

# **Input methods: Designing Beautiful Forms**

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# Lecture overview

- Why are forms important in UI design?
- Simple guidelines and examples for form design
- Input fields and how to best design them

# Learning Outcomes

- This lecture and the associated activities provide the underpinning knowledge that contribute to the learning outcomes of:
  - *understand the issues involved in developing and evaluating interfaces to interactive applications*

# Why are forms important...

- Well-designed forms make it easy for people to e.g. buy a product, sign up to newsletters. It only takes a second to press buy or to sign up for further information.
- Forms that are poorly created frustrate potential customers, often losing them forever.

# Design Specification

- What is the purpose of the screen/form?
  - What are the tasks? Why are they needed? Where is it performed?
- Users - Who will use it? How will they use it?
- Sample Design
  - Assumptions and constraints. What specific information is needed? Will it be viewed on screen or printed?

# **Some simple guidelines**

- **Form organisation**
  - Create an attractive layout and design
- **Labels**
  - Use familiar terms and images
- **Input Fields**
  - Reduce input data problems
- **Help and errors**
  - Provide feedback to users

**Form Organisation**  
Labels  
Input Fields  
Help and errors

# Good forms can provide...

**3. PAYMENT INFO**

Secure Payment Info

Name (as it appears on your card)

**Input fields**

Card number (no dashes or spaces)

**Labels**

Expiration date

01 - January    2014

Security code (3 on back, Amex: 4 on front)


Clear explanation

Good examples

# ...and help have a conversation!

\* Preferred content:    <http://www.flickr.com/photos/rosenfeldmedia/2366424557>

I prefer content from    <http://www.flickr.com/photos/rosenfeldmedia/2366424481>

\* Birthday:   dd . yyyy   <http://www.flickr.com/photos/rosenfeldmedia/2367260500>

Birthday   Day Year  <http://www.flickr.com/photos/rosenfeldmedia/2367260436>

Adapted from Wroblewski, 2008

# Organization and Layout

- Design and organize the form to support the task
- Organize groups of items related **semantically** by:
  - sequence of use,
  - frequency of use, and/or
  - relative importance.
- Keep the number of groups to a minimum, while limiting the size of groups to **12-14 chars wide** and **6-7 lines high**



Hi There!

We'll get you set up on Yahoo! in three easy steps! Just answer a few simple questions, select an ID and password, and you'll be all set.

Already have an ID or Mail address?

[Sign In](#)[Forgot your password or Yahoo! ID?](#)I prefer content from [Yahoo! U.S. in English](#)**1. Tell us about yourself...**

My Name  First Name  Last Name

Gender

Birthday   Day  Year

I live in  United States

Postal Code

**2. Select an ID and password**

Yahoo! ID and Email  @yahoo.com

Password

Re-type Password

Password Strength

**3. In case you forget your ID or password...**

Alternate Email

Security Question

Your Answer

Just a couple more details...

Type the code shown

[Try a different image](#)

BUKI



Do you agree?  I have read and agree to the Yahoo! Terms of Service and Yahoo! Privacy Policy, and to receive important communications from Yahoo! electronically.

For your convenience, these documents will be emailed to your Yahoo! Mail account.

[Create My Account](#)[Cancel](#)

# Organization and Layout

- Use **white space** to:
  - create balance and symmetry,
  - lead the eye in the appropriate direction (see next slide).
- Separate logical groups by spaces, lines, color, or other visual cues.
- **Screens:**
  - High-frequency users + slow system response time --> Minimize the number of screens.
  - Low-frequency users + fast system response time --> Maximize screen clarity.
- Keep related and interdependent items on the same screen.

**Just how do people view a page?**

1

2

3

4

[www.tesco.com](http://www.tesco.com)

[Log Out | Help](#)[My Account](#)[Send Money](#)[Request Money](#)[Merchant Tools](#)[Auction Tools](#)Below, please confirm this secure [transaction](#).

You're about to send

\$37

To: lucky@37signals.com ([+1 verified member](#))Source: \$37 from your PayPal balance ([pay another way](#))**Email**

Email subject: Here's the cash I owe ya  
Notes: Thanks for hauling me out! I also included \$7 for the taxi ride. Thanks again!

