

Design

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computer programs exist
for **our** benefit

Importance of Design

Design can make or break a user's experience

concern of *human-computer interaction*

When a user first encounters a new physical/digital artifact...

can they apply knowledge learned from previous situations?

is it easy/intuitive to use?

does it correctly achieve its goal?

(Bad) Example: Applying Previous Knowledge



(Bad) Example: Applying Previous Knowledge



source: https://brain-images-ssl.cdn.dixons.com/2/9/10151992/l_10151992_001.jpg

Affordances

Affordances indicate to the user possible actions that can be taken
i.e., what the design of the artifact affords

Examples:

handles on mugs/doors/drawers

hyperlinks in text

buttons on elevators/cars/computers

Affordances



The data security solution

Quiver helps organisations to classify, protect and distribute all their data – free whether locally or globally.

> Request a demo

Quiver

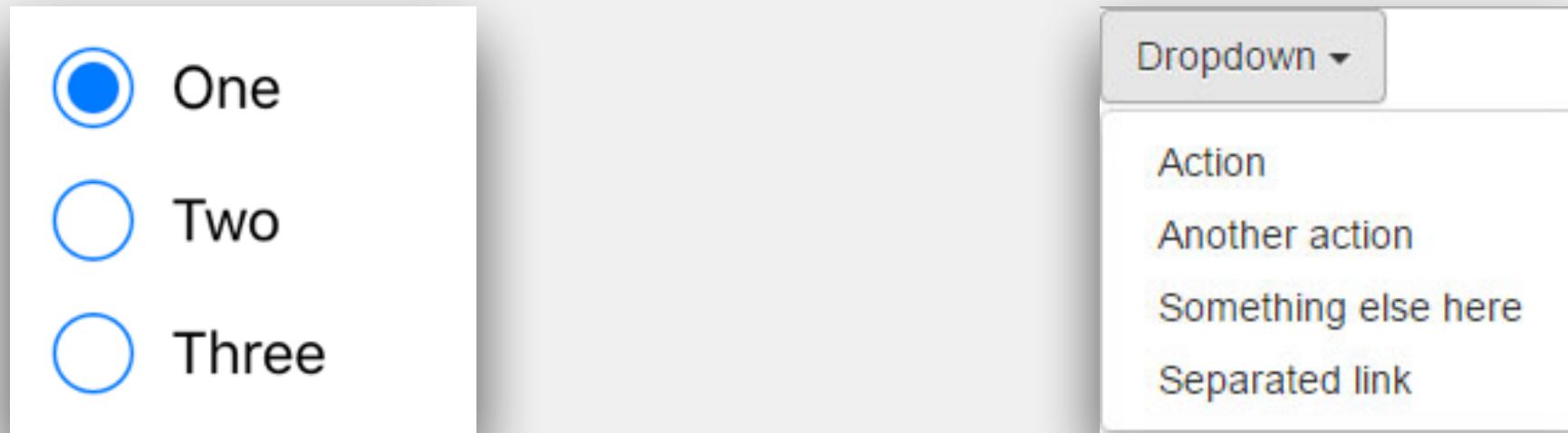
Product Solutions Company Request demo Login

This image shows the homepage of the Quiver website. The background features a large, modern glass building with a blue-tinted sky. The Quiver logo is in the top left. A navigation bar at the top right includes links for Product, Solutions, Company, a teal 'Request demo' button, and a white 'Login' button. The main headline 'The data security solution' is centered above a sub-copy block. At the bottom, there's a teal 'Request a demo' button with a white arrow icon.

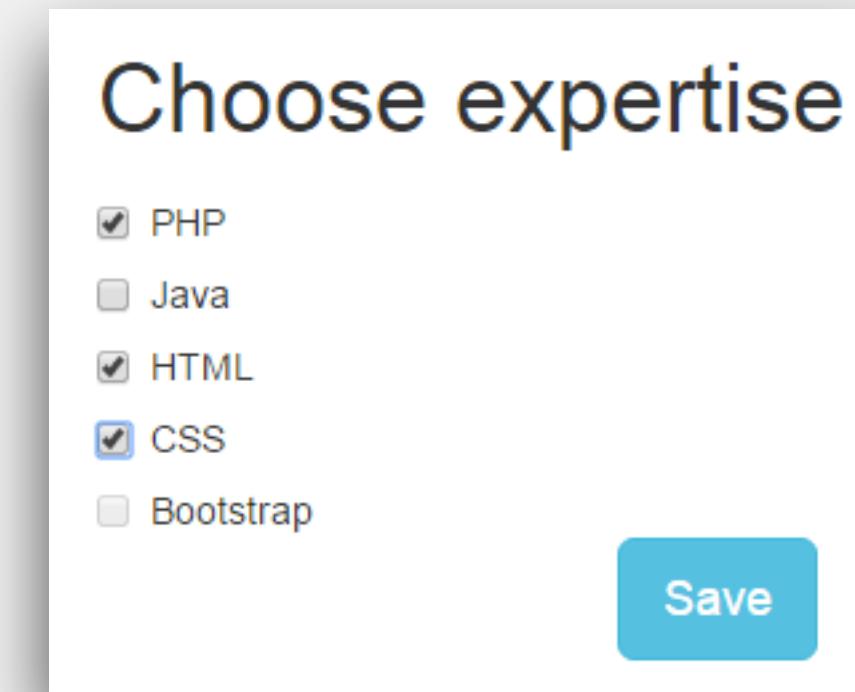
Patterns

Patterns are good solutions to common problems

Need users to choose one option among many?



Need users to choose zero or more options among many?



