

FIELDS ARRANGED BY PURITY

← MORE PURE →

SOCIOLOGY IS
JUST APPLIED
PSYCHOLOGY

PSYCHOLOGY IS
JUST APPLIED
BIOLOGY.

BIOLOGY IS
JUST APPLIED
CHEMISTRY

WHICH IS JUST
APPLIED PHYSICS.
IT'S NICE TO
BE ON TOP.

OH, HEY, I DIDN'T
SEE YOU GUYS ALL
THE WAY OVER THERE.



SOCIOLOGISTS

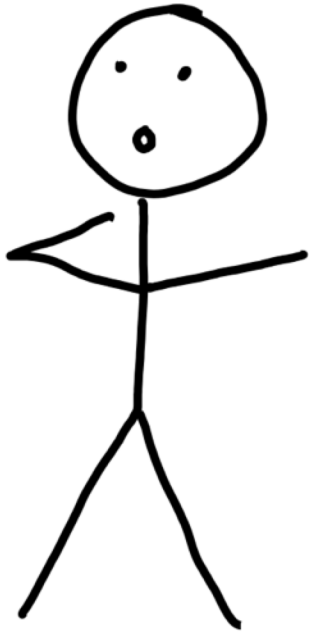
PSYCHOLOGISTS

BIOLOGISTS

CHEMISTS

PHYSICISTS

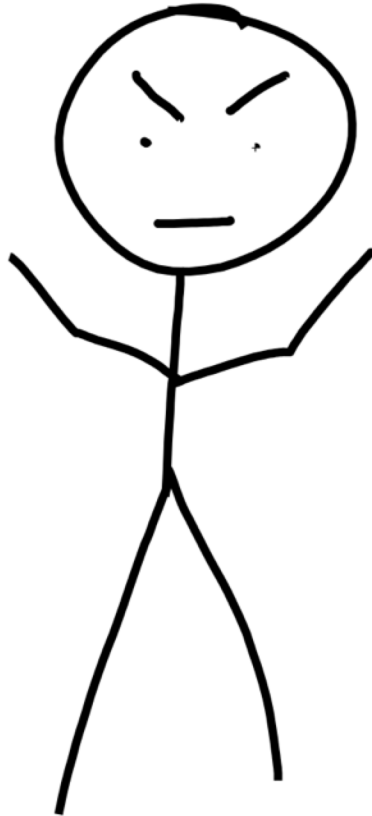
MATHEMATICIANS



STAGE 1:

THE INTIMIDATED INITIATE

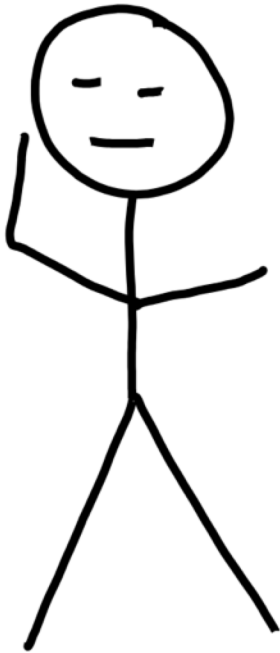
Wow, justified-aligned columns are so orderly, and some of these words are big.



STAGE 2:

THE DISILLUSIONED IDEALIST

This work is terrible and
I hate it all!



STAGE 3:

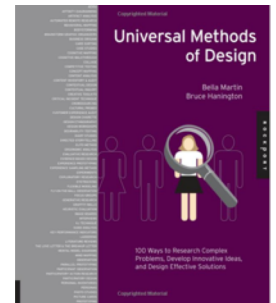
THE RESIGNED PRAGMATIST

Hmm, I tried something kind of like this once and it was hard.

HEURISTIC EVALUATION

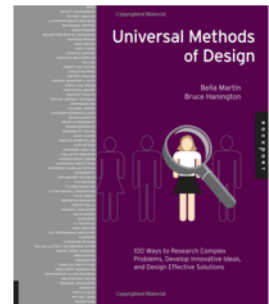
Heuristic Evaluation

“An agreed-upon set of usability best practices can help detect usability problems before actual users are brought in to further evaluate an interface.”



Main idea: Research/Design team or UX expert uses a set of heuristics to inspect for UX problems.

Other Resources



- Nielsen, Jakob. Finding Usability Problems Through Heuristic Evaluation. *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI)*, 1992.
- Desurvire, Heather, Jim Kondziela, Michael E. Atwood. What is Gained and Lost When Using Methods Other Than Empirical Testing. *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI)*, 1992.
- Nielsen, Jakob, and Rolf Molich. Heuristic Evaluation of User Interfaces. *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI)*, 1990.
- Nielsen, Jakob. *Usability Engineering*. Boston, MA: Academic Press, 1993.
- Ginsburg, Suzanne. *Designing the iPhone User Experience*. Boston, MA: Addison Wesley, 2010.

What Heuristics to Use...?

What Heuristics to Use...?

- Nielsen 1994 (Nielsen and Molich 1990)
- Ben Shneiderman's Eight Golden Rules of Interface Design
- (Wikipedia) Gerhardt-Powals' cognitive engineering principles
- (Wikipedia) Weinschenk and Barker classification
- ...?

