



# Informatics 43

## LECTURE 12

“HOW DO WE MAKE SOFTWARE THAT MEETS THE  
USER’S NEEDS? (PART 2)”

# Last Time

- We use HCI/UCD methods for good reasons
  - Sales increase
  - Performance increases
  - Traffic counts increase
  - Frustration decreases
- It's all about the user!

# Today's lecture – **How do we make software that meets the user's needs?**

- User-Oriented (User-Centered) Methods
  - Interviews and observations of end users
  - Personas
  - Scenarios
  - Storyboards
  - Wireframes and Mockups
  - Design guidelines
  - Heuristic Evaluation
  - User testing

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# Interviews and observations





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# Personas



## *The Greenhorn*

JOHN



### *Profile*

- Probably the single biggest segment of mobile users.
- Want simple: turn on their mobile, dial a number and talk to their intended party.
- Don't care about anything other than the mobile being able to be used as a phone, and possibly contacts.

I didn't get my first phone until 2001. My daughter bought it for me. I didn't feel it was necessary but since then, I have it with me all the time and use it more than my home phone.

## *The Casual User*

EMILY



### *Profile*

- Take advantage of most phones features, but not all.
- Use the phone to make calls, use the contacts, send text messages, and take pictures.
- Their mobile is always with them.

My phone has to look cool. I personalize it with decals, charms, and ring tones. I talk on it everywhere, so my phone style is everything. Of course, it has to work too. I usually talk on the phone, but recently started taking pictures and recording video. My phone is my favorite accessory.

## *The Texter*

AKIKO



### *Profile*

- Texting is far more popular than calling.
- Will send and receive thousands of text messages per month.
- Rarely use their phones for calling.
- Want a clean texting interface with the fastest possible input.

I prefer texting than calling because it's more fun and creative. My friends and I probably text each other around 40 times a day. We'll even text to order food. It's far more interesting and less intrusive. I don't have to worry about disturbing people on the train with my talking. I love it.

## *The Business User*

STEPHAN



### *Profile*

- Wants a phone that is simple, but functions as an integrated smart device.
- Want to read email and call back the sender with the least amount of effort.
- Needs "Popular" mail server integration, including Blackberry and Exchange.

My mobi is my life. Without it my business would suffer. I take conference calls while driving down the M25. If someone text me, I need to ring them without taking my eyes off the road. And since I use my mobi everywhere, it needs to be durable. The last thing I need is for it to break after one drop.

## *The Power User*

ROBERTO



### *Profile*

- Will use almost all of the built-in functionality.
- Will also extend their phones functionality with additional software.
- Will flip through every menu options and changing settings.

I'm addicted to new toys. I get the latest gadgets as soon as they arrive on the market. I upgrade my phone every 6 months. I guess you can say this is almost a sport for me. Or an addiction? I just love to explore the latest and how it can make life fun.

## *The Hacker*

RICKY



### *Profile*

- Care more about customization.
- Want to make changes to every aspect of the phone.
- Belong to mailing lists and forums about hacking the phone.
- Contribute to the open source community.

As soon as I found out about an open source phone, I jumped on it. I created two apps for the phone and am working on the texting solution. I probably should spend more time at my day job, but this is far more fun. Of course, I use my phone for calls and texting too.



## Blake

Age	27
Gender	Male
Marital Status	Single
Children	None
Degree	Bachelors, Software Engineering
Occupation	Programmer

# MyFlix Content Consumer

*"I'm so excited that a new independent theater opened up, I'm going to tweet my friends about it."*

**Blake is a Sci-Fi buff and also likes independent and edgy films and TV shows. He usually follows a few shows with his close friends and they talk about the shows with quotes on social media.**

### Goals

- Keep in touch with his like minded friends
- Discover new interesting content
- Share his particular opinions

### Tasks

- Watches unique shows with friends
- Shares opinions and quips on social media
- Works at a software company

### Technical Skill

Blake has been knowledgeable about technology since he was a kid, and as a programmer keeps on top of the latest trends. He is very familiar with how apps typically work and uses several gadgets.

### Environment

Blake likes to use his iPhone during his commute and watch TV in his apartment. He has a latest generation "smart" TV and is nearly always on the computer at either home or work.





## Carrie

Age	33
Gender	Female
Marital Status	Single
Children	None
Degree	Bachelors, Communications
Occupation	Episode Distribution Coordinator at RGR Studios

## MyFlix Application Administrator

*"When those episodes are approved, I need the files ASAP so I can upload them to the site!"*

Carrie works as an application administrator at a movie studio's corporate office, overseeing customer's interacting with their website. She is detail and task oriented and likes to get her work done efficiently.

### Goals

- Upload content in a timely fashion
- Move up the ranks at her job
- Quickly solve customer problems

### Tasks

- Upload approved video files to the application
- Understand how popular certain content is
- Trouble shoot customer issues

# Personas for Dolendar...



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# Scenario 1: Joining MyFlix

*While Blake is searching the Internet to find out if there are any local theaters playing a newly released independent film, he finds the profile page for the film which is also released on MyFlix. Excited that he can watch it and similar films in the comfort of his apartment, he creates an account and begins paying the regular monthly fee. He accesses his account from his TV's browser and is able to stream the movie.*

Source: [https://launchschool.com/books/agile\\_planning/read/myflix\\_scenarios](https://launchschool.com/books/agile_planning/read/myflix_scenarios)



# Scenario 2: Discovering Content

*Blake has some pretty specific tastes in films and TV shows. At work he browses through various categories on the MyFlix website and reads the reviews on some films in the categories he likes. Reading several summaries and recommendations that match his preferences, he adds these films to his ever growing queue, so later he can quickly pick something to watch.*

Source: [https://launchschool.com/books/agile\\_planning/read/myflix\\_scenarios](https://launchschool.com/books/agile_planning/read/myflix_scenarios)