Pattern Libraries

Borrowed from architecture, then software architecture

Repository of patterns

when to use/not use, common pitfalls

Sources:

<http://ui-patterns.com/patterns>

<http://uipatterns.io/>

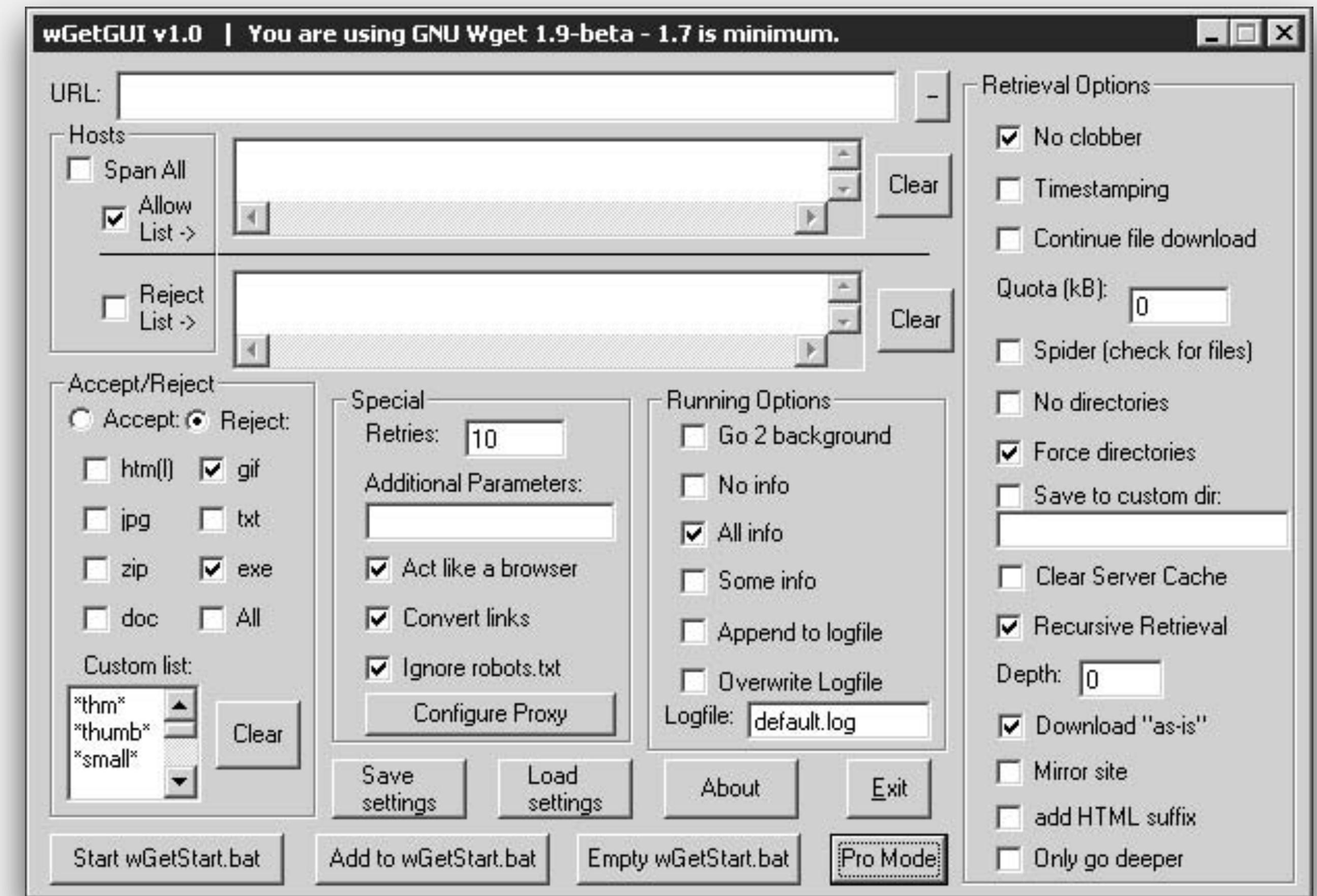
<http://www.mobile-patterns.com/>

(Bad) Example: Ease of Use



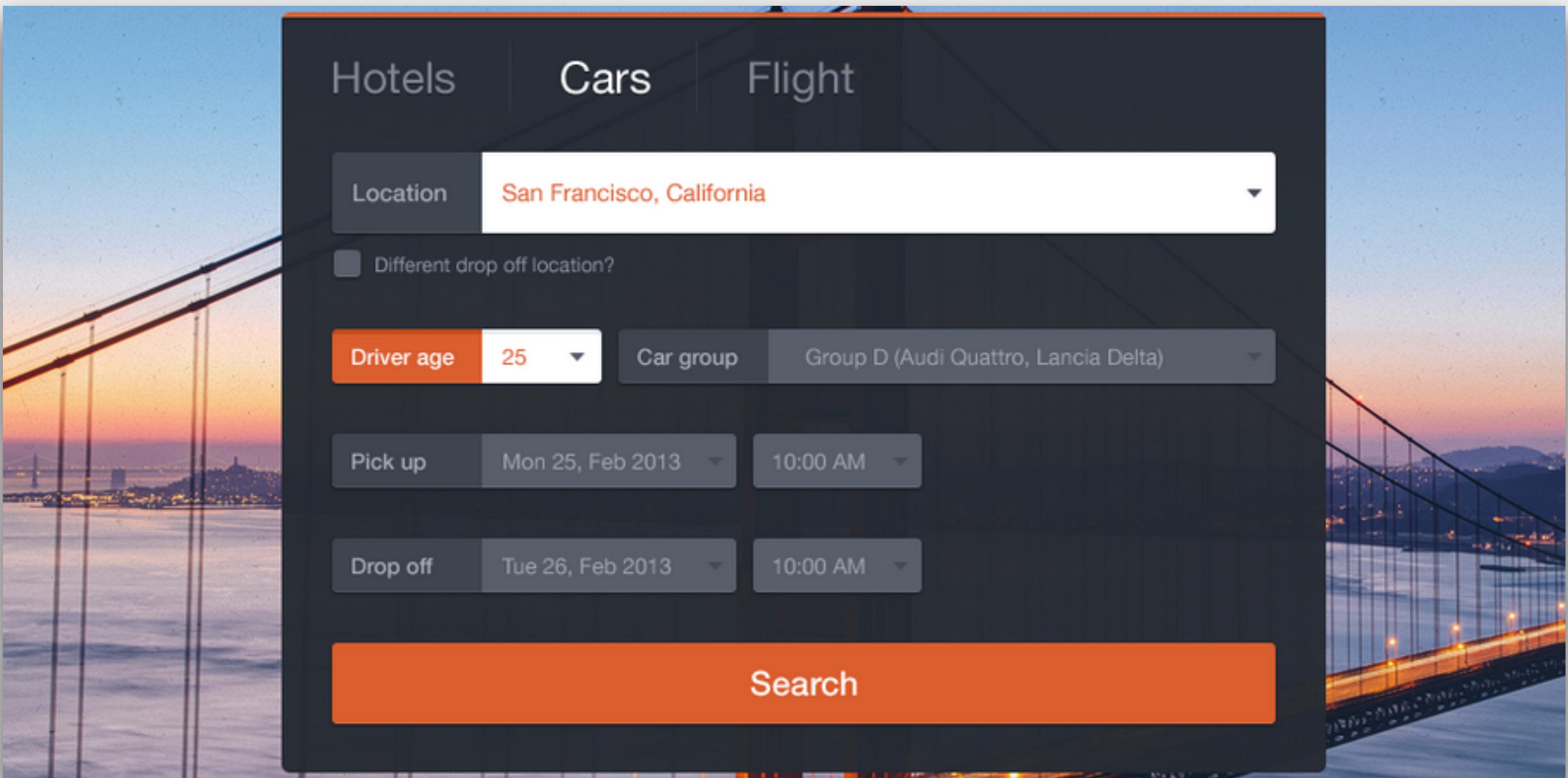