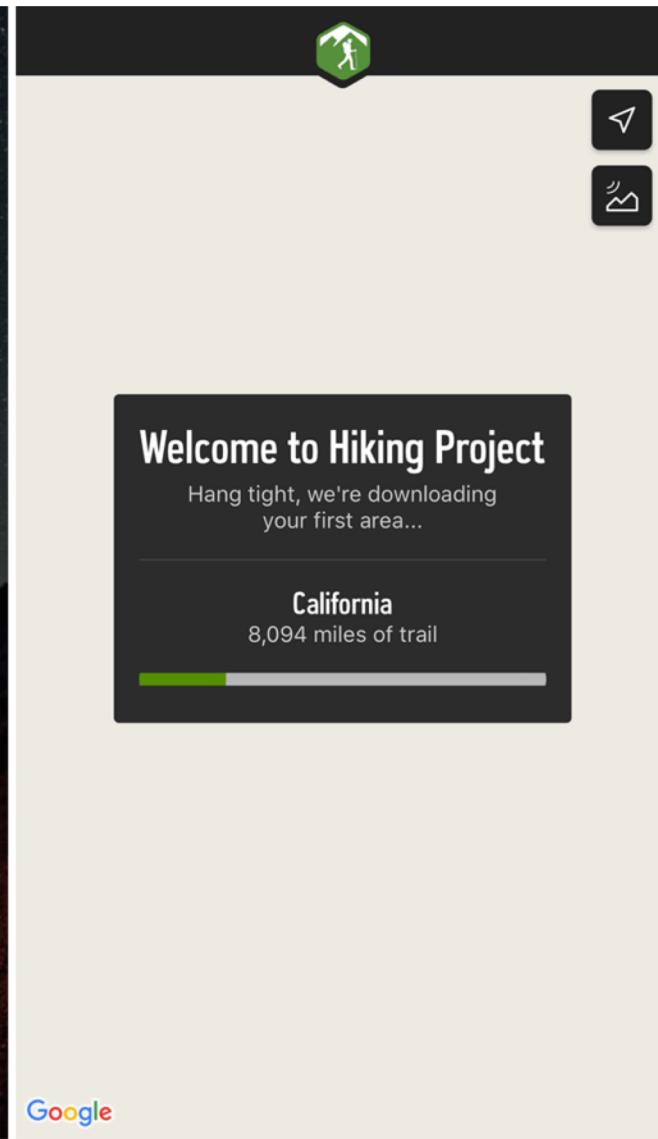
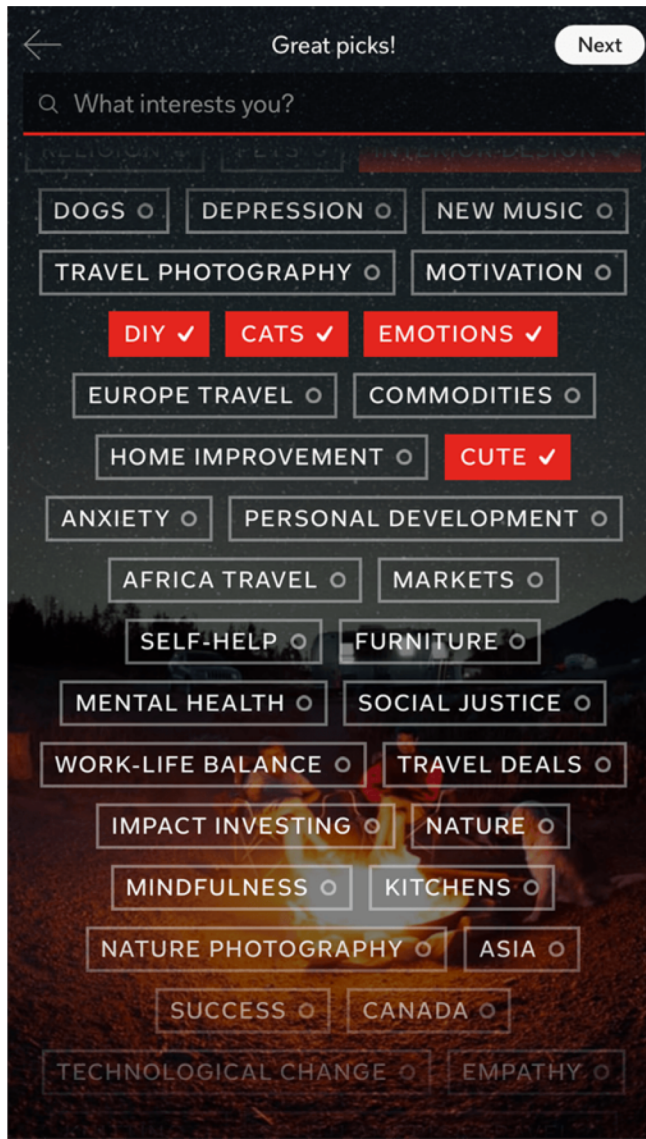
Nielsen's 10 Usability Heuristics for User Interface Design

1. Visibility of system status
2. Match between system and the real world
3. User control and freedom
4. Consistency and standards
5. Error prevention
6. Recognition rather than recall
7. Flexibility and efficiency of use
8. Aesthetic and minimalist design
9. Help users recognize, diagnose, and recover from errors
10. Help and documentation

#1: Visibility of system status

“The system should always keep users informed about what is going on, through appropriate feedback within reasonable time.”