**Shipping Information** Ship to: 400 N. May Street, P.O.B., Chicago, IL 60622, USA (Confirm address)[Add a new address](#) I'm not shipping anything, no address required.[Send the \\$37](#)[Edit transaction](#) | [Cancel transaction](#) <http://www.flickr.com/photos/rosenfeldmedia/2367261472>[Log Out | Help](#)[My Account](#)[Send Money](#)[Request Money](#)[Merchant Tools](#)[Auction Tools](#)**Check Payment Details**[View transaction](#)**Payment Details**Pay To: paypal\_j@spinfree.com ([+1 verified member](#))

Amount: \$37.00

Source of funds: PayPal balance [more funding options](#)

Email Subject: Here's the cash I owe ya

Notes: Thanks for hauling me out! I also included \$7 for the taxi ride.  
Thanks again!**Shipping Information** Ship to: 400 North May Street, P.O.B., Chicago, IL 60622, USA [Add Address](#) no shipping address required[Send the \\$37](#)[Edit Transaction](#) | [Cancel Transaction](#) <http://www.flickr.com/photos/rosenfeldmedia/2367261684>

Adapted from Wroblewski, 2008

# Some more tips for good navigation

- When a form is **first entered**, position the cursor in the most likely **default position**.
- Allow **forward and backward movement** by field and within fields.
- Make **protected areas** on the screen **completely inaccessible**. Allow the cursor to rest only on user-editable areas.
- Do not use **auto tab** unless fields have fixed lengths and users are high frequency and experienced.
- Provide **titles and page numbers** or place markers on screens in a multiscreen form.

