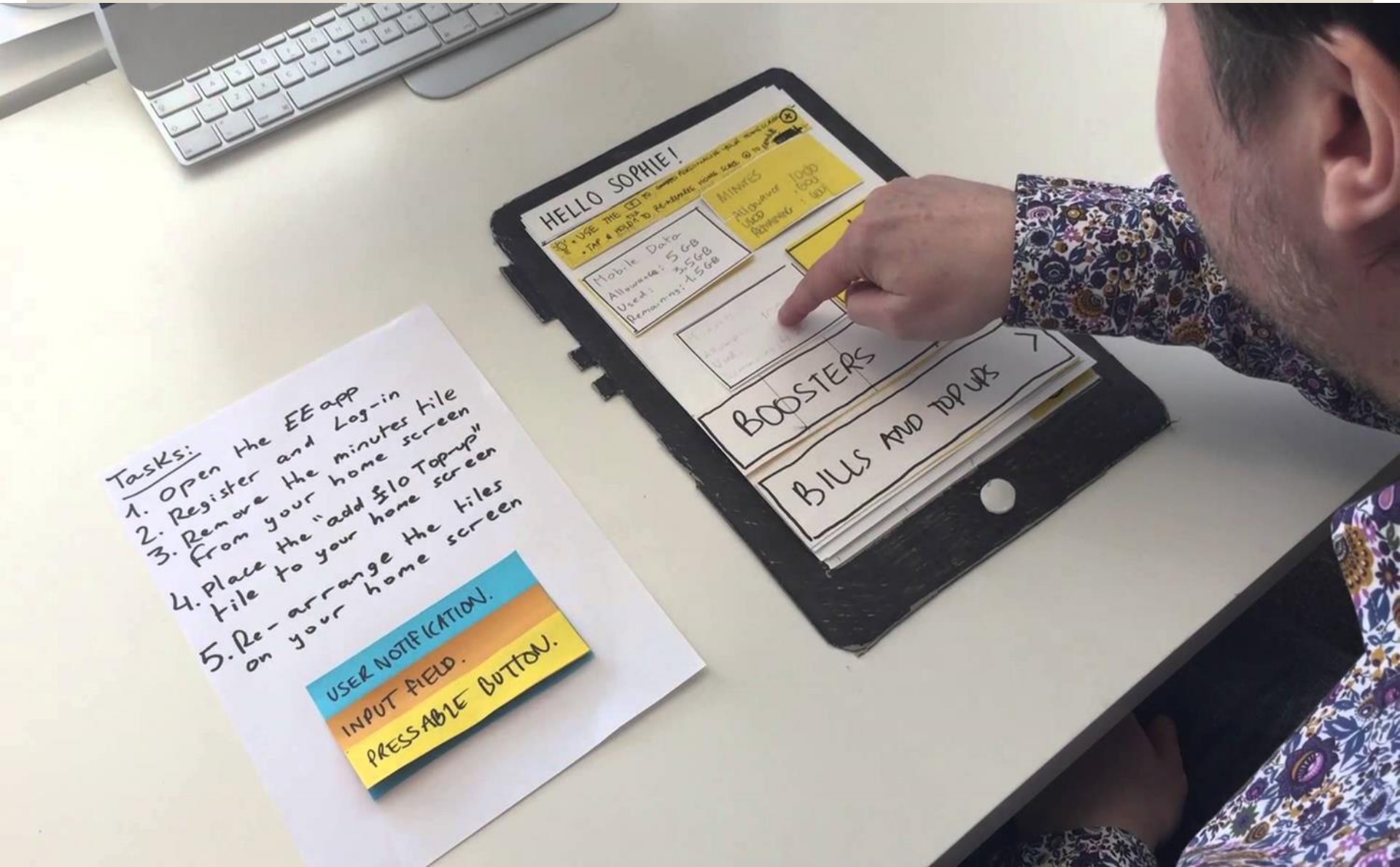