#1: Visibility of system status



#1: Visibility of system status

SEARCH

Striped knit maxi dress ×

\$120.00 [View full details ▶](#)

HIDE FILTER

- Skirts (12)
- Sweaters
- Coats & Jackets
- Pants (2)
- Suiting (0)
- Sport (7)
- Intimates
- Jewelry (0)
- Bags (12)
- Shoes (5)

SIZE & FIT

COLOR

PRICE

NEWNESS

MORE FILTERS

DISCOUNT


BAG

TOP RATED

★★★★★ [11 reviews](#)

30% OFF FULL PRICE WITH CODE SUMMERLOVE

COLOR: IVORY NAVY



SIZE: SMALL [SIZE CHARTS](#)

xx-small x-small small medium

large x-large **ONLY A FEW LEFT**


QUANTITY: 1

SIZE & FIT +

PRODUCT DETAILS +

ADD TO BAG **WISHLIST**

↑



#1: Visibility of system status

CHEF PARTNERS WHERE TO BUY

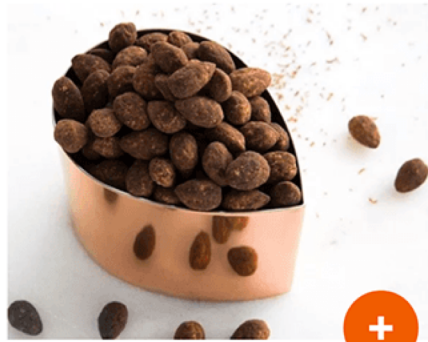
 NATUREBOX

CONTACT US [FREE SNACKS](#) SIGN IN



Shop by Categories ▾ Try a sample Sale Office snacks Gifts

Add \$5.01 for free delivery!



NEW



Mocha Almonds Single Serve, 12 pack

~~\$24.99~~ **\$19.99 (SAVE 20%)**



NEW



Sriracha Roasted Cashews Single Serve, 12 pack

~~\$24.99~~ **\$19.99 (SAVE 20%)**



NEW



Whole Wheat Honey Fig Bars

8 oz

~~\$6.99~~ **\$5.99 (SAVE 14%)**



#1: Visibility of system status

- With Amazon Echo...?

#1: Visibility of system status

- With Amazon Echo...?



#1: Visibility of system status



#2: Match between system and the real world

“The system should speak the users' language, with words, phrases and concepts familiar to the user, rather than system-oriented terms. Follow real-world conventions, making information appear in a natural and logical order.”

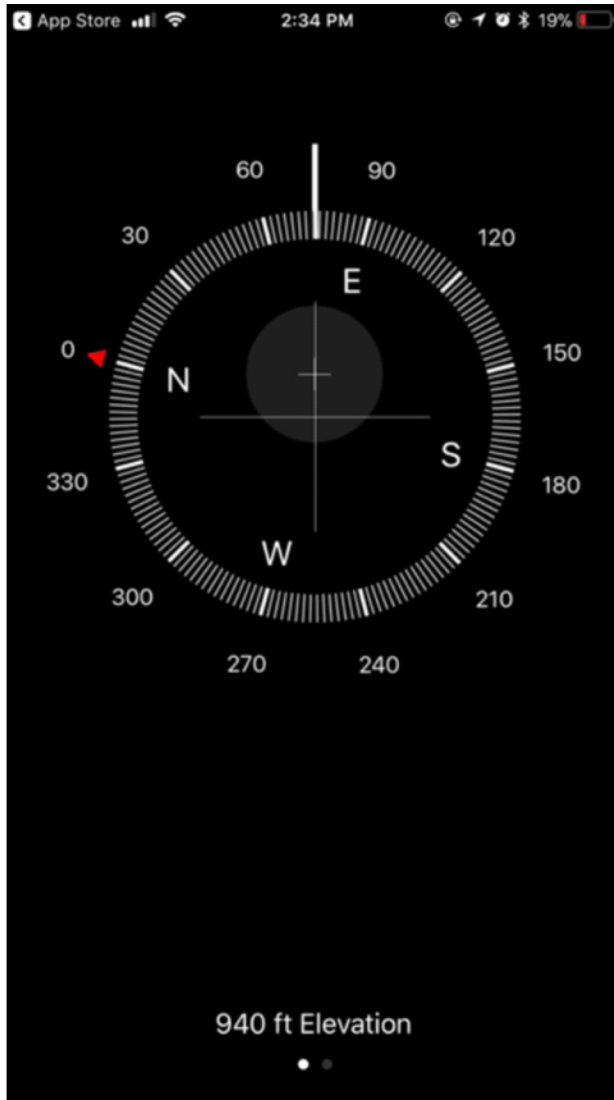
-
-

#2: Match between system and the real world

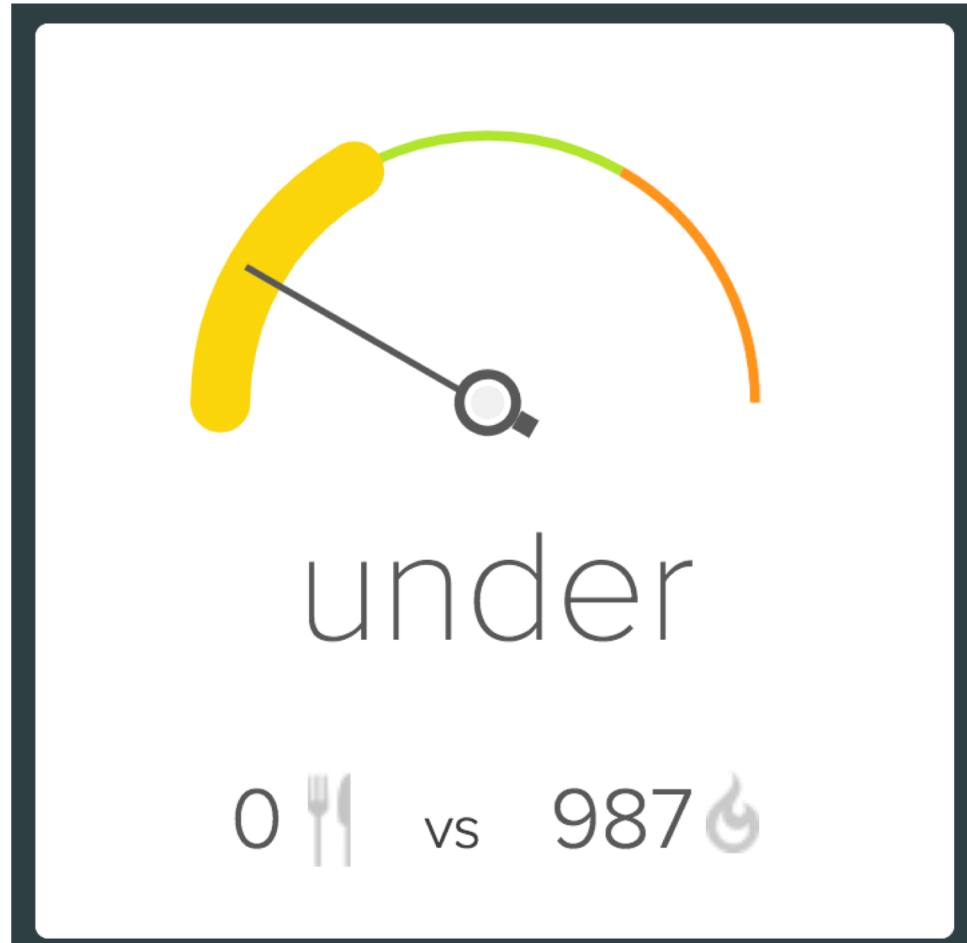
“The system should speak the users' language, with words, phrases and concepts familiar to the user, rather than system-oriented terms. Follow real-world conventions, making information appear in a natural and logical order.”

