



UI for Input Design

Linga, Malijan, Mijares,
Sarte

The background of the slide features a low-angle, upward-looking perspective of a modern skyscraper with a glass and steel facade. The image is overlaid with a semi-transparent blue filter. A thin white rectangular border frames the entire content area. A small white horizontal line is positioned to the left of the title text.

Basic Principles

Basic Principles

Data Capture

Input of data, not as a direct result of data entry but instead as a result of performing a different but related activity.

E.g. Barcode Readers

Basic Principles

Source Documents

A source document is the original record containing the details to substantiate a transaction entered in an accounting system.

E.g. Suppliers invoice

Basic Principles

Data Entry

Data entry means to operate equipment, often a keyboard, that is used to input data, which may be alphabetic, numeric, or symbolic, into a company's system.

E.g. Completing an Online form

Basic Principles

Data Processing

This is where the raw data that was inputted by users gets transformed into information.

E.g. Storing data in Database

Basic Principles

Batch Processing

Batch processing is the processing transactions in a group or batch. No user interaction is required once batch processing is underway.

E.g. Monthly Bills for Utilities

Basic Principles

Online Processing

A method of using a terminal remote from a company mainframe or an interface to the Internet like an e-commerce website for taking product orders and dealing with payments

Basic Principles

Remote Batch Processing

Batch processing in which an input device is located at a distance from the main installation and has access to a computer through a communication link.



Input Implementation Methods

Input Implementation Methods

- Keyboard
- Mouse
- Touch Screen
- POS Terminals (Cashier)
- Sound & Speech (Voice Recorder)
- Automatic Data Capture

**Input
Implementation
Methods**

Keyboard

Most common input device.

Inputs letters, numbers, and symbols by pressing buttons.

Input Implementation Methods

Keyboard



Input Implementation Methods

Mouse

Usually paired with a keyboard

Point and click device to select and interact with UI elements.

Input Implementation Methods

Mouse



Input Implementation Methods

Touch Screen

Users can interact with UI elements by using their fingers.

An alternative to the keyboard and mouse.

Input Implementation Methods

Touch Screen



**Input
Implementation
Methods**

POS Terminals

An input device built to handle retail transactions.

Transfers funds from the customer to the company.

Records transactions.

Input Implementation Methods

POS Terminals



Input Implementation Methods

Sound & Speech

Computers identify words and letters uttered by the user to capture inputs.

Input Implementation Methods

Sound & Speech



**Input
Implementation
Methods**

**Automatic Data
Capture**

Inputs are captured automatically by using equipments.

No need for typing, clicking, or button-pushing.

Input Implementation Methods

**Automatic Data
Capture**

**Optical Mark
Recognition**



**Input
Implementation
Methods**

**Automatic Data
Capture**

Barcodes



Input Implementation Methods

**Automatic Data
Capture**

**Optical
Character
Recognition**



Input Implementation Methods

Automatic Data Capture

Magnetic Ink

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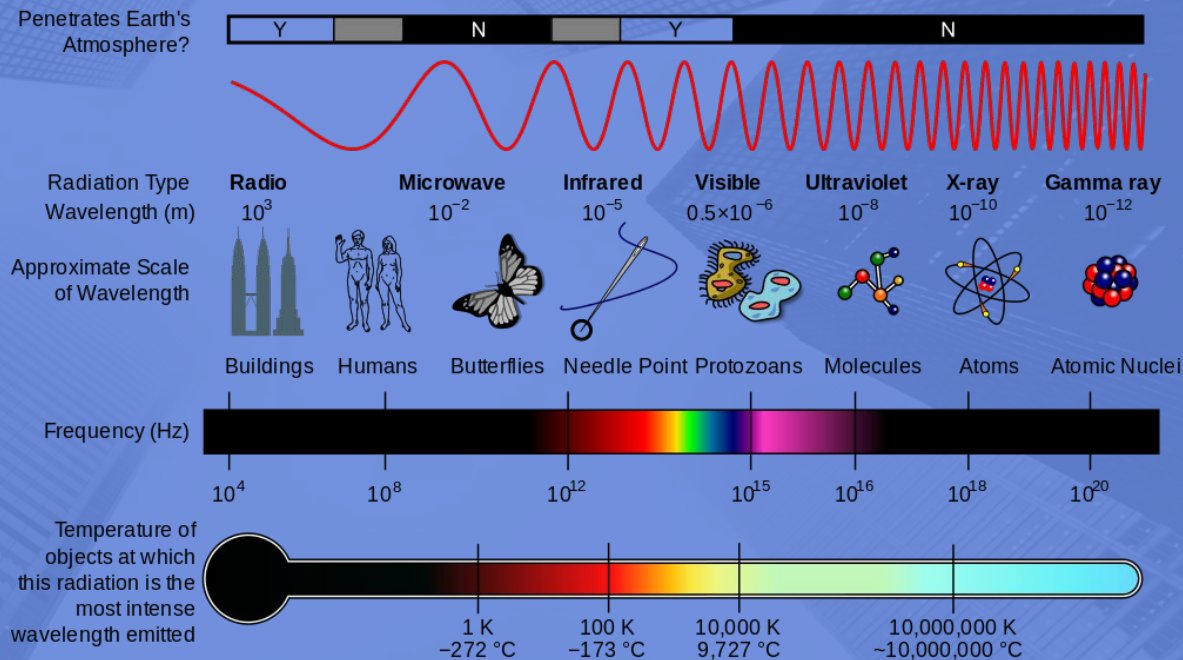
⑆011234567⑆ 001234567⑆ 243



