

«Human-Computer Interaction»  
**Nielsen's Heuristics**

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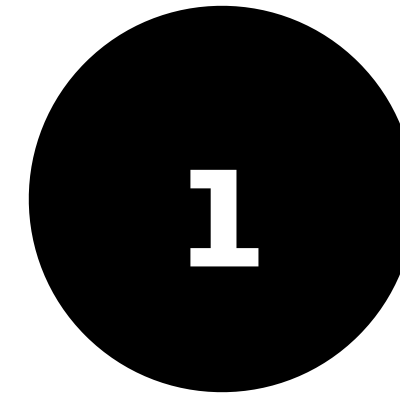
Human-Centered Computing, Institute of Computer Science

Freie Universität Berlin

# Nielsen's Heuristics

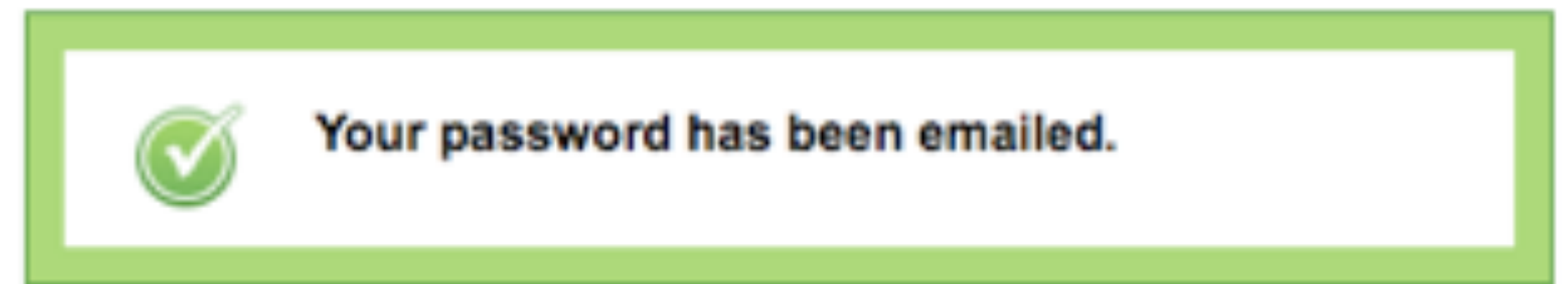
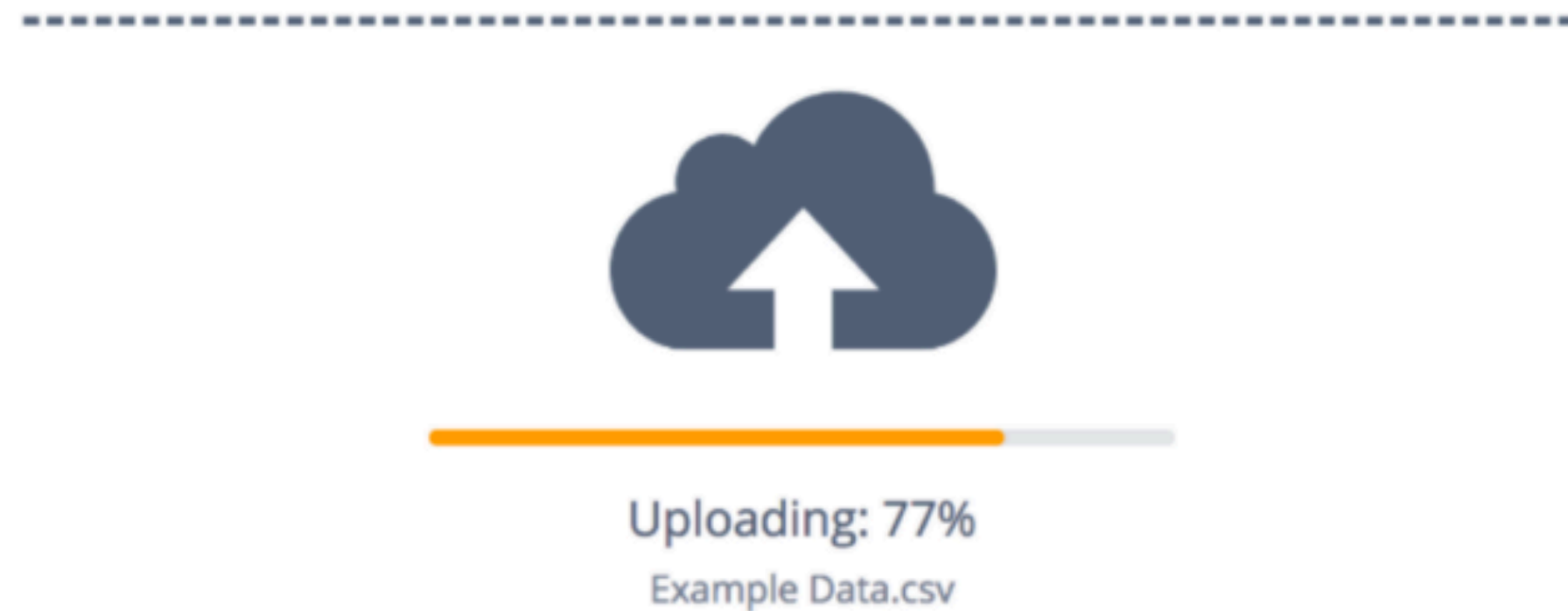
1. **Visibility of system status** (*feedback*)
2. **Match between system and the real world** (*metaphor*)
3. **User control and freedom** (*navigation*)
4. **Consistency and standards** (*consistency*)
5. **Error prevention** (*prevention*)
6. **Recognition rather than recall** (*memory*)
7. **Flexibility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

Nielsen, J., (1994). Heuristic evaluation. In J. Nielsen & R. L. Mack (Eds.), Usability inspection methods (pp. 25-62). New York: John Wiley & Sons.



# Visibility of System Status

The visibility of system status refers to how well the state of the system is conveyed to its users. Ideally, systems should always keep users informed about what is going on, through appropriate feedback within reasonable time.

