

Designing Efficient Web Forms: On Structure, Inputs, Labels And Actions

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- June 1st, 2017
- [FormsSponsored ContentUsability](#)

Someone who uses your app or website has a particular goal. Often, the one thing standing between the user and their goal is a form. Forms remain **one of the most important types of interactions** for users on the web and in apps. In fact, forms are often considered the final step in the journey of completing their goals. Forms are just a means to an end. Users should be able to complete them quickly and without confusion.

In this article, you'll see practical techniques that have been gleaned from usability testing, field testing, eye-tracking studies and actual complaints from disgruntled users. These techniques — when used correctly — enable designers to produce faster, easier and more productive form experiences. There's a way you can create and design your own prototypes: All you need to do is to download [Adobe XD](#) (for free) and get started right away. At the end of the article, you'll also find new ways to design forms.

Further Reading on SmashingMag: Link

- [Icons As Part Of A Great User Experience](#)
- [How To Design Error States For Mobile Apps](#)
- [An Extensive Guide To Web Form Usability](#)
- [Web Form Design: Showcases And Solutions](#)

The Components Of Forms Link

The typical form has the following five components:

- **Structure**
This includes the order of fields, the form's appearance on the page and the logical connections between multiple fields.
- **Input fields**
These include text fields, password fields, checkboxes, radio buttons, sliders and any other fields designed for user input.
- **Field labels**
These tell users what the corresponding input fields mean.
- **Action button**
When the user presses this button, an action is performed (such as submission of the data).

- **Feedback**

The user is made to understand the result of their input through feedback. Most apps and websites use plain text as a form of feedback. A message will notify the user about the result and can be positive (indicating that the form was submitted successfully) or negative (“The number you’ve provided is incorrect”).

Forms may also have the following components:

- **Assistance**

This is any explanation of how to fill out the form.

- **Validation**

This automatic check ensures that the user’s data is valid.

This article covers many aspects related to structure, input fields, labels, action buttons and validation.

Form Structure Link

A form is a type of conversation. And like any conversation, it should consist of logical communication between two parties: the user and the app.

Ask Only What’s Required Link

Make sure to ask only what you really need. Every extra field you add to a form will affect its conversion rate. Always consider why you are requesting certain information from the user and how you will use it.

Order the Form Logically Link

Ask details logically from the user’s perspective, not from the application or database’s perspective. Typically, asking for someone’s address before their name would be unusual.

Group Related Information Link

Group related information into logical blocks or sets. The flow from one set of questions to the next will better resemble a conversation. Grouping together related fields will also help users make sense of the information they must fill in. Compare how it works in the contact information form below.

First Name:

Last Name:

Email:
(Your email address will be your username)

Re-type Email:

Password:
(Min. 8 characters, 1 number, case-sensitive)

Re-type Password:

Address:

City:

State:

Zip Code:

Phone:
No spaces or dashes

Date of Birth:

Gender:

Security Question:

Security Answer:
(Not case-sensitive)

Personal Information

First Name:

Last Name:

Date of Birth:

Gender:

Account Information

Email:
(Your email address will be your username)

Re-type Email:

Password:
(Min. 8 characters, 1 number, case-sensitive)

Re-type Password:

Security Question:

Security Answer:
(Not case-sensitive)

Contact Information

Address:

City:

State:

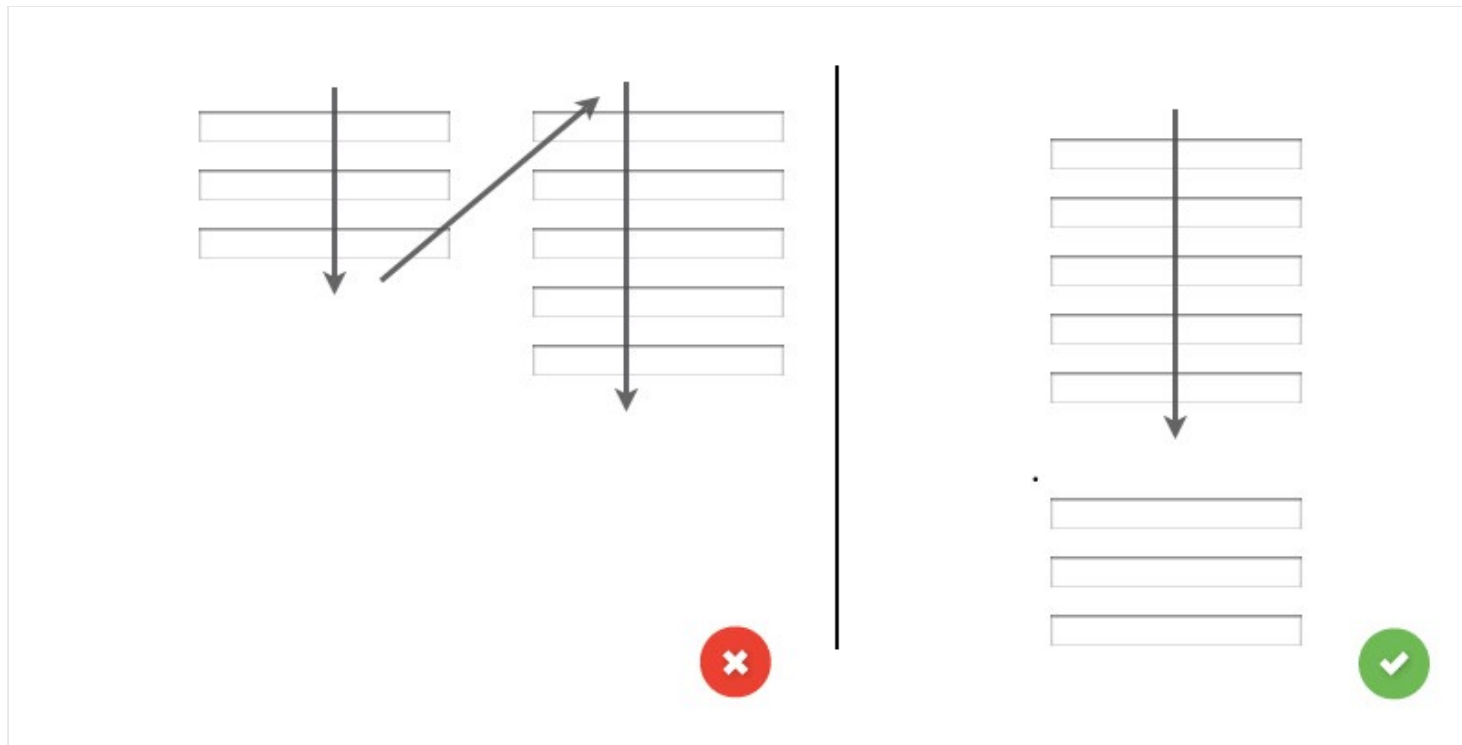
Zip Code:

Phone:
No spaces or dashes

Group together related fields (Image: Nielsen Norman Group)

One Column Vs. Multiple Columns Link

One of the problems with arranging form fields into multiple columns is that users will likely interpret the fields inconsistently. If a form has horizontally adjacent fields, then the user must scan in a Z pattern, slowing the speed of comprehension and muddying the path to completion. But if a form is in a single column, the path to completion is a straight line down the page.