Input Implementation Methods

Automatic Data Capture

Electromagnetic Transmission



Input Implementation Methods

**Automatic Data
Capture**

Smart Cards



**Input
Implementation
Methods**

**Automatic Data
Capture**

Biometrics





Taxonomy for Computer Inputs

Process Method

Keyboard

—

Mouse

Touch screen

Data Capture

-Data is usually captured on business form
→ **Source Document**

-Real-time

Data Entry

-Most common input but also most prone to errors

-“pointing” device for a screen

-Either touch commands and data choices or data using handwriting recognition

Data Processing

-Collected into batch files
-Processed as soon as it has been keyed

-Same with keyboard
-Associated with online and real-time processing

-For PC: same with the others
-For handheld computers: sorted for later processing as remote batch

Process Method

Data Capture

Data Entry

Data Processing

Point of Sale

- as close to the point of sale as humanly possible
- NO source documents

- by the customer
- Employee **interacting** with the customer

- Almost always processed **immediately** as transaction/inquiry

Sound

- Same with POS
- Customers in remote areas

- using touch-tones (telephone)
- Rigid commands
- Limited input options

Speech

- Spoken
- Less reliable
- common

Optical Mark

- Recorded in optical scan sheets as marks or precisely letter, numbers & punctuation

- No data entry

- Almost always processed as a batch

Process Method

Data Capture

Data Entry

Data Processing

Magnetic Ink

-**Pre-recorded** on forms (customer)

-Reads the magnetized data
-Additional info must use other input method

-almost always processed as a **batch**

Electro-magnetic

-Recorded **directly** on the object

-Transmitted by radio frequency

-Almost always processed **immediately**

Smart Card

-Same with electromagnetic but always carried by the user

-Transmitted by smart card readers

Bio-metric

-Unique human characteristics

-Read by sensors
-Primary apps are security & medical monitoring

-Processed **immediately**



Input Design Guidelines

Thank you uxplanet.org and uxdesign.cc



“

*A form is a conversation. And
like in any conversation, it should
be presented by a logical
communication between two
parties - your user, and your app.*
- uxplanet.org

Input Design Guidelines

Components of a Form

- Structure
- Input Fields
- Field Labels
- Action Buttons
- Feedback
- *Validation*
- *Assistance*



Input Design Guidelines

Structure

Input Design Guidelines

Form Structure

- **Only Ask what is required** –
Every field you put on your
form will affect the
conversion rate.

Input Design Guidelines

Form Structure

- **Order the form logically** –
Details should be asked from a user's perspective, not the application or database logic.