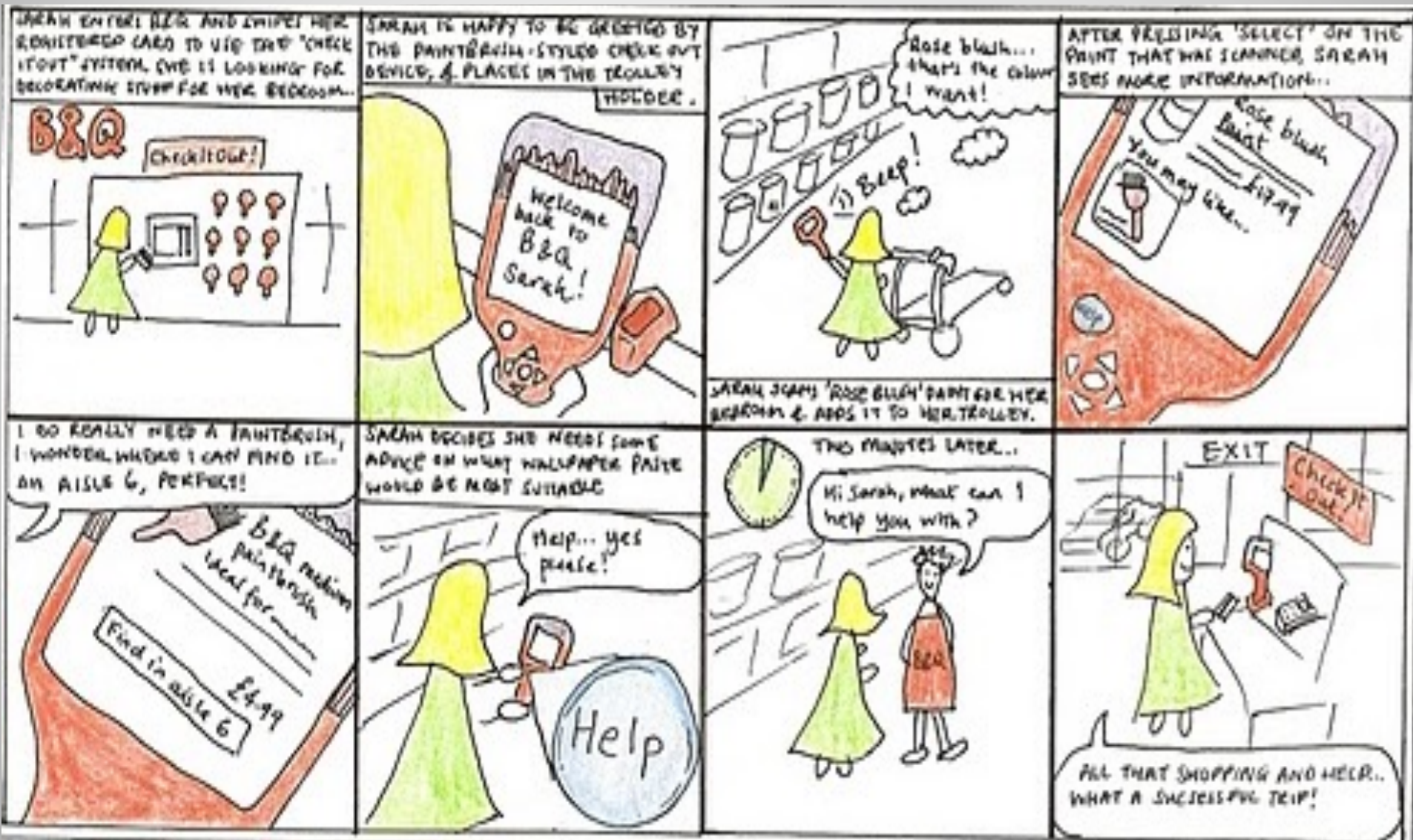
# Scenario for Dolendar...



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# Storyboards



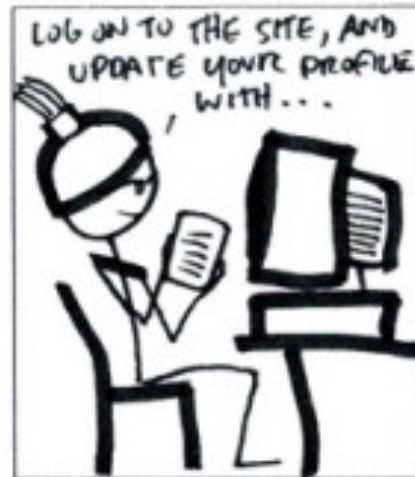




MATT GREETED TED AND DESCRIBES THE DEVICE; TED IS A LITTLE NERVOUS



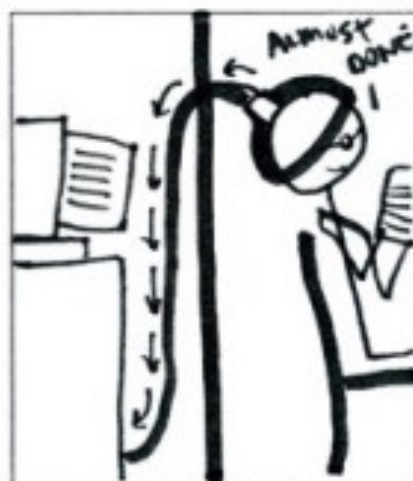
TED PUTS THE DEVICE ON HIS HEAD, HE MAKES A JOKE TO RELAX



TED READS THE TASK OUT LOUD AS HE SITS IN FRONT OF THE COMPUTER



TED "TALKS OUT LOUD" AS HE COMPLETES THE TASK



THE DEVICE SENDS SIGNALS BEHIND THE GLASS.



MATT READS THE INCOMING DATA; HE IS OVERWHELMED BY THE AMOUNT



MATT THANKS TED FOR COMING IN; TED IS RELEASED



MATT REALIZES HOW MUCH DATA HE NOW HAS TO ANALYZE.



Without Activity System Activity

System Page gets updated from all workstations. User has priority assigned.

Will Sys Page work the Order?

System Page Shows Recent Issues

Reliable system to monitor the status of the system. System shows status. System displays list of issues.

System Page Shows Issue/Alert

System shows status. System displays list of issues. System shows status. System displays list of issues.

System Page Shows Alert

System shows status. System displays list of issues. System shows status. System displays list of issues.

System Page Shows Alert

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System Page Shows Alert

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System Page Shows Alert

System shows status. System displays list of issues. System shows status. System displays list of issues.