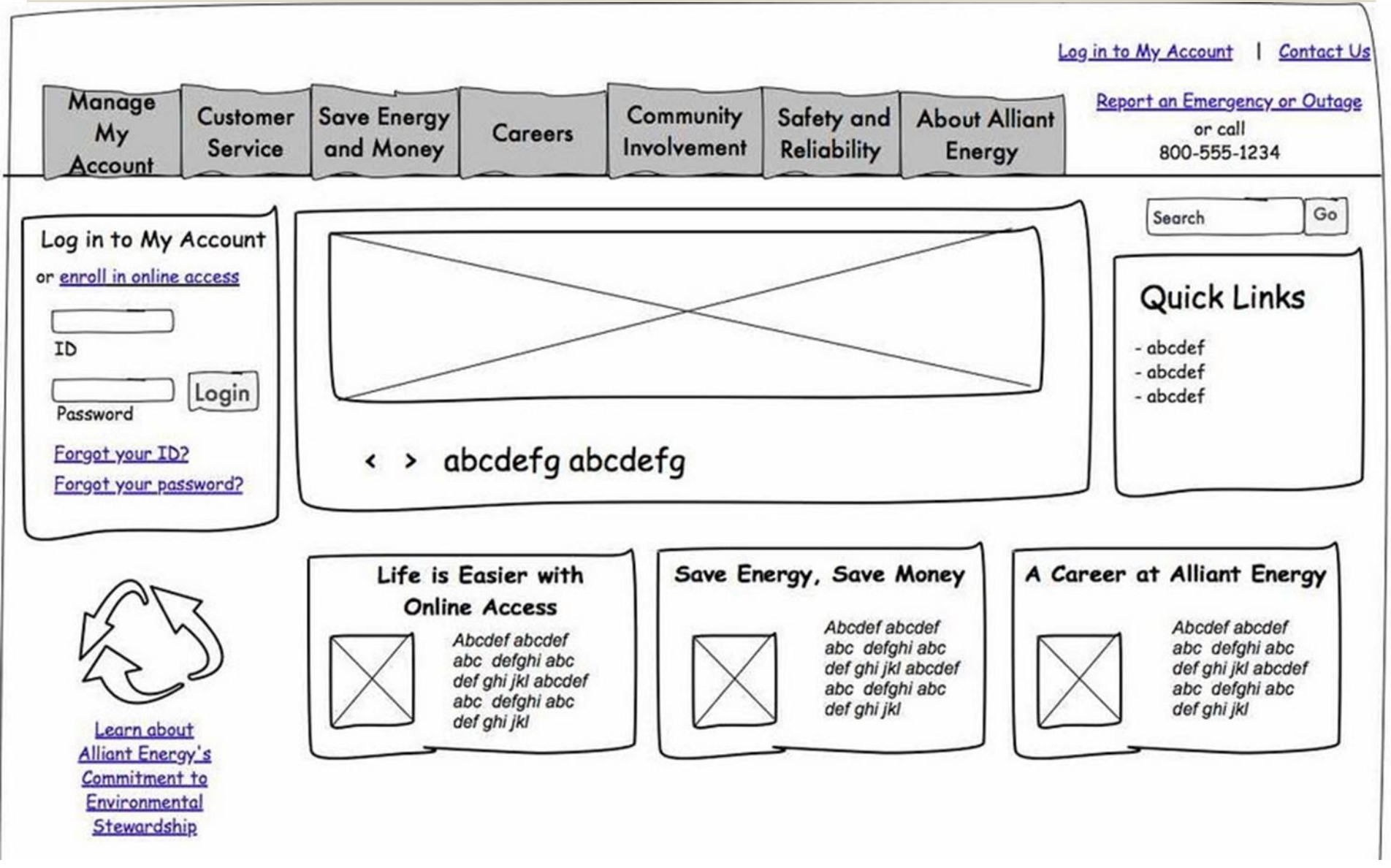