- **Familiar Language**
- **Leverage Familiarity with Real-World Objects and Activities**

#2: Match between system and the real world



#2: Match between system and the real world



#2: Match between system and the real world

Upgrade

Medium

- [Dreamit UrbanTech](#)
- [NYU Center for Urban Science +Progress \(CUSP\)](#)
- [Columbia University Center for Urban Real Estate \(CURE\)](#)

43

Conclusion

There are many reasons why NYC will lead smart building adoption.

You highlighted

Ambitious legislation, strong incentives, and industry champions are some, but not all. The city offers a cheap renewable source of recent college grads with top skills, funding, state-of-the-art technology, growing population trends, an old housing stock in need of retrofit, smart city challenges, large number of urban incubators, and even the city size to attract partner cities (Helsinki, Paris).

There's this mentality of doing, getting a quick buck, not building unicorns but small exits, and a mix of industries and businesses that's hard to find somewhere else. In the end, there's even this idea that if you can make it here, then you can make it anywhere. Time will tell who wins the smart building race at the end, but NYC sure has a good chance at it.

#2: Match between system and the real world

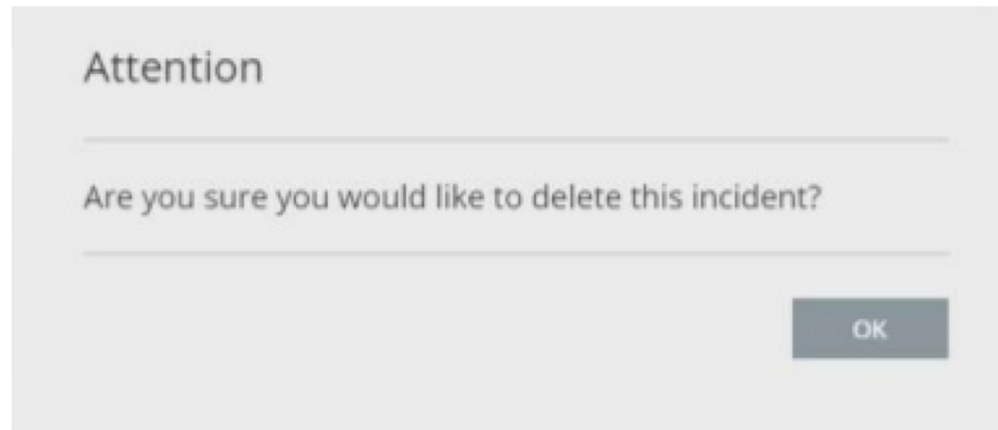


#3: User control and freedom

“Users often choose system functions by mistake and will need a clearly marked "emergency exit" to leave the unwanted state without having to go through an extended dialogue. Support undo and redo.”

#3: User control and freedom

“Users often choose system functions by mistake and will need a clearly marked "emergency exit" to leave the unwanted state without having to go through an extended dialogue. Support undo and redo.”





#3: User control and freedom



#4: Consistency and standards

“Users should not have to wonder whether different words, situations, or actions mean the same thing. Follow platform conventions.”


#4: Consistency and standards


 [Cars for Sale](#) [Sell Your Car](#) [Service & Repair](#) [Research](#) [Videos & Reviews](#) 

suspension doesn't isolate bumpy roads well, and at lower speeds it feels a touch busy on *all* roads," said Mays.

[Research the 2018 Volkswagen Tiguan](#) | [Search Inventory](#) | [Car Seat Check](#) | [Photo Gallery](#)

How the Competitors Fared in Each Category



2017 Compact SUV Challenge 

INTERIOR QUALITY	JUDGES' AVERAGE SCORE
2017 Mazda CX-5	9.7
2017 Honda CR-V	7.7
2017 Ford Escape	6.3
2018 Volkswagen Tiguan	6.3
2017.5 Nissan Rogue	6
2017 Jeep Compass	5.3
2018 Chevrolet Equinox	4.7