You take control

System shows status. System displays list of issues. System shows status. System displays list of issues.

You take control

System shows status. System displays list of issues. System shows status. System displays list of issues.

You take control

System shows status. System displays list of issues. System shows status. System displays list of issues.

You take control

System shows status. System displays list of issues. System shows status. System displays list of issues.

CLOSE ISSUE

System shows status. System displays list of issues. System shows status. System displays list of issues.

CLOSE ISSUE

System shows status. System displays list of issues. System shows status. System displays list of issues.

CLOSE ISSUE

System shows status. System displays list of issues. System shows status. System displays list of issues.

CLOSE ISSUE

System shows status. System displays list of issues. System shows status. System displays list of issues.

What if no NO in the System Page?

What if no NO in the System Page?

What if no NO in the System Page?

What if no NO in the System Page?

Defaults to people ending issue + management

System returns to resting state

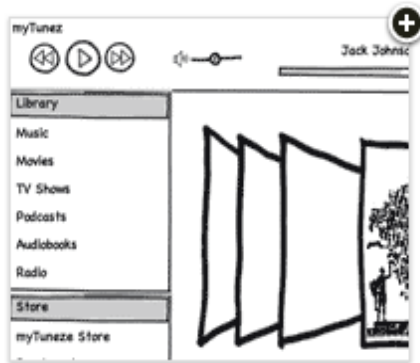
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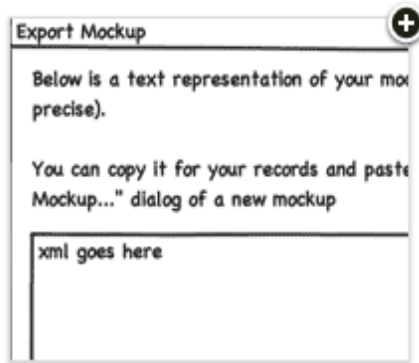


# Mockups/Wireframes

See what you can build with Balsamiq Mockups #



Desktop Apps



Dialogs



Web Sites



Web Sites



Web Sites



Web Sites



iPhone Apps



Rich Internet Applications



[Browse Movies](#)[Read Reviews](#)[Sign Up](#)[Home](#) > [Horror](#) > [New Releases](#) > Zombie Romance

# Zombie Romance

Released in 2014

This is a tale of horror and love, two teenagers find meaning through their encounter with zombies.

[Cast and Crew](#)[Sign Up to Watch](#)

## Similar Movies On MyFlix



# More info about personas, scenarios, storyboards, and mockups

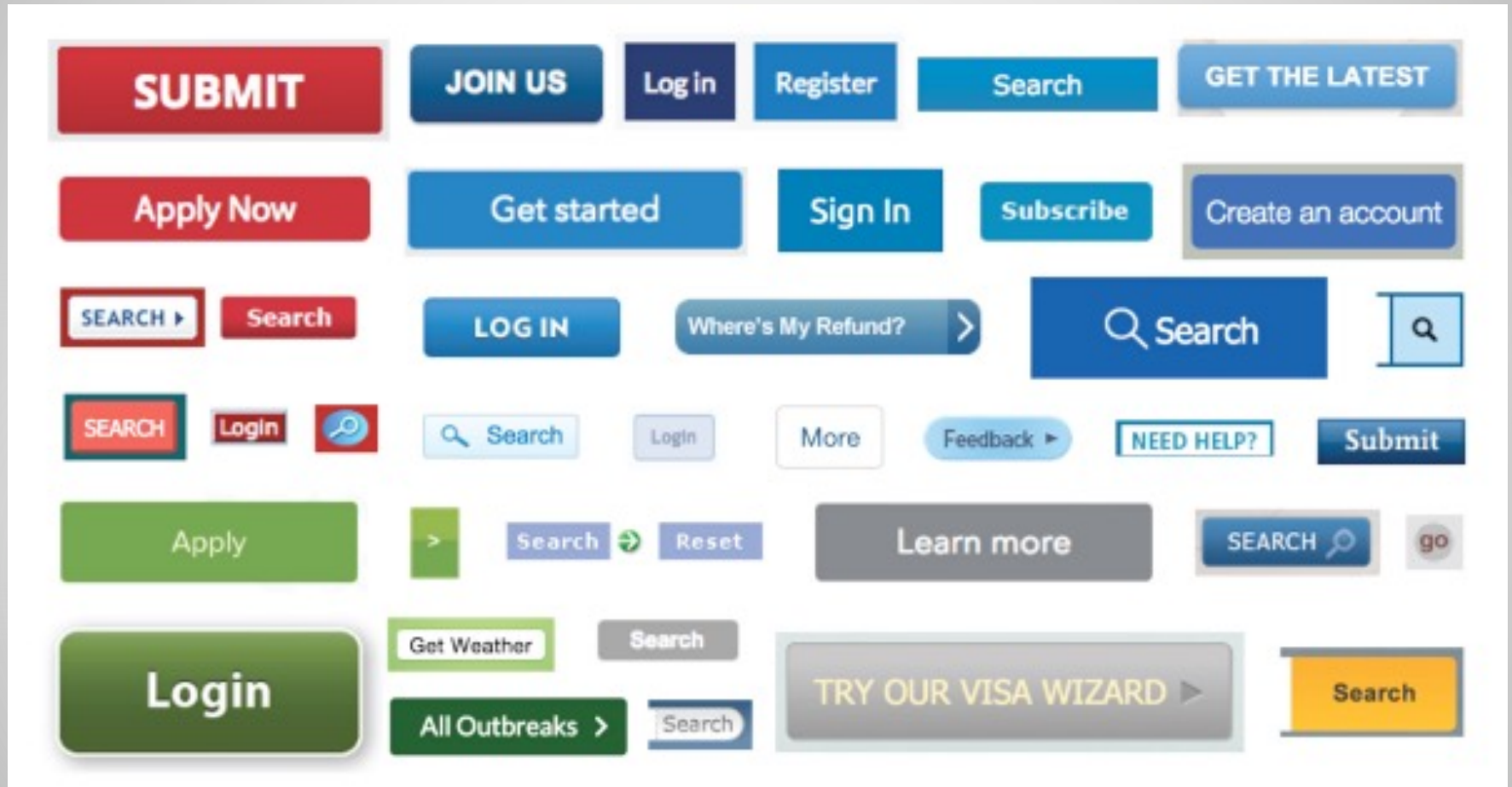
[https://launchschool.com/books/agile\\_planning/read/introduction](https://launchschool.com/books/agile_planning/read/introduction)