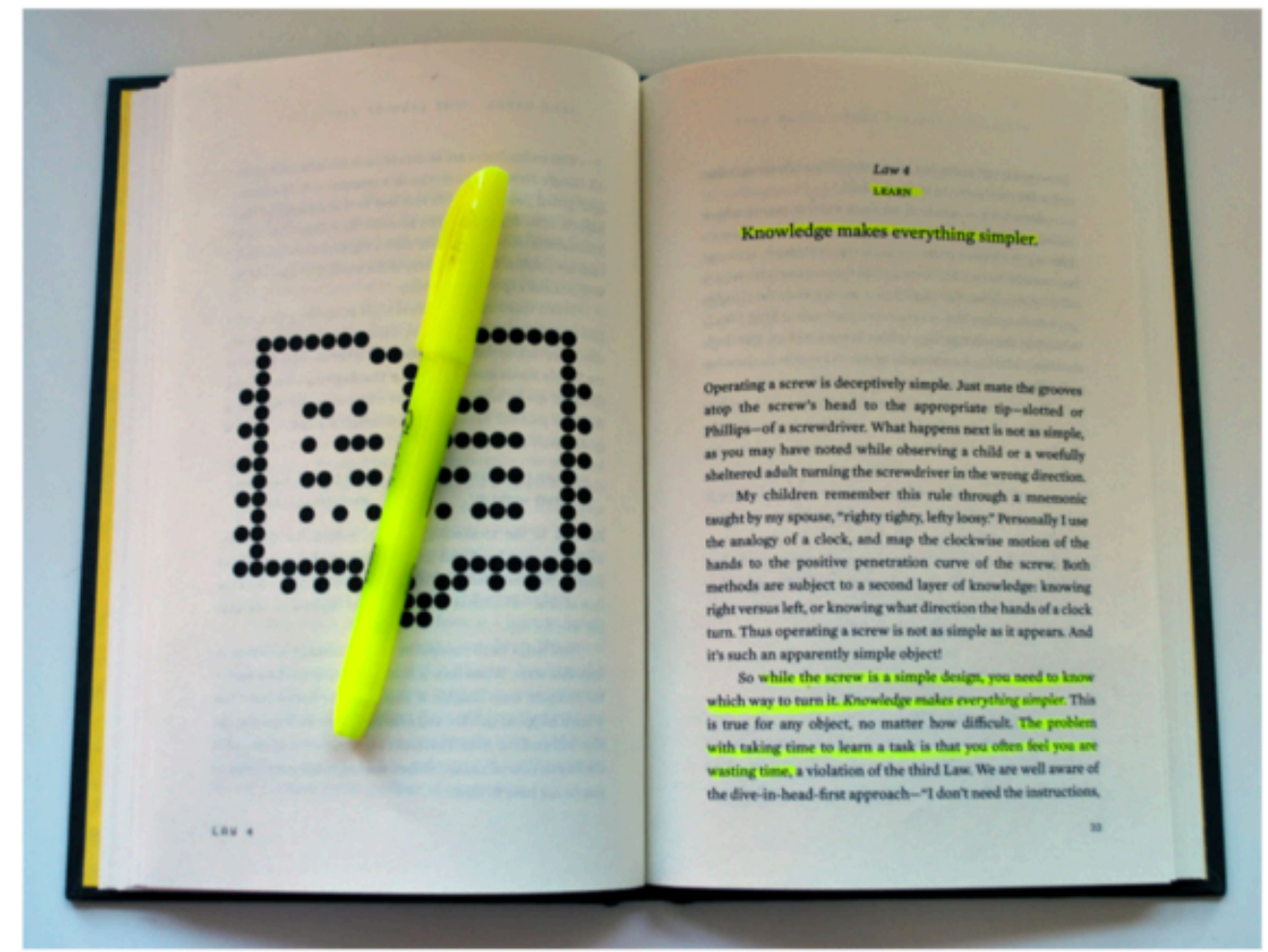
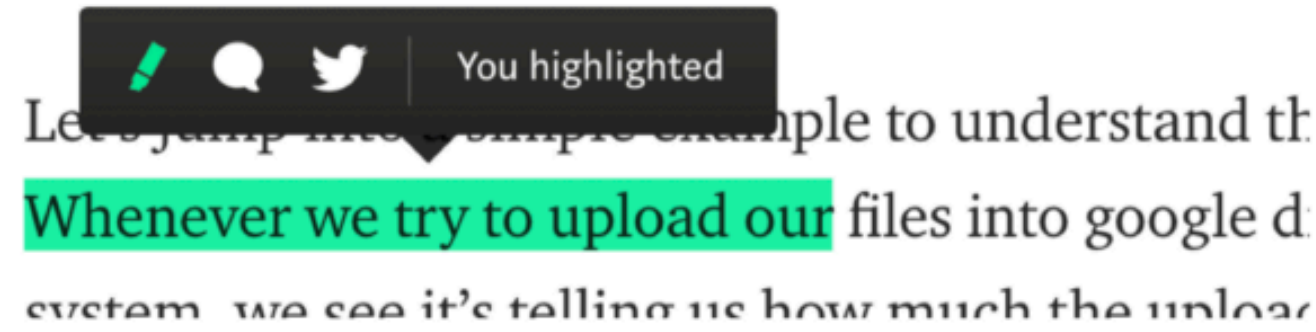
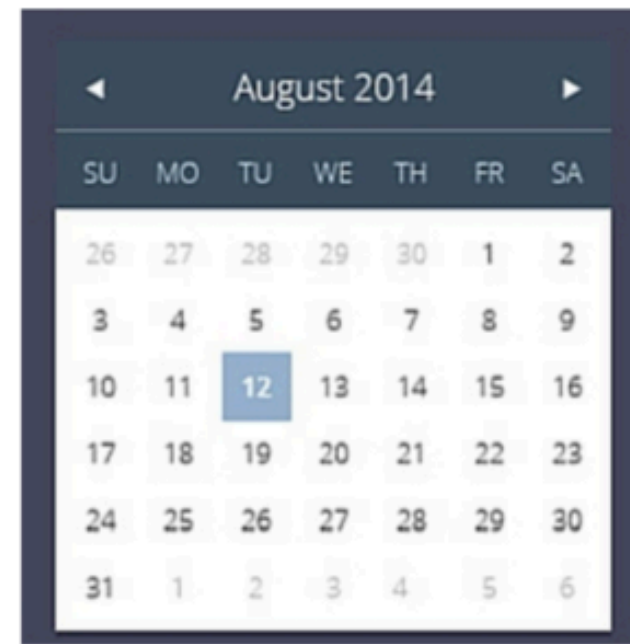


Nielsen, J., and Molich, R.: Heuristic evaluation of user interfaces, Proc. ACM CHI'90 Conf. (Seattle, WA, 1-5 April), 249-256. (1990).  
Examples taken from: <https://medium.com/nyc-design/1-visibility-of-system-status-with-examples-5e3bc9adfe7b>



# 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.

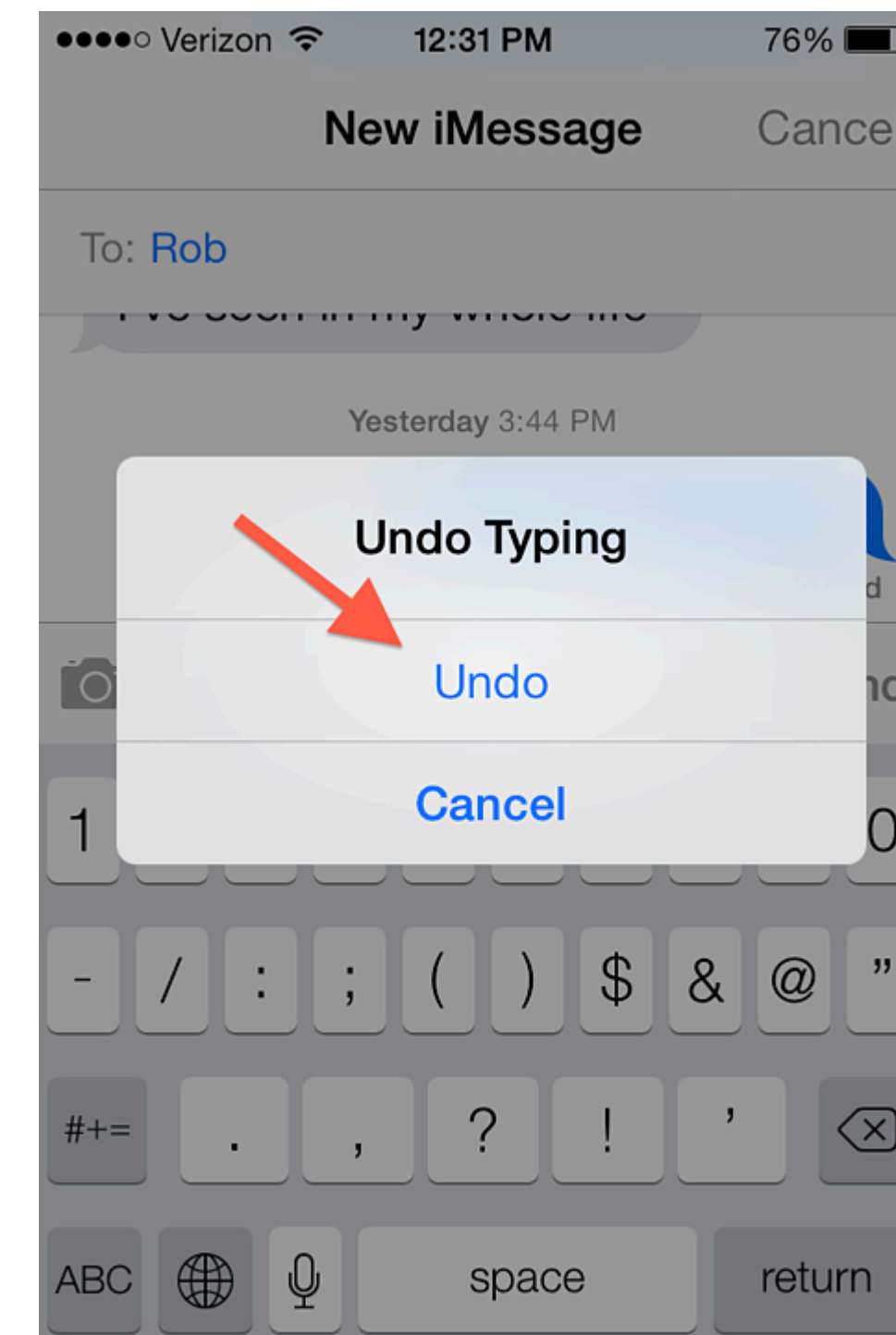
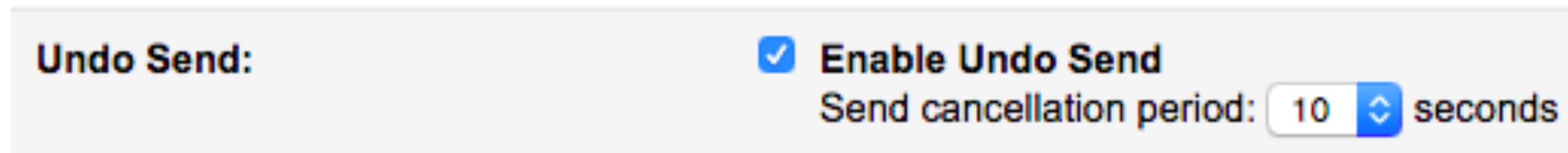
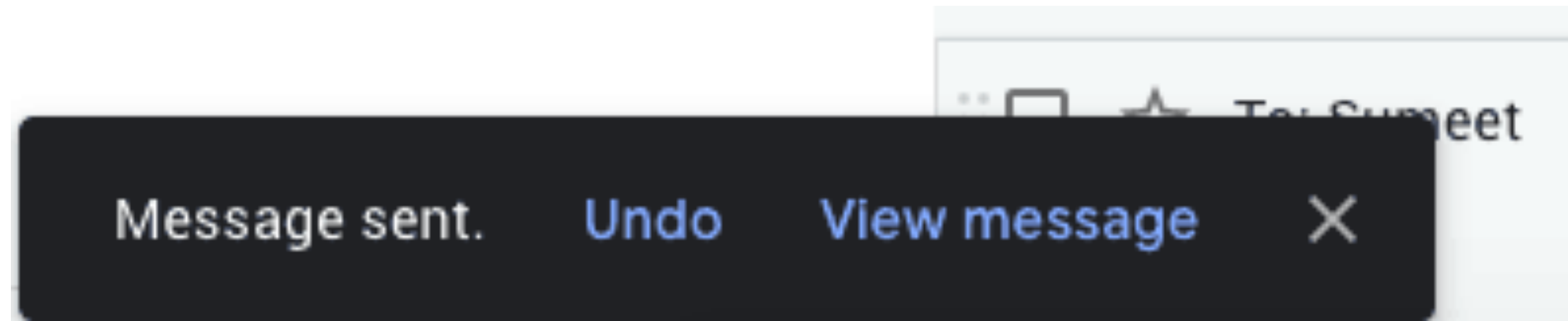