source: https://www.danby.com/wp-content/uploads/2015/10/HLarge_DMW14SA1BDB_keypad4-606x485.jpg

(Bad) Example: Ease of Use



source: <http://www.ssw.com.au/ssw/Standards/Rules/Images/bad-functionaloverload1.jpg>

Example: Ease of Use



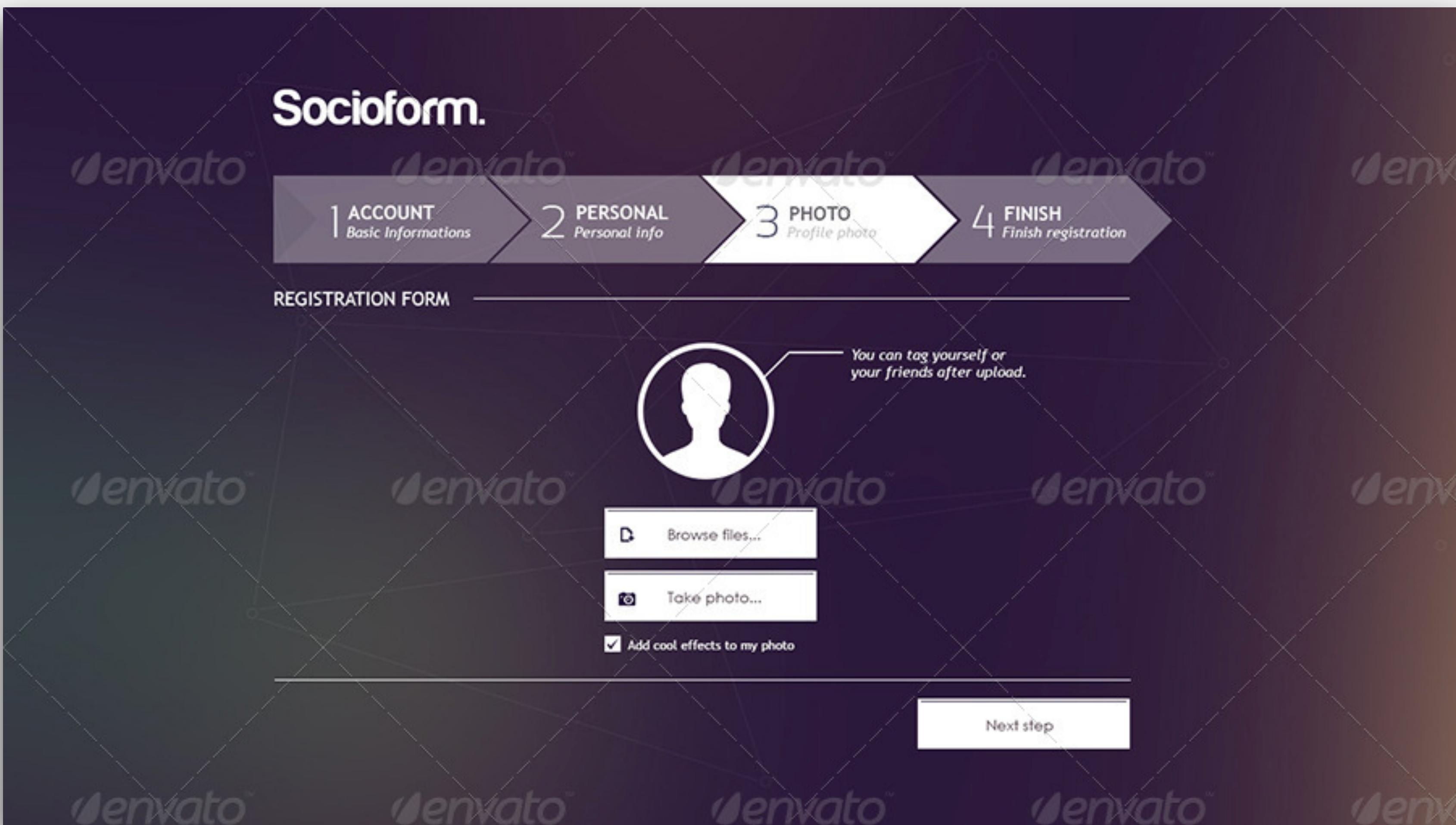
source: <http://smashinghub.com/wp-content/uploads/2013/09/booking-form-design-2.png>