- "The Planning Process"
- "A Cohesive Example"

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# Design Guidelines - Before






# Design Guidelines - After



Source: <https://medium.com/@USDigitalService/introducing-u-s-web-design-standards-aff21383afd6#.lk46cpatp>

# Design Guidelines – Color Palette

 An official website of the United States Government

This site is currently in alpha. [Learn more.](#)

## U.S. Web Design Standards

[Download code](#)[View on GitHub](#)

Getting started

Visual style

Typography

Typefaces

Pairings and styles

Typesetting

Links

Lists

Colors

Palette






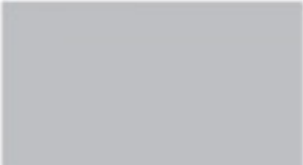

Text accessibility

Grid

Buttons

### Primary colors

This palette's primary colors are blue, gray and white. Blue is commonly associated with trust, confidence, and sincerity; it is also used to represent calmness and responsibility.

			
<b>#0071bc</b> primary	<b>#205493</b> primary-darker	<b>#112e51</b> primary-darkest	<b>#212121</b> base
			

Source: <https://medium.com/@USDigitalService/introducing-u-s-web-design-standards-aff21383afd6#.lk46cpatp>

# Design Guidelines - Wireframe



## Password Reset wireframe: Form field configurations

### Reset Password

Please enter your new password.

New Password

Confirm Password

Show My Typing

3.0

Reset Password

4.0

#### Passwords must:

1.0

- ☒ Be at least 8 characters
- ☒ Have at least 1 uppercase character
- ☐ Have at least 1 numerical character
- ☐ Another requirement

2.0

1.0

**Show password requirements up front.** Let users know what they need to include in their passwords to help them avoid getting slapped with errors after the fact.

2.0

**Show progress towards creating a valid password.** Show users their progress towards creating a valid password by checking off the requirements they meet as they type. E.g. Once a user types at least 8 characters into the top field, a checkmark appears next to the first line. (This box can also work for informational purposes if interactivity is unavailable).

3.0

**Show typing.** Allowing users to show their typing will support memory and allow users to check their work. It will also reveal typos. Clicking "Show My Typing" will turn off masking in both fields.

4.0


**Disable until valid.** Disabling the submit button until the form is valid helps prevent error states.

#### References

**1. Password Creation: 3 Ways To Make It Easier** <http://www.nngroup.com/articles/password-creation/>

**2. Security & Human Factors** <http://www.nngroup.com/articles/security-and-human-factors/>

# Design Guidelines - Code

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## U.S. Web Design Standards

[Download code](#)[View on GitHub](#)[Getting started](#)[Visual style](#)[Grid](#)[Buttons](#)[Labels](#)[Tables](#)[Alerts](#)[Accordions](#)[Form controls](#)[Text inputs and area](#)[Dropdown](#)[Checkboxes](#)[Radio buttons](#)

### Code

```
<label for="input-type-text">Text input label</label>
<input id="input-type-text" name="input-type-text" type="text">

<label for="input-focus">Text input focused</label>
<input class="usa-input-focus" id="input-focus" name="input-focus" type="text">

<div class="usa-input-error">
  <label class="usa-input-error-label" for="input-error">Text input error</label>
  <span class="usa-input-error-message" id="input-error-message" role="alert">Helpful error message</span>
  <input id="input-error" name="input-error" type="text" aria-describedby="input-error-message">
</div>

<label for="input-success">Text input success</label>
<input class="usa-input-success" id="input-success" name="input-success" type="text">

<label for="input-type-textarea">Text area label</label>
<textarea id="input-type-textarea" name="input-type-textarea"></textarea>
```

### Documentation

Source: <https://medium.com/@USDigitalService/introducing-u-s-web-design-standards-aff21383afd6#.lk46cpatp>



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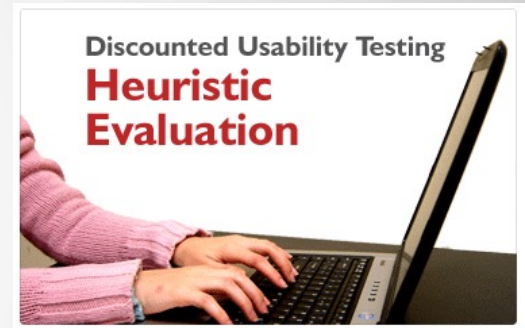
# Heuristic Evaluation



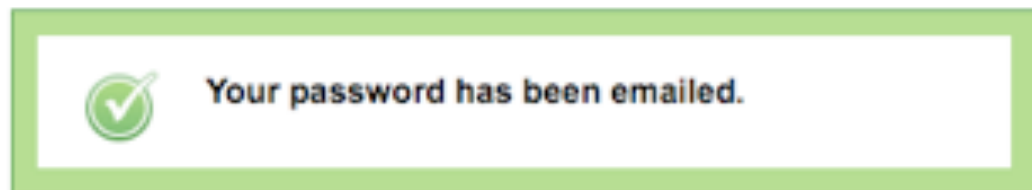
- Using principles based on research to evaluate and improve the usability of a system
- Process:
  - Select tasks
  - Someone plays the user
  - Evaluators focus on an aspect
  - Someone takes notes

# Heuristic Evaluation (Nielsen)

- Visibility of system status
- Match system words to the real world
- User control and freedom
- Consistency and standards
- Error prevention
- Recognition rather than recall
- Accelerators
- Minimalist design
- Help users recognize and recover from errors
- Help and documentation