# Form Organisation

## Labels

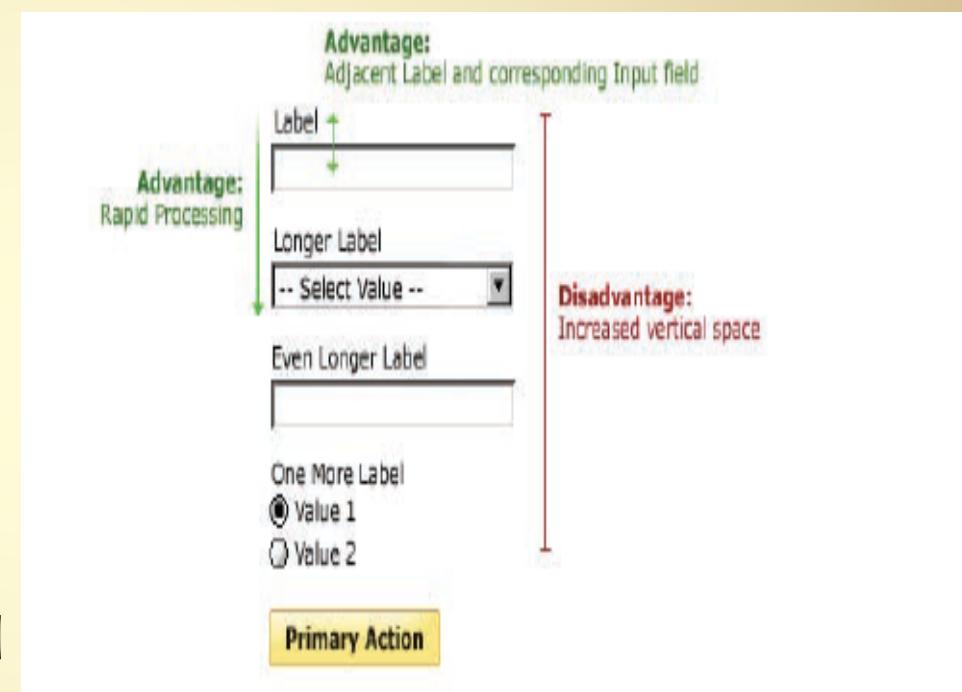
Input Fields

Help and errors

# Label positioning (1)

## Top-aligned labels

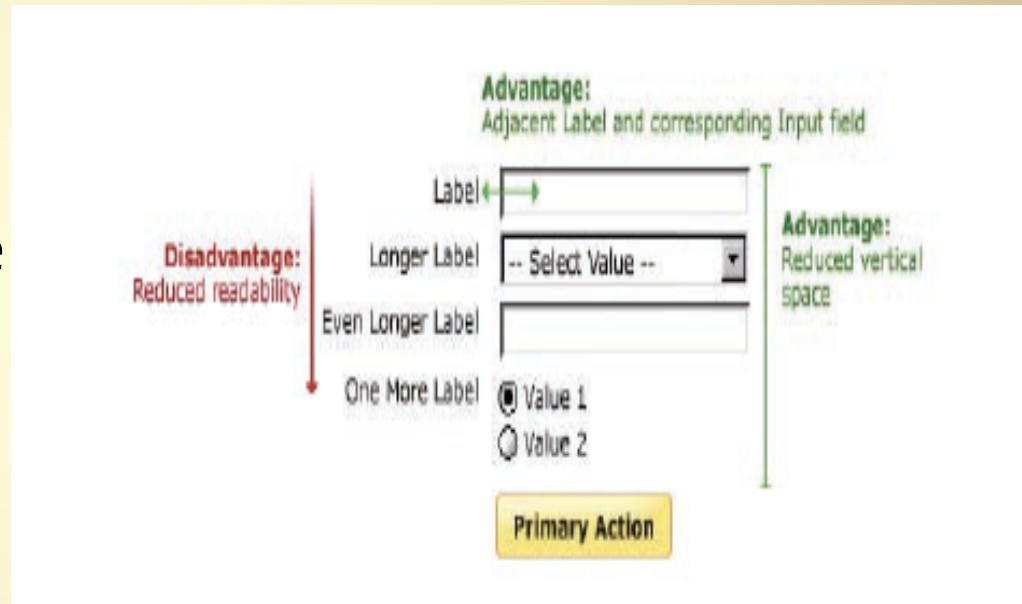
- When data being collected is familiar
- Minimize time to completion
- Require more vertical space
- Spacing or contrast is vital to enable efficient scanning
- Flexibility for localization and complex inputs



# Label positioning (2)

## Right-aligned labels

- Clear association between label and field
- Requires less vertical space
- More difficult to just scan labels due to left rag
- Fast completion times



# Label positioning (3)

## Left-aligned labels

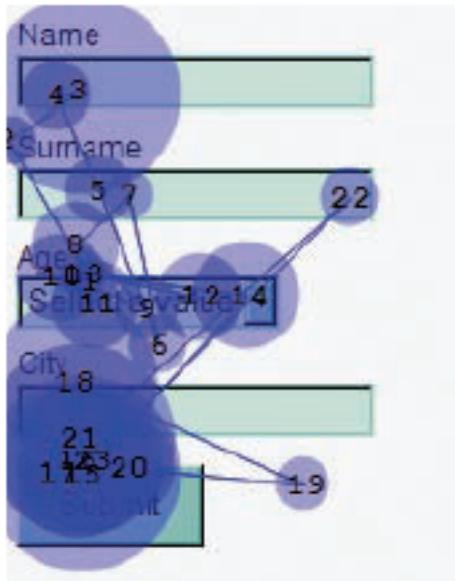
- When data required is unfamiliar
- Enables label scanning
- Less clear association between label and field
- Requires less vertical space
- Changing label length may impair layout



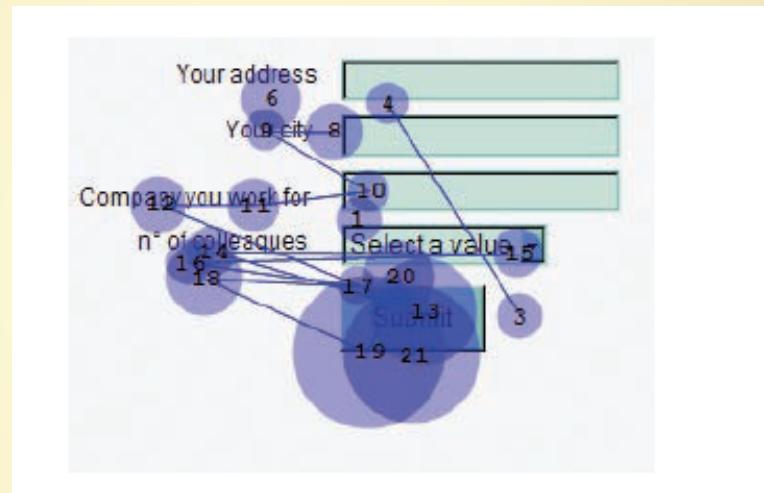
# Label positioning (4)