Example: Ease of Use



source: <https://i.pinimg.com/originals/f2/2d/36/f22d362a83027cb2746a5ed5bf27084c.jpg>

Example: Ease of Use



source: <http://inspirationhut.net/wp-content/uploads/2013/08/premium-06c.jpg>

(Bad) Example: Achieving the Goal



source: https://31.media.tumblr.com/b5977b877e351481cafdb86f71c76617/tumblr_inline_ne4aljMwYd1s1a7k8.jpg

(Bad) Example: Achieving the Goal

Primarily problematic for changes that we want to persist

Examples:

says it saved your file, but didn't

says it sent your email, but didn't

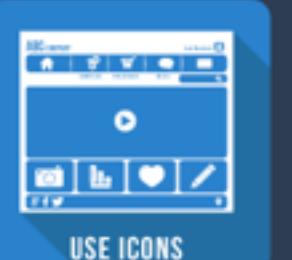
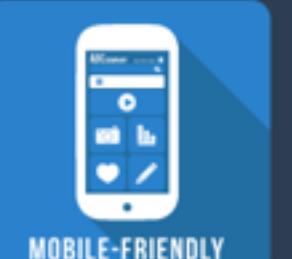
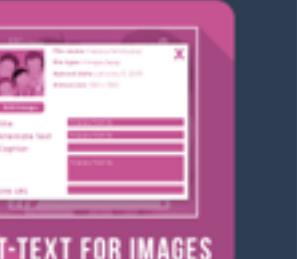
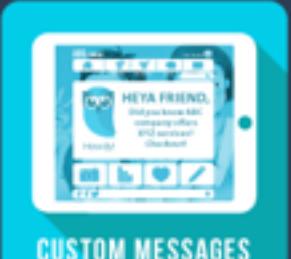
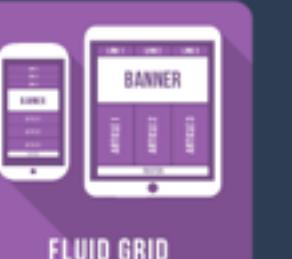
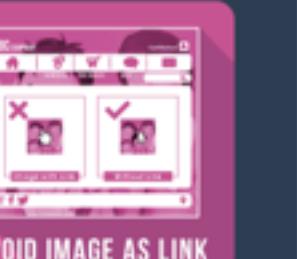
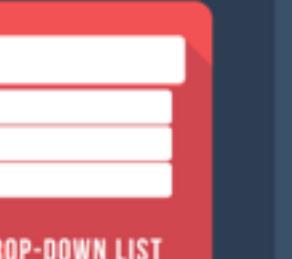
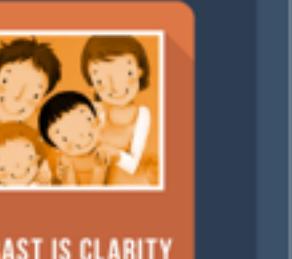
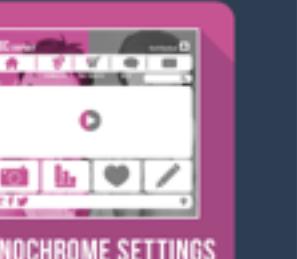
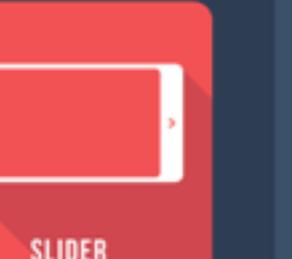
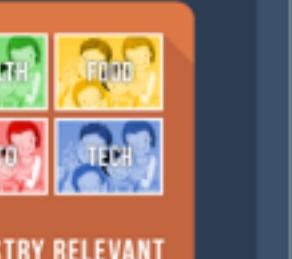
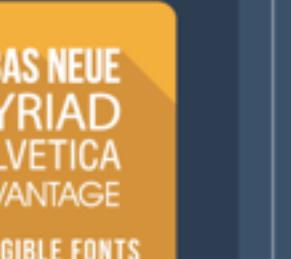
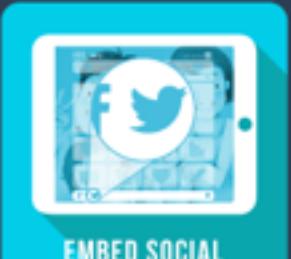
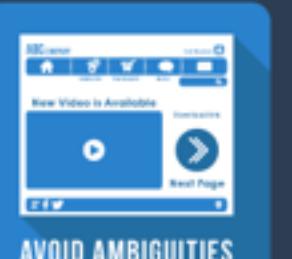
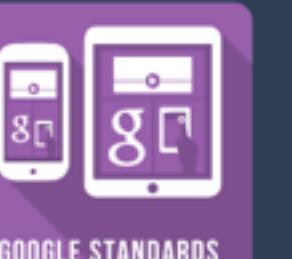
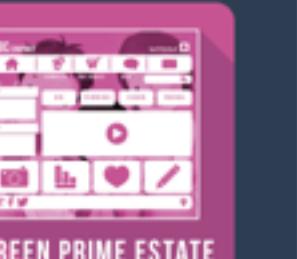
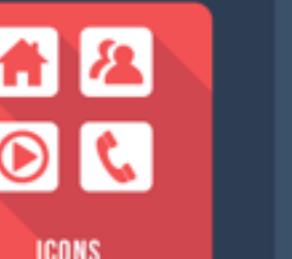
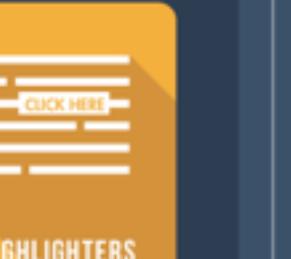
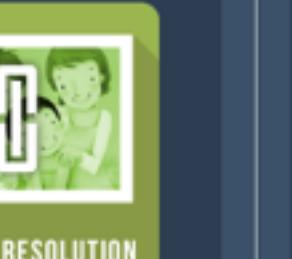
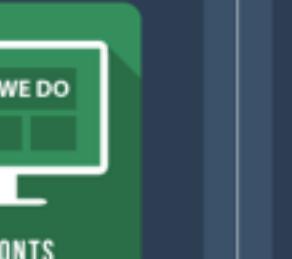
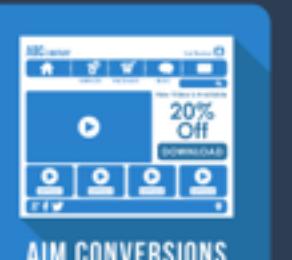
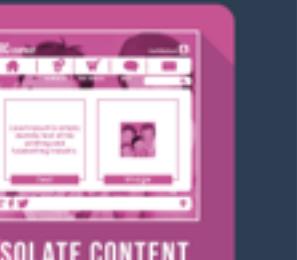
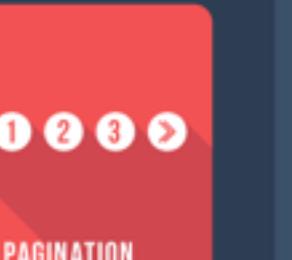
...