Figure 7–5 Clockwise, from top: a menu bar, a scrollbar indicator, a scrollbar, a secondary menu, and opening contents. After Kirsten Pielstrom.

Examples


HELLO SOPHIE!
Mobile Data
Allowance: 5GB
Used: 3.5GB
Remaining: 1.5GB
MINUTES
BOOSTERS
BILLS AND TOPUPS
Tasks:
1. Open the EE app
2. Register and Log-in
3. Remove the minutes tile from your home screen
4. Place the "add £10 Topup" tile to your home screen
5. Re-arrange the tiles on your home screen
USER NOTIFICATION.
INPUT FIELD.
PRESSABLE BUTTON.

Examples


Log in to My Account | Contact Us
Manage My Account
Customer Service
Save Energy and Money
Careers
Community Involvement
Safety and Reliability
About Alliant Energy
Report an Emergency or Outage
or call
800-555-1234
Log in to My Account
or enroll in online access
ID
Password
Login
Forgot your ID?
Forgot your password?
< > abcdefg abcdefg
Search
Go
Quick Links
- abcdef
- abcdef
- abcdef
Learn about Alliant Energy's Commitment to Environmental Stewardship
Life is Easier with Online Access
Abcdef abcdef abc defghi abc def ghi jkl abcdef abc defghi abc def ghi jkl
Save Energy, Save Money
Abcdef abcdef abc defghi abc def ghi jkl abcdef abc defghi abc def ghi jkl
A Career at Alliant Energy
Abcdef abcdef abc defghi abc def ghi jkl abcdef abc defghi abc def ghi jkl