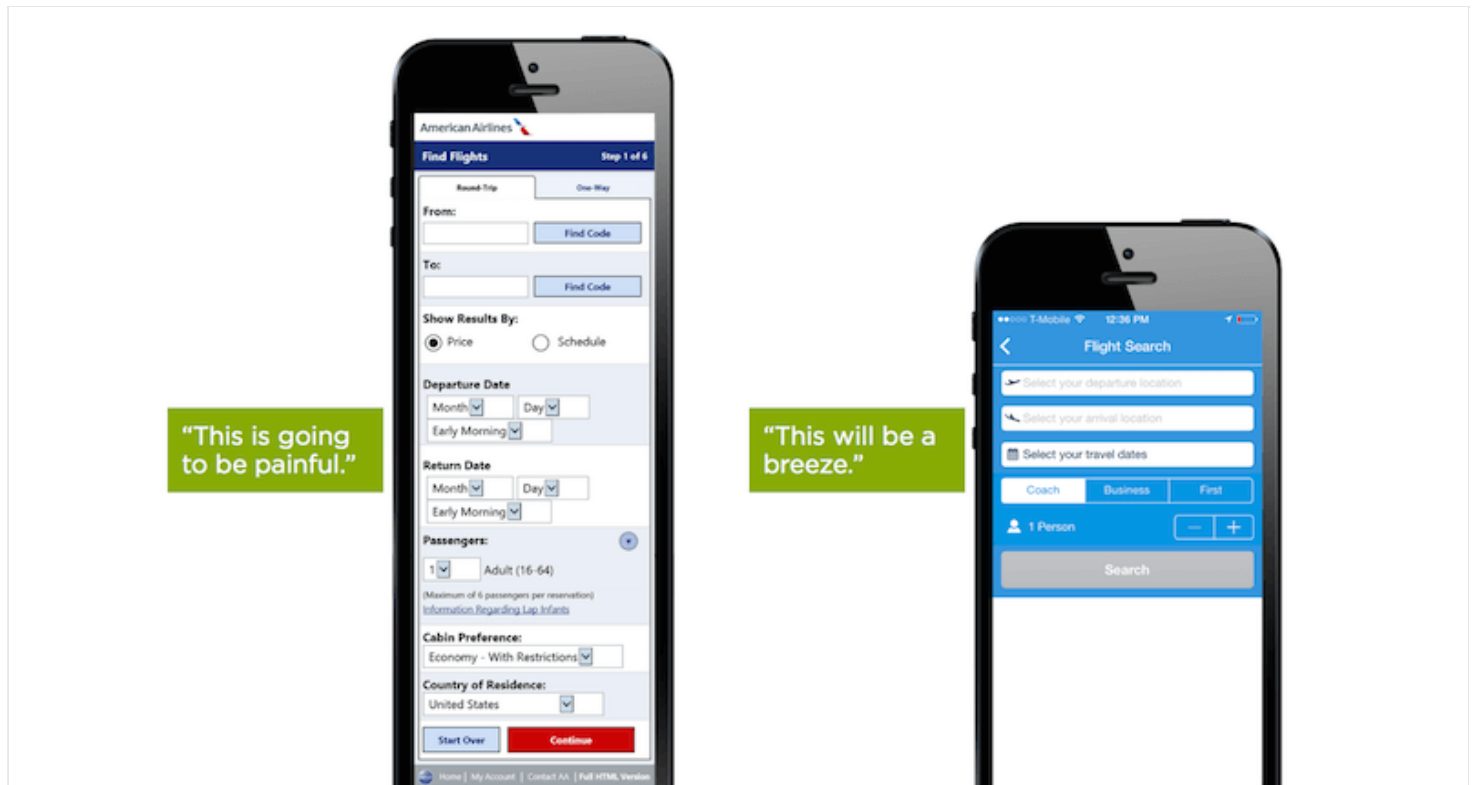
On the left, one of many ways to interpret how the form fields relate when they are arranged in a standard two-column layout, versus on the right, a straight line down the page.

Input Fields Link

Input fields are what enable users to fill in a form. Various types of fields exist for the information you need: text fields, password fields, dropdowns, checkboxes, radio buttons, date-pickers and more.

Number of Fields Link

A rule of thumb in form design is that shorter is better. And this certainly seems intuitive: Less effort on the part of the user will lead to higher conversion. Thus, minimize the number of fields as much as possible. This will make your form feel less loaded, especially when you're requesting a lot of information. However, don't overdo it; no one likes a three-field form that turns into a 30-field interrogation. Displaying only [five to seven input fields](#) at a given time is a common practice.



Combine multiple fields in one easy-to-fill field. (Image: [Luke Wroblewski](#)) ([View Large version](#))

Mandatory Vs. Optional Link

Try to avoid optional fields in forms. But if you use them, at least clearly distinguish which input fields may not be left blank. The convention is to use an asterisk (*) for required fields or the word “optional” for non-required fields (which is preferable in long forms with multiple required fields). If you decide to use an asterisk for mandatory fields, show a hint at the bottom of the form explaining what the asterisk is for, because not everyone understands what it means.

Subscribe to our mailing list

* indicates required

Email Address

First Name

Last Name

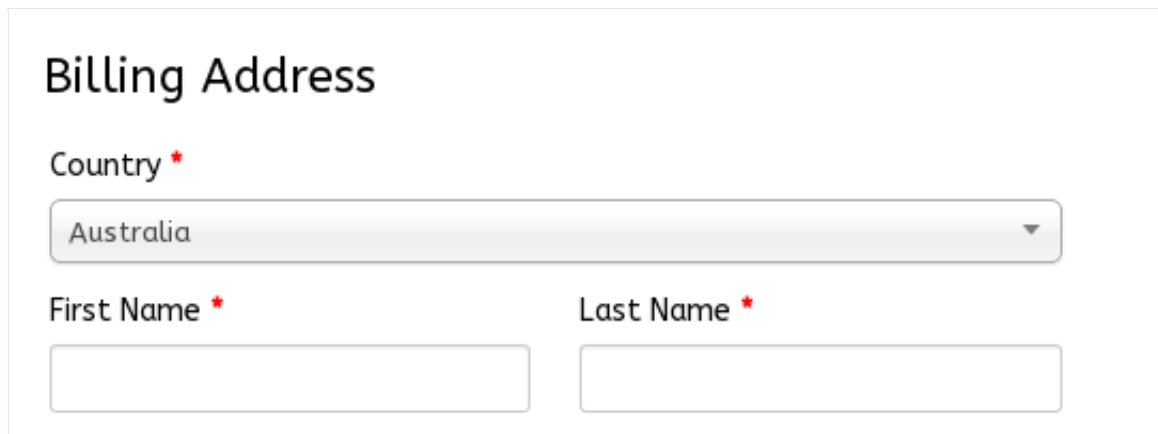
Subscribe

MailChimp's mailing-list subscription form.

Setting Default Values Link

Avoid setting defaults unless you believe a large portion of your users (for example, 90% of them) will select that value. Particularly avoid it for required fields. Why? Because you're likely to introduce errors. People scan online forms quickly, so don't assume they will take the time to parse through all of the choices. They might skip something that already has a value.

But this rule doesn't apply to smart defaults — that is, values set based on information available about the user. Smart defaults can make form completion faster and more accurate. For example, preselect the user's country based on geo-location data. Still, use these with caution, because users tend to leave preselected fields as they are.



Billing Address

Country *

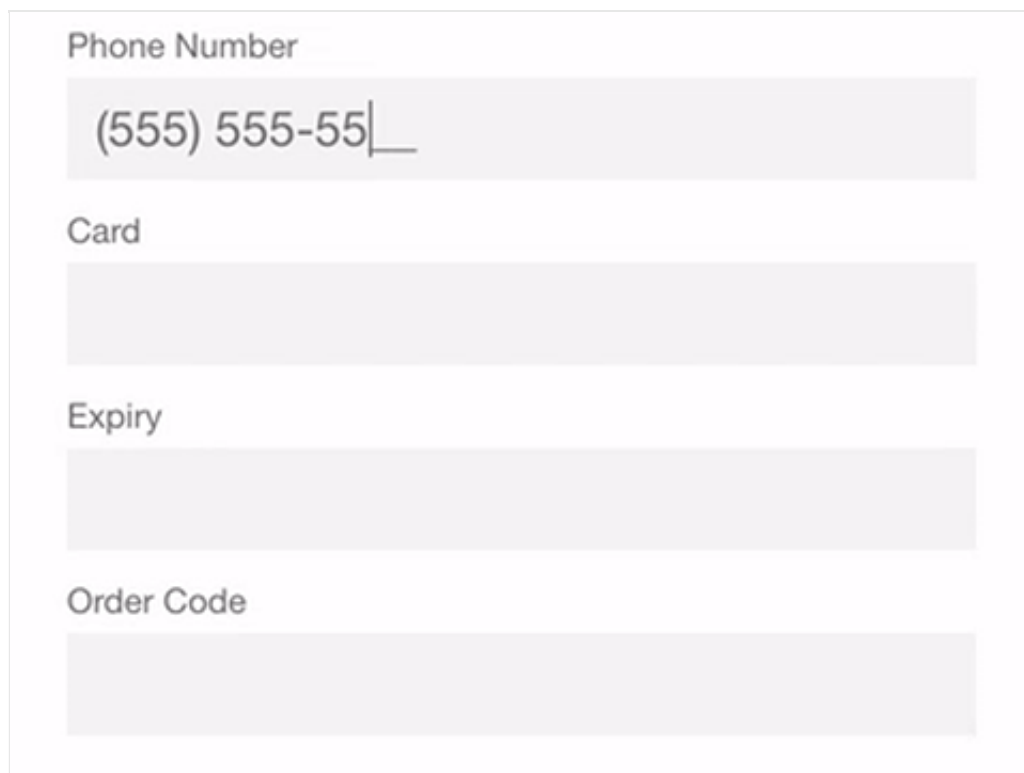
Australia ▼

First Name * Last Name *

An intelligently preselected country in the checkout form

Input Masks Link

Field masking is a technique that helps users format inputted text. A mask appears once a user focuses on a field, and it formats the text automatically as the field is being filled out, helping users to focus on the required data and to more easily notice errors. In the example below, the parentheses, spaces and dashes are applied automatically as the phone and credit-card numbers are entered. This simple technique saves time and effort with phone numbers, credit cards, currencies and more.