Eye-tracking study (Penzo, 2006)

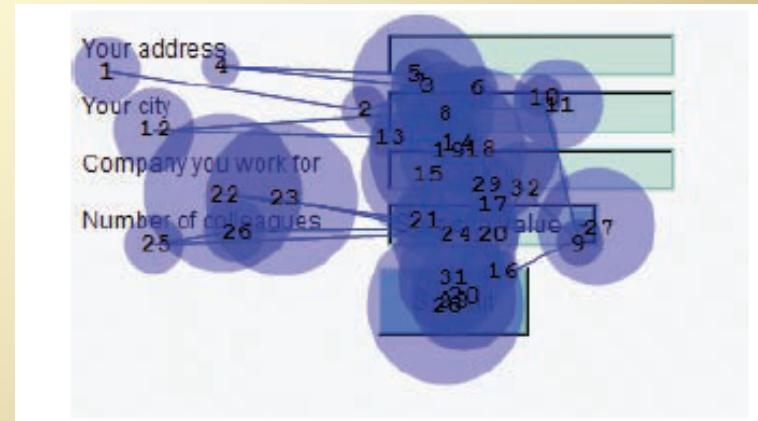
Top-aligned



Right-aligned



Left-aligned



# Label and Field Design (1)

- In Western cultures:
  - for **single** fields, place caption to **left**.
  - for **list** fields, place caption **above**.
- Justify captions/and fields according to user, task, and data type.
- Separate the (longest) caption (in a left-justified group) from its field by no more than **1-2 spaces** (following the delimiter, for example, a colon).
- Separate one caption field group from another by **three or more spaces horizontally**, or by **one or more lines vertically**.

# Label and Field Design (2)

- Break up columnar fields or long columns of single field items into **groups of 5** separated by a blank line.
- Provide distinctive field group and section **headings** in complex forms.
- Distinguish fields (i.e., contents) from captions (i.e., labels).
- Captions should be brief, familiar and descriptive.
- Indicate the number of **character spaces** available in a field.
- Indicate when fields are **optional**.

## Employment Offer and Pre-Hire Approval Form

Proposed Offer (cont):	Initial	Revised	Type	STATUS:
Base Compensation:	\$90,000		<input checked="" type="checkbox"/> Regular	<input checked="" type="checkbox"/> Full Time
Initial Bonus:	\$5,000		<input type="checkbox"/> Union	<input type="checkbox"/> Modified Full Time
Percent Increase:	10%		<input type="checkbox"/> Casual**	<input type="checkbox"/> Part Time
Clearance Incentive:			<input type="checkbox"/> Intern**	<input type="checkbox"/> FLSA Exempt
**Hours/Week:	40	Benefits: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Project***	<input type="checkbox"/> FLSA Non-exempt

Work Location:  On-Site (NGS)  Off-Site (Govt Client)  Home Based

Corp. Campus:  Yes  No Bldg: Main Office: 23

Full Address: Trellis House, 45-47 Main Street.

Participation in Buddy Program:  Yes  No

If yes, assigned Buddy name: \_\_\_\_\_ Will employee operate a company vehicle:  Yes  No

Computer Request Information:  Desktop  Laptop

Standard - OS: Win XP Software: MS Office 2003

### Special Software Requirements:

CostPoint Required:  Yes  No

Adobe Writer Prof  MS Project  PVCS Tracker  WordPerfect 2k

Impromptu Required:  Yes  No

FAS Inv Tracking  MS Visio  VSS  Other \_\_\_\_\_

Basis for Proposed Offer:  Candidate Request  Current Compensation  Internal Equity Review  Other

Hire Source: Agency

Other: \_\_\_\_\_

### Comments:

3 month probation period.

http://badforms.com/size-matters-for-form-fields-that-is/

S University of ... Course: CO... g forms hci sit... g design rules ... E Size Matt... X

number boxes.