human error

or

poor design?

THE 10 COMMANDMENTS OF USER INTERFACE DESIGN

1 CREATE A STORY	2 STREAMLINE NAVIGATION	3 MAKE IT RESPONSIVE	4 ENSURE ACCESSIBILITY	5 FORM FOLLOWS FUNCTION	6 USE PLEASANT COLOR THEMES	7 DEFINE FONT FAMILIES	8 BOOST OPTIMIZED IMAGES	9 MASTER MINIMALISM	10 ELIMINATE ERRORS
 USE REAL IMAGES	 USE ICONS	 USE COLUMNS	 LABEL LINKS	 BUTTON	 COLOR PALETTE	 NO SERIF	 PREFER VECTOR	 SOLID COLORS	 UNDERSTAND THE USER
 MASCOT	 MOBILE-FRIENDLY	 PARALLAX SCROLLING	 ALT-TEXT FOR IMAGES	 CHECK BOXES	 DROP-DOWN LIST	 PERFECT DUOS	 MINIFY METADATA	 OMIT REDUNDANT	 ALLOW USER ERROR
 CUSTOM MESSAGES	 DIRECT MANIPULATION	 FLUID GRID	 AVOID IMAGE AS LINK	 SLIDER	 CONTRAST IS CLARITY	 SET HIERARCHIES	 PICK BEST FORMAT	 LESS IS MORE	 READABILITY
 BE AUTHENTIC	 CLEAR CALL TO ACTION	 DROP-DOWN MENUS	 MONOCHROME SETTINGS	 INDUSTRY RELEVANT	 USE LEGIBLE FONTS	 AUTOMATE SCALING	 WHITESPACE	 BIG FONTS	 COMPREHENSIVE DOCUMENTATION
 EMBED SOCIAL	 AVOID AMBIGUITIES	 GOOGLE STANDARDS	 SCREEN PRIME ESTATE	 ICONS	 USE HIGHLIGHTERS	 IN DOUBT? GO GOTHIC!	 USE ALT-TAGS	 USE VISUALS	 FEEDBACK
 INTERACTIVE CONTENT	 AIM CONVERSIONS	 SCALES TO ANY WIDTH	 ISOLATE CONTENT	 PAGINATION	 COMPLEMENT COLORS				

Diversity in Design

Design teams benefit from diversity of viewpoints

Allows them to produce interfaces with universal appeal
or at least for the correct target audience

Examples:

seatbelt design

Palm Pilot input

Diversity in Design

Gender

Age

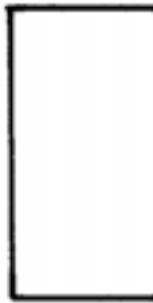
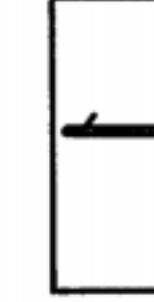
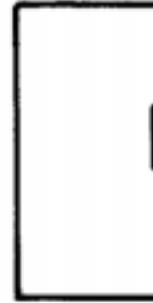
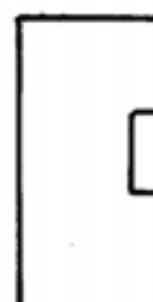
Cultural Background