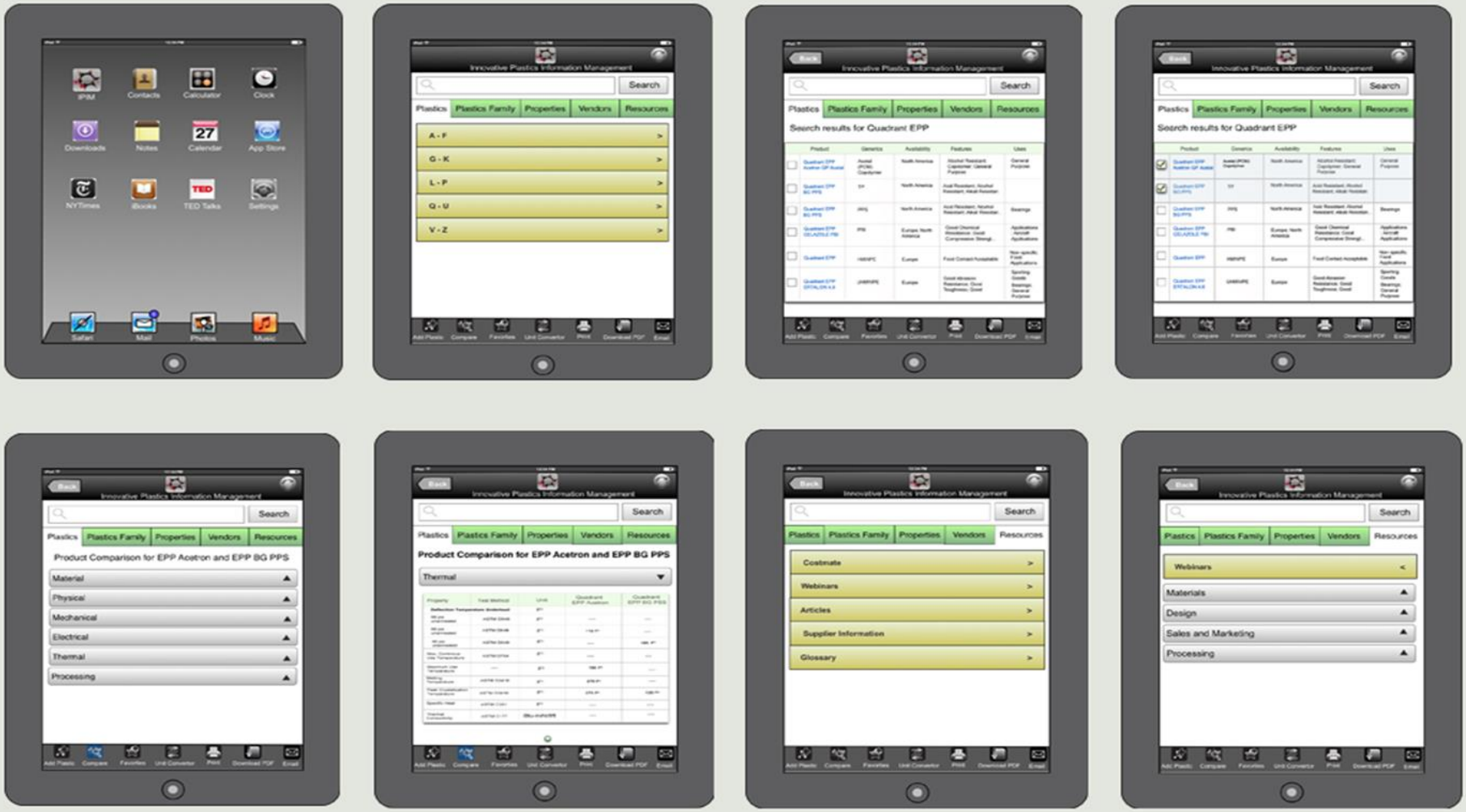
High-Fidelity Prototypes

- These prototypes look very much like the final product
- Use a software tool: Adobe Director or Flash, Visual Basic or Smalltalk, InVision, etc.
- Software prototype tools are also often qualified development environments
- Advantages:
  - High-fidelity prototypes offer more realistic interactions than low-fidelity
  - Better at conveying the range of design possibilities