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# User Control and Freedom

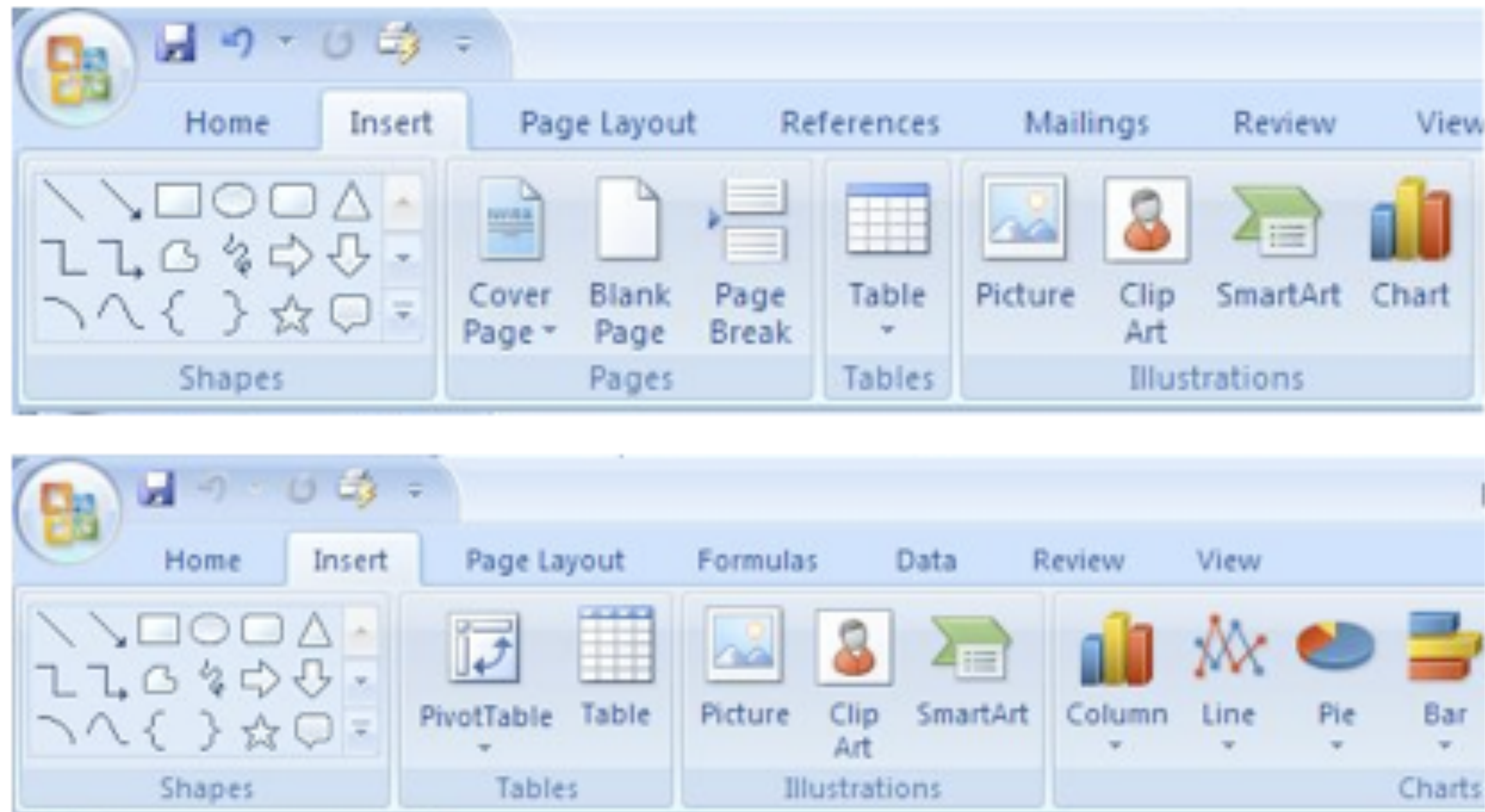
Users often choose system functions by mistake and will need a clearly marked emergency exit to leave the unwanted state without having to go through an extended dialog. Support undo and redo.



Nielsen, J., and Molich, R.: Heuristic evaluation of user interfaces, Proc. ACM CHI'90 Conf. (Seattle, WA, 1-5 April), 249-256. (1990).  
Examples taken from: <https://blog.hubspot.com/marketing/hacks-to-undo-tech-mistakes>