Phone Number

(555) 555-55|_

Card

Expiry

Order Code

(Image: Josh Morony)

Desktop-Only: Make Form Keyboard-Friendly Link

Users should be able to focus on and edit every field using only the keyboard. Power users, who tend to

use the keyboard heavily, should be able to easily tab through and edit fields, all without lifting their fingers off the keyboard. You can find detailed requirements for keyboard interaction in the [W3C's guidelines on design patterns](#).

Close Date *

11/18/2015

◀ NOVEMBER 2015 ▶ 2015 ▼

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	1	2	3	4	5
6	7	8	9	10	11	12

Keyboard navigation on days that are not included the currently displayed month should move to the month automatically and lead to the day in the next or previous month.

- **Tab** - Like other widgets, the date picker widget receives focus by tabbing into it. Once focus is received, focus is repositioned on today's date in a grid of days and weeks. A second tab will take the user out of the date picker widget. Focus initially is placed on today's date.
- **Shift+Tab** - reverses the direction of the tab order. Once in the widget, a Shift+Tab will take the user to the previous focusable element in the tab order.
- **Up Arrow** and **Down Arrow** - goes to the same day of the week in the previous or next week respectively. If the user advances past the end of the month they continue into the next or previous month as appropriate.
- **Left Arrow** and **Right Arrow** - advances one day to the next, also in a continuum. Visually focus is moved from day to day and wraps from row to row in a grid of days and weeks.
- **Control+Page Up** - Moves to the same date in the previous year.
- **Control+Page Down** - Moves to the same date in the next year.
- **Space** -
 - Singleton Mode: acts as a toggle either selecting or deselecting the date.
 - Contiguous Mode: Similar to selecting a range of text. Space selects the first date. Shift+Arrows add to the selection. Pressing Space again deselects the

Even a simple date-picker should adhere to the W3C's guidelines. (Image: Salesforce) ([View Large version](#))

Desktop-Only: Autofocus for Input Field Link

Autofocusing a field gives the user an indication and a starting point to quickly begin filling out a form. Provide a clear visual signal that focus has moved there, whether by changing a color, fading in a box, flashing an arrow, whatever. Amazon's registration form has both autofocus and visual indicators.

amazon

Sign in

Email (phone for mobile accounts)

Password [Forgot your password?](#)

Sign in

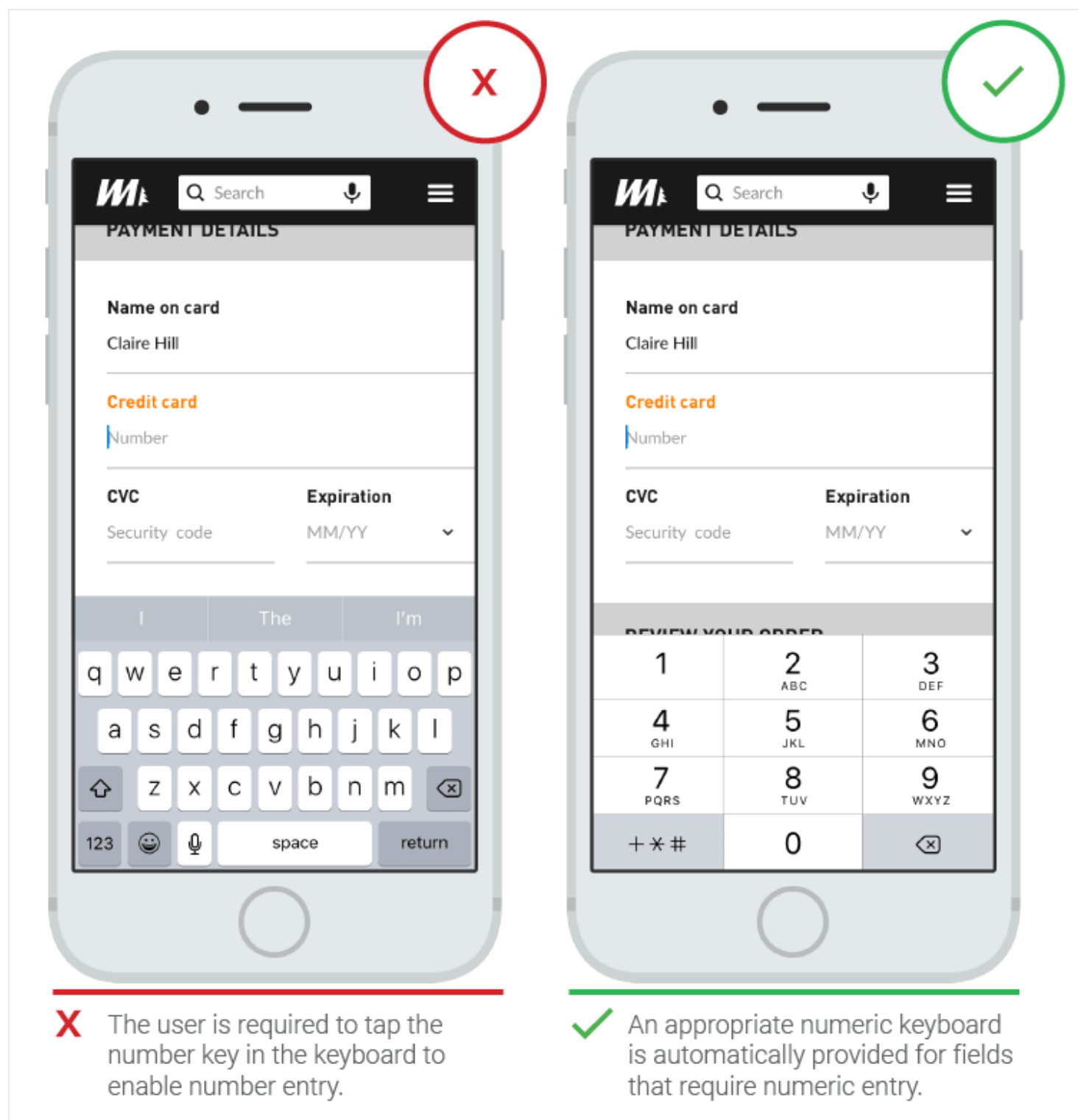
☐ Keep me signed in. [Details](#) ▼

New to Amazon?

Create your Amazon account

Mobile-Only: Match Keyboard to Input Link

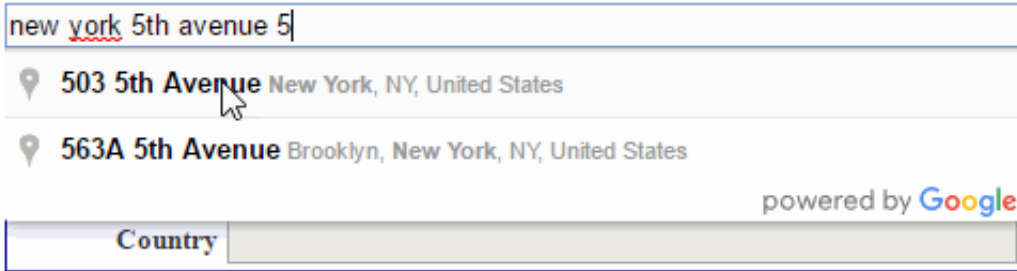
Phone users appreciate apps that provide the appropriate keyboard for text being requested. Implement this consistently throughout the app, rather than merely for certain tasks but not others.



(Image: Google)

Limit Typing (Autocompletion) Link

With more and more people using mobile screens, anything that can be done to prevent unnecessary typing will improve the user experience and decrease errors. Autocompletion makes it possible to eliminate a huge amount of typing. For example, filling out an address field is often the most problematic part of any registration form. A tool such as [Place Autocomplete Address Form](#) (which uses both geo-location and address prefilling to provide accurate suggestions based on the user's exact location) enables users to enter their address with fewer keystrokes than regular input fields.