# Visibility of System Status

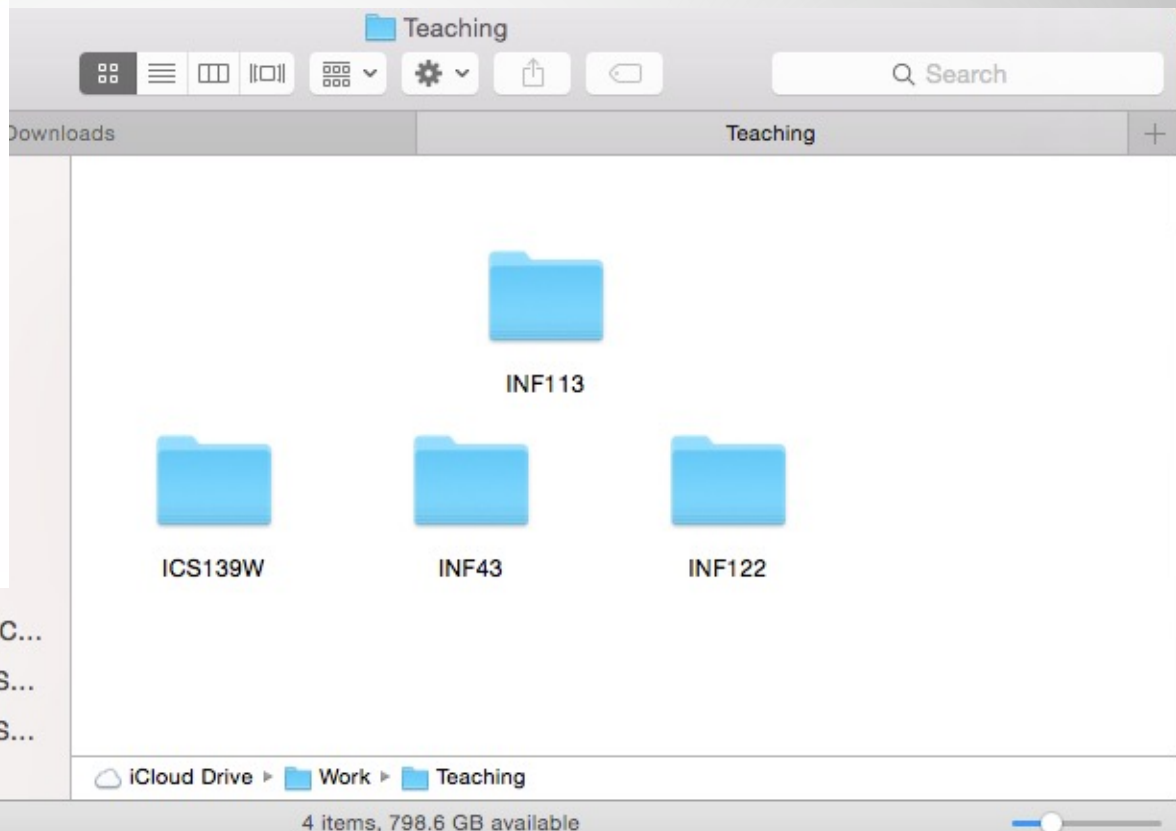
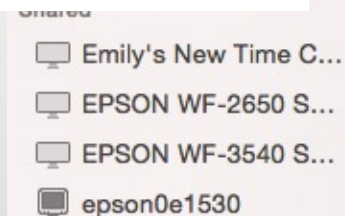