  - User-driven

High-Fidelity Prototypes

- Disadvantage:
  - More time-consuming to produce than low-fidelity prototyping and requires skill
  - May make designers reluctant to change designs and less likely to fully explore the design space
  - Reviewers and testers tend to comment on surface aspects rather than content

Examples



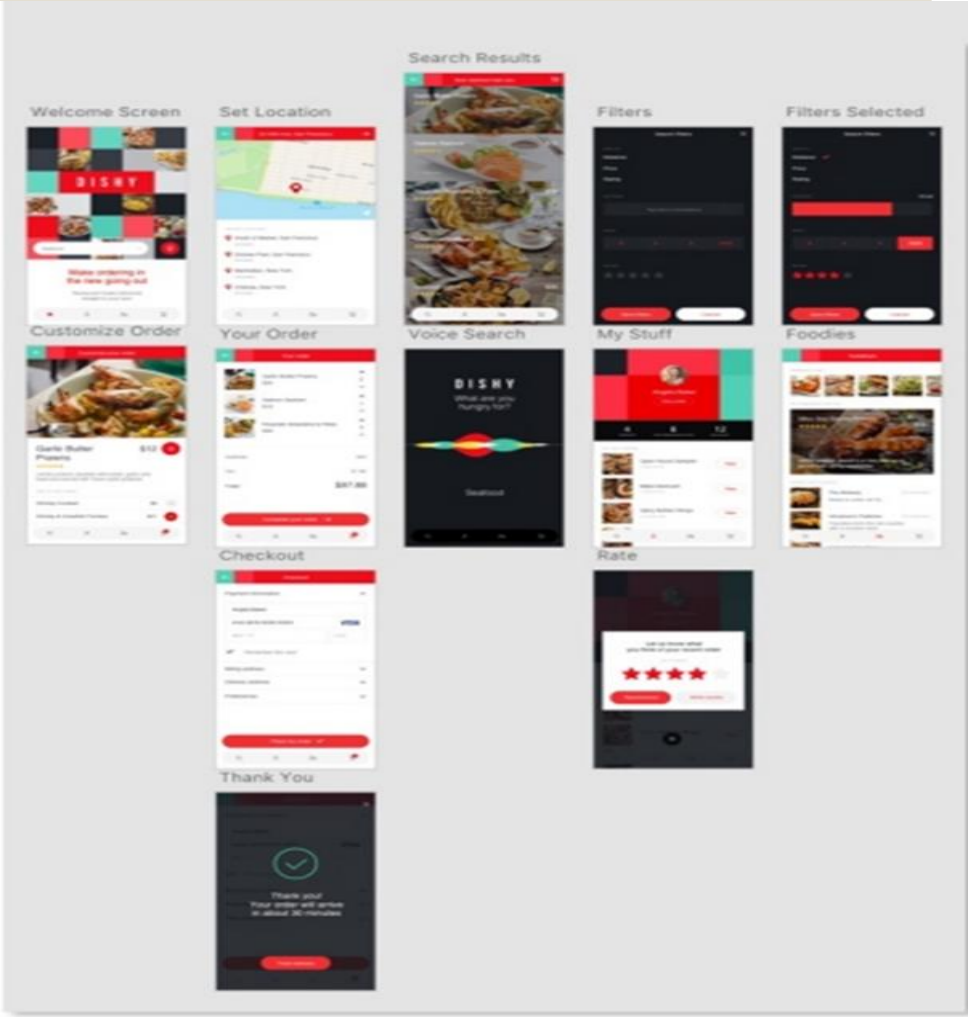
iPad high fidelity wireframe done in Omni Graffle