But there is absolutely no reason to make the field 16 times bigger than it needs to be:

\*Are you female or male?

Please select:

Age:

Please select one:

Household Income:

Please select one:

Education:

Please select one:

Current employment status:

Please select one:

Which products or services  
are you most likely to buy in  
the next 12 months?

Please select:

\*Skill Testing Question:

(40 + 10) divided by 5 =

Please select to sign up for   
WhatsYourTech.ca's free  
newsletter.

**SHARE**

2

**Tweet**

0

**Like**

0

**+1**

**in Share**

0

**Pin it**

In case you're wondering, it's not like the options in these lists span the full width. I checked all of them, and they all looked like this:

**MICROSOFT OUTLOOK WEB ACCESS...**

Posted on May - 14 - 2012  
1 Comment

**THIS FIELD IS REALLY...**

Posted on May - 19 - 2012  
1 Comment

**INSTRUCTIONS SHOULD BE WRITTEN...**

Posted on May - 21 - 2012  
1 Comment

# Form Organisation Labels

## Input Fields Help and errors

The image shows a web form with the following fields:

- Text Box:** A text input field labeled "First name".
- Radio Buttons:** Two radio buttons labeled "Male" and "Female".
- Drop-down Menu:** A dropdown menu set to "United States".
- List Box:** A list box containing "Form Design", "Jazz Guitar", "Mountain Biking", and "Water Polo".
- Checkbox:** A checkbox labeled "Include me in your survey."
- Button:** A submit button labeled "Submit".

Adapted from Wroblewski, 2008

# Input Fields– List of options

## Checkbox

- Pros: simple; low space consumption
- Cons: can only express one choice, so its inverse remains implied and unstated; this can lead to confusion about what it means when it's off

Yes, I want a talking bird

## $N$ radio buttons

- Pros: all choices are always visible
- Cons: high space consumption



## $N$ -item drop-down list

- Pros: low space consumption
- Cons: only one choice is visible at a time, except when the menu is open; requires some dexterity



# Input Fields- Text Input

Single-line text field

Multiline text area

Does anyone here have a border collie? I would really like one, and I have some questions. |

# Input Fields– Numbers and Calendars

## Text field using Structured Format

- Pros: desired format evident from control's form
- Cons: possibly higher space consumption; more visual complexity; does not permit any deviation from the specified format, even if user needs to do so; may be more difficult for assistive technologies than a single field

617 - 555 - 1212

## Slider

- Pros: obvious metaphor; position of value in range is shown visually; the user cannot enter a number outside the range
- Cons: high space consumption; unobvious keyboard access; tick labels can make it very crowded



## Calendar or clock control

- Pros: obvious metaphor; input is constrained to allowable values
- Cons: high space consumption; may not provide keyboard-only access



# Tips for designing input fields

- Consider providing pop-up or pull-down menus for fill-in forms with many, but well-defined entry options.
- Avoid complex rules for entering data in the various fields of a form.
- Provide meaningful (in field) groupings to break up long input formats (chunking).
- Provide defaults whenever possible. Allow simple (single key) acceptance of defaults.

Please select:

I am female

I am male



**FILL OUT THE FORM FOR A CHANCE TO WIN!**

**Enter your information below to enter the contest.**

<b>First name:</b>	<b>Address:</b>	<b>Province:</b>	<b>E-mail address:</b>
ian	[REDACTED]	Ontario	[REDACTED]
<b>Last name:</b>	<b>City:</b>	<b>Profession:</b>	<b>Confirm e-mail address:</b>
Everdell	Hamilton	[REDACTED]	[REDACTED]
<b>Phone number:</b>	<b>Postal code:</b>	<b>Hobby:</b>	<b>Age:</b>
[REDACTED]	[REDACTED]	[REDACTED]	26 - 30 years

**Tell us what you drive!**

Year:

Select...

## Make:

Select...