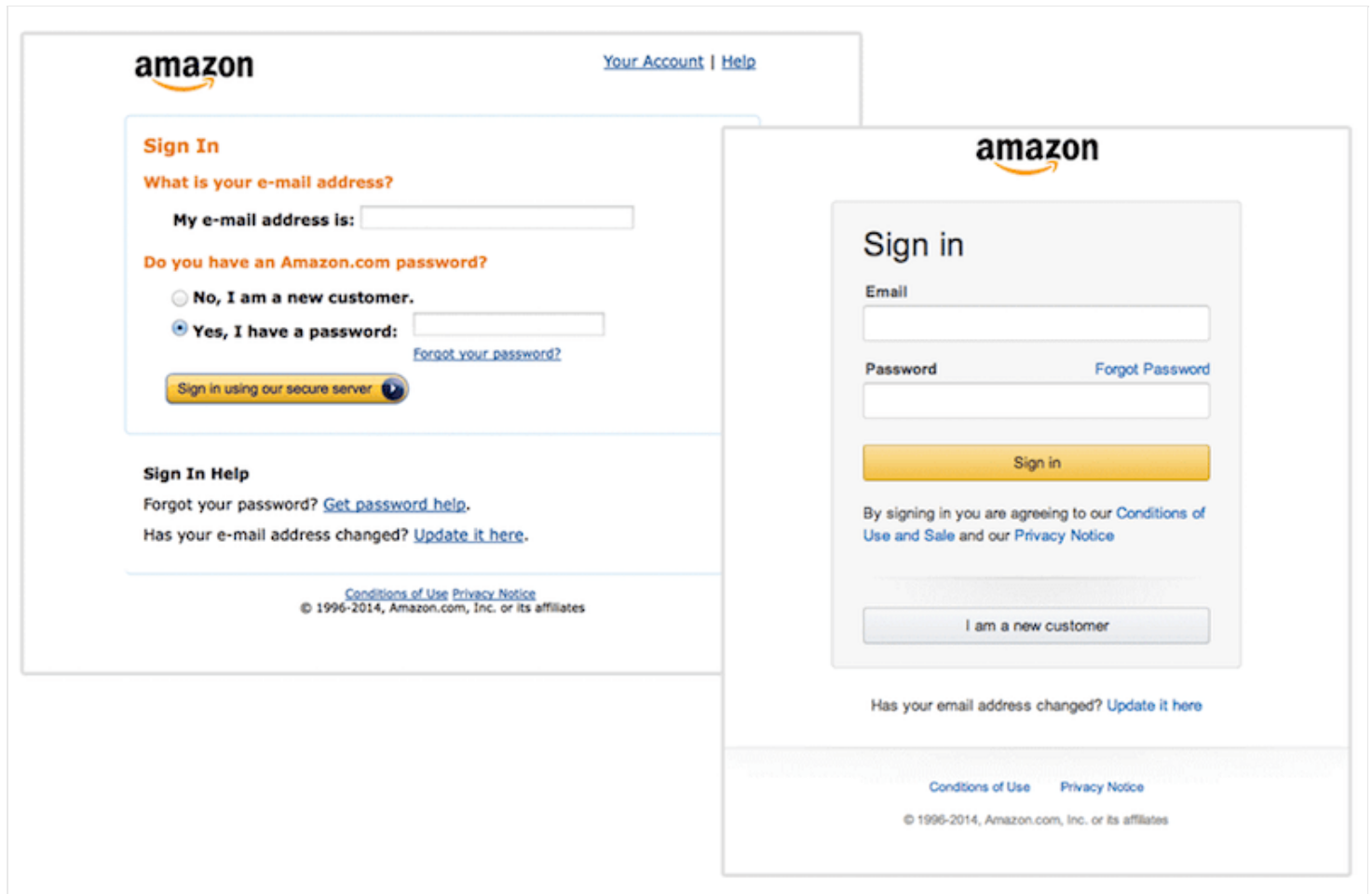
The image shows a web form with an address input field. The text "new york 5th avenue 5" is entered into the field. Below the input field, a dropdown menu displays two suggestions, each preceded by a location pin icon: "503 5th Avenue New York, NY, United States" and "563A 5th Avenue Brooklyn, New York, NY, United States". A mouse cursor is hovering over the first suggestion. To the right of the suggestions, the text "powered by Google" is visible. Below the suggestions, there is a "Country" label followed by an empty input field.

Labels Link

Clearly written labels are one of the primary ways to make a UI more accessible. A good label tells the user the purpose of the field, maintains its usefulness when focus is on the field itself, and remains visible even after the field has been filled in.

Number of Words Link

Labels are not help text. Use succinct, short, descriptive labels (a word or two) so that users can quickly scan your form. Previous versions of Amazon's registration form contained a lot of words, which resulted in slow completion rates. The current version is much better and has short labels.



[\(View large version\)](#)

Sentence Case Vs. Title Case Link

In most digital products today, there are two ways to capitalize words:

- title case: capitalize every word. “This Is Title Case.”
- sentence case: capitalize the first word. “This is sentence case.”

Sentence case used for labels has one advantage over title case: It is slightly easier (and, thus, faster) to read. While the difference for short labels is negligible (“Full Name” and “Full name”), for longer labels, sentence case is better. Now You Know How Difficult It Is to Read Long Text in Title Case.

Avoid All Caps Link

Never use all caps, or else the form will be difficult to read and much harder to scan quickly, because there will be no variation in character height.

Upload a package

This will create a new **staging** deployment.

DEPLOYMENT NAME

PACKAGE

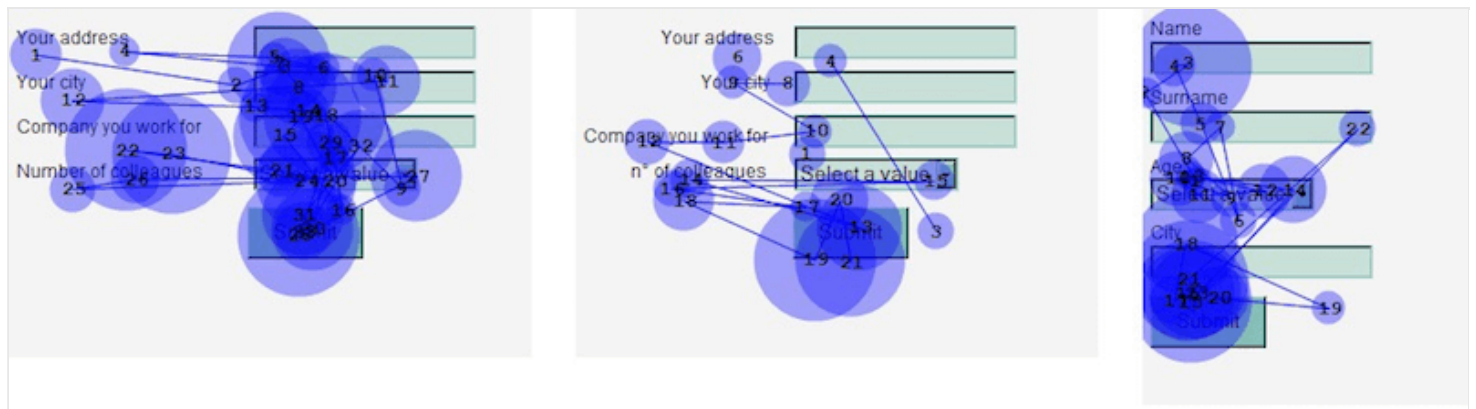
CONFIGURATION

☐ Deploy even if one or more roles contain a single instance

All-caps labels are very hard to read.

Alignment of Labels: Left Vs. Right Vs. Top Link

Matteo Penzo's 2006 [article on label placement](#) suggests that forms are completed faster if labels are on top of the fields. Top-aligned labels are good if you want users to scan the form as quickly as possible.




Left-aligned, right-aligned and top-aligned labels (Image: UX Matters) (View Large version)

The biggest advantage of **top-aligned labels** is that different-sized labels and localized versions can more easily fit the UI. (This is especially good for screens with limited space.)

Name

FirstLast

Date

/ /


MMDDYYYY

Phone

- -

(###)###-####

Web Site

Email

TOP ALIGNED

- BEST COMPLETION RATES
- EASIEST FOR USERS TO "PROCESS"
- BEST FOR MULTI-LANGUAGE SUPPORT
- REQUIRE THE MOST VERTICAL SPACE
- NOT IDEAL FOR VERY LONG FORMS

(Image: CSS-Tricks)

The biggest disadvantage to **left-aligned labels** is that it has the slowest completion times. This is likely because of the visual distance between the label and input field. The shorter the label, the further away it will be from the input. However, a slow completion rate isn't always a bad thing, especially if the form asks for sensitive data. If you are asking for something like a driver's license number or a social security number, you might deliberately want to slow down users a bit to make sure they enter it correctly. Thus, the time spent reading labels for sensitive data is insignificant. Left-aligned labels have another disadvantage: They require more horizontal space, which might be a problem for mobile users.