Theresa Neil sign in

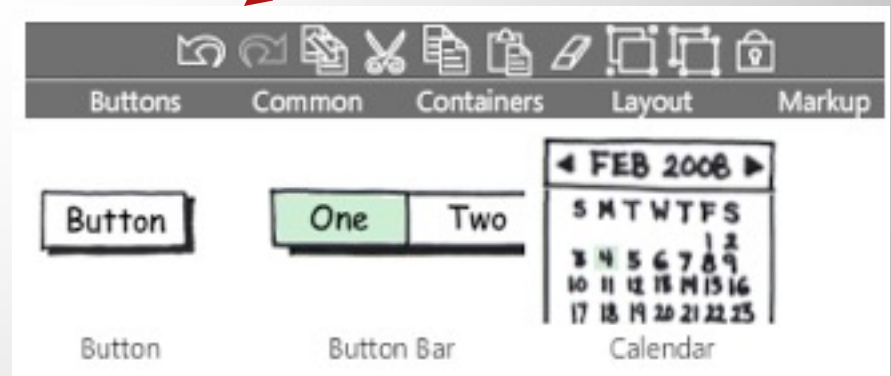
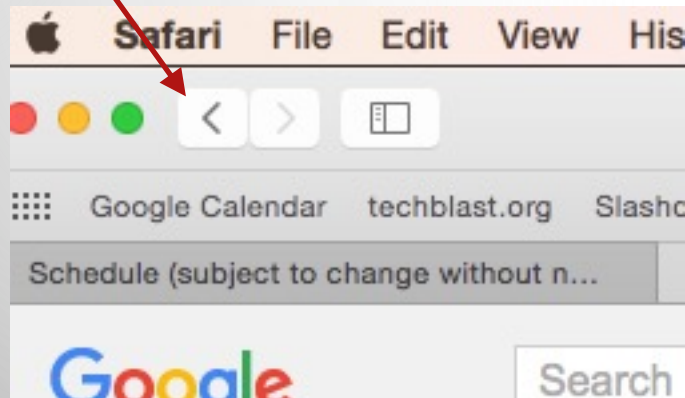
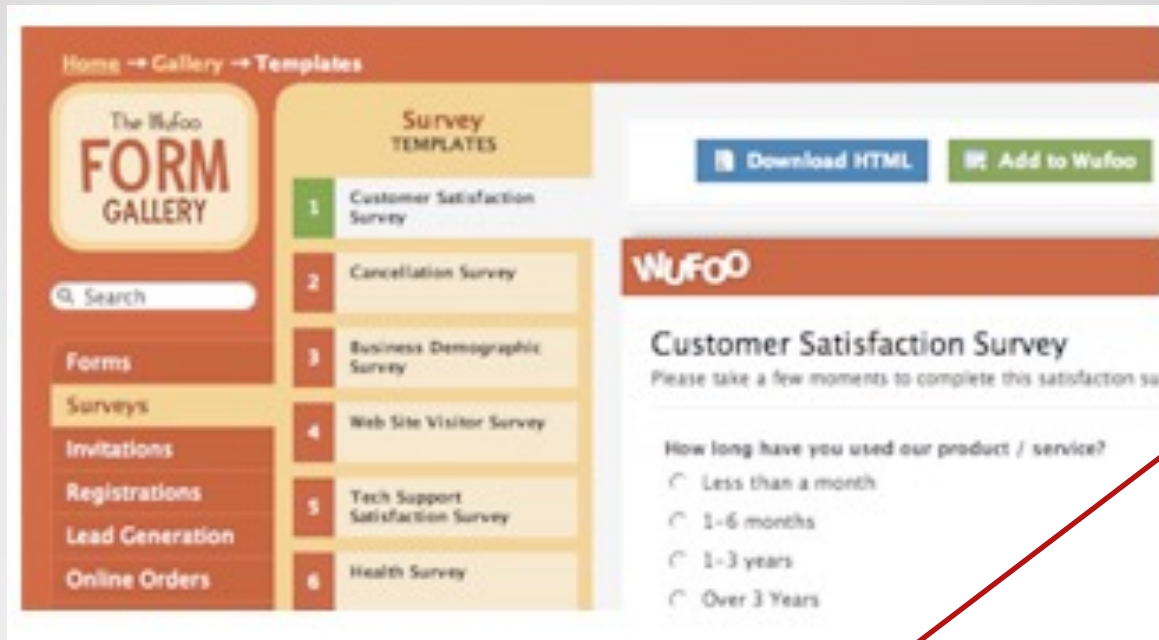
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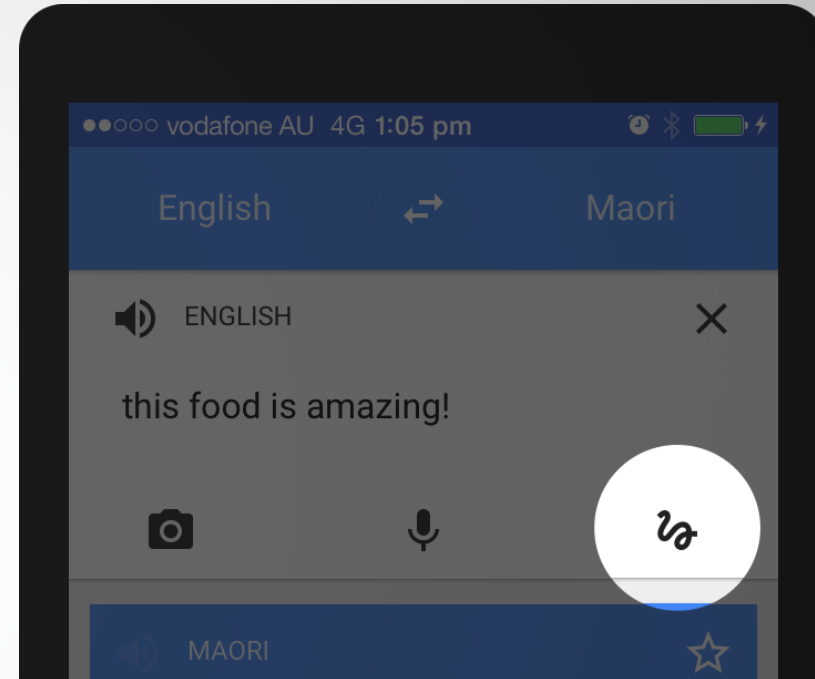
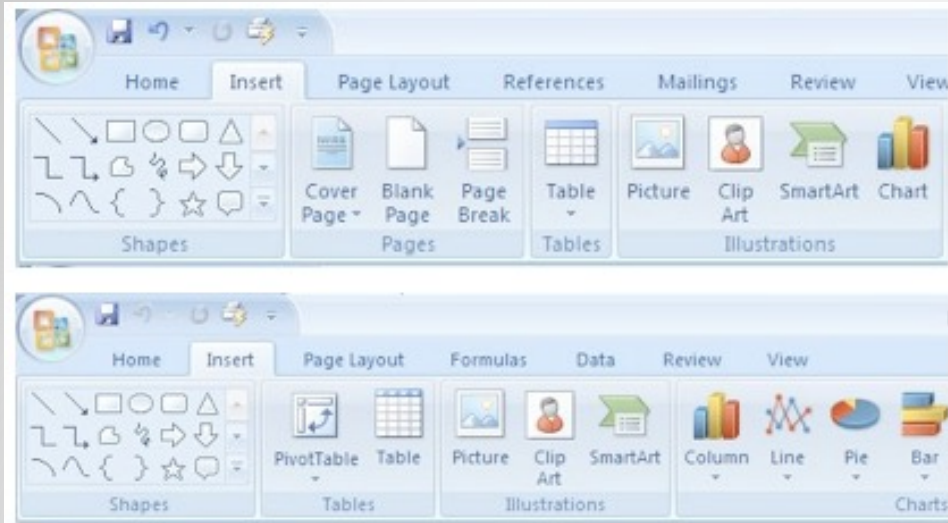
# Match Between System and Real World



# User Control and Freedom



# Consistency and Standards



# Error Prevention

Share something with Usabilitypost:

  
[Attach file](#) 

**Do you want to save the changes made to the document "Lecture7-1"?**

Your changes will be lost if you don't save them.

"A GUI should provide GUIDance!"