### **Do you own:**

- A motorcycle?
  - A boat?
  - An RV?
  - A snowmobile?
  - An ATV?
  - Other

**What do you check most often?**

- Newspapers
  - Flyers
  - Online flyers
  - Other

**ARE YOU A CAA MEMBER?**

- Yes  No

Gender

100

Prev

**Preferred language:**

- English  
French

- I have read and understood the [Contest Rules and Regulations](#).
  - I agree to receive special offers from NAPA Auto Parts and its partners.

**SUBMIT**

**CANCEL**

# Tips for designing input fields

- Make high-frequency inputs easy to express (e.g., y/n)
- Allow abbreviated input when it can be unambiguously interpreted (e.g., "y" for "yes")
- A system should be "case blind" when it really does not matter (e.g., "yes", "Yes" or "YES")
- Let the user specify the unit of measurement. Do not require transformations or calculations.
- Keep input fields short if possible.
- Avoid frequent shifts between upper- and lower-case characters.
- Do not require leading zeros e.g. 007

Form Organisation  
Labels  
Input Fields  
**Help and errors**

# Prompts and Instructions

- Provide prompts when use will be relatively infrequent, inputs must be formatted, and users are not working from a source document (i.e., help with syntax).
- Prompts should be brief and unambiguous.
- Place prompts to the right of fields, or with **automatic inline help system (see next slide)**
- Provide instructions for navigation and completion on the screen or through **online help**.
- Place instructions in a consistent location across screens and make them visually distinctive.
- Use consistent terminology and consistent grammatical form and style in instructions.

# Automatic inline help



## II. User Registration

1. Enter Your Email Address

You must supply a valid email address. We will never sell or disclose your email address to third parties.

2. Choose a Password

Verify Password

3. Pick your Wufoo Name / URL

<http://username.wufoo.com>

## Help within an input field

Country:

Postal Code:

Only your region will be public,  
not your postal code

### Phone Details

IMEI Code:  ?

PAC Code:  ?

## User-activated help

Submit

# Error Handling

- Highlight the error to show something has happened.
- Provide semantic/visual representation of an error message.
- Provide a clear way to resolve the error

The image shows a series of five horizontal form fields, each with an associated error message:

- Postal Code:** An orange warning icon is displayed next to the input field. To the right, a red message reads "This information is required".
- Username:** A red circular icon with a user symbol is shown next to the input field. To the right, a red message reads "lukew is not available".
- Email Address:** A red rectangular box surrounds the input field. Inside, the text "1. Enter Your Email Address" is at the top, followed by a red message "Invalid email address".
- Expiration date:** Below the input fields are dropdown menus for "Month" and "Year". To the right, a red message reads "Please select an expiration date".
- Zipcode:** An orange warning icon is displayed next to the input field. To the right, a red message reads "Please enter a valid zipcode".

Adapted from Wroblewski, 2008

# Validation Checks

**At least eight types of data validation checks:**

1. Sequence check
2. Existence check
3. Data type check
4. Reasonableness check
  - Range check – limit check
6. Validity check – referential integrity
7. Combination check
8. Batch controls – hash totals