Name

FirstLast

Date

/ /


MMDDYYYY

Phone

- -

(###)###-####

Web Site

LEFT ALIGNED

- REQUIRE LESS VERTICAL SPACE
- REQUIRES MORE ATTENTION FROM USERS
- REQUIRES MORE HORIZONTAL SPACE
- SLOWEST COMPLETION RATES
- POOR MULTI-LANGUAGE SUPPORT

(Image: [CSS-Tricks](#))

The big advantage of **right-aligned labels** is the strong visual connection between the label and input. Items near each other appear to be related. This principle isn't new; it derives from the [law of proximity](#), from Gestalt psychology. For short forms, right-aligned labels can have great completion times. The disadvantage is discomfort; such forms lack that hard left edge, which makes it less comfortable to look at and harder to read.

RIGHT ALIGNED

Name
First Last

Date / /
MM DD YYYY

Phone - -
(###) ###-####

Web Site

Email

- BEST VISUAL CONNECTION BETWEEN LABELS AND FORMS
- GOOD COMPLETION RATES ON SHORT FAMILIAR FORMS
- REQUIRES LESS VERTICAL SPACE

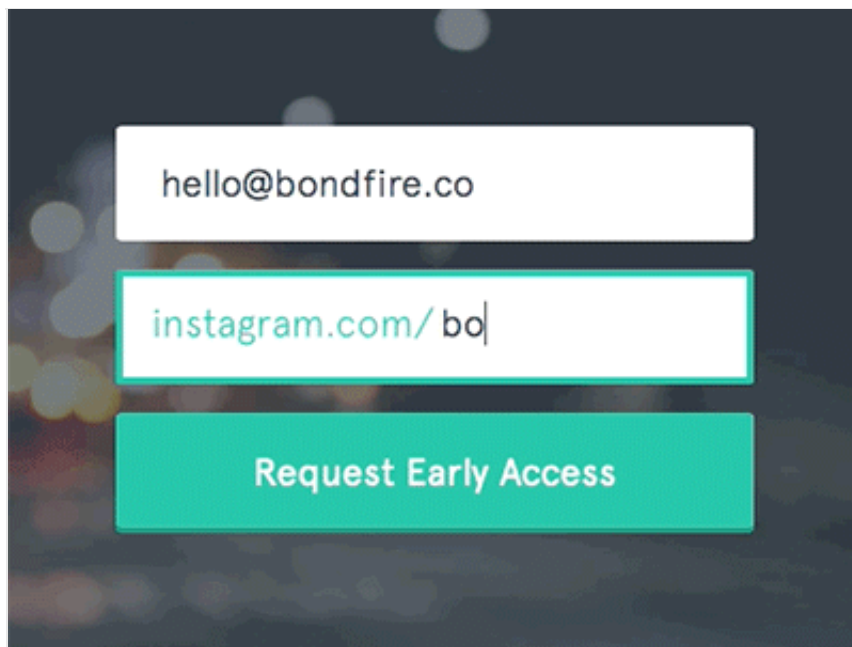
- HARDEST TO READ AND SCAN
- POOR MULTI-LANGUAGE SUPPORT

(Image: [CSS-Tricks](#))

Takeaway: If you want users to scan a form quickly, put labels above the fields. The layout will be easier to scan because the eye will move straight down the page. However, if you want users to read carefully, put labels to the left of the fields. This layout will slow down the reader and make them scan in a Z-shaped motion.

Inline Labels (Placeholder Text) Link

A label set as a placeholder in an input field will disappear once the field gains focus; the user will no longer be able to view it. While placeholder text might work for two-field forms (a simple log-in form with username and password fields), it's a poor substitute for visual labels when more information is required from the user.



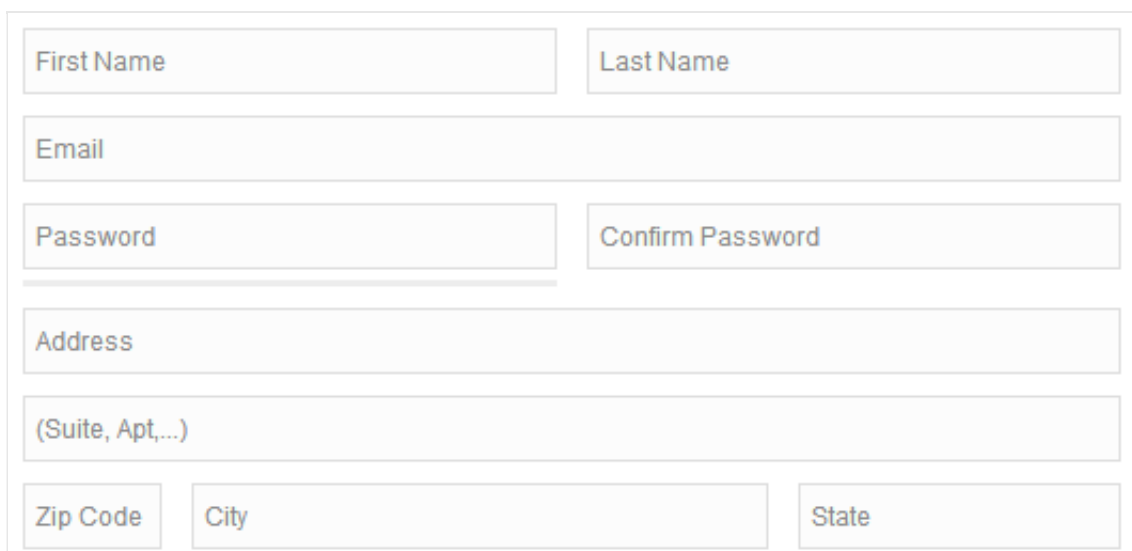
hello@bondfire.co

instagram.com/ bo|

Request Early Access

(Image: [snapwi](#))

Once the user clicks on the input field, the label will disappear, and so the user cannot double-check that they wrote what was being asked of them. This increases the chance of error. Another problem is that users could mistake placeholder text for prefilled data and, hence, ignore it (as [Nielsen Norman Group's eye-tracking study](#) confirms).



First Name Last Name

Email

Password Confirm Password

Address

(Suite, Apt,...)

Zip Code City State

Placeholder text as field label

A good solution for placeholder text is a floating label. The placeholder text would be shown by default, but once an input field is tapped and text is entered, the placeholder text fades out and a top-aligned label animates in.

(Image: [MDS](#))

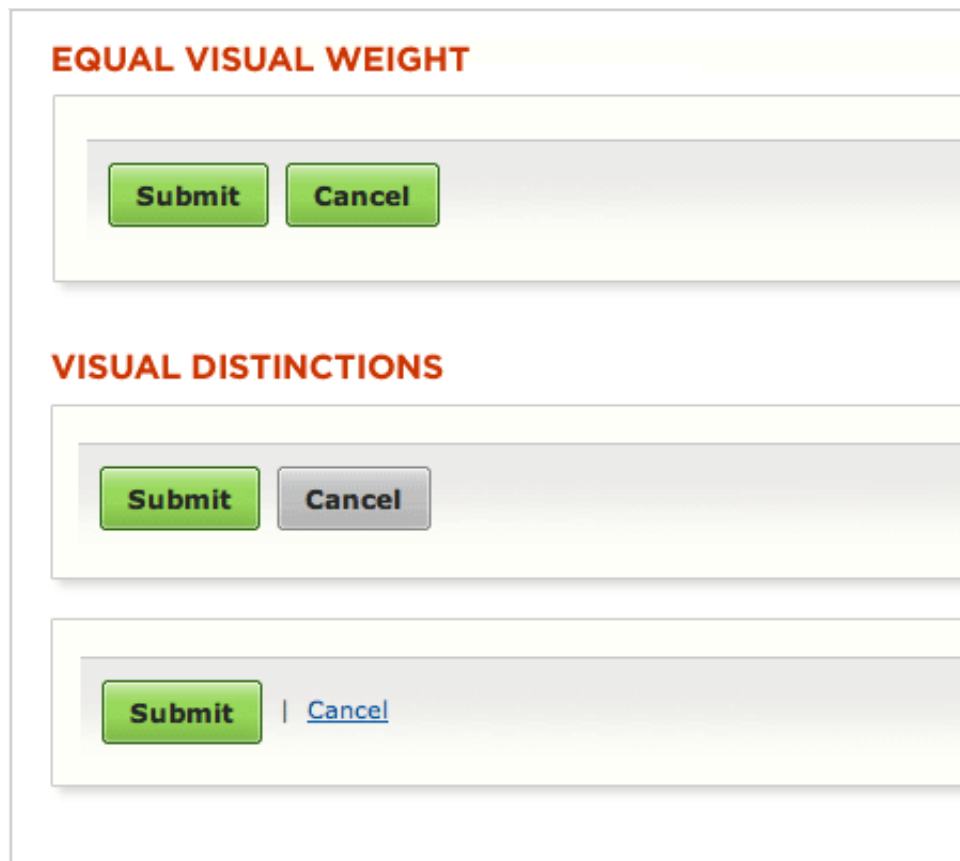
Takeaway: Don't just rely on placeholders; include a label as well, because once a field has been filled out, the placeholder will no longer be visible. Use a floating label so that users are sure they've filled out the correct field.