Examples


PARIS
31°
H:31°
T: 24°
PARTLY CLOUDY
56%
19 km/h
SW
TUE WED THU FRI SAT SUN
31° 28° 26° 23° 24° 20°
Messages
Sit voluptatem acc usantium doloremque lauda ntium.
10:25AM, Dec 23
Luptatem acc usantium dolore?
10:25AM, Dec 23
Perspiciatis unde omnis iste natus error sit voluptatem acc usantium doloremque lauda ntium, totam rem aperiam, eaque ipsa quae ab illo.
10:25AM, Dec 23
Name Surname
Profile
Locations
Messages 17
Favourites
Settings
Sign Out
Sort by filter
Date
Popularity
Price
Downloads
Login to your Account
Username
Password
Keep me logged in
LOGIN
MAY 2014
SUN MON TUE WED THU FRI SAT
1 2 3 4 5 6 7
8 9 10 11 12 13 14
15 16 17 18 19 20 21
22 23 24 25 26 27 28
29 30 31
58
120
On
Off

From Low to High Fidelity

From Low to High Fidelity

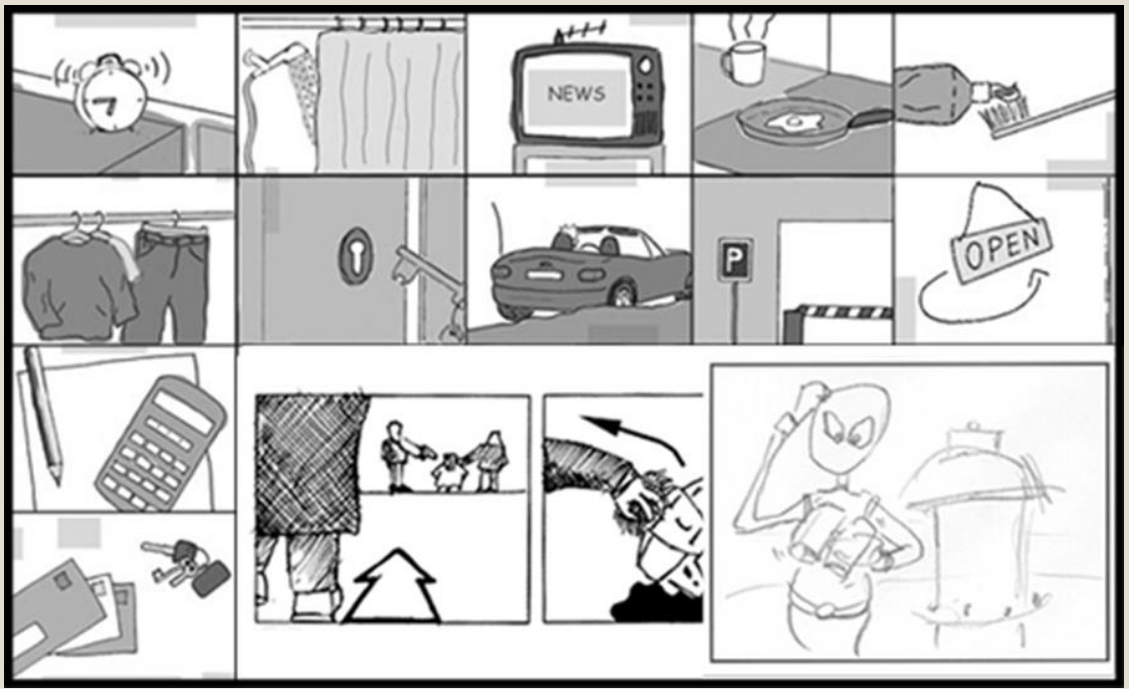


Low fidelity

High fidelity

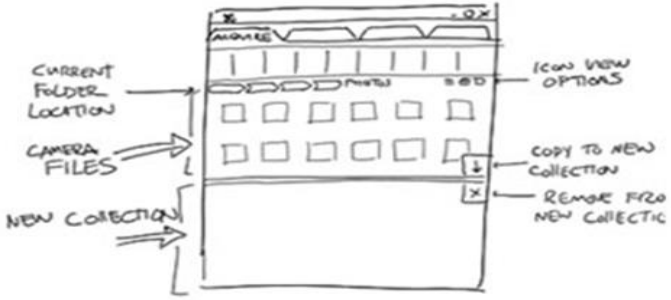
Storyboards

- Once prototypes are complete, storyboards can then be created
- A **storyboard** is a sequence of drawings, typically with some directions and dialogue, representing the shots planned for interface interactions, a movie or television production