# Consistency and Standards

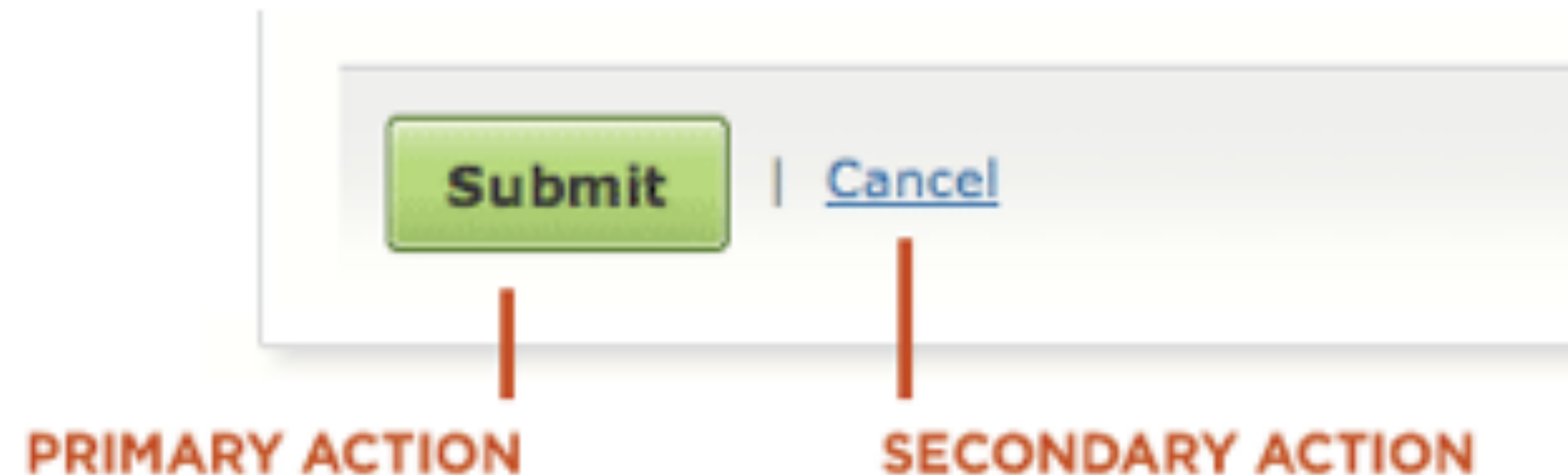
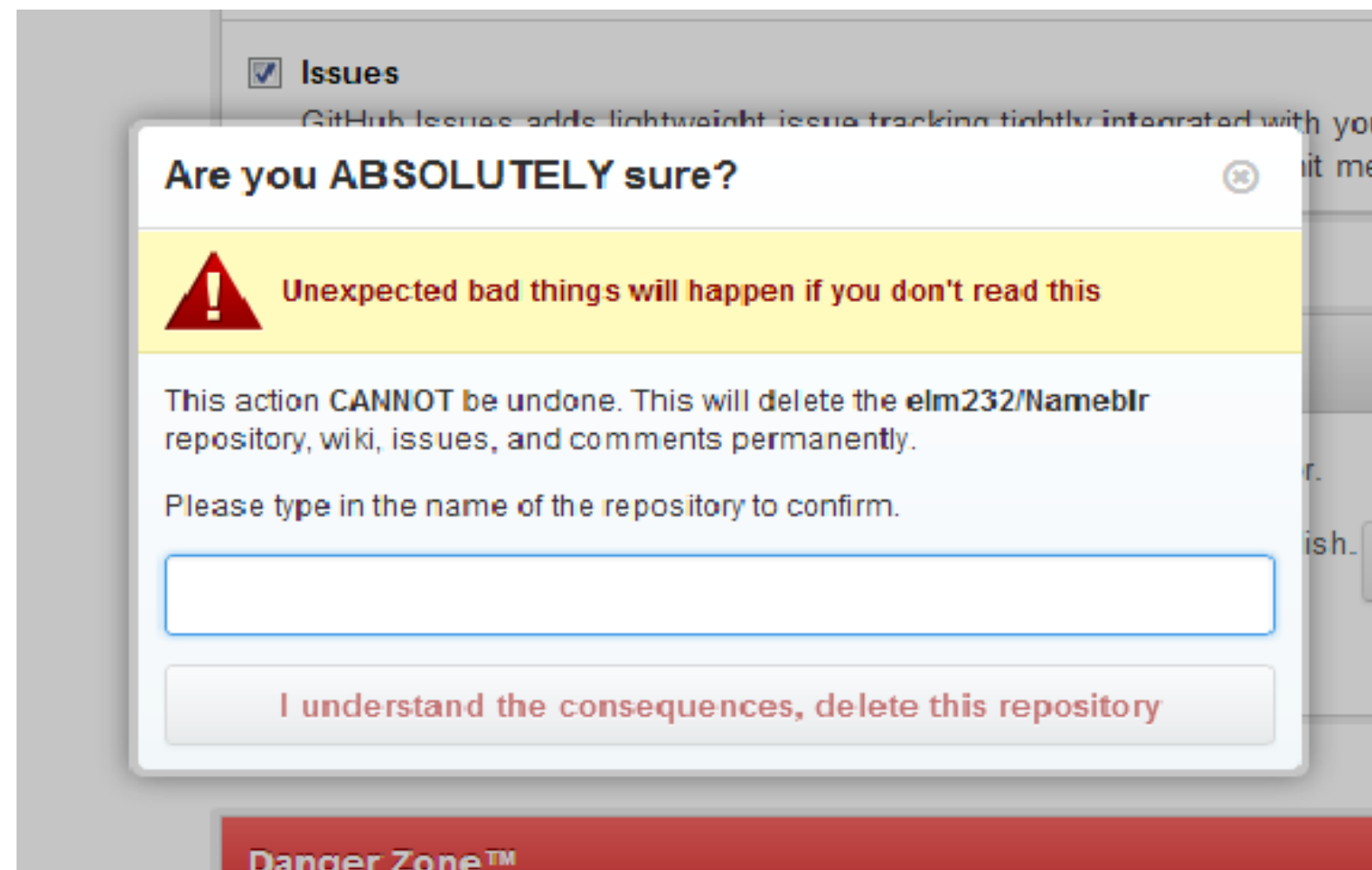
Users should not have to wonder whether different words, situations, or actions mean the same thing. Follow platform conventions.



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# 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.



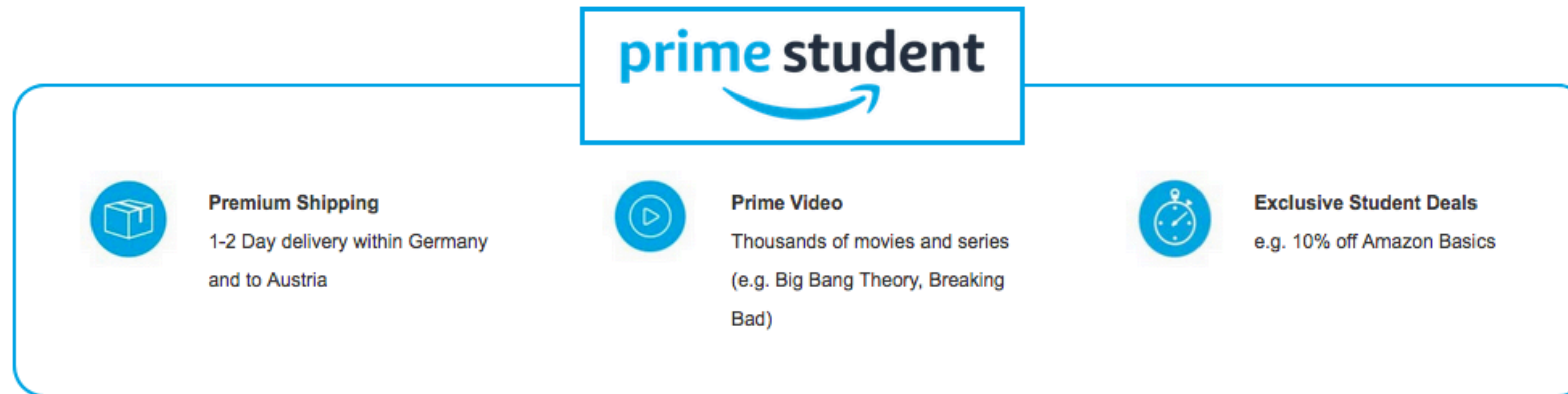
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Examples taken from: <http://designingwebinterfaces.com/6-tips-for-a-great-flex-ux-part-5>



# Example: Error Prevention?

Enjoy Prime Video, exclusive offers for Students and Twitch Prime

The first 12 months are on our sponsor - Enjoy Prime Student



The diagram features the 'prime student' logo at the top center. Below it, three benefit categories are listed, each with an icon and a description:

- Premium Shipping**: 1-2 Day delivery within Germany and to Austria (icon: box)
- Prime Video**: Thousands of movies and series (e.g. Big Bang Theory, Breaking Bad) (icon: play button)
- Exclusive Student Deals**: e.g. 10% off Amazon Basics (icon: clock)

In Partnerschaft mit  Microsoft Surface

Expected Graduation Date

Year

No charge during the first 12 months.