Action Buttons Link

When clicked, an action button triggers some activity, such as submission of the form.

Primary Vs. Secondary Actions Link

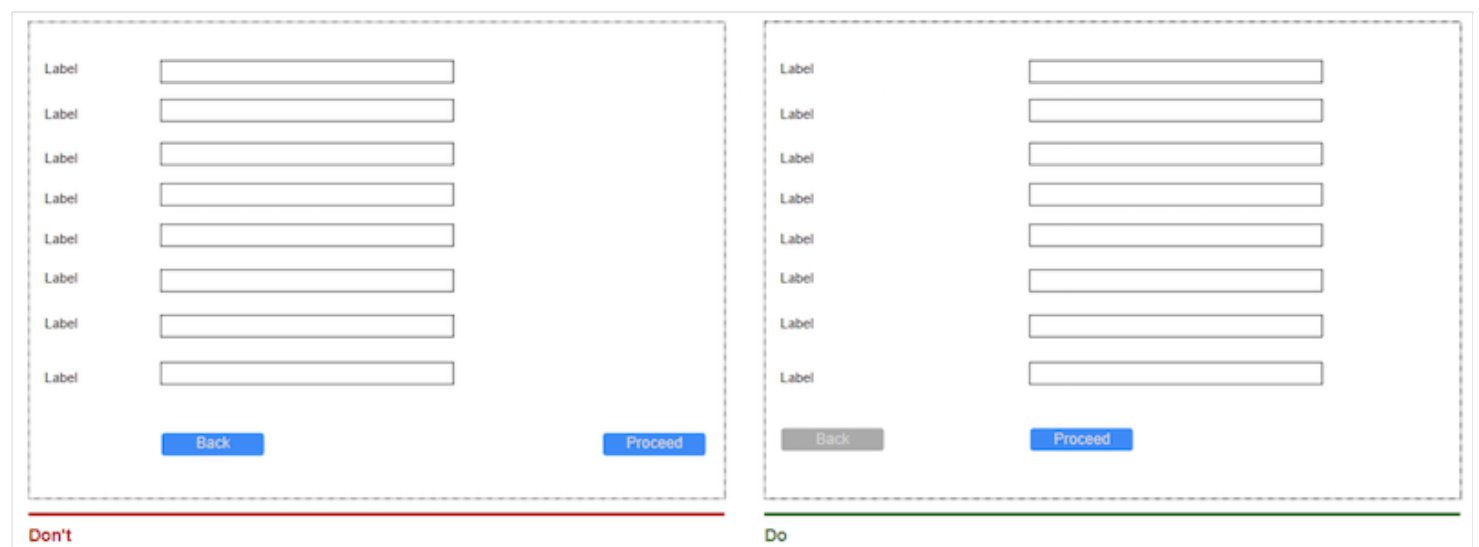
A lack of visual distinction between primary and secondary actions can easily lead to failure. Reducing the visual prominence of secondary actions minimizes the risk of error and reinforces people's path to a successful outcome.



Equal visual weight versus visual distinction (Image: Luke Wroblewski)

Button Location Link

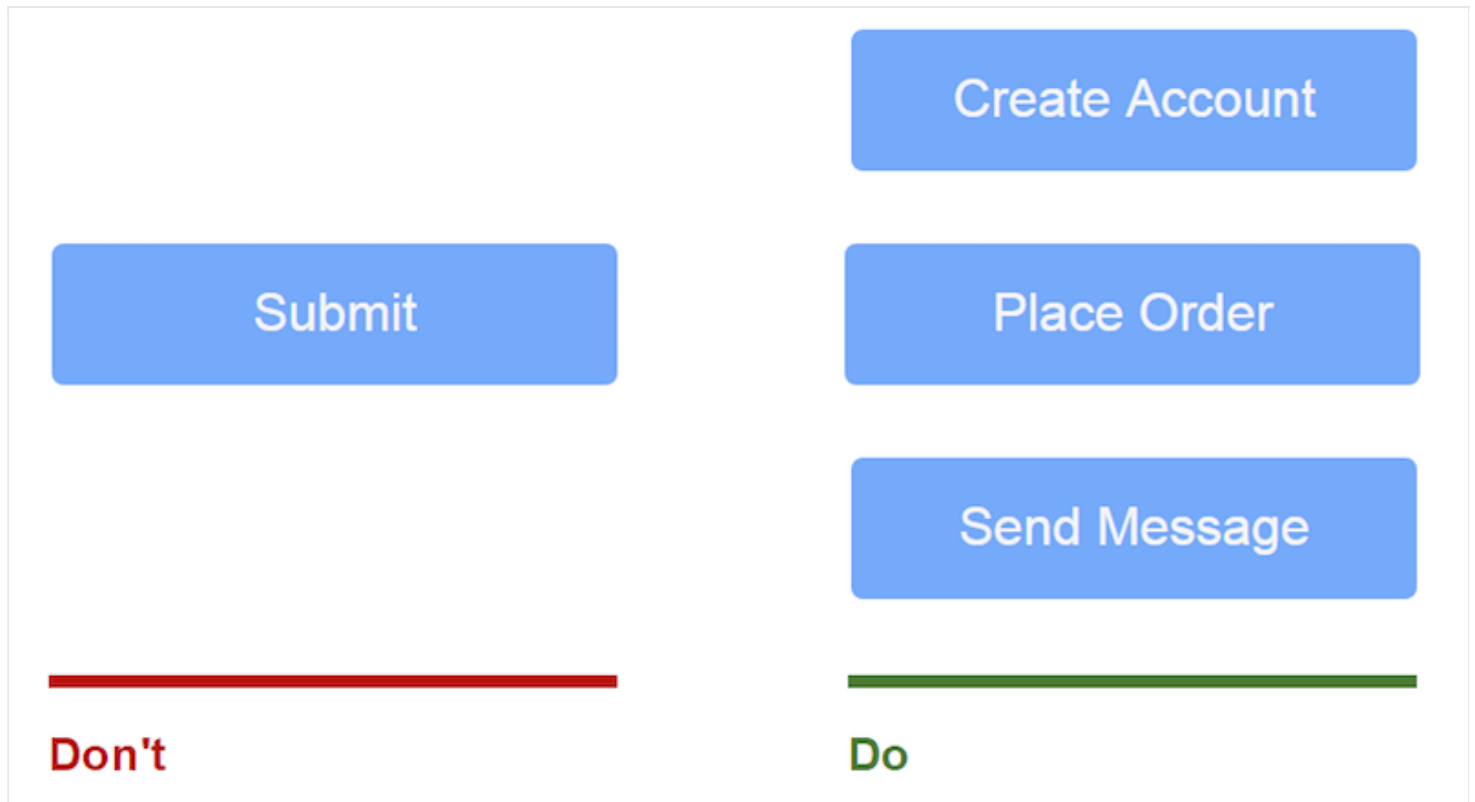
Complex forms usually need a back button. If such a button is located right below an input field (like in the first screenshot below), a user could accidentally click it. Because a back button is a secondary action, make it less accessible (the second form below has the right location for buttons).



[\(View large version\)](#)

Naming Conventions Link

Avoid generic words such as “Submit” for actions, because they give the impression that the form itself is generic. Instead, state what action the button will perform when clicked, such as “Create my account” or “Subscribe to weekly offers.”



[\(View large version\)](#)

Multiple Action Buttons Link

Avoid multiple action buttons because they might distract users from their goal of submitting the form.

The Reset Button Is Pure Evil Link

Don’t use a reset button. This button almost never helps users and often hurts them. The web would be a happier place if almost all reset buttons were removed.

Label

Label

Label

Label

Label

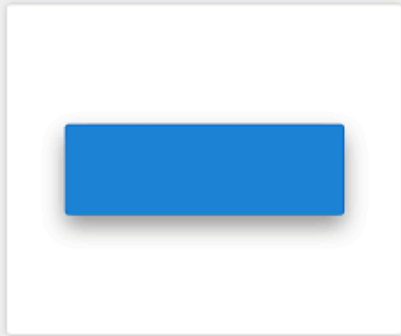
Create

Reset

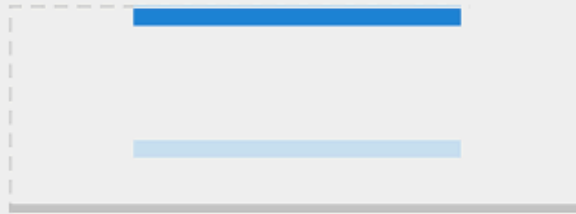
Visual Appearance Link

Make sure action buttons look like buttons: Indicate that it is possible to click or tap them.