Input Design Guidelines

Form Structure

- **Grouping Related Information**
- Group information in blocks or sets to help them understand the sense of the form

Input Design Guidelines

Grouping Related Information Example

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:

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:



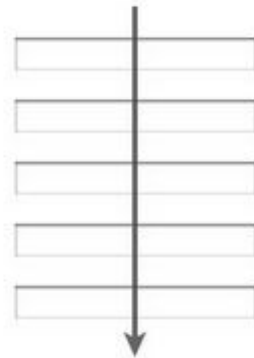
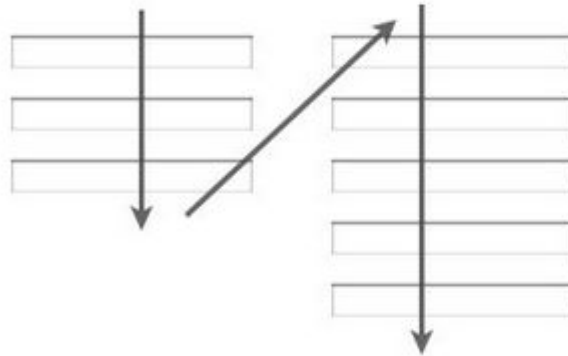
Input Design Guidelines

Form Structure

- **Strictly One Column Only.**
- Users have will get confused on how to interpret your forms

Input Design Guidelines

Only One Column Example





Input Design Guidelines

Input Fields




Input Design Guidelines

Input Fields

- **Number of Fields** - This makes your form less loaded, especially when you request a lot of information from the users.

Input Design Guidelines

Input Fields

Multiple Fields	Combined Field
<p>FIRST NAME</p> <input type="text"/>	<p>FULL NAME</p> <input type="text"/>
<p>LAST NAME</p> <input type="text"/>	
<p>EMAIL ADDRESS</p> <input type="text"/>	<p>EMAIL ADDRESS</p> <input type="text" value="Example: john@gmail.com"/>
<p>SEX</p> <p><input checked="" type="radio"/> Male <input type="radio"/> Female</p>	<p>SEX</p> <p><input checked="" type="radio"/> Male <input type="radio"/> Female</p>
<p>DATE OF BIRTH</p> <p>Day ▼ Month ▼ Year ▼</p>	<p>DATE OF BIRTH</p> <p>-- </p>
<p>TIME OF ARRIVAL</p> <p>AM/PM ▼ Hours ▼ Minutes ▼</p>	<p>TIME OF ARRIVAL</p> <p>Please select ▼</p>
	

Combine multiple fields in one easy-to-fill field.

Input Design Guidelines

Input Fields

- **Make users fill out mandatory values** - Makes it easier for you to input data in the database without having to worry about an error.

Input Fields

Mailchimp subscribe to mailing list form.

Input Design Guidelines

Input Fields

- **Set Default Values** - Don't assume that they will take time to parse through all the choices.
- **Use Smart Default** to reduce the User's time to fill out forms.

Input Design Guidelines

Input Fields

Billing Address

Country *

First Name *

Last Name *

Intelligently pre-selected country in the checkout form.

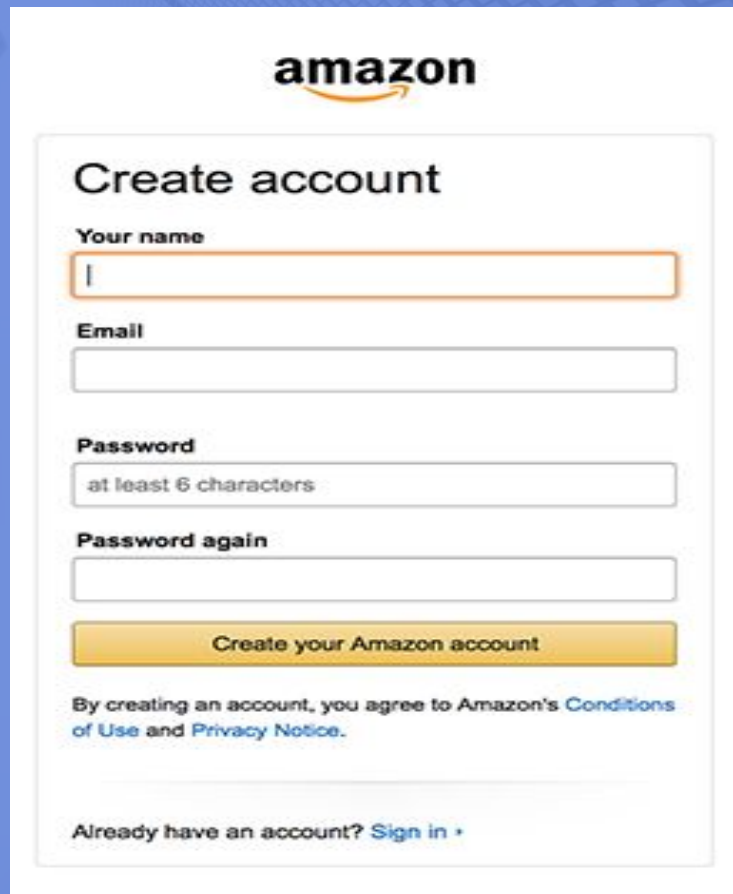
Input Design Guidelines

Input Fields

- **Autofocus for input field** - It provides the user a clear visual notification that this is where they should be inputting their data.

