

# Human-Computer Interaction Design



COGS120/CSE170 - "Intro. HCI"

Instructor: Philip Guo

Week 3 - Heuristic Evaluation (2016-10-11)

some slides adapted from Scott Klemmer's Intro. HCI course

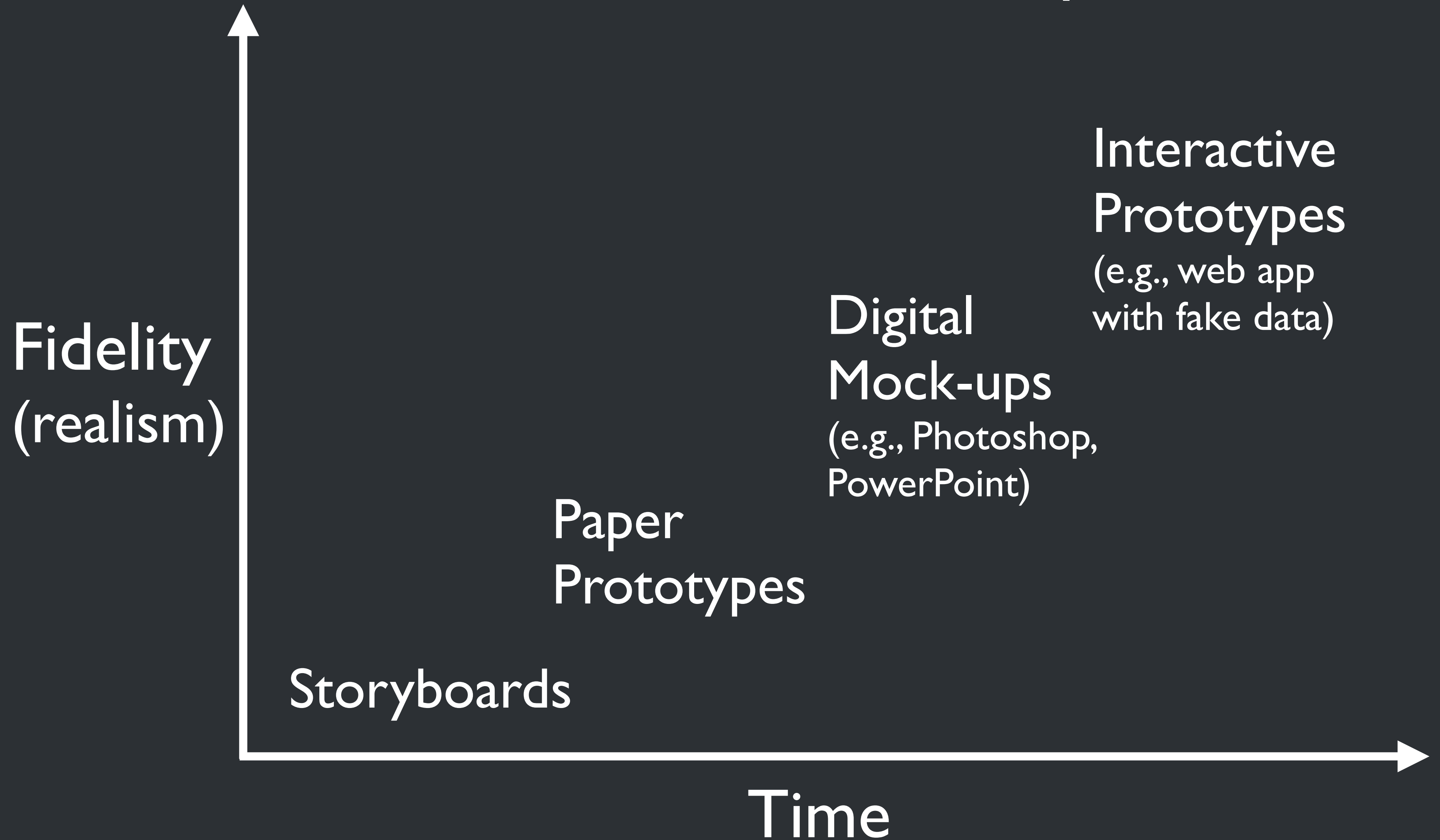
# Learning Objective

to quickly and cheaply identify problems in a user interface using *heuristic evaluation*.

## Outline

- What is heuristic evaluation?
- Ten example design heuristics
- Heuristic evaluation in-class activity

Last week: Prototypes facilitate *conversations*.  
Conversations often contain critiques



Today's main question:  
How can you tell whether  
a (prototype) user  
interface is good or not?

(this isn't a rhetorical question ... what do you think?)



Controlled usability experiments, formal models, online deployments & data analysis, A/B tests, surveys, interviews, etc., can be complex, expensive, and time-consuming.

It would be useful to have  
a fast and cheap way to  
evaluate user interfaces.

How about just stare at  
the UI and start critiquing?

Problem with staring-and-critiquing: people tend to ramble if they don't have a common *vocabulary* to orient and ground their conversations.

Today's second question:

How can you

*communicate* your

criticisms in an easy-to-

understand way?

We want a common  
*vocabulary* to orient and  
ground design critiques  
so that everyone is on  
the same page.



# What is a *heuristic*?

A guideline, rule, or technique that works well in practice, even though it cannot be proven to be optimal in any formal sense.

*Heuristic evaluation =*

Look for problems in  
a user interface using  
a set of heuristics

# How to do heuristic evaluation:

- have a set of design heuristics in mind
- manually walk through the user interface and look for *violations* of those heuristics
  - mark down *severity* level for each violation
- use the heuristics to communicate your critiques in an easy-to-understand way
- if you have multiple evaluators, everyone does it independently then discuss together

**Heuristics serve as a *vocabulary* for critiques.**



# Ten Design Heuristics

(These are widely-accepted but not an authoritative list; adapt accordingly.)

## UNDERSTANDING

 Consistency

 Use Familiar  
Metaphors & Language

 Clean & Functional  
Design

## ACTION

 Freedom

 Flexibility

 Recognition  
Over Recall

## FEEDBACK

 Show Status

 Prevent Errors

 Support Error  
Recovery

 Provide  
Help



Question from beginning  
of lecture: How can you  
*communicate* your  
criticisms in an easy-to-  
understand way?