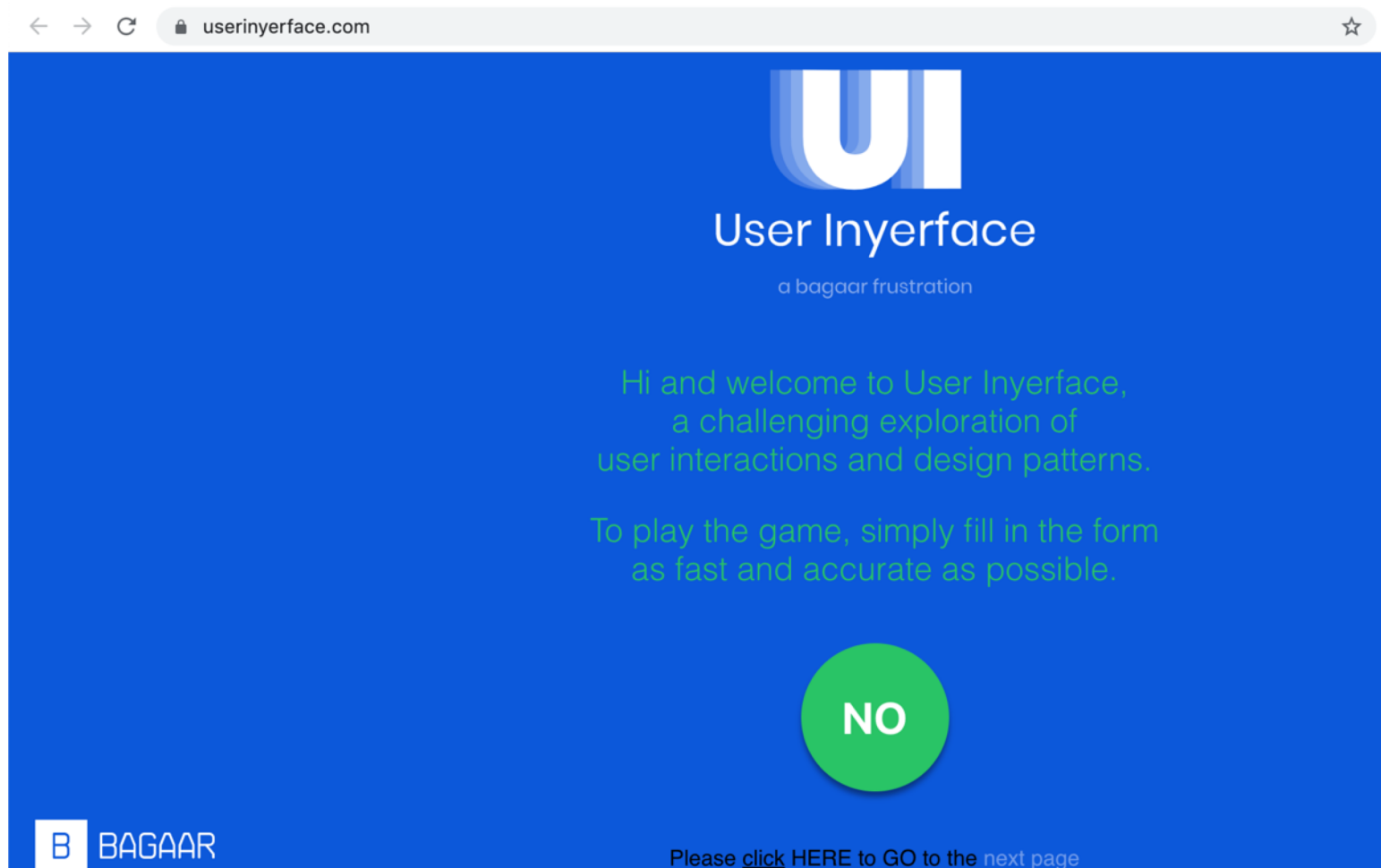
Cars.com graphics by Paul Dolan

How We Tested

Our weeklong test took place in the Chicago suburbs where judges drove each car on the same loop for back-to-back impressions. Other areas scored included awarding points for as-equipped crash avoidance technologies including forward collision warning with automatic emergency braking, blind spot warning, lane departure warning, lane departure steering and lane-centering steering. Plus, we evaluated and scored how well child-safety seats fit in each SUV.

Feedback

#4: Consistency and standards



The screenshot shows a web browser window with the address bar displaying "userinyerface.com". The page has a blue background. At the top center is a large white "U" logo with a blue shadow effect. Below the logo, the text "User Inyerface" is written in white, followed by "a bagaar frustration" in a smaller font. The main content area contains two paragraphs of text in a light green color: "Hi and welcome to User Inyerface, a challenging exploration of user interactions and design patterns." and "To play the game, simply fill in the form as fast and accurate as possible." Below this text is a large green circular button with the word "NO" in white. In the bottom left corner, there is a logo consisting of a white square with a blue letter "B" inside, followed by the word "BAGAAR" in blue. In the bottom right corner, there is a link that says "Please click HERE to GO to the next page".

← → ↻ userinyerface.com ☆

U

User Inyerface

a bagaar frustration

Hi and welcome to User Inyerface,
a challenging exploration of
user interactions and design patterns.

To play the game, simply fill in the form
as fast and accurate as possible.