No thanks, I do not want fast, free delivery

The first 12 months are on our sponsor - pay later

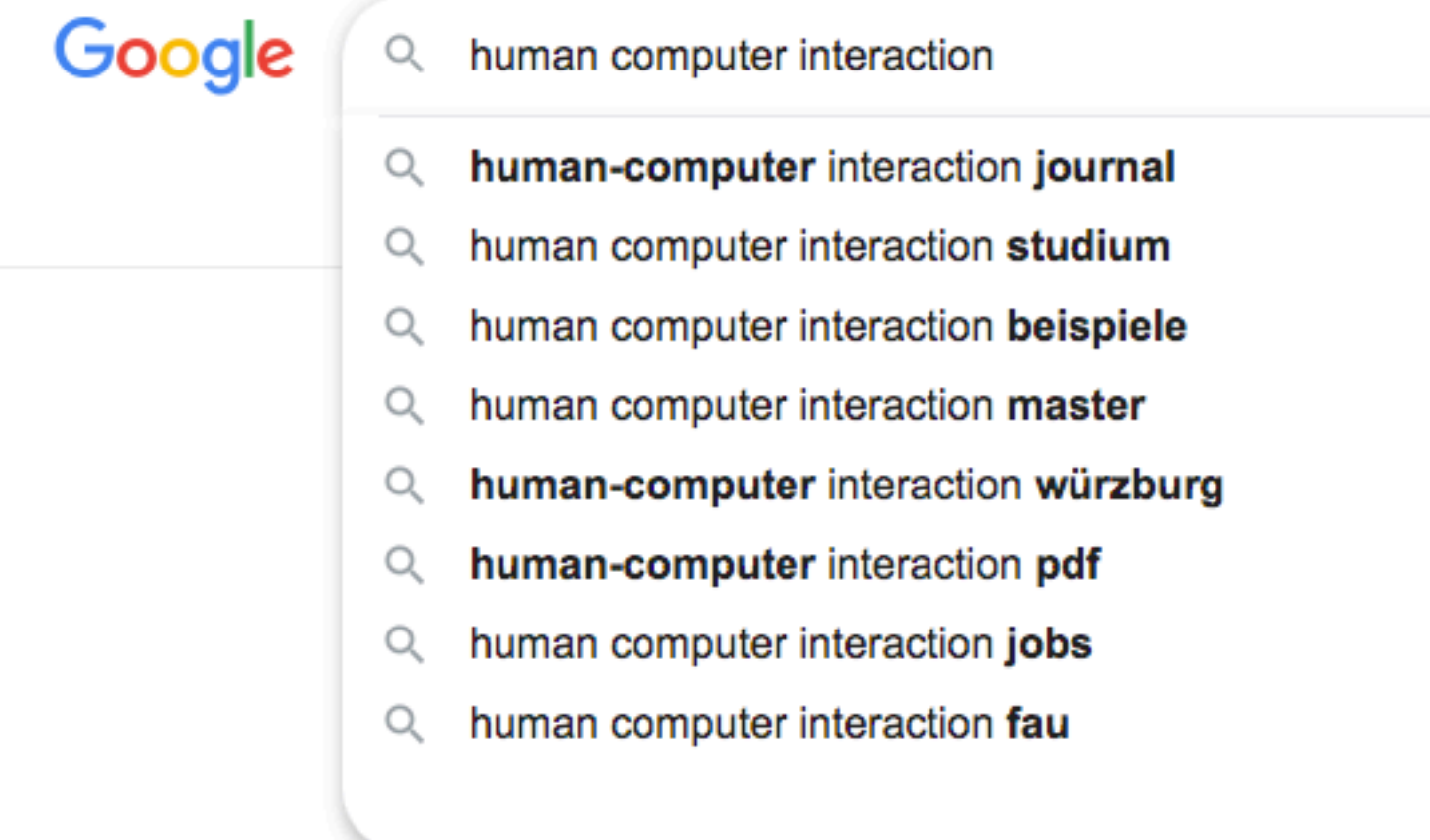
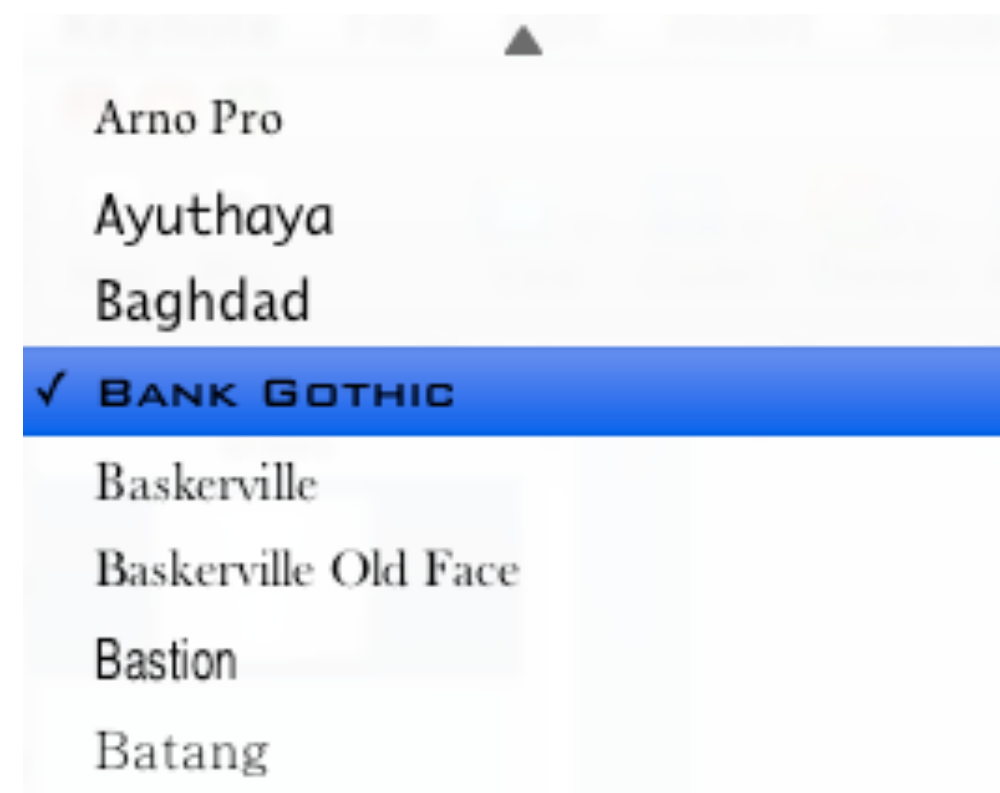
Cancel anytime.



# 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 dialog to another. Instructions for use of the system should be visible or easily retrievable whenever appropriate.

```
3 import java.io.BufferedReader;
4 import java.io.IOException;
5 import java.io.InputStreamReader;
6 import java.io.PrintStream;
7 import java.net.Socket;
8 import java.net.UnknownHostException;
9 import java.net.
10
11 public class
12
13     static f
14     static f
15 public s
16 Buffered
17 Socket s
18 try {
19     sock
20 } catch
21     Syst
22     Syst
23 } catch
24     System.out.println(e.getMessage());
```



7

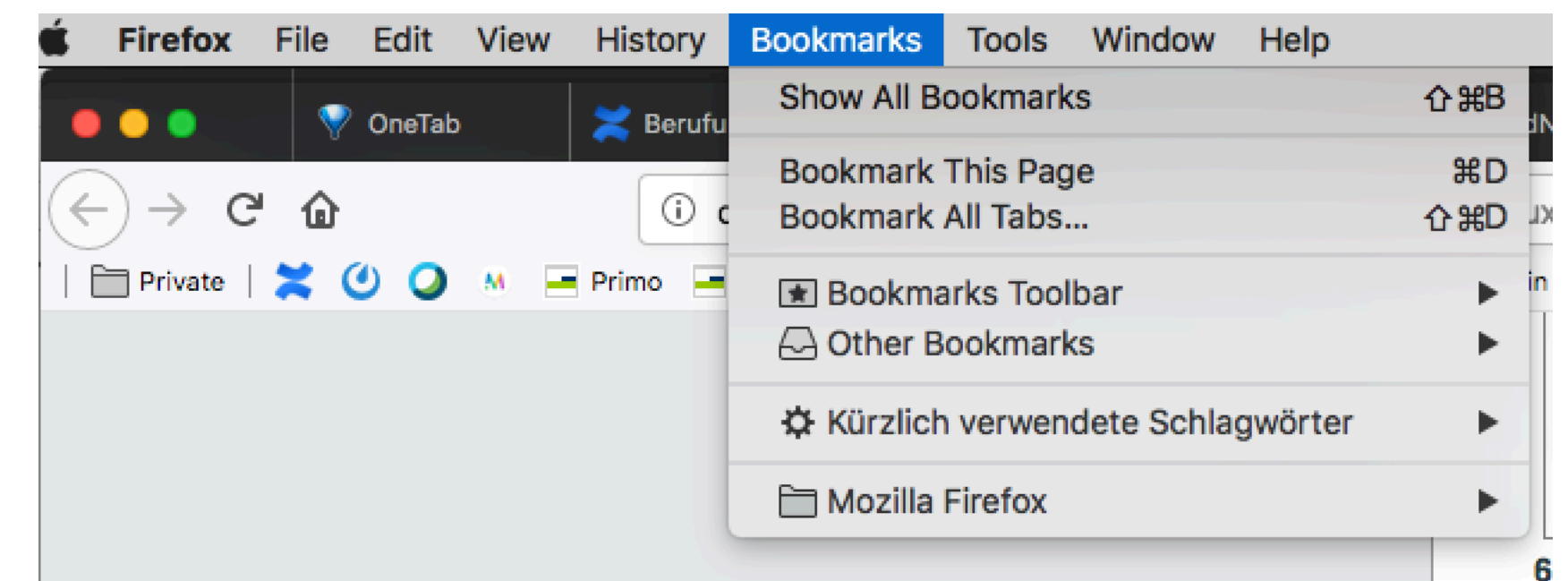
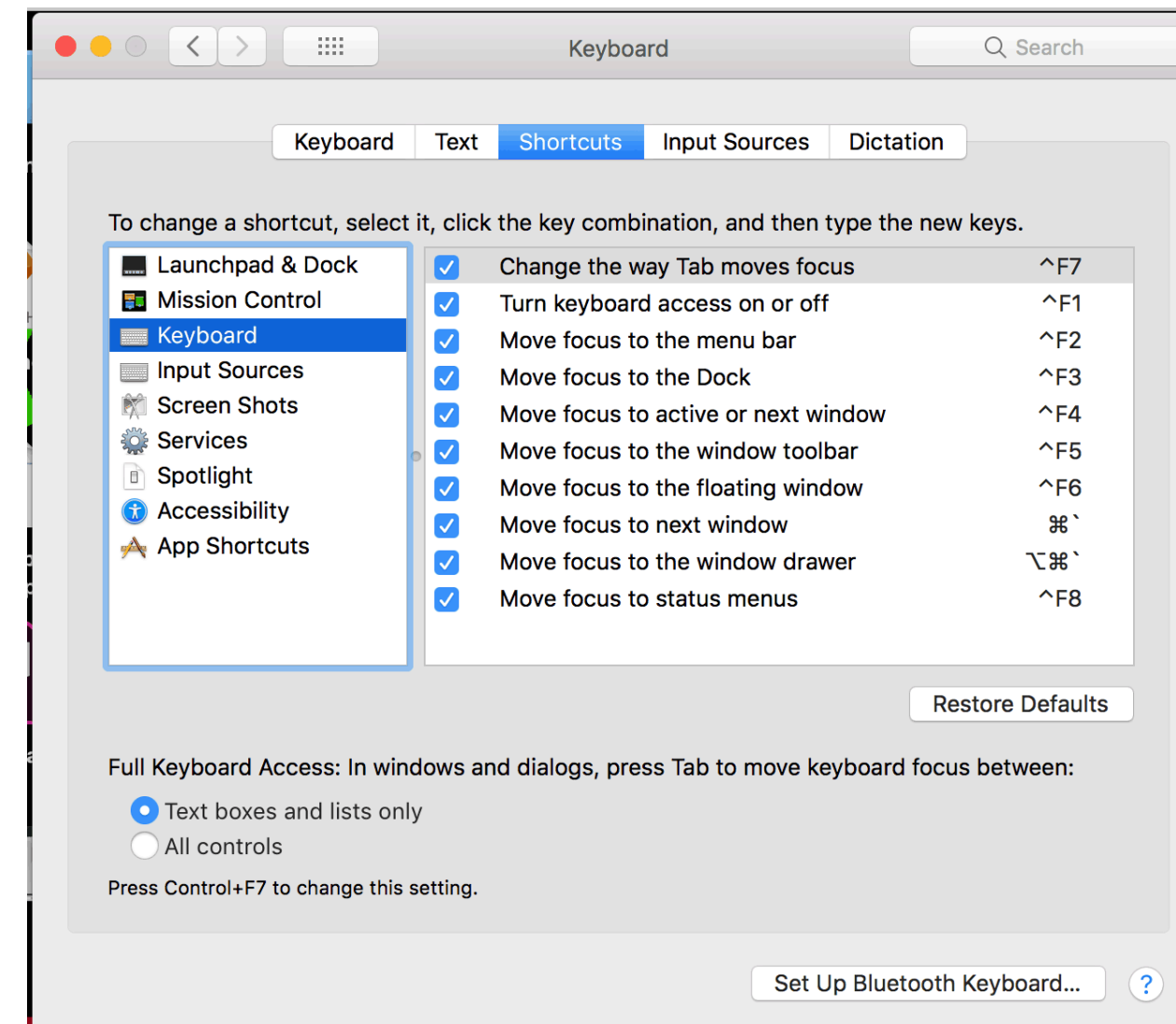
# Flexibility and Efficiency of Use