Critique without heuristics: "I don't like this part of the UI because <blah blah blah ramble ramble>."

Heuristic evaluation: "This part of the UI violates '*Recognition Over Recall*' because of X, Y, and Z."

# Ten Design Heuristics

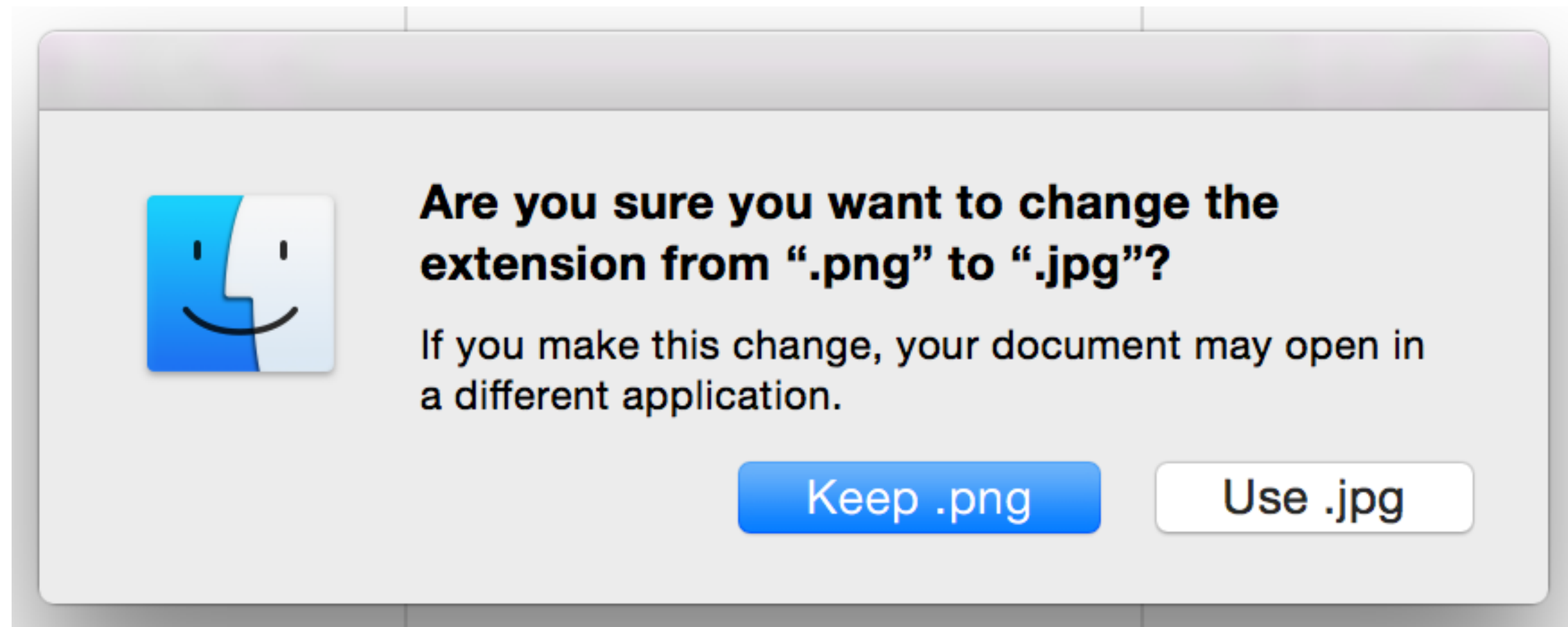
(These are widely-accepted but not an authoritative list; adapt accordingly.)