Input Design Guidelines

Input Fields



The image shows a screenshot of the Amazon 'Create account' form. The form is centered on a white background with a blue border. At the top is the Amazon logo. Below it is the title 'Create account'. The form contains four input fields: 'Your name' (with a cursor), 'Email', 'Password' (with a hint 'at least 6 characters'), and 'Password again'. A yellow 'Create your Amazon account' button is below the password fields. At the bottom, there is a line of text: 'By creating an account, you agree to Amazon's [Conditions of Use](#) and [Privacy Notice](#).' and a link 'Already have an account? [Sign in](#)'.

amazon

Create account

Your name

Email

Password

Password again

Create your Amazon account

By creating an account, you agree to Amazon's [Conditions of Use](#) and [Privacy Notice](#).

Already have an account? [Sign in](#)



Input Design Guidelines

Field Labels

Input Design Guidelines

Field Labels

- **Number of Words per label-**
Remember that labels are not help texts, that's what the taxonomy is for.
- Use short and descriptive labels
- 1 - 2 Words per label.

Input Design Guidelines

Field Labels

amazon.com [Your Account](#) | [Help](#)

Registration
New to Amazon.com? Register Below.

My name is:

My e-mail address is:

Type it again:

My mobile phone number is: (Optional)
[Learn more](#)

Protect your information with a password
This will be your only Amazon.com password.

Enter a new password:

Type it again:

[Conditions of Use](#) [Privacy Notice](#) © 1996-2011, Amazon.com, Inc. or its affiliates

amazon

Create account

Your name

Email

Password
at least 6 characters

Password again

By creating an account, you agree to Amazon's [Conditions of Use](#) and [Privacy Notice](#).

Already have an account? [Sign in](#)

Input Design Guidelines

Field Labels

- **Use Sentence Case** - It helps the user read the labels faster as there is a difference in the height letters.
- **NEVER USE ALL CAPS IN LABELS**

Input Design Guidelines

Field Labels

Upload a package

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


DEPLOYMENT NAME

PACKAGE

 BROWSE YOUR COMPUTER 

CONFIGURATION

 BROWSE YOUR COMPUTER 

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

"All Caps" labels are very hard to read.

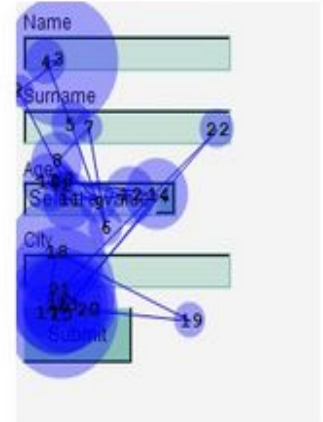
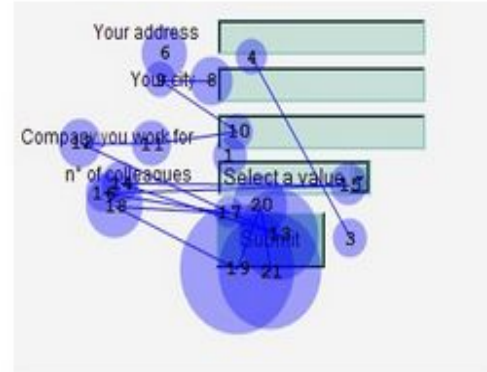
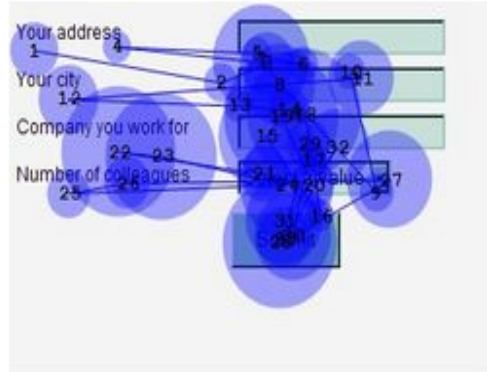
Input Design Guidelines