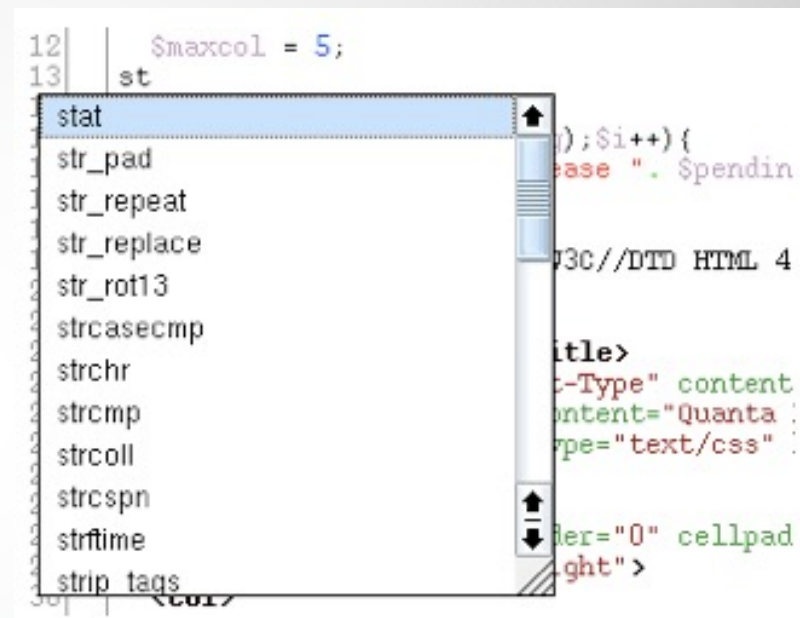
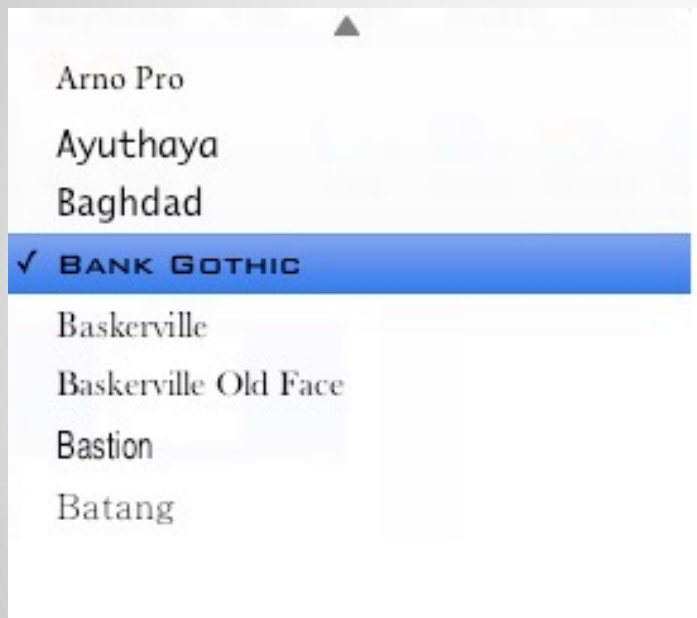
[Cancel](#)

PRIMARY ACTION

SECONDARY ACTION



# Recognition Rather than Recall



# Accelerators

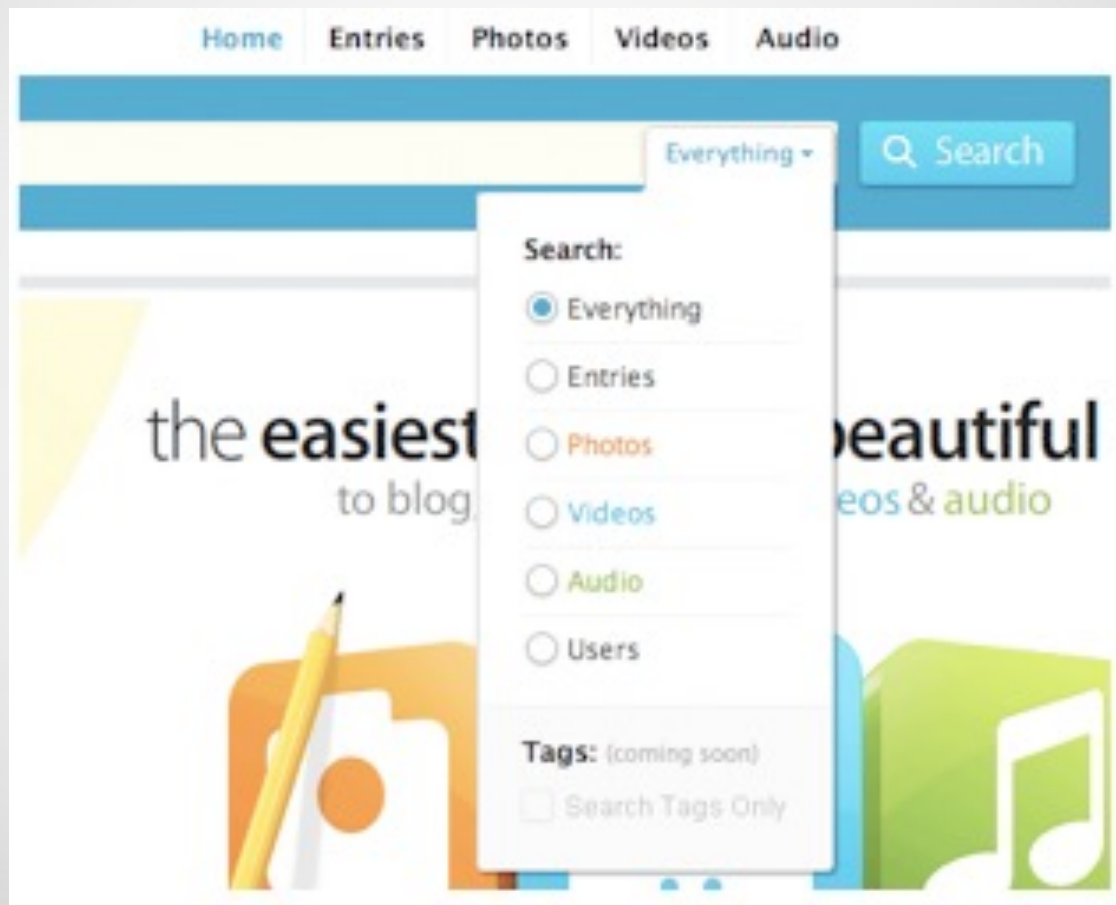
## Common Shortcuts

Add Action	<b>Return</b>
New Window	<b>⌘N</b>
Synchronize with Server	<b>^⌘S</b>
Clean Up	<b>⌘K</b>
Planning Mode	<b>⌘1</b>
Context Mode	<b>⌘2</b>
Inbox	<b>⌘⇧1</b>
Quick Entry	<b>^⌘Space</b>

*Quick Entry's shortcut can be customized in Preferences*

# Minimalist Design

Principles: contrast, repetition, alignment, and proximity.