## UNDERSTANDING

 Consistency

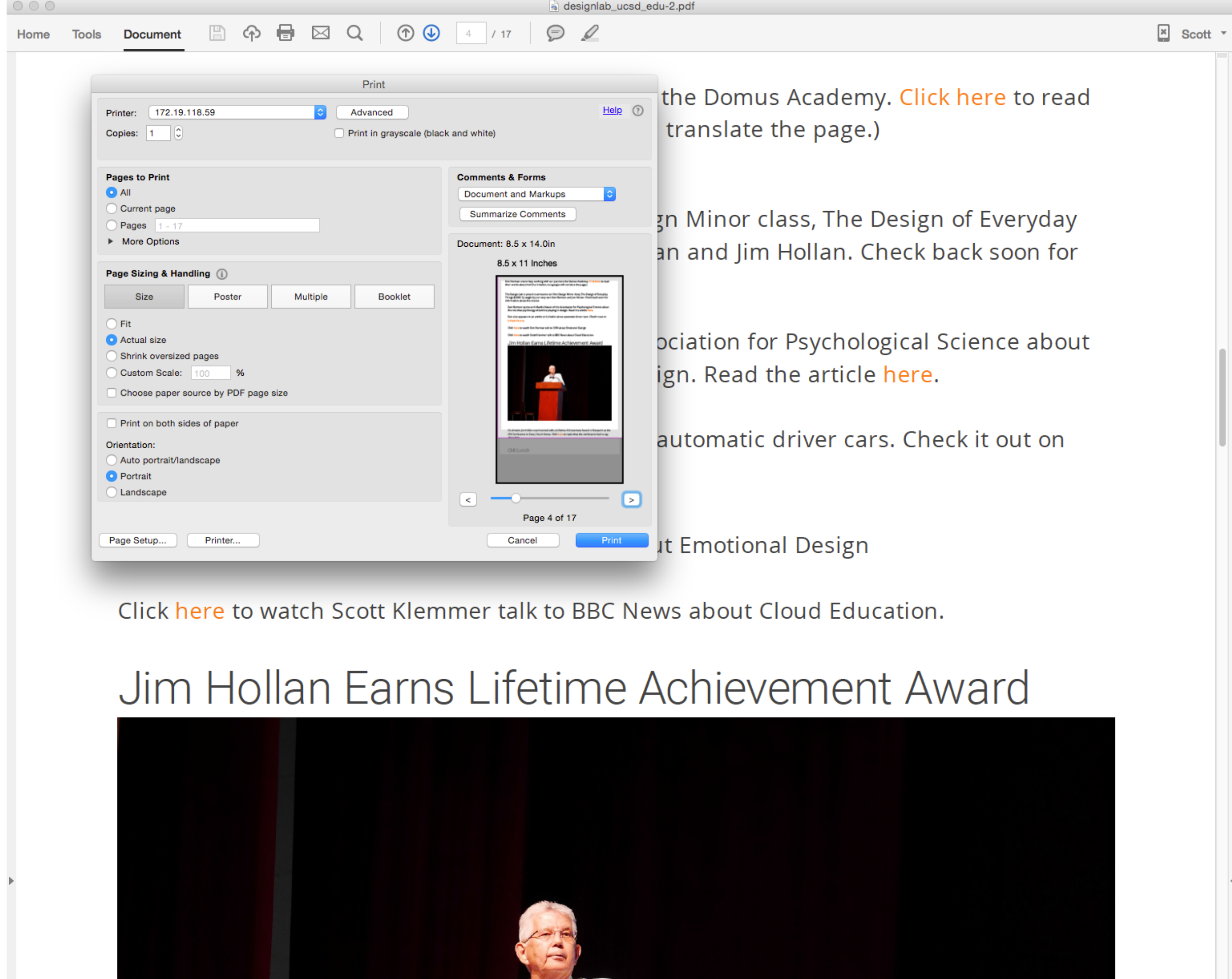
 Use Familiar  
Metaphors & Language

 Clean & Functional  
Design



**Consistent wording**  
**Consistency**

Apple Mac OS X Finder



# Metaphors

## Familiar metaphors & language

Adobe Acrobat  
2015





Desktop



Folder



Cart

# Metaphors

## Familiar metaphors & language

Images courtesy of SAP





GAMES ▼

VIDEO ▼

COMMUNITY



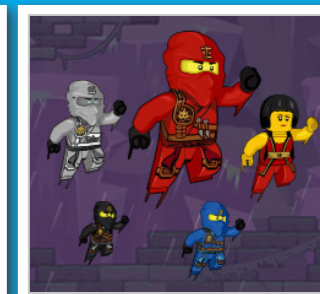
SEARCH



## GAMES



**TEEN TITANS GO!**  
Last Villain Standing



TEEN TITANS GO! GAMES

**PLAY** ►

GUMBALL GAMES

**Familiar language**  
**Familiar metaphors & language**

<http://www.cartoonnetwork.com/>





# CAR LEASING

Want a cheap new lease car? Start HERE!



My cheapest leasing deals!

Click to chat is closed

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## ABARTH CAR LEASING

500  
500 Convertible  
595  
595 Convertible

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## ALFA ROMEO LEASE CARS

Giulietta  
Mito

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Note: I live inside this website Monday to Friday 9am-6pm, to give you a very best service and make your experience a happy one! - I am Ling, accept no substitutes

# LINGSCARS.com

UK CONTRACT HIRE CARS FROM LING VALENTINE

Version 237.1. You can trust me! ... In 2014 I'll rent over £75 million of cars (at RRP)!

## CAR LEASING - CONTRACT HIRE - CHEAP LEASE CARS

Home

Cars and Vans

How It Works

Price Lists

About Ling

Customers

Fun Stuff

Quote/Order

Business Customer Pricing   **Personal Customer Pricing**   The Best FAQs in the World!

**NEW SEXY**  
christine full rep

**FEAR CARS**

Search Cars Here

@LINGSCARS Follow Me

**LING'S LIVE TWITTER FEED**

ruan\_odendaal: @LINGSCARS I do, commute via train into London and use the car evening & weekends only. I wouldn't buy a Fiesta though lol

Kentmoto: @LINGSCARS @BuckinghamFord do think individuals sign to these cheap low mileage lease cars? I'd clock the car before handing them back?

LINGSCARS: I've hit last year's invoice total for July, with 1 week of invoicing still to go this month. Onwards and upwards!

Intro Film   News   Blog   Office TV   Contact   Moan   Links   Play Quiz   Privacy Policy   Google Visitors

**"JUST CLICK!"**

**THE BEST... FREQUENTLY ASKED QUESTIONS ...IN THE WORLD!**

You can't find a car?

Richard Farleigh - "I wanted to invest; I was amazed by Ling's complete lack of nerves, and also by her business acumen."

Duncan Bannatyne - "I wanted to invest... but ye turm'ed me doon!"

Deborah Meaden - "Harrumph! I'm out!"

## MEET MY STAFF

VIZ Ling is OFFICIAL VIZ ethnic business ambassador!

PLAY STUPID CRASH GAME!

CHEAP INSURANCE

Google Spider Food

View LIVE visitors:  39 online

Hi! I am Ling  **WAH!** from Dragons' Den. I lease cheap new cars!

UPDATE... The latest car I've added is a Smart ForTwo Coupe 1.0 i 12v (70bhp) Passion Premium Coupe 2dr 999cc Petrol at £229.99 incl VAT + £5.99 p/h.

Play stupid game

THE BEST FAQ's JUST CLICK IN THE WORLD!

LIVE CHAT!