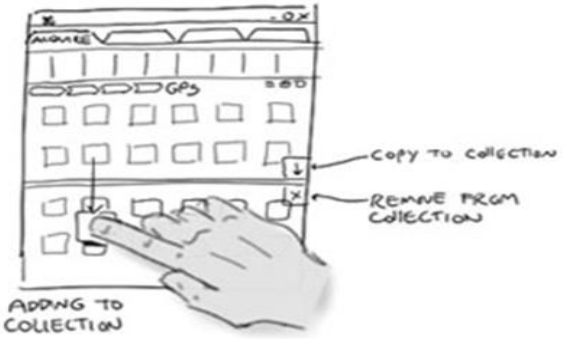
Examples

CREATE NEW COLLECTION

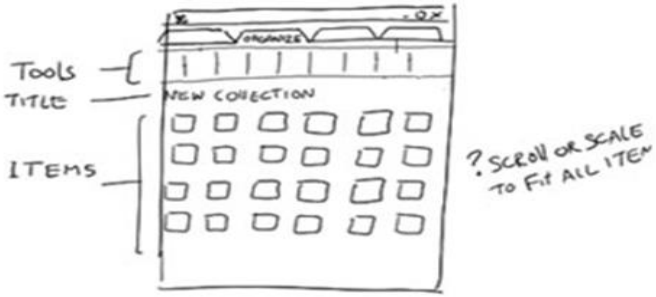


1 - DOWNLOAD FROM CAMERA

OR - RETRIEVE PHOTOS FROM DEFAULT CAMERA LOCATION



SELECT DATA FILES

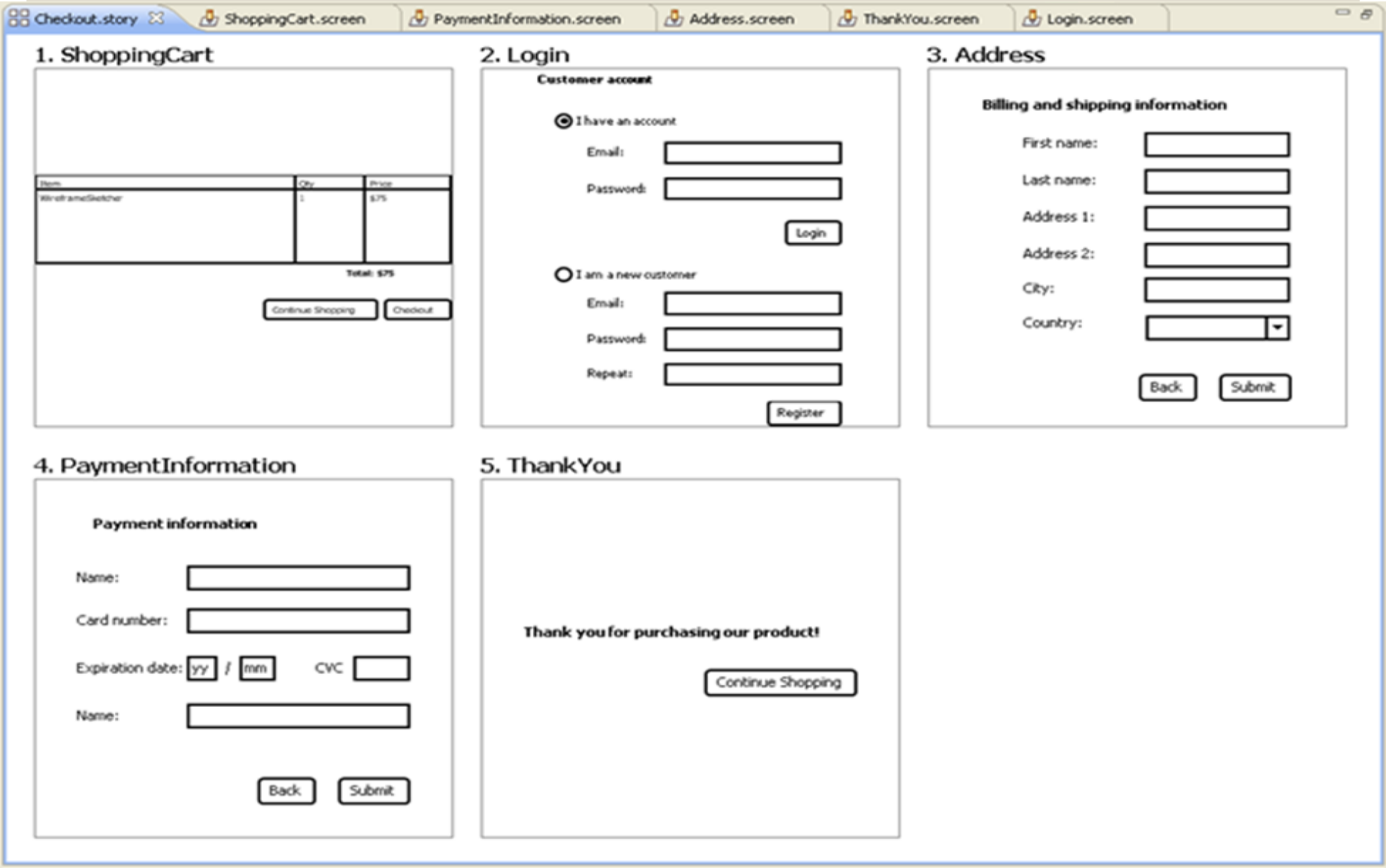


"ORGANIZE" HOME SCREEN

SELECT FACE TO SORT BY

EDIT LAYOUT OF COLLECTION

Examples


Checkout.story
ShoppingCart.screen
PaymentInformation.screen
Address.screen
ThankYou.screen
Login.screen
1. ShoppingCart
Item
Qty
Price
WireframeSketcher
1
$75
Total: $75
Continue Shopping
Checkout
2. Login
Customer account
I have an account
Email:
Password:
Login
I am a new customer
Email:
Password:
Repeat:
Register
3. Address
Billing and shipping information
First name:
Last name:
Address 1:
Address 2:
City:
Country:
Back
Submit
4. PaymentInformation
Payment information
Name:
Card number:
Expiration date:
yy
/
mm
CVC
Name:
Back
Submit
5. ThankYou
Thank you for purchasing our product!
Continue Shopping