Field Labels

- **Choose your Label Alignments carefully** - The standard and usual format is usually top aligned labels as they have the fastest completion rates.
- There are different formats, but its upto your discretion to use them

Input Design Guidelines

Field Labels




Left-aligned labels, right-aligned labels and top labels. Image credits: uxmaters

Name

First Last

Date

/ /


MM DD YYYY

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 source: [csstricks](https://csstricks.com)

Name

First Last

Date

/ /


MM DD YYYY

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 source: [csstricks](https://csstricks.com)

Name

First Last

Date

/ /


MM DD YYYY

Phone

- -

(##) ### ####

Web Site

Email

RIGHT ALIGNED

- 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 source: [csstricks](https://csstricks.com)

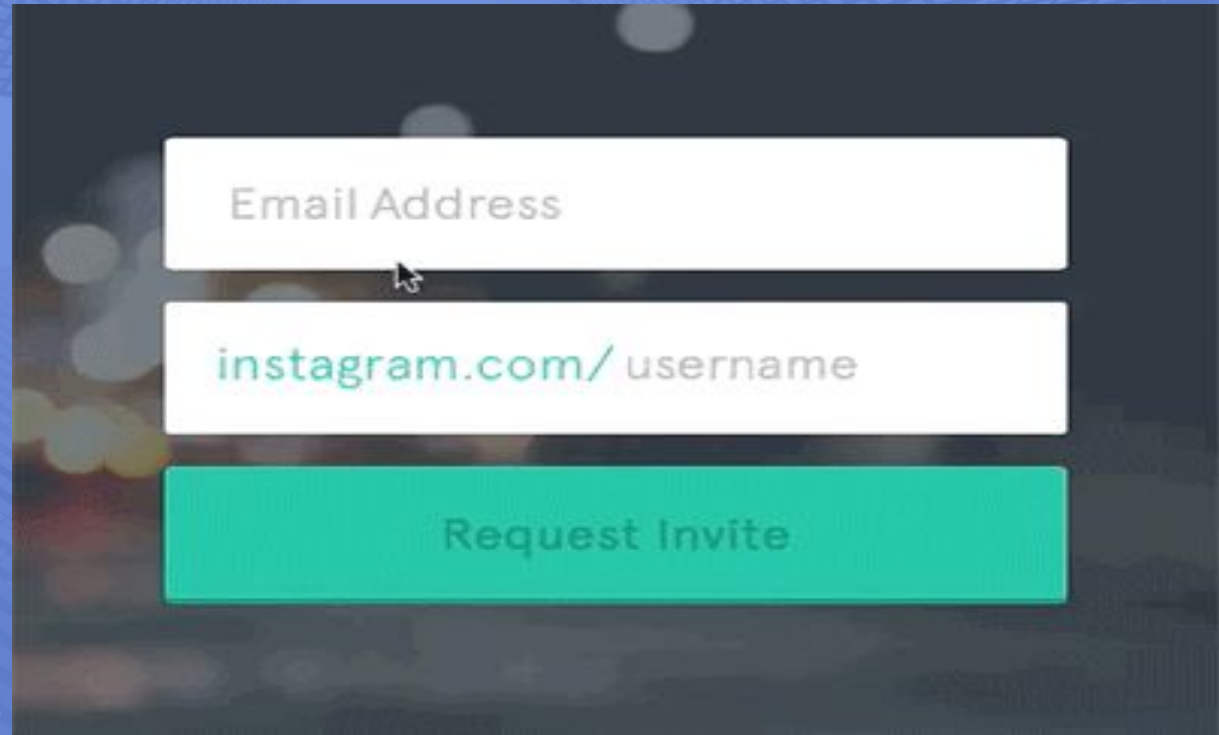
Input Design Guidelines

Field Labels

- ❑ **On Visual Labels-** It looks better and fits the modern era of forms.
- ❑ **Pros:** Looks nice and appealing.
- ❑ **Cons:** The label text can disappear, and can lead to confusion when users are filling up the field.