NO

B BAGAAR

Please click HERE to GO to the next page

#4: Consistency and standards

Birthdate

Day

Month

Year

Gender

Male

April

August

December

February

1900

1901

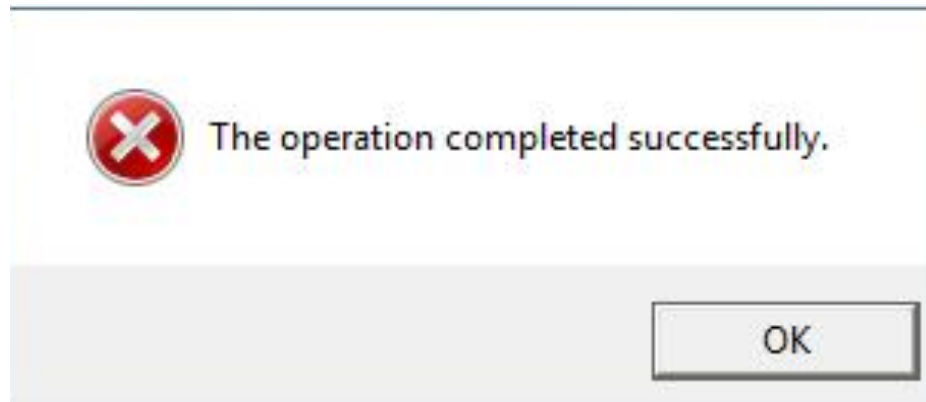
1902

1903

Next

Cancel

#4: Consistency and standards



#4: Consistency and standards

?

#5: Error prevention

“Even better than good error messages is a careful design which prevents a problem from occurring in the first place. Either eliminate error-prone conditions or check for them and present users with a confirmation option before they commit to the action.”

Two Types of Errors

Slips occur when users intend to perform one action, but end up doing another (often similar) action. For example, typing an “i” instead of an “o” counts as a slip; accidentally putting liquid hand soap on one’s toothbrush instead of toothpaste is also a slip. Slips are typically made when users are on autopilot, and when they do not fully devote their attention resources to the task at hand.

Two Types of Errors

Mistakes are made when users have goals that are inappropriate for the current problem or task; even if they take the right steps to complete their goals, the steps will result in an error. For example, if I misunderstood the meaning of the oil-pressure warning light in my car, and thought it was the tire-pressure monitor, no matter how carefully I added air to my tires, it would not fix the issue with my oil pressure...Mistakes are conscious errors, and often (though not exclusively) arise when a user has incomplete or incorrect information about the task, and develops a mental model that doesn't match how the interface actually works.

#5: Error prevention

“Even better than good error messages is a careful design which prevents a problem from occurring in the first place. Either eliminate error-prone conditions or check for them and present users with a confirmation option before they commit to the action.”

- **Include Helpful Constraints**

#5: Error prevention

The screenshot shows the Southwest Airlines website interface. At the top, the Southwest logo is on the left, and navigation links for "Log In", "Enroll", "Español", "FLIGHT | HOTEL | CAR", "SPECIAL OFFERS", and "RAPID REWARDS" are on the right. A search icon is also present.

The main content area features a "Select depart date" modal window. This window displays two calendar grids for July and August 2015. The July calendar has the 8th and 11th highlighted in green, and the 15th circled in blue with a mouse cursor hovering over it. The August calendar shows the 1st as the first day of the month.

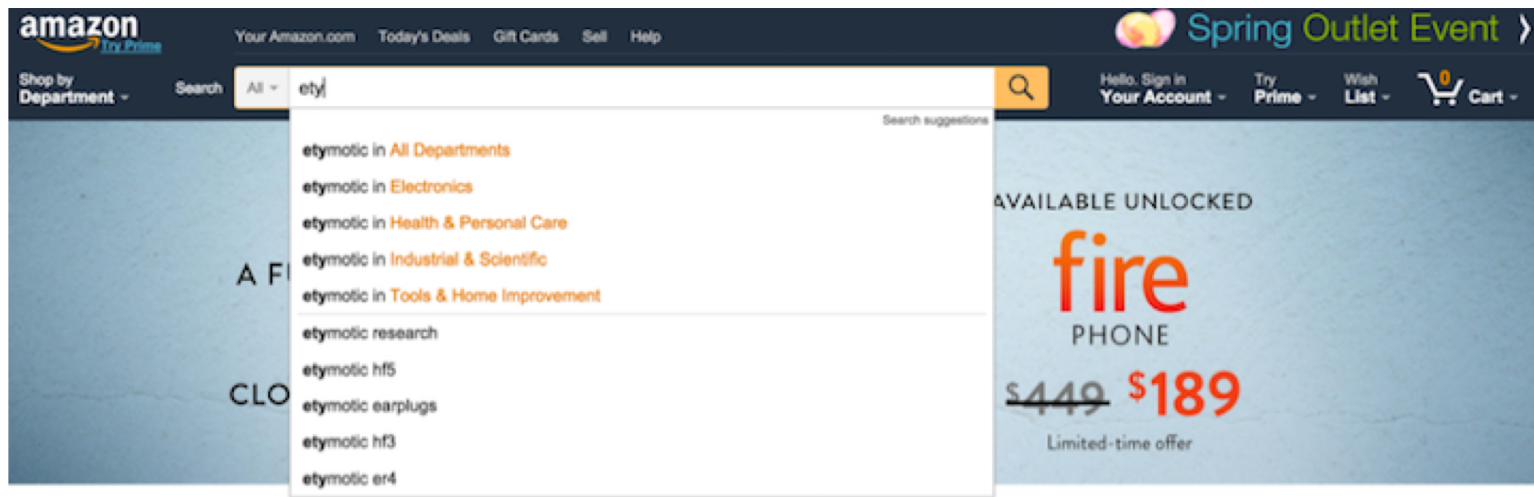
Below the calendar, the flight search form is visible. It includes a "Book" button, a "Round trip" radio button, and fields for origin ("BOS"), destination ("LGA"), departure date ("07/08"), return date ("07/11"), and passenger count ("1" Adults, "0" Seniors). The origin is identified as "Boston Logan, MA - BOS" and the destination as "New York (LaGuardia), NY - LGA". There are also links for "Where we fly", "Map search", and "Flexible dates", along with a "Promo code" field, "Advanced Search" link, and a "Search" button.