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.

### Common Shortcuts

Add Action	Return
New Window	⌘N
Synchronize with Server	⌘S
Clean Up	⌘K
Planning Mode	⌘1
Context Mode	⌘2
Inbox	⌘1
Quick Entry	⌘Space

*Quick Entry's shortcut can be customized in Preferences*



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Examples taken from: <http://designingwebinterfaces.com/6-tips-for-a-great-flex-ux-part-5>



# Aesthetic and Minimalist Design

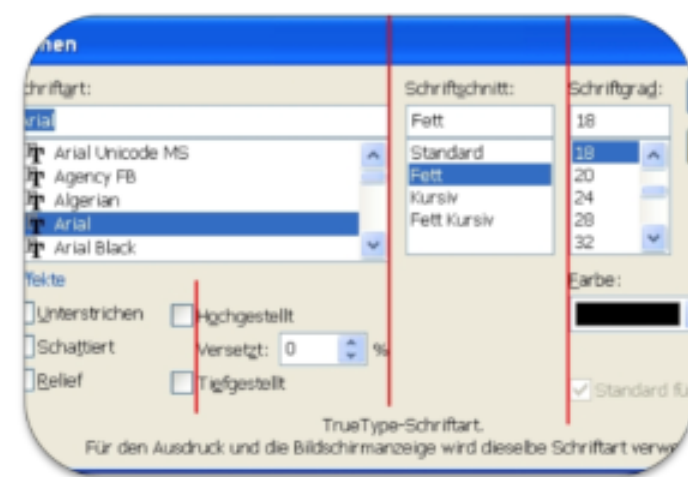
Dialogs should not contain information that is irrelevant or rarely needed. Every extra unit of information in a dialog competes with the relevant units of information and diminishes their relative visibility.

Visual hierarchy lets people focus on the relevant information



Grid level

- Overall structure



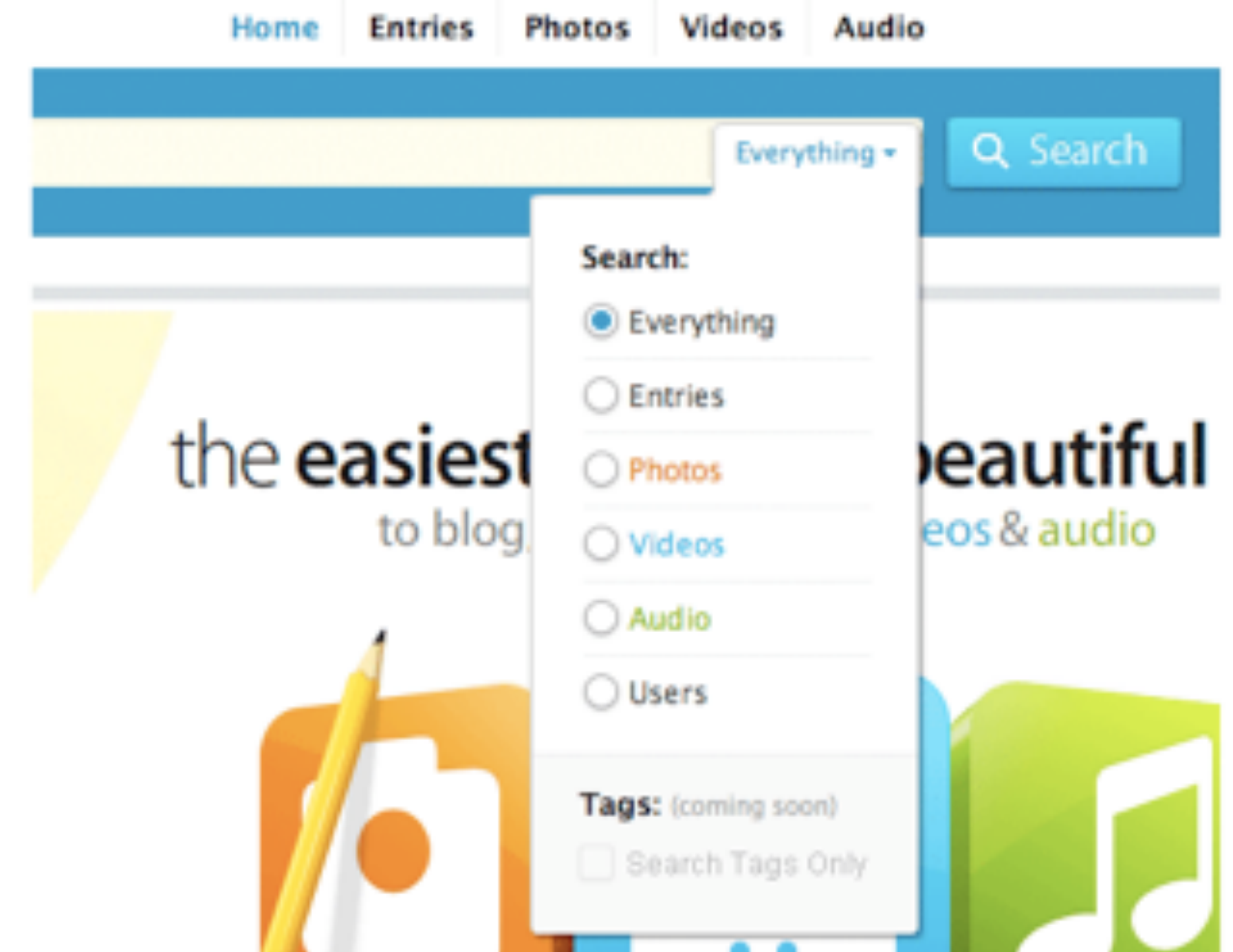
Layout level

- Arrangement of elements



Text Level

- Paragraph structuring



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# 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.

