

No matter how good your backend systems are, the users will only remember your front end. Fail there and you will fail, period.

- **Tristan Louis**, writer about the Internet

# Engineering Good Design & Usability

MIT AITI/CS 172  
July 12, 2012

# What we've seen so far:

1. Python programming language
2. Django web framework
3. Git revision control system
4. Heroku PaaS
5. Android OS

# What we'll cover:

1. Aspects of usability
2. User-centered design
3. Visual design techniques

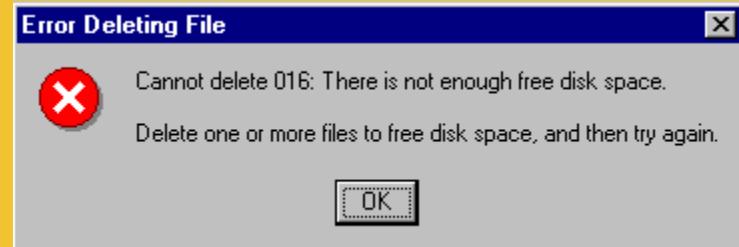
# *UI Hall of Shame*

Admin	Claimants	Crops/Application	Pest	<b>Settlement</b>	Pay To				
<b>Settlement</b>									
Settlement Type: SETTLE NOW WITH A CHECK									
Close Date: 7/9/97 mm/dd/yy									
Desired Payment Date: mm/dd/yy									
Estimated Settlement \$:									
Total Settlement \$:									
Post and Send		Save for Later		1	2	3	4	5	6

# *UI Hall of Shame*



people don't *generally* like  
stupid applications



# What is Design?

In broad terms, design is  
Creating an artifact for a purpose.

What makes good design?

Good design is transparent.

Good design eliminates friction.

Good design is empathetic.

If we want users to like our software  
we should design it to behave like a  
likeable person: respectful, generous  
and helpful.

- **Alan Cooper**

But I'm an engineer,  
not a designer!

Computer science departments have always considered 'user interface' research to be sissy work.

- **Nicholas Negroponte**, Founder and Chairman Emeritus of MIT Media Lab

Design is an extension of  
engineering.

Most software engineering is about  
communicating with other programmers  
who are a lot like you

You are not the user

User Interface design is about  
communicating with users  
they are *usually* not like you

# What is Usability?

# *Usability*

how well users can use system's functionality

# Dimensions of usability

# *Learnability*

is it easy to learn and remember?

# *Efficiency*

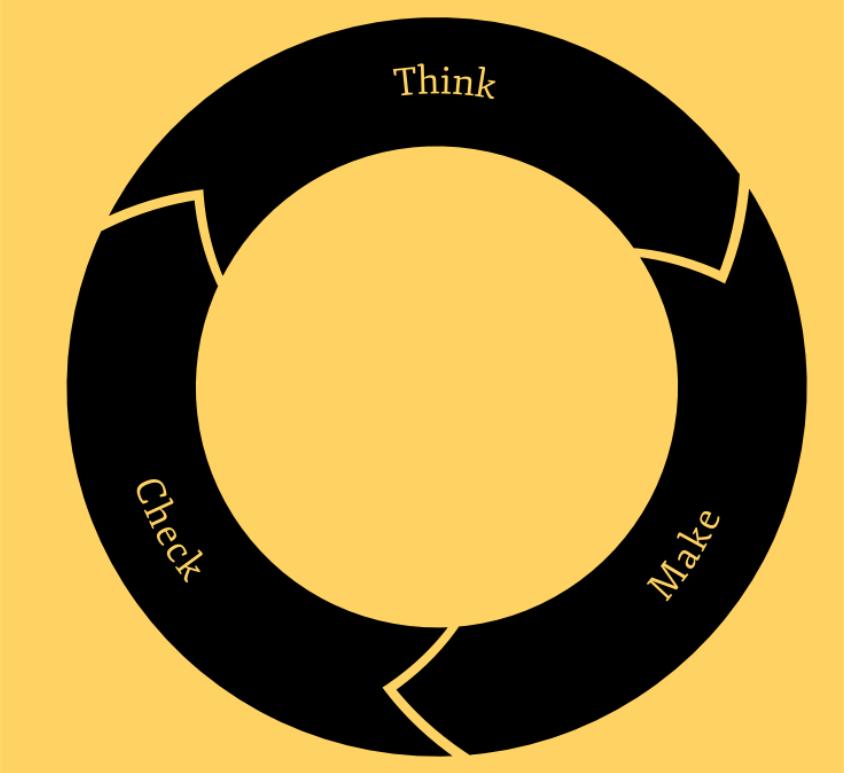
once learned, is it fast to use?