#5: Error prevention

“Even better than good error messages is a careful design which prevents a problem from occurring in the first place. Either eliminate error-prone conditions or check for them and present users with a confirmation option before they commit to the action.”

- **Include Helpful Constraints**
- **Offer Suggestions**

#5: Error prevention



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- **Include Helpful Constraints**
- **Offer Suggestions**
- **Choose Good Defaults**

#5: Error prevention

“Even better than good error messages is a careful design which prevents a problem from occurring in the first place. Either eliminate error-prone conditions or check for them and present users with a confirmation option before they commit to the action.”

- **Include Helpful Constraints**
- **Offer Suggestions**
- **Choose Good Defaults**
- **Use Forgiving Formatting**

#5: Error prevention

2

Profile

* NAME

First Name Last Name

* MOBILE NUMBER

+1 (555) 666-7778

* LANGUAGE

English (United States)

#5: Error prevention



#6: Recognition rather than recall

“Minimize the user's memory load by making objects, actions, and options visible. The user should not have to remember information from one part of the dialogue to another. Instructions for use of the system should be visible or easily retrievable whenever appropriate.”

#6: Recognition rather than recall

The image shows a screenshot of the Bing homepage. The background is a scenic view of a pier with many wooden posts extending into the water under a sunset sky. The Bing logo is visible in the top left. At the top, there are navigation links: IMAGES, VIDEOS, MAPS, NEWS, SEARCH HISTORY, MORE, MSN, and OUTLOOK.COM. On the right, there are utility links: Make Bing my homepage, a notification icon with '2', a speech bubble icon with '27', the user name 'Raluca', and a settings gear icon.

A search history overlay is centered on the screen, displaying two columns of search terms:

- RECENT SEARCHES:**
 - city of sunnyvale furniture pick
 - up
 - freecycle
 - error bars excel 2013
 - San Jose Improv 62 S. Second
 - St.San Jose, ...
 - measuring usability
- FREQUENT SEARCHES:**
 - freecycle
 - georgetown university
 - filezilla
 - icloud
 - acm digital

At the bottom of the overlay, there are links for 'See all', 'Clear all', and 'Turn off'. A magnifying glass icon is visible on the right side of the overlay.

Below the search history, there is a row of image thumbnails with captions: 'Born 194 years ago', 'Jodi Arias', 'Lana Del Rey', 'Conchita Wurst', 'Xbox One', 'Lesnar's plea', 'Lakers rumors', and 'Plane crash'. Each thumbnail has a corresponding image credit below it.

At the bottom of the page, there is a footer with the following text: '© Image Credits', '© 2014 Microsoft', 'Privacy and Cookies', 'Legal', 'Advertise', 'About our ads', 'Help', and 'Feedback'.