关闭 CLOSED

Signal to noise  
Clean & Functional Design

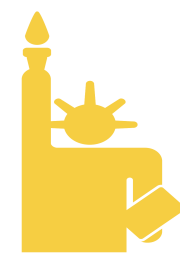
LINGSCARS.com



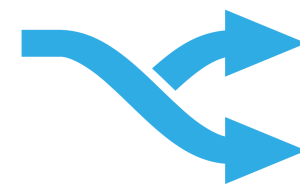
# Ten Design Heuristics

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## ACTION



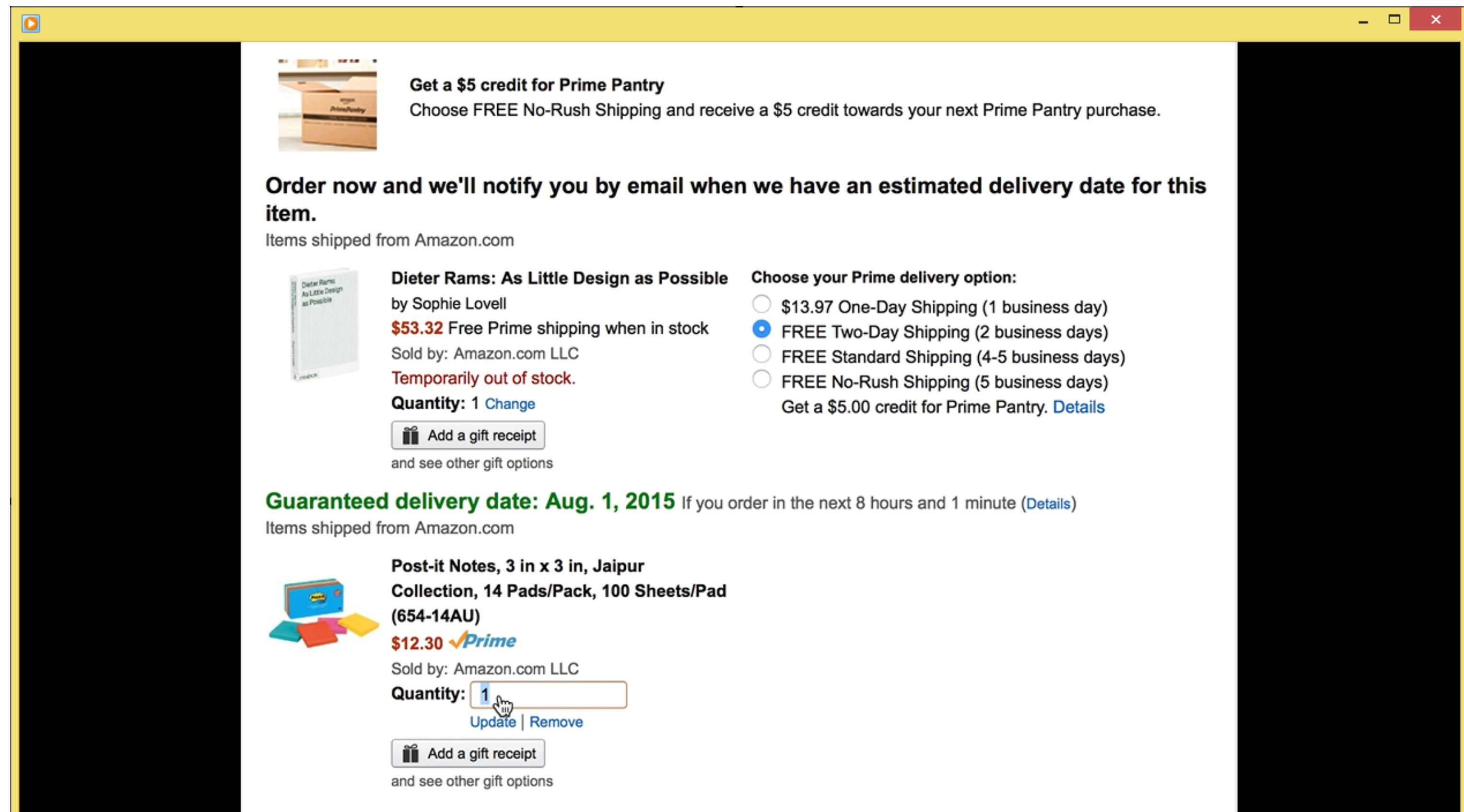
Freedom



Flexibility



Recognition  
Over Recall



Easy undo and changes  
Freedom

Amazon check out



## New York → Paris

Fri 31/07/2015  
from USD 4,326

Sat 01/08/2015  
from USD 1,364

Sun 02/08/2015  
from USD 566

Mon 03/08/2015  
from USD 566

JFK                      ZRH  
**21:00** ✈ **10:50 +1**  
JFK Intl. Apt.

 Connection time: 1h 40m  
LX 15 Operated by SWISS

Economy  
not available


Business  
from USD **4,326**

First  
from USD **6,448**

ZRH                      CDG  
**12:30** ✈ **13:50 +1**

 Travel time: 10h 50m  
LX 638 Operated by SWISS GLOBAL AIR  
LINES

JFK                      ZRH  
**21:00** ✈ **10:50 +1**  
JFK Intl. Apt.