Or start a new account

Choose a username (no spaces)  
bert

Choose a password  
\*\*\*

Retype password

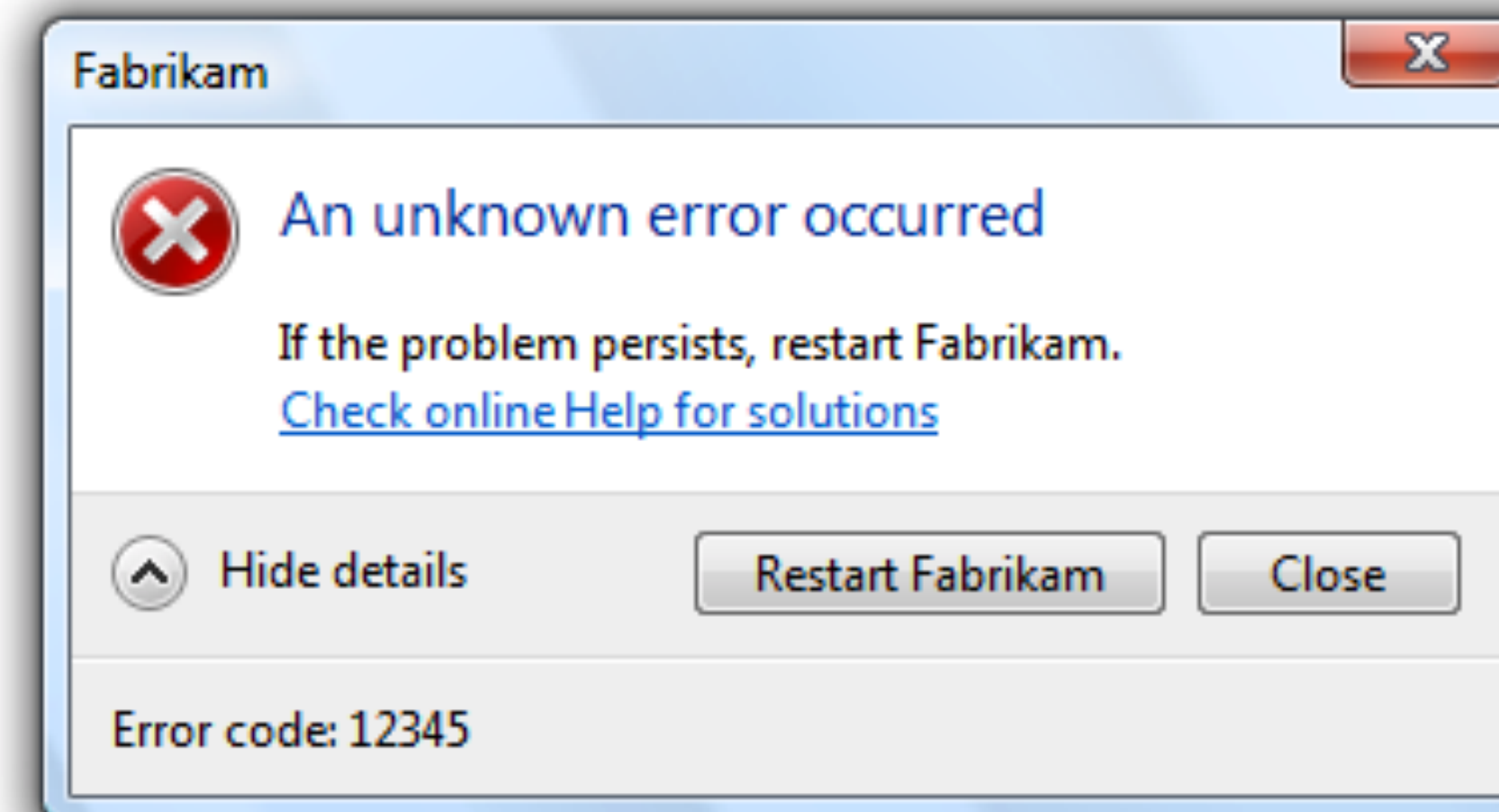
Email address (must be real)  
not an email

Send me occasional Digg updates.

bert is already taken. Please choose a different username.

Passwords must be at least 6 characters and can only contain letters and numbers.

The email provided does not appear to be valid

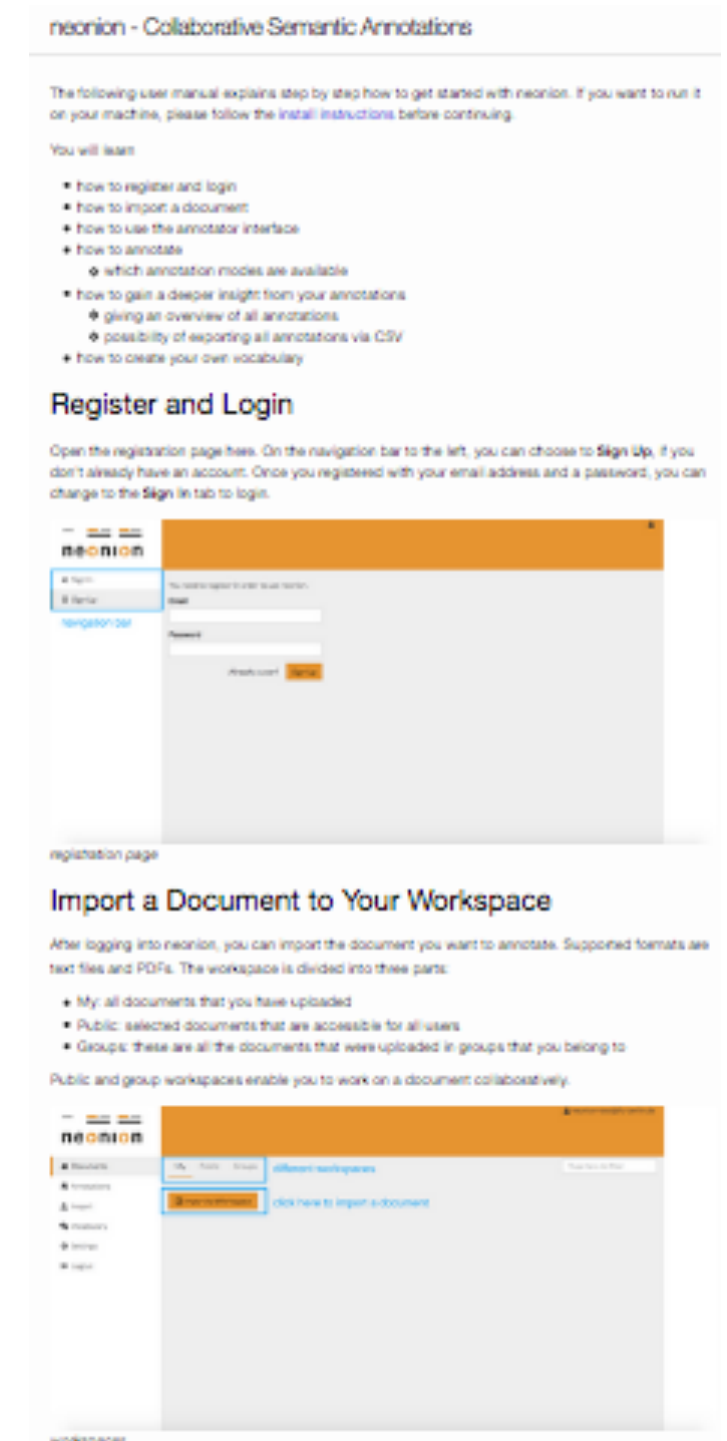
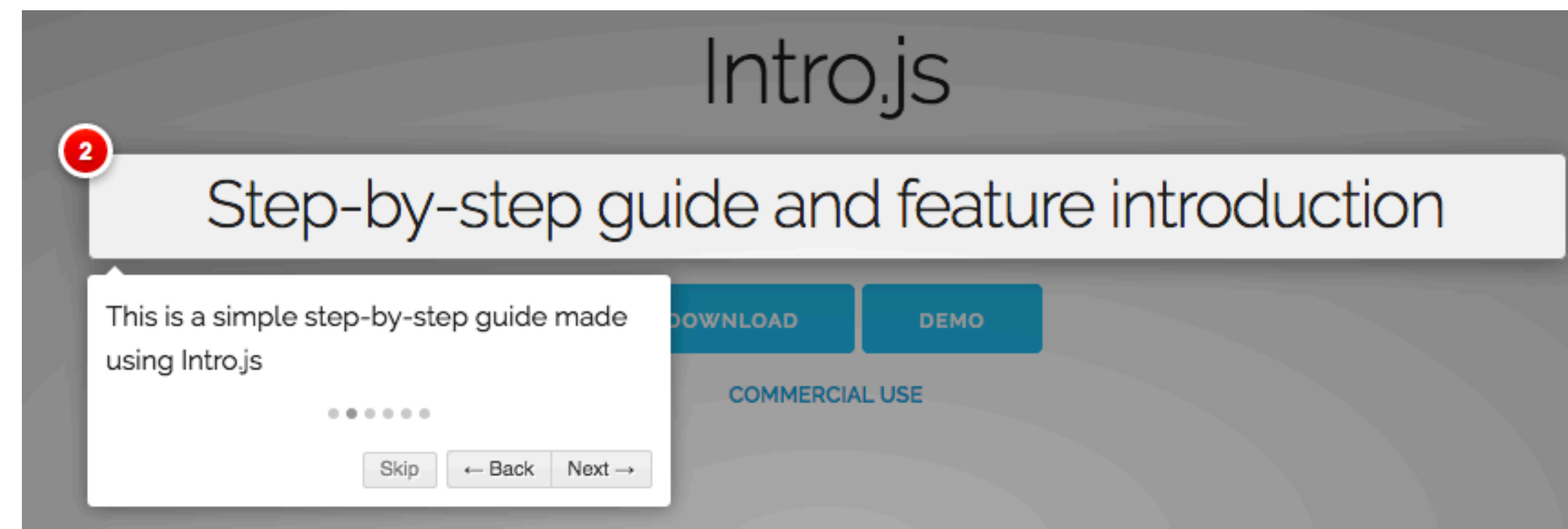
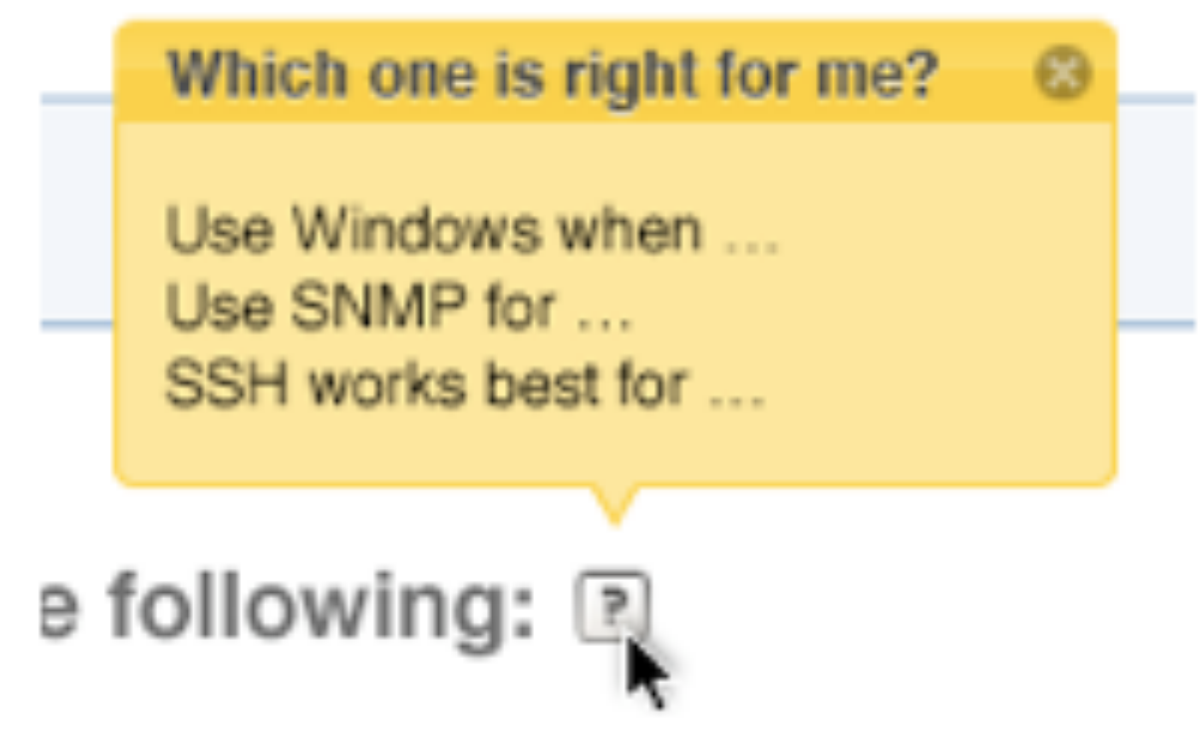