Input Design Guidelines

Field Labels



Email Address

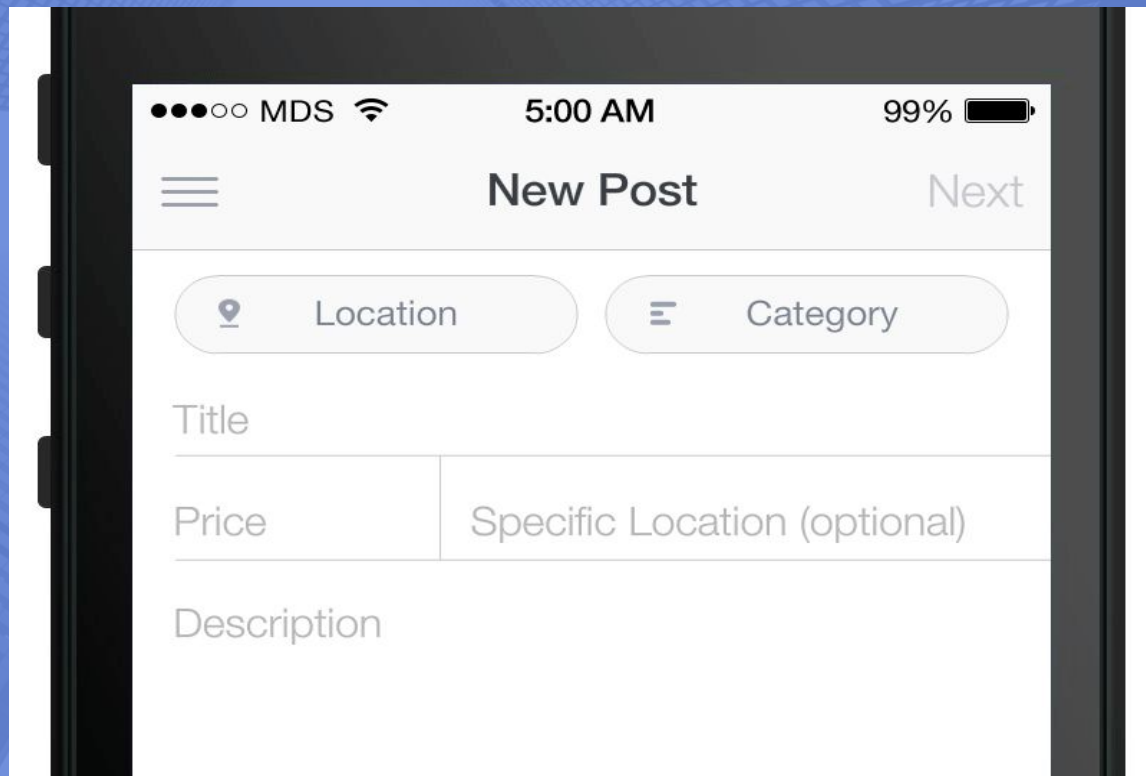
instagram.com/username

Request Invite

The image shows a dark-themed user interface with three white input fields stacked vertically. The first field is labeled 'Email Address' in a light gray font. The second field contains the text 'instagram.com/username' in a teal font. The third field is a solid teal button with the text 'Request Invite' in white. A mouse cursor is visible over the first field.

Input Design Guidelines

Field Labels



A mobile application mockup showing a 'New Post' form. The interface is displayed on a smartphone screen with a status bar at the top showing 'MDS', '5:00 AM', and '99%' battery. The app's navigation bar includes a hamburger menu icon on the left, the title 'New Post' in the center, and a 'Next' button on the right. The form itself consists of several input fields: a 'Location' field with a location pin icon, a 'Category' field with a list icon, a 'Title' field, a 'Price' field, a 'Specific Location (optional)' field, and a 'Description' field. The fields are arranged in a clean, modern layout with light gray borders and icons.

●●●○○ MDS 5:00 AM 99%

☰ New Post Next

📍 Location 📋 Category

Title

Price Specific Location (optional)

Description



Input Design Guidelines

Action Buttons

Input Design Guidelines

Action Buttons

- **Make a clear distinction on what button to press** - Lack of this distinction makes it confusing for the user, and can be prone to errors.

Input Design Guidelines

Field Labels

EQUAL VISUAL WEIGHT

Submit

Cancel

VISUAL DISTINCTIONS

Submit

Cancel

Submit

| [Cancel](#)

Equal visual weight vs Visual distinctions. Image credits: Lukew

Input Design Guidelines

Action Buttons

- **Button Location** - When forms usually get longer it is better to segment these forms into parts, therefore, requiring a before and next button.
- **Be wary of the placement**, as users can mix between the back,next and submit.