 Connection time: 6h 00m  
LX 15 Operated by SWISS

Economy  
not available

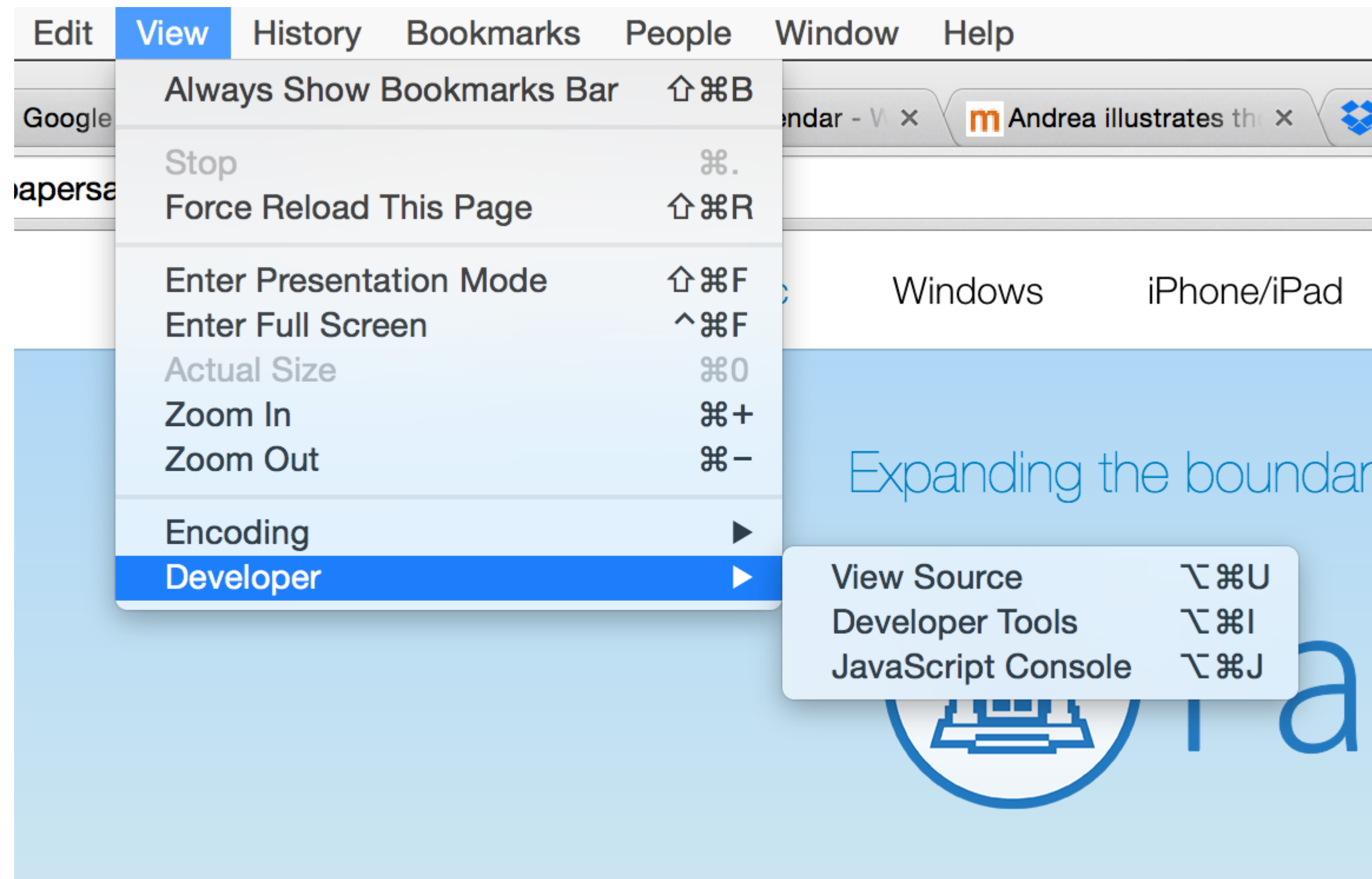
Business  
from USD **4,326**

First  
from USD **6,448**

ZRH                      CDG

# Exploring alternatives Freedom

Swiss International Airline Ltd.



**Keyboard shortcuts**  
**Flexibility**

Google Chrome

<

<

Day

Week

Month

Year

List

>

>

Pacific Time ⌵

Q Search

edu

vents

15

30

6

13

20

27

2015

3

10

17

24

015

all-day

10 AM

11 AM

Noon

1 PM

2 PM

3 PM

4 PM

Sunday

76° / 64°

Monday

76° / 64°

Tuesday

78° / 66°

10:00 AM  
Honcho Huddle —  
Garden room

Wednesday

80° / 68°

Thursday

80° / 69°

Friday

82° / 69°

11:30 AM  
STAFF at UCSD Staff  
Association's Annual  
Picnic

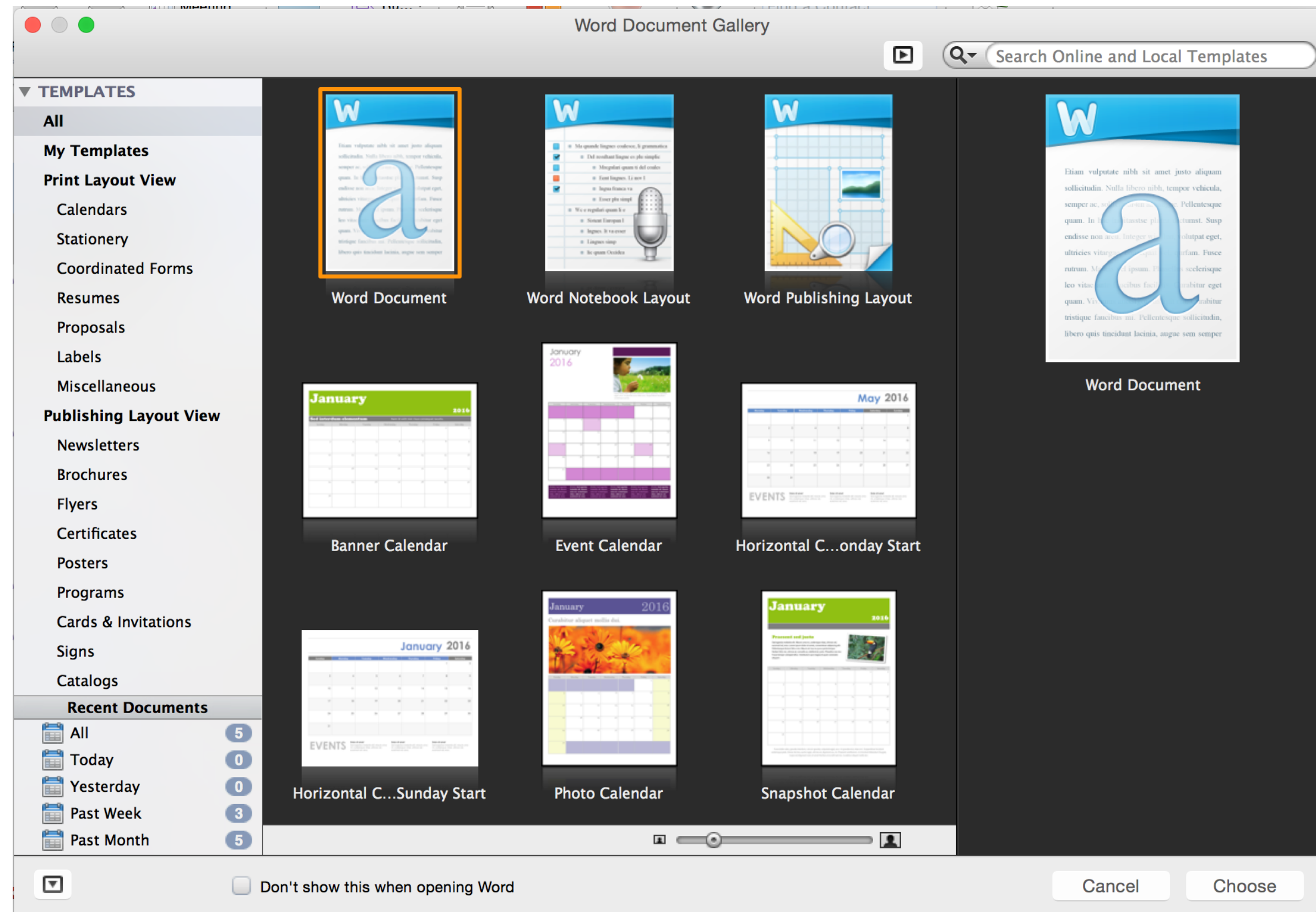
4:00 PM  
Matteo Vicentini (notes)