Reading Assignment

- What are the advantages of using storyboards during user interface design?
- Create a short storyboard for the users of your interfaces

Prototyping Techniques

- The main techniques include:
  - Paper and Pencil
  - Mock-Ups
  - Wizard of Oz
  - Video Prototyping
  - Script-driven prototyping
  - Visual programming
  - Internet-based prototyping

Prototyping Techniques

Paper and Pencil

- The fastest form of prototyping involves paper, transparencies, and post-it notes(stickies) to represent aspects of an interactive system
- Designers work through scenarios using sketches of the interface
- They use a storyboard to present a series of interactions with the system
- Paper prototyping is an effective way of getting user reactions to a design proposal

Prototyping Techniques

Mock-Ups

- A mockup is a static high-profile visual design draft of a design or device, used to represent the structure of information, visualize the content and demonstrate the basic functionalities in a static way
- It is can also be used for teaching, design evaluation, and promotion of a product to clients
- A mockup is a prototype if it provides at least part of the functionality of a system and enables testing of a design
- Mock-ups are useful for interactive system designers, helping them move beyond two-dimensional images drawn on paper or transparencies

Prototyping Techniques

Reading Assignment:

- What is a wireframe?
- What is the difference between wireframes and mockups?

Prototyping Techniques

Wizard of Oz

- It is a method used in rapid product development to improve the user experience
- The designers develop a rudimentary model of the system and the designers use role playing to test how end users will interact with the system
- The users are usually under the impression that they are working with a real system, even before it exists
- The users believe that the system that they are interacting with is autonomous, but it is actually operated or partially operated by the designer who is hidden from view
- This technique enables unimplemented technology to be evaluated by using a human(designer) to simulate the response of a system

Prototyping Techniques

Video Prototyping

- Video prototypes use video to illustrate how users will interact with the new system
- The goal is to refine a single design
- Video prototypes may build on paper-and-pencil prototypes and cardboard mock-ups and can also use existing software and images of real-world settings

Prototyping Techniques

Script-driven prototyping

- Develop a set of scripts and screens using a tool such as Adobe Director. When the user interacts with these, the screen changes to the next display

Visual programming

- Use a language designed for rapid development such as Visual Basic

Internet-based prototyping

- Use a web browser and associated scripts

Prototyping Techniques

Reading Assignment

- What other techniques are currently in use?
- Download balsamiq and practise using it
- What prototyping technique does balsamiq apply?
- Define the following:
  - Throw-away prototyping
  - Evolutionary prototyping
  - Operational prototyping

Prototyping Perspectives

- There are two prototyping perspectives
  - Non interactive Simulations
  - Interactive Simulations

Non Interactive Simulations

- A non interactive simulation is a computer-generated animation that represents what a person would see of the system if he or she were watching over the user's shoulder
- Non interactive simulations are usually created when offline prototypes, including video, fail to capture a particular aspect of the interaction, and it is important to have a quick prototype to evaluate the idea
- It is usually best to start by creating a storyboard to describe the animation, especially if the developer of the prototype is not a member of the design team

Interactive Simulations

- Designers can also use tools such as Adobe Photoshop to create Wizard-of-Oz simulations
- For example, the effect of dragging an icon with the mouse can be obtained by placing the icon of a file in one layer and the icon of the cursor in another layer and by moving either or both layers
- The visibility of layers, as well as other attributes, can also create more complex effects