<b>Required Information</b>	Usage is \$6.95 per Connect Day at this location. Connect Day is \$7.95 at other locations within the U.S. & Canada and \$9.95 internationally. A Connect Day includes unlimited access in any location for 24-hours. No monthly fees apply.		
<b>Credit Card Information</b>	<input style="width: 150px; border: 1px solid #ccc; height: 25px; margin-bottom: 5px;" type="text" value="Luke"/> first name  <input style="width: 150px; border: 1px solid #ccc; height: 25px; margin-bottom: 5px;" type="text" value="Wroblewski"/> last name  <input style="width: 150px; border: 1px solid #ccc; height: 25px; margin-bottom: 5px;" type="text" value="noone@luke.com"/> email	<input style="width: 150px; border: 1px solid #ccc; height: 25px; margin-bottom: 5px;" type="text" value="3334445555666"/> credit card number  <input style="width: 150px; border: 1px solid #ccc; height: 25px; margin-bottom: 5px;" type="text" value="12 4 2018 5555"/> expiration date  <input style="width: 150px; border: 1px solid #ccc; height: 25px; margin-bottom: 5px;" type="text" value="5555"/> zip code (as it appears on your bill)	
<b>User Account Information</b>	<input style="width: 150px; border: 1px solid #ccc; height: 25px; margin-bottom: 5px;" type="text" value="luke"/> username  <small>(5-10 letters and/or numbers. No spaces or special symbols)</small>	<input style="width: 150px; border: 1px solid #ccc; height: 25px; margin-bottom: 5px;" type="text" value="*****"/> password  <small>(5-10 letters and/or numbers. No spaces or special symbols)</small>	<input style="width: 150px; border: 1px solid #ccc; height: 25px; margin-bottom: 5px;" type="text" value="*****"/> confirm password  <a href="#">password recovery code</a> <a href="#">what's this?</a>
<b>Terms and Agreement</b>	<input style="border: 1px solid #ccc; padding: 2px 10px; margin-right: 10px;" type="button" value="Submit"/> <input style="border: 1px solid #ccc; padding: 2px 10px;" type="button" value="Reset"/> <a href="#">Read Agreement Terms</a>  <input type="checkbox"/> Yes, please notify me regarding new Boingo Hot Spots, Boingo special offers, and product updates.  <small>By clicking submit, you approve charges and agree to be bound by the agreement terms above.</small>		
<b>Required Information</b>	Usage is \$6.95 per Connect Day at this location. Connect Day is \$7.95 at other locations within the U.S. & Canada and \$9.95 internationally. A Connect Day includes unlimited access in any location for 24-hours. No monthly fees apply.		
<b>Credit Card Information</b>	<input style="width: 150px; border: 1px solid #ccc; height: 25px; margin-bottom: 5px;" type="text" value="Luke"/> first name  <input style="width: 150px; border: 1px solid #ccc; height: 25px; margin-bottom: 5px;" type="text" value="Wroblewski"/> last name  <input style="width: 150px; border: 1px solid #ccc; height: 25px; margin-bottom: 5px;" type="text" value="noone@luke.com"/> email	<input style="width: 150px; border: 1px solid #ccc; height: 25px; margin-bottom: 5px;" type="text" value="3334445555666"/> credit card number  <input style="width: 150px; border: 1px solid #ccc; height: 25px; margin-bottom: 5px;" type="text" value="12 4 2008 5555"/> expiration date  <input style="width: 150px; border: 1px solid #ccc; height: 25px; margin-bottom: 5px;" type="text" value="5555"/> zip code (as it appears on your bill)	
<b>User Account Information</b>	<input style="width: 150px; border: 1px solid #ccc; height: 25px; margin-bottom: 5px;" type="text" value="luke"/> username  <small>(5-10 letters and/or numbers. No spaces or special symbols)</small>	<input style="width: 150px; border: 1px solid #ccc; height: 25px; margin-bottom: 5px;" type="text" value="*****"/> password  <small>(5-10 letters and/or numbers. No spaces or special symbols)</small>	<input style="width: 150px; border: 1px solid #ccc; height: 25px; margin-bottom: 5px;" type="text" value="*****"/> confirm password  <a href="#">password recovery code</a> <a href="#">what's this?</a>
<b>Terms and Agreement</b>	<b>This User Name Is Already In Use.</b>  <input style="border: 1px solid #ccc; padding: 2px 10px; margin-right: 10px;" type="button" value="Submit"/> <input style="border: 1px solid #ccc; padding: 2px 10px;" type="button" value="Reset"/> <a href="#">Read Agreement Terms</a>  <input type="checkbox"/> Yes, please notify me regarding new Boingo Hot Spots, Boingo special offers, and product updates.  <small>By clicking submit, you approve charges and agree to be bound by the agreement terms above.</small>		

# ... and remember!

- Anyone can create interfaces that they like and can use.
- It takes time and knowledge of how users think to make a usable interface for all.
- Remember: Google KISS (Keep It Simple, Stupid)!

# References and resources

1. Wroblewski, L. (2008) *Web Form Design: Filling in the Blanks*. 1<sup>st</sup> ed. Rosenfeld Media.
2. Tidwell, J. (2011) *Designing Interfaces*. 2<sup>nd</sup> ed. O'Reilly Media.
3. Mayhew (2013) Notes.