Saturday

82° / 69°

Ambient information  
Flexibility

BusyCal Weather



# Previews Recognition over Recall

Word for Mac

# Ten Design Heuristics

(These are widely-accepted but not an authoritative list; adapt accordingly.)

## FEEDBACK



Show Status



Prevent Errors

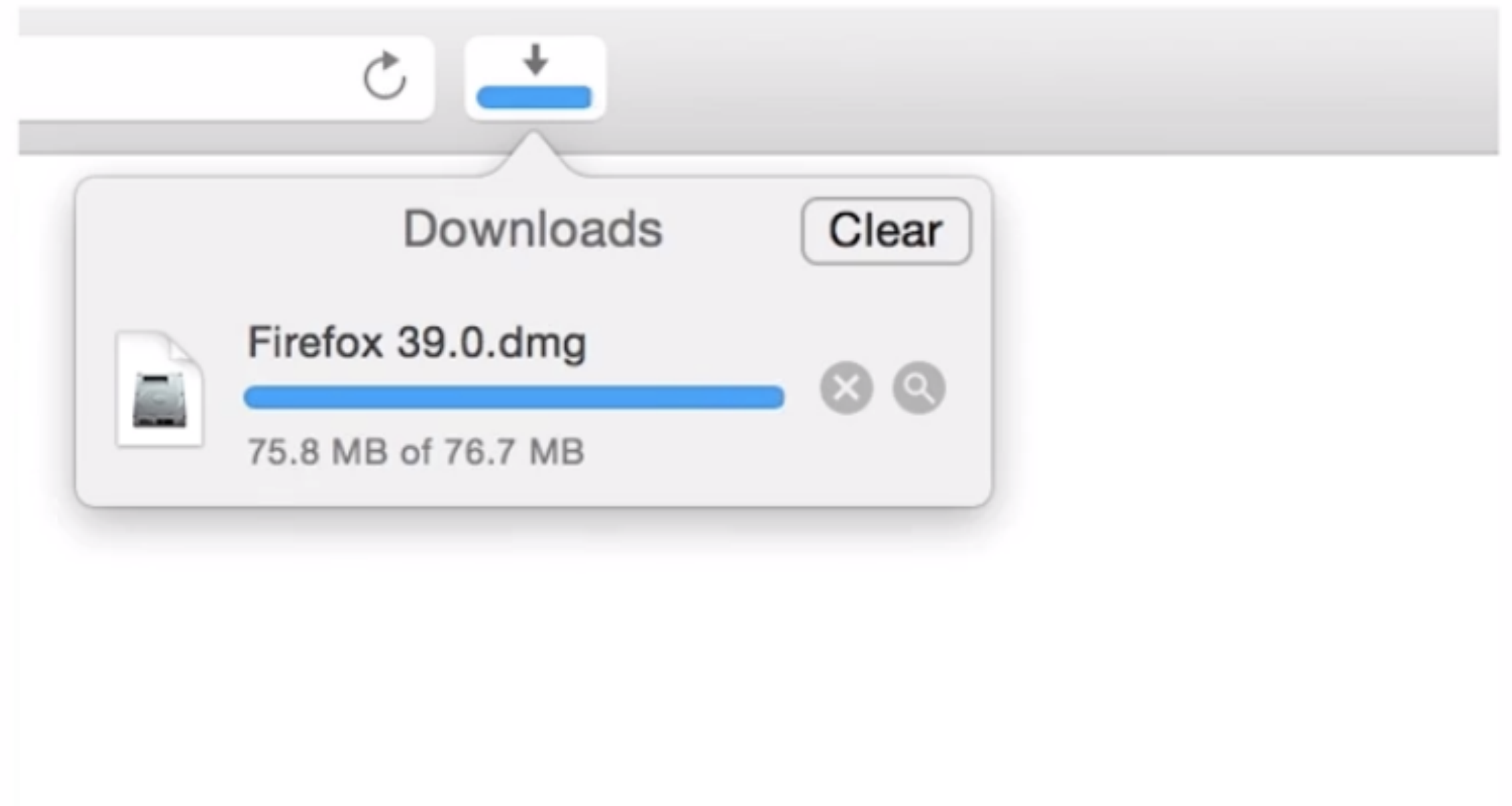
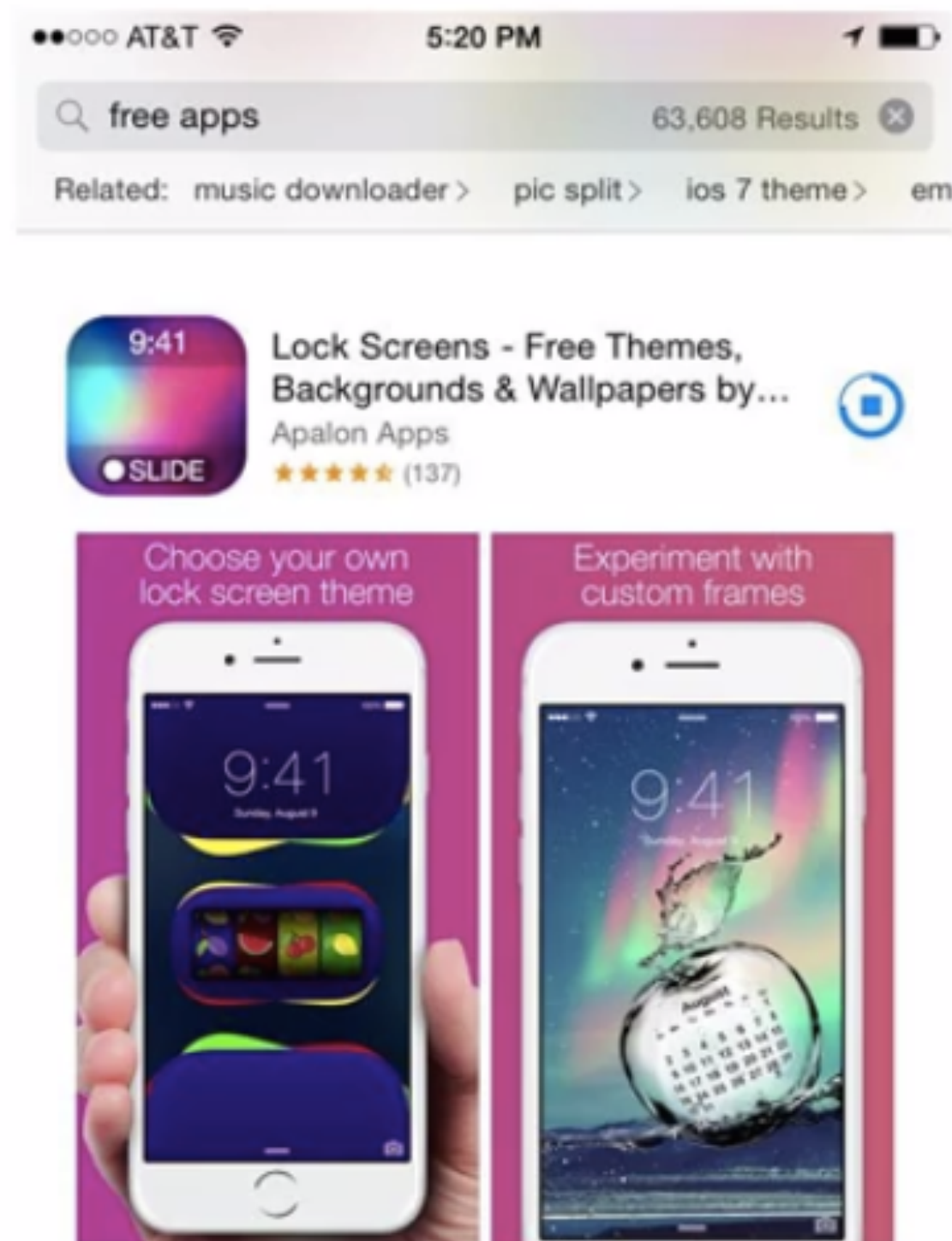