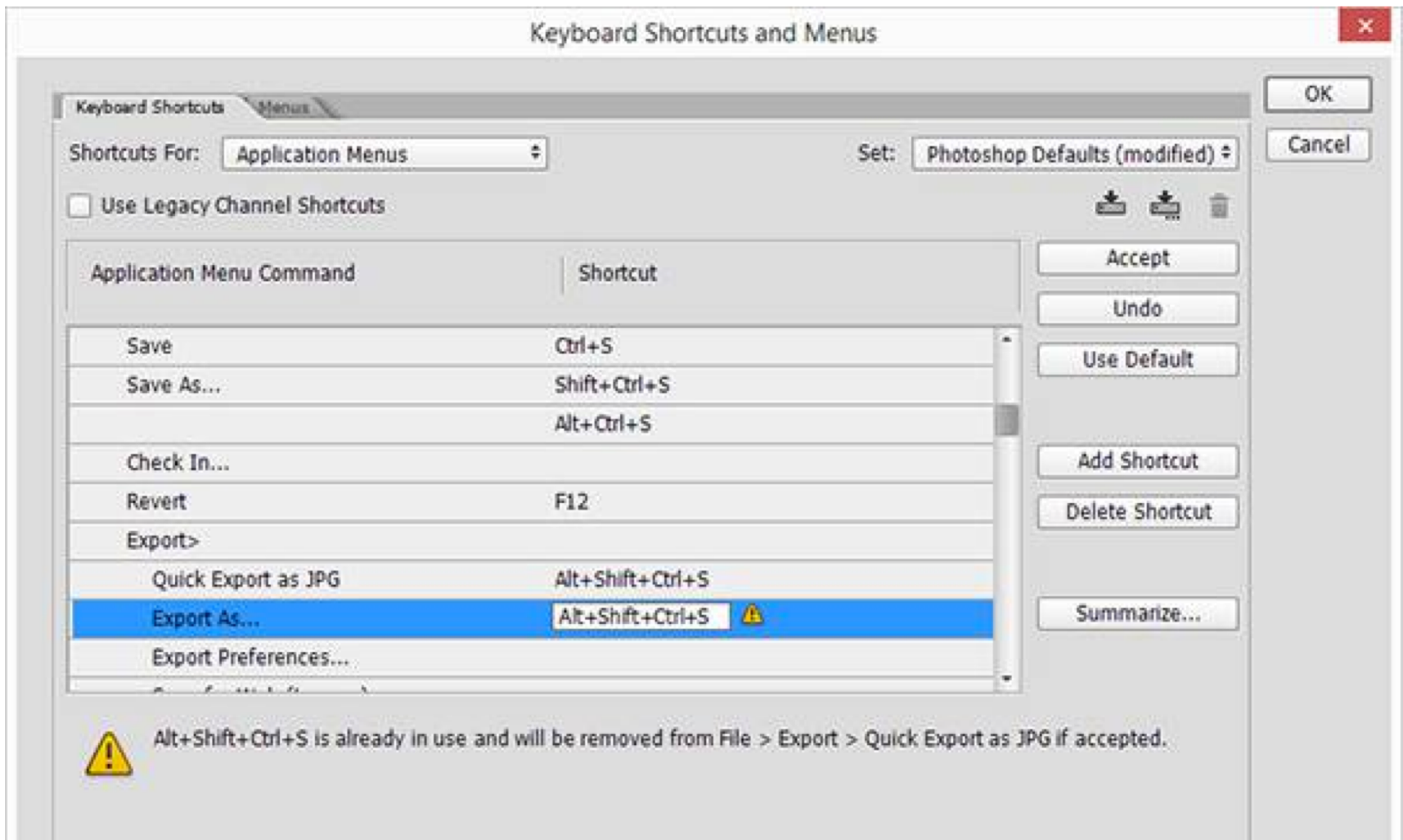
#6: Recognition rather than recall

?

#7: Flexibility and efficiency of use

“Accelerators — unseen by the novice user — may often speed up the interaction for the expert user such that the system can cater to both inexperienced and experienced users. Allow users to tailor frequent actions.”

#7: Flexibility and efficiency of use



#7: Flexibility and efficiency of use



#8: Aesthetic and minimalist design

“Dialogues should not contain information which is irrelevant or rarely needed. Every extra unit of information in a dialogue competes with the relevant units of information and diminishes their relative visibility.”

#8: Aesthetic and minimalist design



#9: Help users recognize, diagnose, and recover from errors

“Error messages should be expressed in plain language (no codes), precisely indicate the problem, and constructively suggest a solution.”

#9: Help users recognize, diagnose, and recover from errors

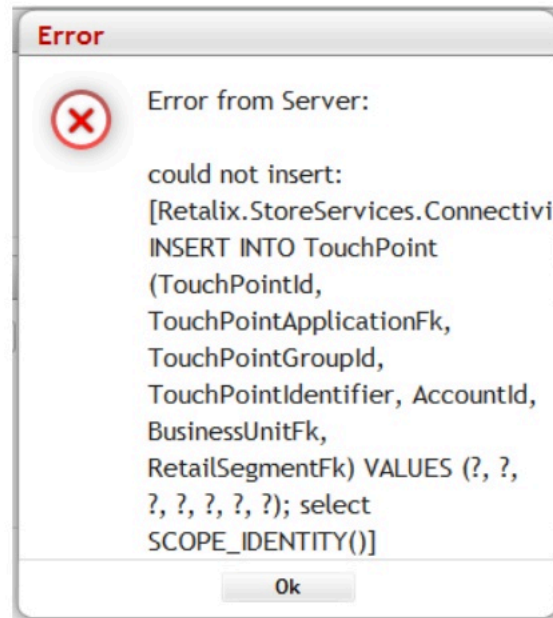
- **Explicit** indication that something has gone wrong

#9: Help users recognize, diagnose, and recover from errors

- **Explicit** indication that something has gone wrong
- **Human-readable** language

#9: Help users recognize, diagnose, and recover from errors

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#9: Help users recognize, diagnose, and recover from errors

- **Explicit** indication that something has gone wrong
- **Human-readable** language
- **Polite** phrasing

#9: Help users recognize, diagnose, and recover from errors

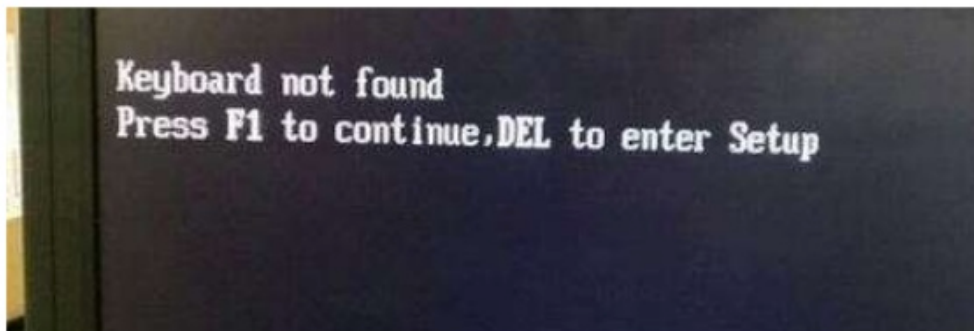
- **Explicit** indication that something has gone wrong
- **Human-readable** language
- **Polite** phrasing
- **Precise** descriptions of exact problems

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- **Human-readable** language
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- **Precise** descriptions of exact problems
- **Constructive advice** on how to fix the problem

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- **Explicit** indication that something has gone wrong
- **Human-readable** language
- **Polite** phrasing
- **Precise** descriptions of exact problems
- **Constructive advice** on how to fix the problem
- **Visible** and highly noticeable

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- **Visible** and highly noticeable
- **Preserve** as much as the user's work as possible

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- **Explicit** indication that something has gone wrong
- **Human-readable** language
- **Polite** phrasing
- **Precise** descriptions of exact problems
- **Constructive advice** on how to fix the problem
- **Visible** and highly noticeable
- **Preserve** as much as the user's work as possible
- **Reduce** the work of correcting the error

#10: Help and documentation

“Even though it is better if the system can be used without documentation, it may be necessary to provide help and documentation. Any such information should be easy to search, focused on the user's task, list concrete steps to be carried out, and not be too large.”

#10: Help and documentation



Ben Shneiderman's Eight Golden Rules of Interface Design

1. Strive for consistency.
2. Seek universal usability.
3. Offer informative feedback.
4. Design dialogs to yield closure.
5. Prevent errors.
6. Permit easy reversal of actions.
7. Keep users in control.
8. Reduce short-term memory load.