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# Help and Documentation

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.



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# Example: Help

neonion - Collaborative Semantic Annotations

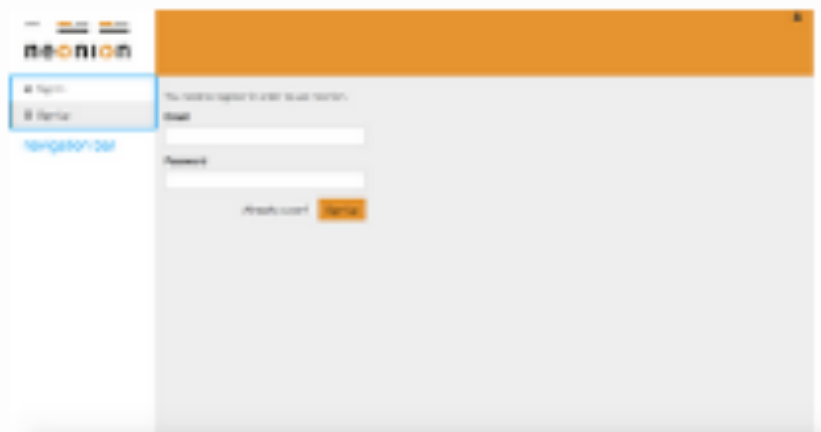
The following user manual explains step by step how to get started with neonion. If you want to run it on your machine, please follow the [install instructions](#) before continuing.

You will learn

- how to register and login
- how to import a document
- how to use the annotator interface
- how to annotate
  - which annotation modes are available
- how to gain a deeper insight from your annotations
  - giving an overview of all annotations
  - possibility of exporting all annotations via CSV
- how to create your own vocabulary

## Register and Login

Open the registration page [here](#). On the navigation bar to the left, you can choose to **Sign Up**, if you don't already have an account. Once you registered with your email address and a password, you can change to the **Sign In** tab to login.



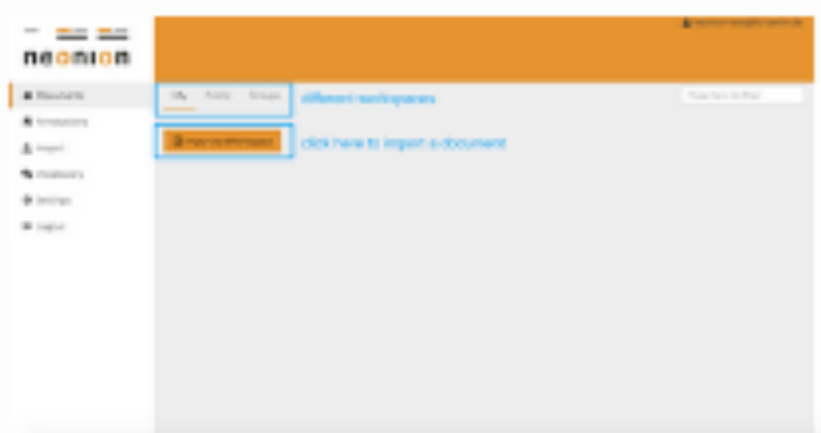
registration page

## Import a Document to Your Workspace

After logging into neonion, you can import the document you want to annotate. Supported formats are text files and PDFs. The workspace is divided into three parts:

- **My**: all documents that you have uploaded
- **Public**: selected documents that are accessible for all users
- **Groups**: these are all the documents that were uploaded in groups that you belong to

Public and group workspaces enable you to work on a document collaboratively.



workspace

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workspace


In this example, we will open the document **Plato - Wikipedia** in the **Public** workspace.



documents in public workspace

## Annotator User Interface

This is the annotator interface with the context bar on the top and the tool bar to the left.



annotator interface

## Tool Bar

The **tool bar** provides several tools to support the annotation process. The symbols are explained top down.

- **Home**: brings you back to your workspace
- **Contributors**: displays or hides the annotations of contributors
- **Annotation Mode**: changes between Commenting, Highlighting and Concept Tagging
- **Jump to last Annotation**: brings you to the last created annotation in this text

## Start Annotating

### Annotation Modes

- **Commenting**: opens a free text field for adding a comment. **Shortcut: CTRL+ALT+A**
- **Highlighting**: emphasizes the selected text by color. **Shortcut: CTRL+ALT+S**
- **Concept Tagging**: assigns a concept to the selected text. **Shortcut: CTRL+ALT+D**

### Switch Annotation Mode

You can switch the annotation mode through the tool bar or via the shortcuts. The color of the annotation indicates the applied annotation mode: orange for Comments, yellow for Highlights and green for Concept Tags



annotation modes

### Create Highlights

Important text passages can be highlighted in order to structure the text.



add a highlight

### Create Comments

You can also add a comment to a specific part of the text.



add a comment

<http://neonion.org/userdocs/index.html>