Support Error  
Recovery



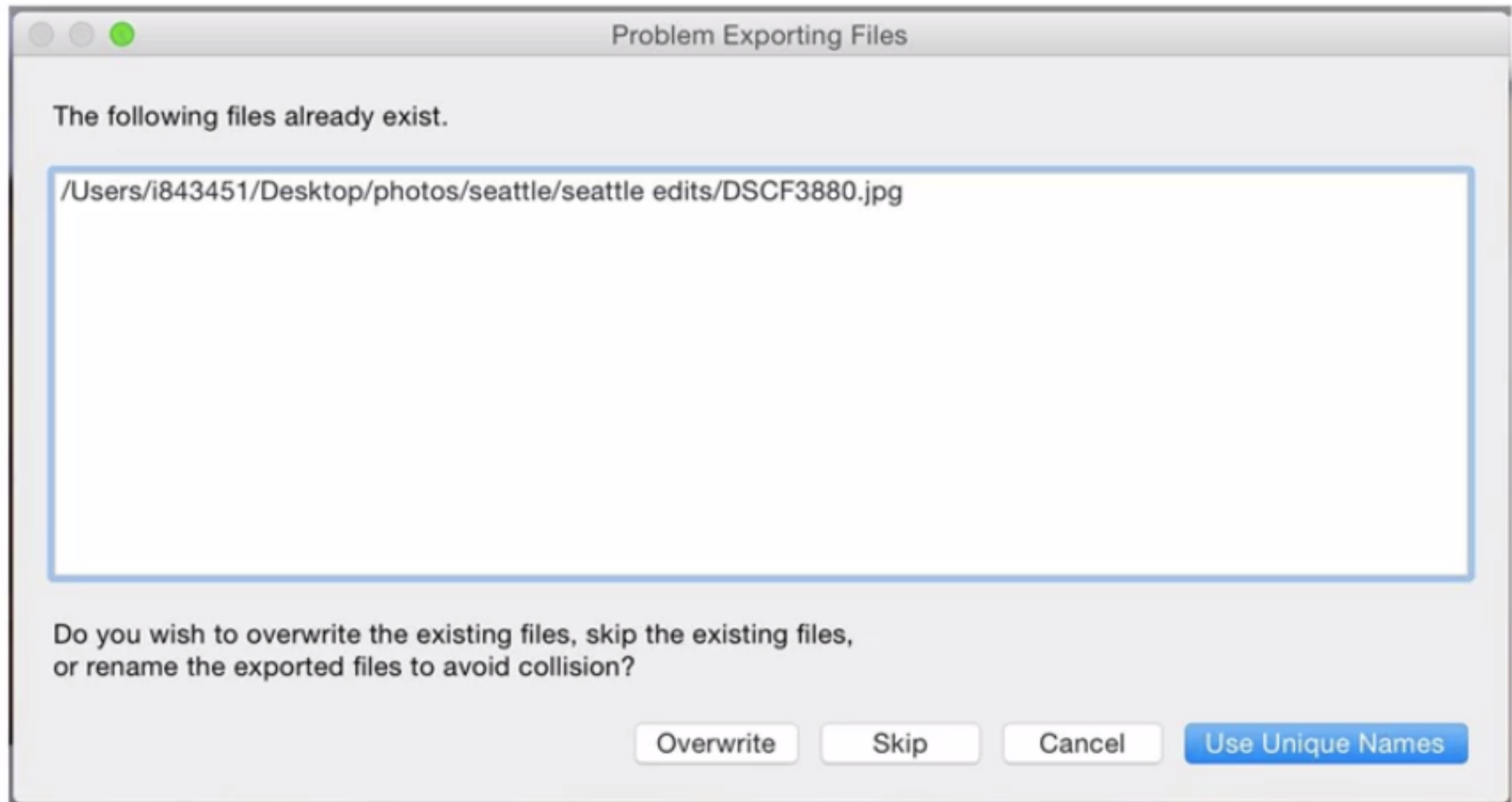
Provide  
Help





# Progress bars Show Status

Apple's App Store, Firefox



**Prevent data loss**  
**Prevent Errors**

Adobe Lightroom



facebook

Email or Phone


☐ Keep me logged in

Password

Forgot your password?

