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
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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
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.

Users
Who's going to use my app?
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
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
TURBO C7 HEARTS
SCORE TRACKER

Username ( erad)
First name
Last name
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...