Physical ability

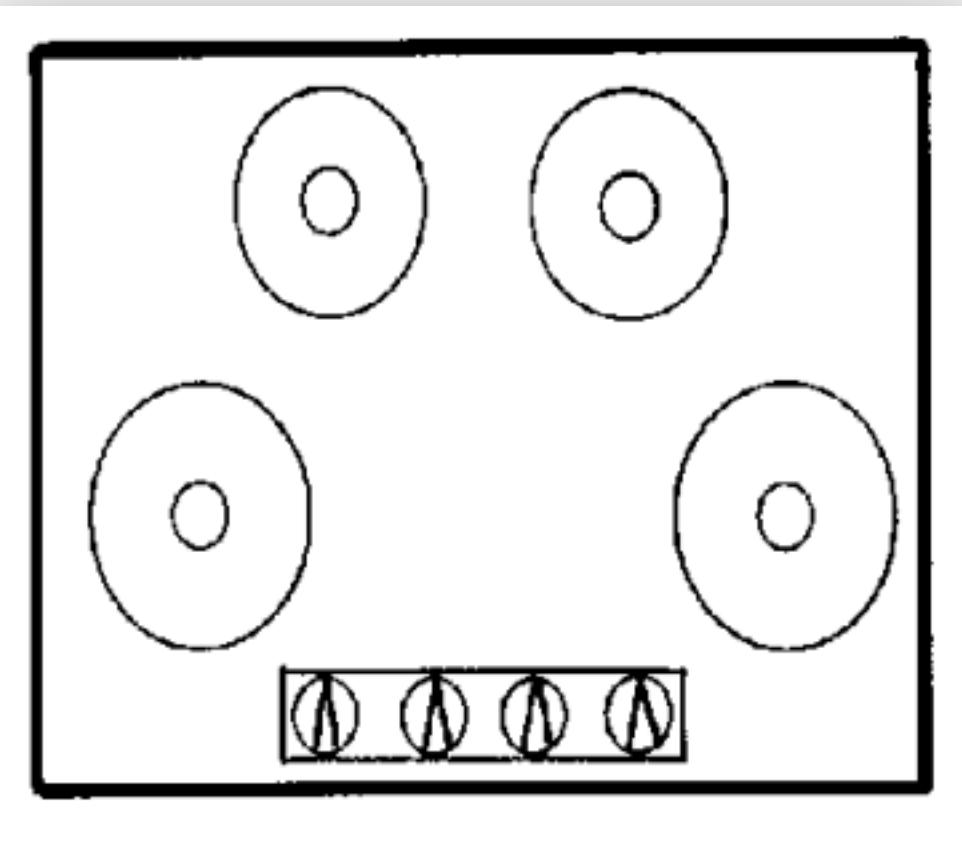
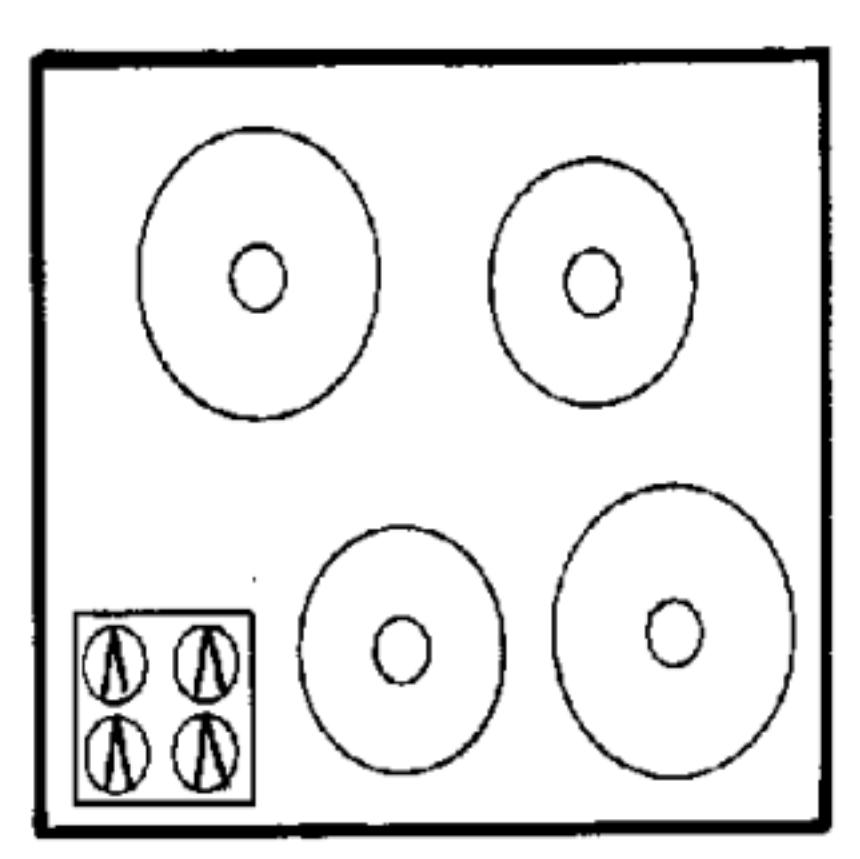
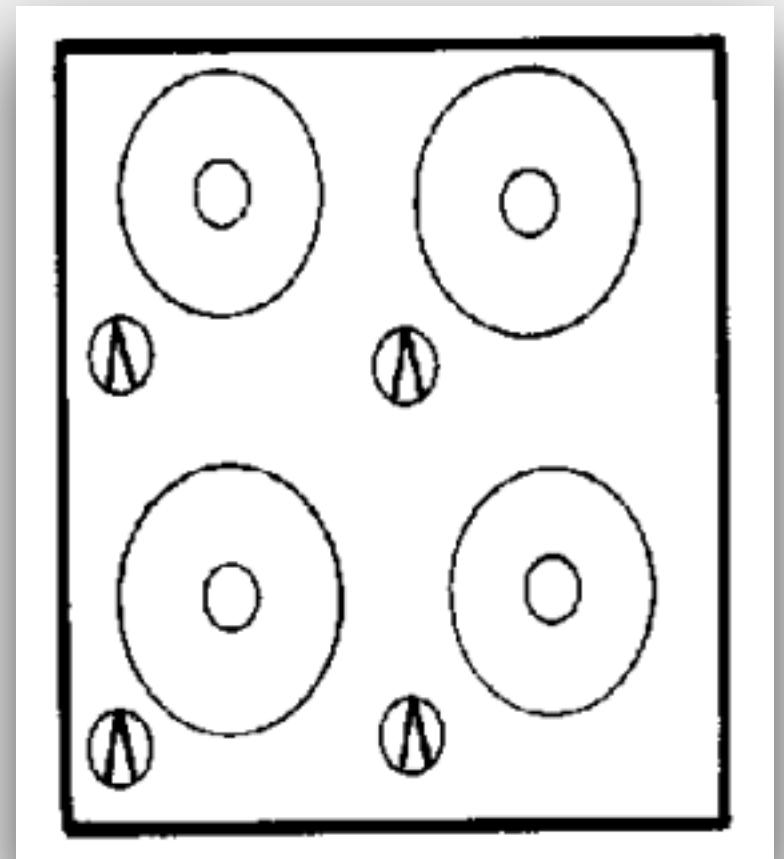