# *Safety*

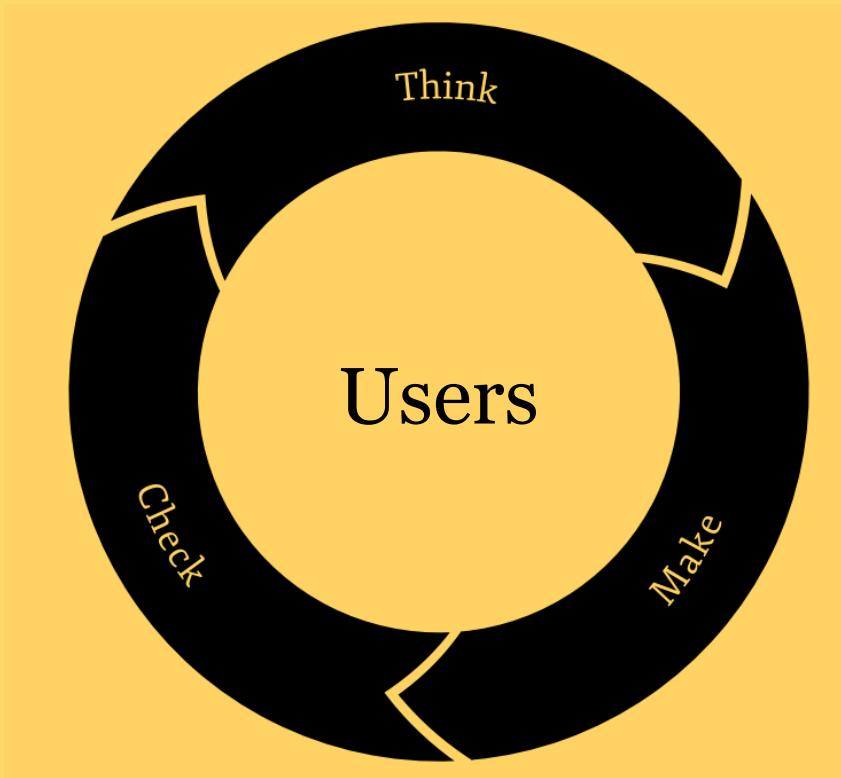
are errors few and recoverable?

So how do I design my project?

# The design process.



# The design process.



Who's going to use my app?

Welcome to Flickr - Photo S

www.flickr.com

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**Upload**  
More ways to get your photos online.  
Multiple ways to upload your photos to Flickr—through the web, your mobile device, email or your favorite photo applications.

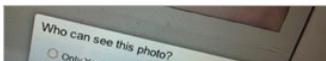
**Discover**  
See what's going on in your world.  
Keep up with your friends and share your stories with comments & notes. Add rich information like tags, locations & people.

**Share**  
Your photos are everywhere you are.  
Upload your photos once to Flickr, then easily and safely share them through Facebook, Twitter, email, blogs and more.

**Sign up now** Free!  
or learn more

It takes less than a minute to create your free account & start sharing!  
  Have a Google or Facebook account? You can use them to sign in!

**Community**  
Flickr is made of people.  


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Your photos are safe with us.  


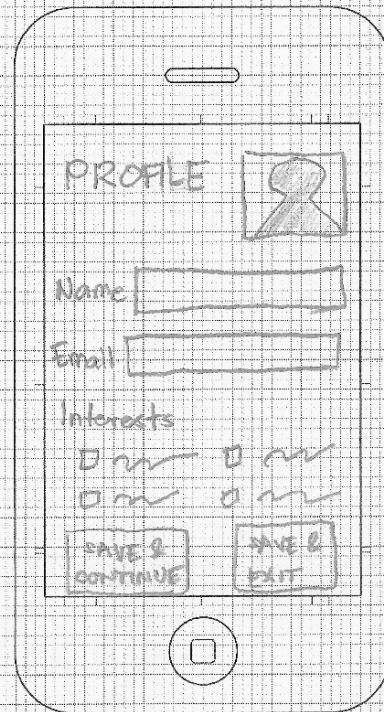
**Flickr on the go**  
Mobile options to keep you going.  


## Potential users

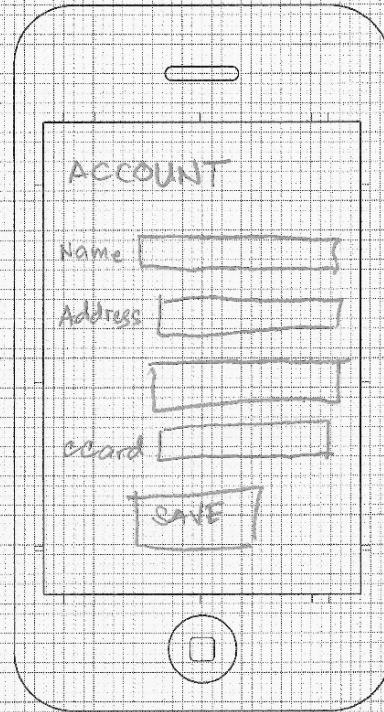
1. Identify *diverse set* of potential users.
2. Even if you are designing this for yourself, if anyone else will use it, talk to them.

# Sketching your design

PROFILE  
PAGE



ACCOUNT  
INFO PAGE



d3: iPhone Application Sketch Template, Version 1.3. Grid squares = 10px.  
Tick marks indicate Status Bar, Nav Bar, Keyboard, Tab Bar, and Toolbar (top to bottom / left to right).

## Paper prototyping

- Use your wireframe sketches as basis
- Use post-its, index cards as interactive interface elements, e.g. buttons drop downs, dialogues, navigation
- A pen works as a pointer device

## Paper prototyping

- To effectively user test, have interactive elements ready for the desired workflow
- If the user wants to do something that you have not sketched, ask the user to sketch what they think it should be

DDT

- DX

## TURBO C7 HEARTS SCORE TRACKER

username password

ASV

Username (email)

scumbag@chu.net

First name

Jon

Last name

chu

Password

.....

Confirm password

.....

Use default game name (Jon C)

Use custom game name [ ]

Start Tracking!

Discovering what works  
and what doesn't

More refined prototypes

# Visual Design

Vision trumps all the senses. Half of the brain's resources are dedicated to seeing and interpreting what we see.

- **Susan Weinschenk**

100 Things Every Designer  
Should Know About People

More on visual design  
next time...