Pressed (+6dp)



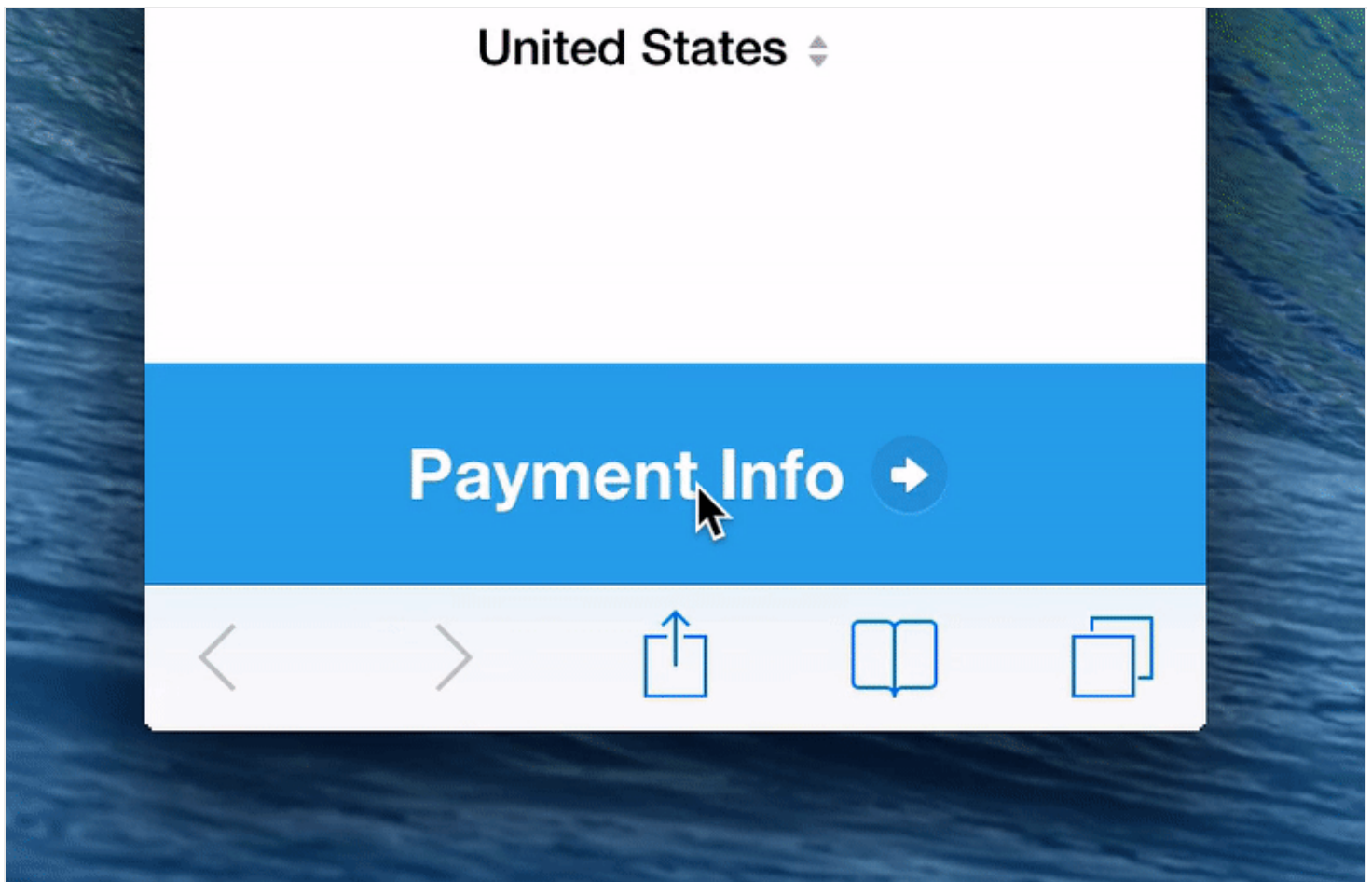
8dp



Shading indicates that it is possible to click. (Image: Vadim Gromov)

Visual Feedback Link

Design the “Submit” button in a way that clearly indicates the form is being processed after the user’s action. This provides feedback to the user while preventing double submission.



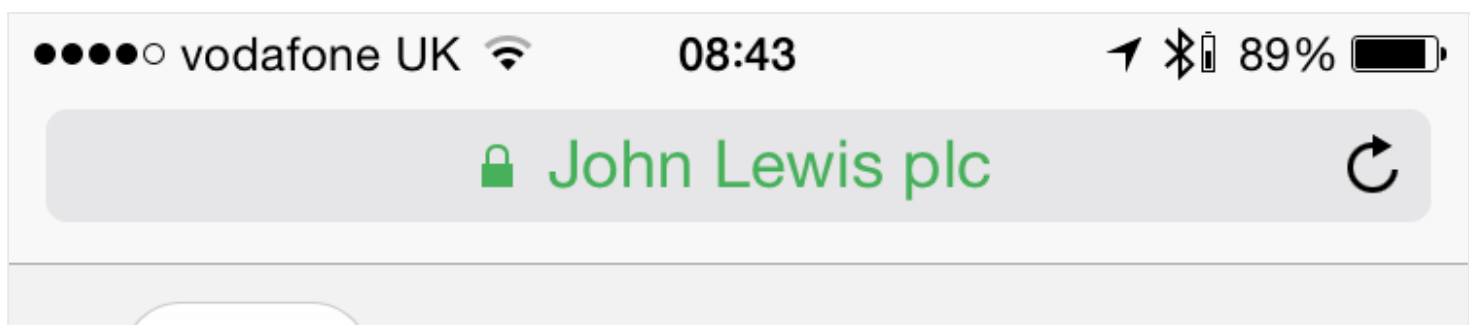
(Image: Michaël Villar)

Validation Link

Form validation errors are inevitable and are a natural part of data entry (because users are prone to making errors). Yes, error-prone conditions should be minimized, but validation errors will never be eliminated. So, the most important question is, How do you make it easy for the user to recover from errors?

Inline Validation Link

Users dislike having to go through the process of filling out a form, only to find out upon submission that they've made an error. Especially frustrating is completing a long form and upon pressing "Submit," you are rewarded with multiple error messages. It's even more annoying when it isn't clear what errors you've committed and where.





John Lewis

John Lewis

John Lewis Partnership

INSTALLED

OPEN

John Lewis

Secure checkout

Need help?

Call 03456 049 049

Delivery

Payment

Receipt

Please complete all details

- Please enter a title
- Please enter a first name
- Please enter a last name
- Please enter a valid phone number (e.g. 0207 123 4567).

Where do you want to deliver to?

17 Beaconsfield Court

St. Helens Road

Ormskirk

Lancashire

L39 4QL

> Edit delivery address



(Image: Stack Exchange)

Validation should inform users about the correctness of text **as soon as the user has inputted the data**. The primary principle of good form validation is this: Talk to the user! Tell them what is wrong! Real-time inline validation immediately informs the user about the correctness of their data. This approach allows them to correct any errors faster, without having to wait until they press the “Submit” button to see the errors.

However, avoid validating on each keystroke because, in most cases, you simply cannot verify until someone has finished typing an answer. Forms that validate during data entry punish the user as soon as they start entering data.

Contact information

* Required

Name *

Your answer

Email *

Your answer

SUBMIT

Never submit passwords through Google Forms.

Google Forms states the email address isn't valid before you've finished typing. (Image: [Medium](#))

On the other hand, forms that validate after data entry do not inform the user soon enough that they've fixed an error.

The screenshot shows the '2 Shipping Address' section of an Apple form. It includes fields for First Name, Last Name, Company Name (optional), Area Code, Primary Phone, and Street Address. A yellow error message box is displayed over the Street Address field, stating: 'This is not a valid entry. Please check that the information is correct.' Below the Street Address field is a ZIP code field with a placeholder 'Enter ZIP for City and State' and a dropdown menu for 'United States'. There is also a checkbox for 'This is a business address'. To the right of the form is the 'Apple Shipping Policy' section with a 'Learn more' link and a list of shipping policies. At the bottom is the 'Shipping Notifications' section, which includes a text box for 'Email Address (optional)' and fields for 'Area Code' and 'Mobile Phone (optional)'.