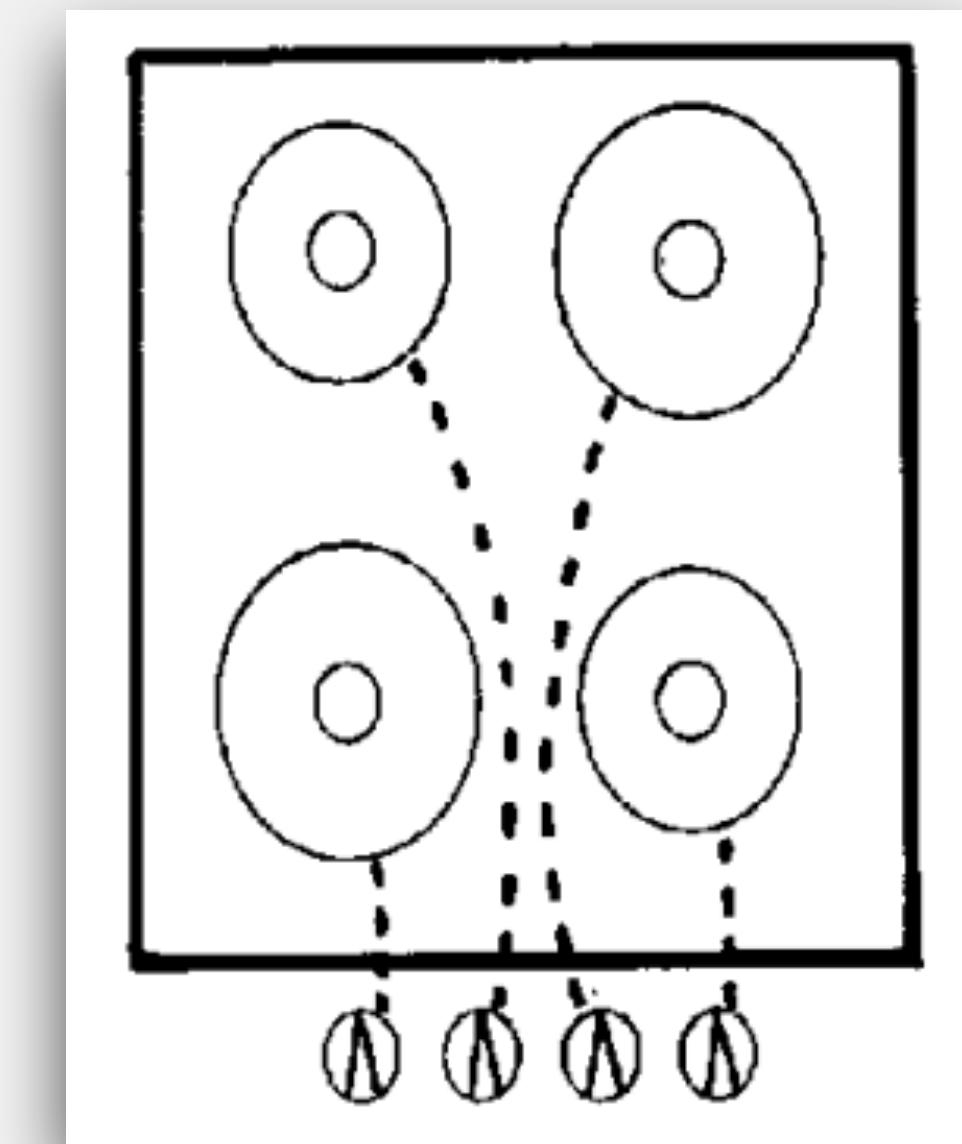
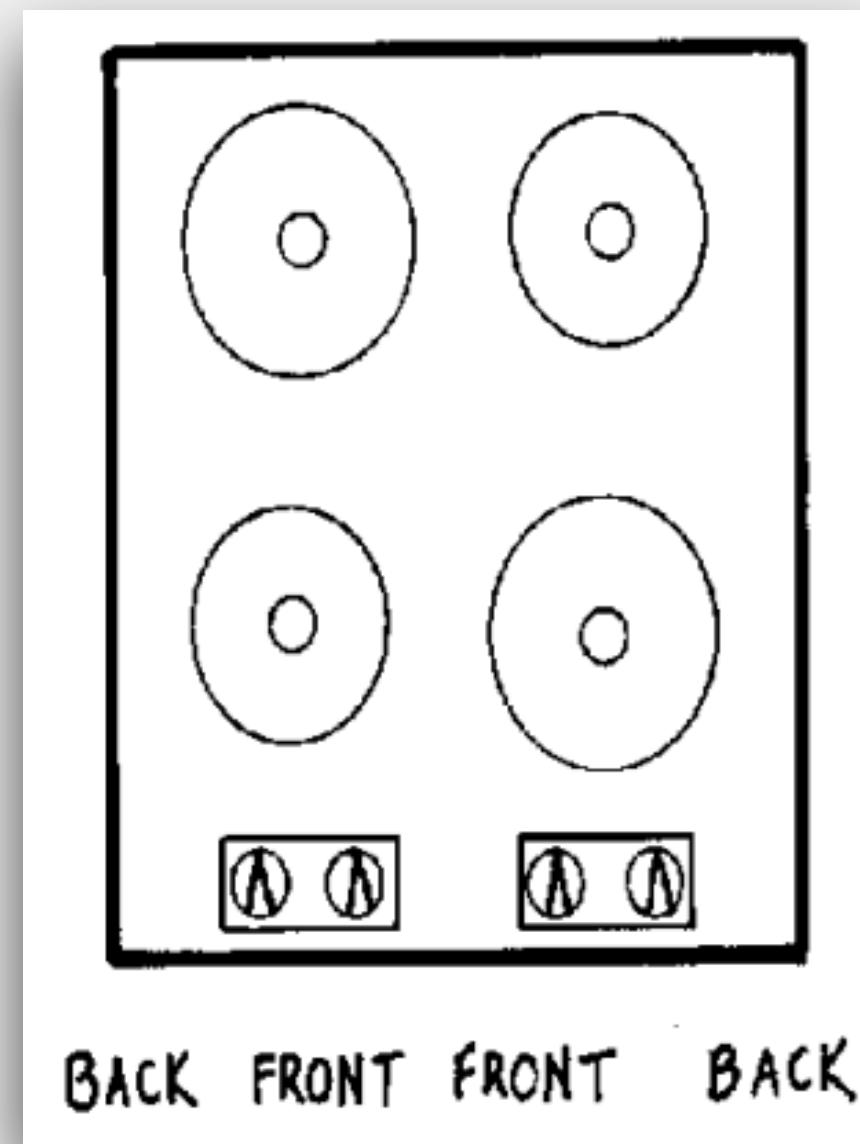
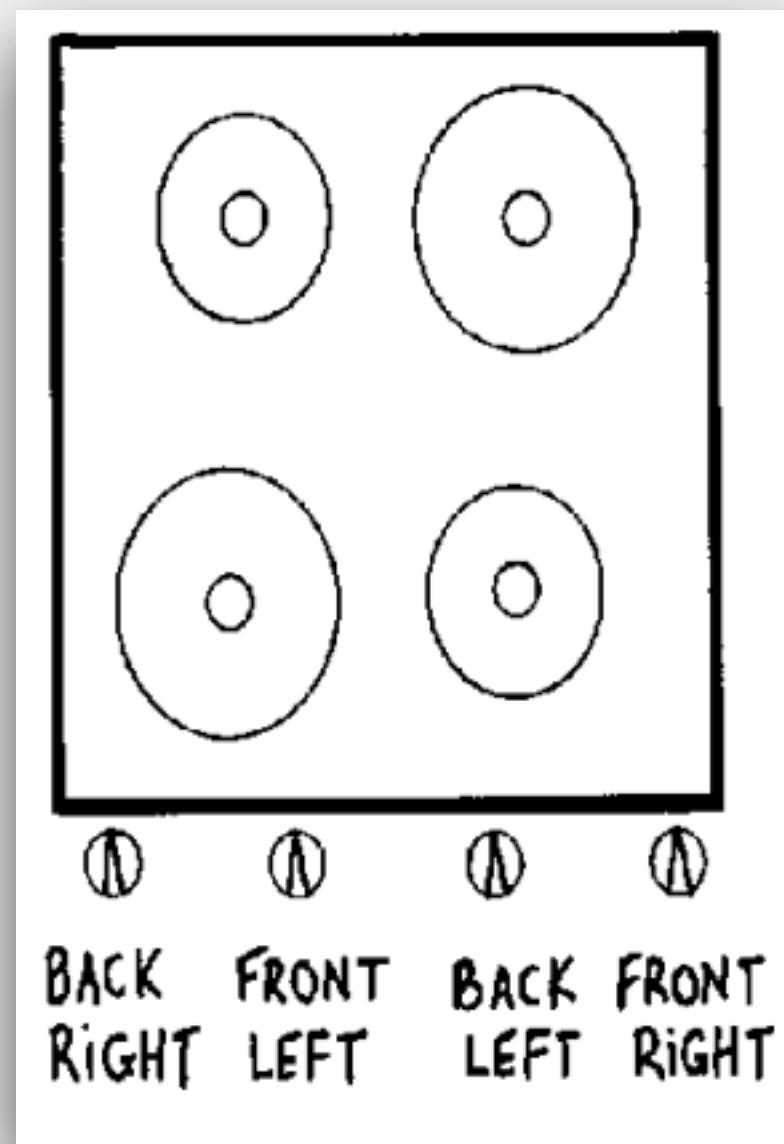
Prior experience