Log In

Facebook helps you connect and share with the people in your life.



What's your name?

Sign Up

It's free and always will be.

First name

Last name

Email or mobile number

Re-enter email or mobile number

New password

Birthday

Month

Day

Year

Why do I need to provide my birthday?

Female

Male

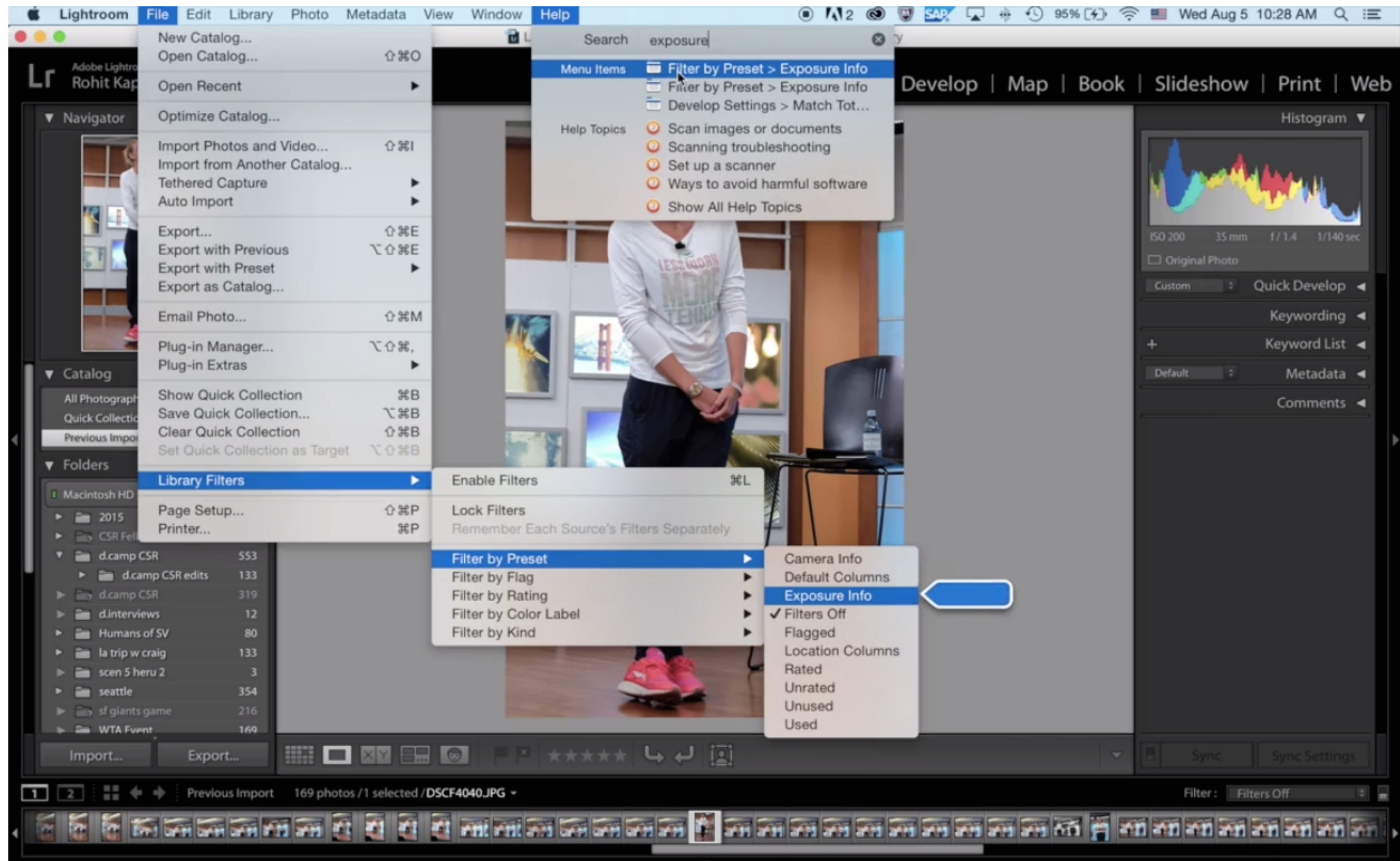
By clicking Sign Up, you agree to our [Terms](#) and that you have read our [Data Policy](#), including our [Cookie Use](#).

Sign Up

Create a [Page](#) for a celebrity, band or business.

Guide user to recover  
Support Error Recovery

Facebook



Search then preview menus  
Provide Help

Adobe Lightroom

Some of these examples were framed as positives to strive for. But for your assignment, you need to explicitly look for *violations* of heuristics in your classmates' prototypes. Don't hold back!



**OK YOUR TURN!**

**IN-CLASS HEURISTIC  
EVALUATION ACTIVITY**

**(designed along with TA Shawn Kang, Fall 2016)**

Heuristic evaluation of popular websites; do this by yourself as practice for Assignment 3 ...

- Visit this URL: <http://shoutkey.com/start>
- Do one at a time for ~5 minutes by yourself, then we will discuss as a class

# Learning Objective

to quickly and cheaply identify problems in a user interface using *heuristic evaluation*.

## TODOs after class

- Keep up with Piazza and course website for future assignments due every week
- Make sure you're on Piazza & Gradescope