2 Shipping Address

Shipping Address

First Name Last Name

Company Name (optional)

Area Code Primary Phone

Street Address

This is not a valid entry. Please check that the information is correct.

Enter ZIP for City and State

United States ☐ This is a business address ?

Shipping Notifications ?

Shipment notification emails are sent to the Billing Contact. Another recipient email address may be added below.

Email Address (optional)

For shipment updates via text messages, enter a mobile number below.

Area Code Mobile Phone (optional)

Apple Shipping Policy | [Learn more](#)

- Signature may be required for delivery
- We do not ship to P.O. boxes
- Delivery estimates below include item preparation and shipping time
- We do not ship directly to [APO/FPO](#) addresses.

Validation in the Apple Store is performed after data entry. (Image: [Medium](#))

Mihael Konjević, in his article “[Inline Validation in Forms: Designing the Experience](#),” examines different validation strategies and proposes a hybrid strategy to satisfy both sides: **Reward early, punish late.**

- If the user enters data in a field that was in a valid state (i.e. previously inputted data was valid), then validate after data entry.
- If the user enters data in a field that was in an invalid state (i.e. previously entered data was invalid), then validate during data entry.

User Registration

Username

Test



Email

test

Value is not a valid email

Email doesn't match email confirmation

Email Confirmation

test@example.com

Email doesn't match email confirmation

Password



Register

A hybrid approach: Reward early, punish late. (Image: [Medium](#))

Protecting Data Link

Jef Raskin once said, “The system should treat all user input as sacred.” This is absolutely true for forms. It’s great when you start filling in a form and then accidentally refresh the page but the data remains in the fields. Tools like [Garlic.js](#) help you to persist a form’s values locally until the form is submitted. This way, users won’t lose any precious data if they accidentally close the tab or browser.

The screenshot shows a web browser window with the address bar displaying 'garlicjs.org'. The page title is '1 - Simple form'. The main content area contains a paragraph explaining that forms are independent and data is locally persisted using localStorage. Below the text is a form with several input fields: a text field with 'This', a text area with 'data', a dropdown menu with 'Hello', and a radio button group with options 'yes', 'no', and 'maybe'. There are also checkboxes for 'I', 'will', 'be', and 'persisted'. On the left side of the page, there is a sidebar with a list of links: 'Demonstration', 'Requirements / Compatibility', 'Download', 'Usage', 'Documentation', 'They use Garlic.js !', 'Other stuff', and 'Version / Licence'. Each link has a right-pointing arrow next to it.

Garlic.js

garlicjs.org

1 - Simple form

Forms are independent. All text data is locally persisted thanks to localStorage if browser supports it. If you reload this page, quit and go back here, your data will still be there. On simple validation, if you press the submit button the persisted data will be destroyed, considering it has properly been submitted

This

data

Hello

☒ yes
☐ no
☐ maybe

☐ I
☐ will
☐ be
☐ persisted

Demonstration >
Requirements / Compatibility >
Download >
Usage >
Documentation >
They use Garlic.js ! >
Other stuff >
Version / Licence >

[\(View large version\)](#)

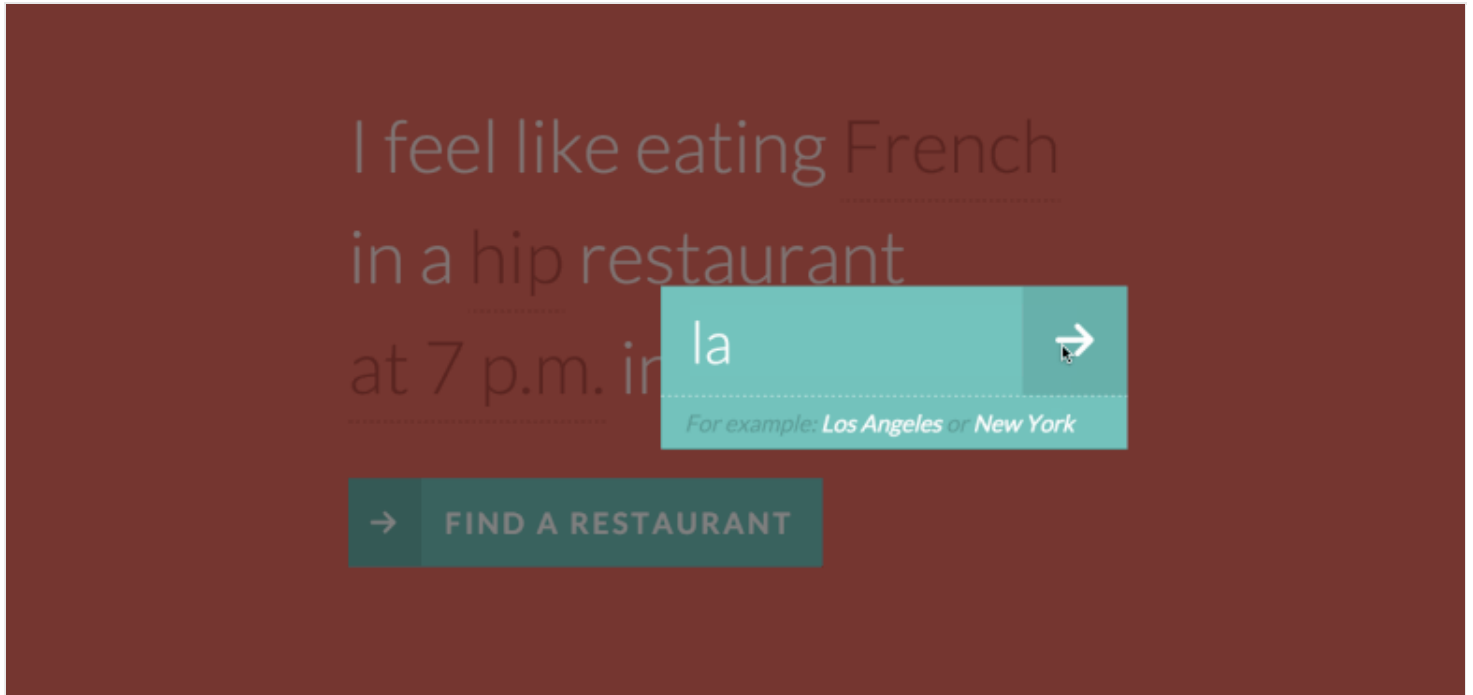
Conversational Interfaces: New Ways Of Designing Forms Link

Recently, we've seen a lot of excitement around conversational interfaces and chatbots. Several trends are contributing to this phenomenon, but one in particular is that people are [spending more time in messaging apps](#) than on social networks. This has led to a lot of experimentation with supporting a range of interactions, such as shopping, in threaded conversations, often in a way that mimics messaging. Even as established an element as a web form has undergone a change under this trend. Designers are looking to transform traditional web forms into interactive conversational interfaces.

Natural Language Interface Link

Every interface is a conversation. Traditional forms (the ones we design every day) are quite similar to a conversation. The only difference is the way we ask the questions. But what if we designed our forms to ask questions in a format that more closely reflects real human (not machine) conversation? So, instead of communicating with a machine on its own inhuman terms, you would interact with it on yours. The form shown below creates a conversational context, facilitating understanding without relying on the traditional elements of web forms (such as labels and input

fields).



I feel like eating French
in a hip restaurant
at 7 p.m. in

la →

For example: Los Angeles or New York

→ FIND A RESTAURANT

This form design from Codrops uses a conversational pattern to better resemble the task. ([View large version](#))

Conversational Form Link

[Conversational Form](#) is an open-source concept that easily turns any form on a web page into a conversational interface. It features conversational replacement of all input elements, reusable variables from previous questions, and complete customization and control over the styling. This project represents an interesting shift in how we think about user experiences and interactions, leaning more towards text-based conversation to help users achieve their goals.

PERSONAL INFORMATION

First Name *

Last Name *

Email Address *

Phone Number *

Address *

Country

Submit

Feedback

Hi there! What's your name?

Type your answer here ...

Conclusion Link

Users can be reluctant to fill out forms, so make the process as easy as possible. Minor changes—such as grouping related fields and indicating what information goes in each field—can significantly increase usability. Usability testing is simply indispensable in form design. Very often, testing with just a few people or simply asking a colleague to go through a prototype can give you good insight into how usable a form is.

*This article is part of the UX design series sponsored by Adobe. The newly introduced Adobe Experience Design CC (Beta) tool is made for a **fast and fluid UX design process**, as it lets you go from idea to prototype faster. Design, prototype and share — all in one app.*

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(ms, vf, al, yk, il)

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