Expertise

Exercise: Affordances

PLAIN DOOR  □ Push □ Left side □ Pull □ right side □ Slide it along	LABLED DOOR  □ Push □ Left side □ Pull □ right side □ Slide it along
HINGE DOOR  □ Push □ Left side □ Pull □ right side □ Slide it along	BAR DOOR  □ Push □ Left side □ Pull □ right side □ Slide it along
HANDLE DOOR  □ Push □ Left side □ Pull □ right side □ Slide it along	KNOB DOOR  □ Push □ Left side □ Pull □ right side □ Slide it along
PANEL DOOR  □ Push □ Left side □ Pull □ right side □ Slide it along	GLASS DOOR  □ Push □ Left side □ Pull □ right side □ Slide it along
SLIDING DOOR  □ Push □ Left side □ Pull □ right side □ Slide it along	

Exercise: Design



Exercise: Interface Design

Search for Classes

Institution: UW-La Crosse
Term: 2017 Summer

Select at least 2 search criteria. Select Search to view your search results.

Class Search

Subject: select subject

Course Number: is exactly

Course Career:

Show Open Classes Only

Additional Search Criteria

Meeting Start Time: greater than or equal to

Meeting End Time: less than or equal to

Days of Week: include only these days

Mon Tues Wed Thurs Fri Sat Sun

Instructor Last Name: begins with

Class Nbr:

Course Keyword:

Minimum Units: greater than or equal to

Maximum Units: less than or equal to

Course Component:

Session:

Mode of Instruction:

Location:

Course Attribute:

Requirement Designation:

CLEAR | SEARCH

Benefits in the Classroom

Better design through diversity

Expansion of understanding of computer science

More job opportunities

Remember, programs exist for our benefit