# Help Users Recognize/Recover from Errors

## Or start a new account

Choose a username (no spaces)

bert

⚠ bert is already taken. Please choose a different username.

Choose a password

\*\*\*

⚠ Passwords must be at least 6 characters and can only contain letters and numbers.

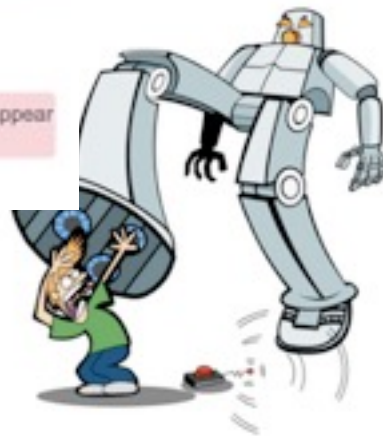
Retype password

Email address (must be real!)

not an email

⚠ The email provided does not appear to be valid

☒ Send me occasional Digg updates.



## Oh no!

It seems the page you were trying to find on my site isn't around anymore (or at least around here).

[Report it missing using my contact form](#) and I'll see what I can do about it.

Whilst your here why not check out my [articles listing](#) or [browse my blog](#)? You never know - you may just



# Help and Documentation



# Attendance Quiz



## **Usability Fail/Success, part 2**



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# User Testing



[https://www.youtube.com/watch?v=dNbh21-G\\_cQ](https://www.youtube.com/watch?v=dNbh21-G_cQ)



# User Testing

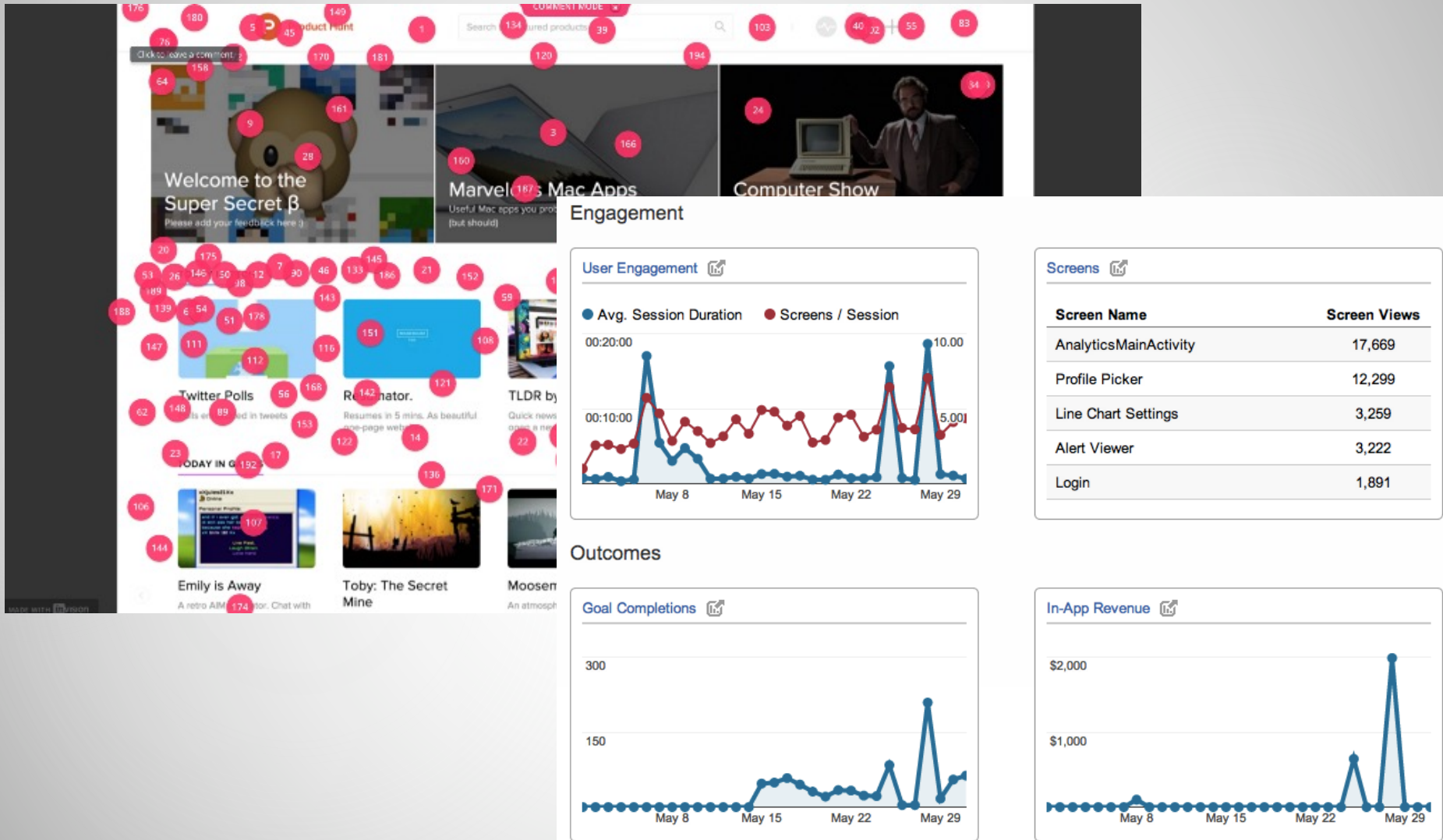


- Improve designs and interfaces before showing to users!
  - Checklists, heuristic evaluation
  - Cognitive walkthrough
- Planning the user testing
  - Subjects
  - The system
  - Tasks
  - The session
  - Measures taken

# User Testing Facilities – Professional Usability Labs



# (Less Formal) User Testing



# If you're interested in UI/UX

<https://www.nngroup.com>



# Summary



- We use HCI/UCD methods...
  - Interviews/observations, personas, scenarios, storyboards, mockups, design guidelines, heuristic evaluation, user testing
- ...for good reasons
  - Sales increase
  - Performance increase
  - Traffic counts increase
- It's all about the user!

# Quiz 5 Study Guide

- User orientation
  - Know and understand the 8 user-centered design methods
  - Know and understand all the Nielsen heuristics
- Main ideas of online readings

# Next Time

- Testing