Input Design Guidelines

Field Labels

Order for myself

We have filled in your address (amend where necessary). Please complete the details below

Fields marked * must be filled in

address*

Town/City*

LEIGH-TON BUZZARD

County

Derby

Postcode

DE22 3BB

Title*

(Choose)

Other title

First name*

Last name*

Gender*

(Choose)

Or Personal Identifier (if known)

Date of birth (DD MM YYYY)

Daytime phone number

Evening phone number

Mobile phone number

Email Address

Which of these subject areas are you most interested in studying with the Open University?

(Choose)

Which of these best describes your reason for enquiring about study with the Open University?

(Choose)

When would you like to start studying with the Open University?

(Choose)

How did you find out about us?
Please tell us how you found out about our website

If the promotion you can take a response code please enter it here (e.g. 12345678)

If you do not have the response code in which publication/website did you see our promotion?

(Choose)

back

proceed

If you need help, please email enquiries@open.ac.uk or call us on 01753 593400

Order for myself

We have filled in your address (amend where necessary). Please complete the details below

Fields marked * must be filled in

address*

Town/City*

LEIGH-TON BUZZARD

County

Derby

Postcode

DE22 3BB

Title*

(Choose)

Other title

First name*

Last name*

Gender*

(Choose)

Or Personal Identifier (if known)

Date of birth (DD MM YYYY)

Daytime phone number

Evening phone number

Mobile phone number

Email Address

Which of these subject areas are you most interested in studying with the Open University?

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If the promotion you can take a response code please enter it here (e.g. 12345678)

If you do not have the response code in which publication/website did you see our promotion?

(Choose)

back

proceed

Input Design Guidelines

Action Buttons

- **Naming Conventions** - Do not confuse users with very vague “submit” Buttons, as it will give an impression that the form is generic

Input Design Guidelines

Field Labels

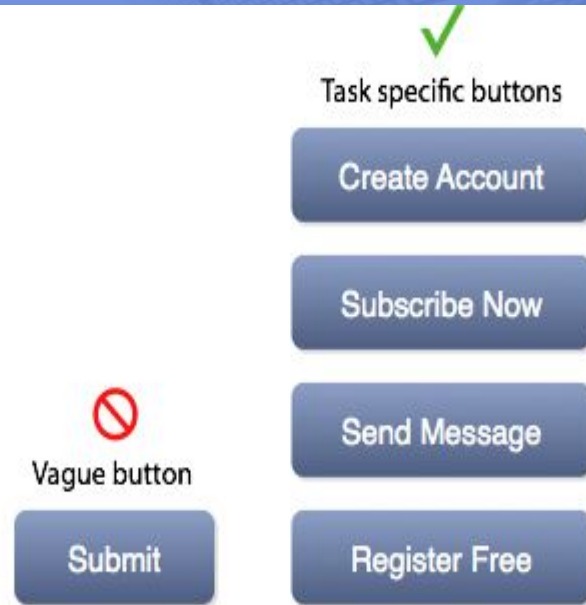


Image credit: [uxmovement](#)



Input Design Guidelines

Feedback


Input Design Guidelines


Feedback


- It is simply a guide for the users to understand what is this field about
- For example, a Textbox has a jargon that the user cannot understand. Under the textbox is a visible tip that explains what this field means.
- It can also tell the user what is wrong with their input.


Input Design Guidelines


Feedback


 Dashboard


 Posts


 Media


 Pages


 Releases


 All Releases


 Add New


 Artists


 Comments

 Appearance

 Plugins

 Users

 Tools

 Settings

Artists

All Releases

Add New

Artists

Artists

Add New Artist

Name

The name is how it appears on your site.

Slug

The "slug" is the URL-friendly version of the name. It is usually all lowercase and contains only letters, numbers, and hyphens.

Description

The description is not prominent by default; however, some themes may show it.

Add New Artist

Input Design Guidelines

Feedback

Email

john@johndoe.com



There is already an account with this email

Password

Sign Up

Cancel



Source Document Form Design Guidelines

**Source
Document/Form
Design
Guidelines**

- Include instructions for completing the form
- Minimize the amount of handwriting
- Data to be entered should be sequenced top-to-bottom and left-to-right
- When possible, use designs based on known metaphors

Bad Flow in a Form

Bad Entry Layout

Applicant Information:

Social Security #: Salutation: Current Date:

First Name: Last Name: State:

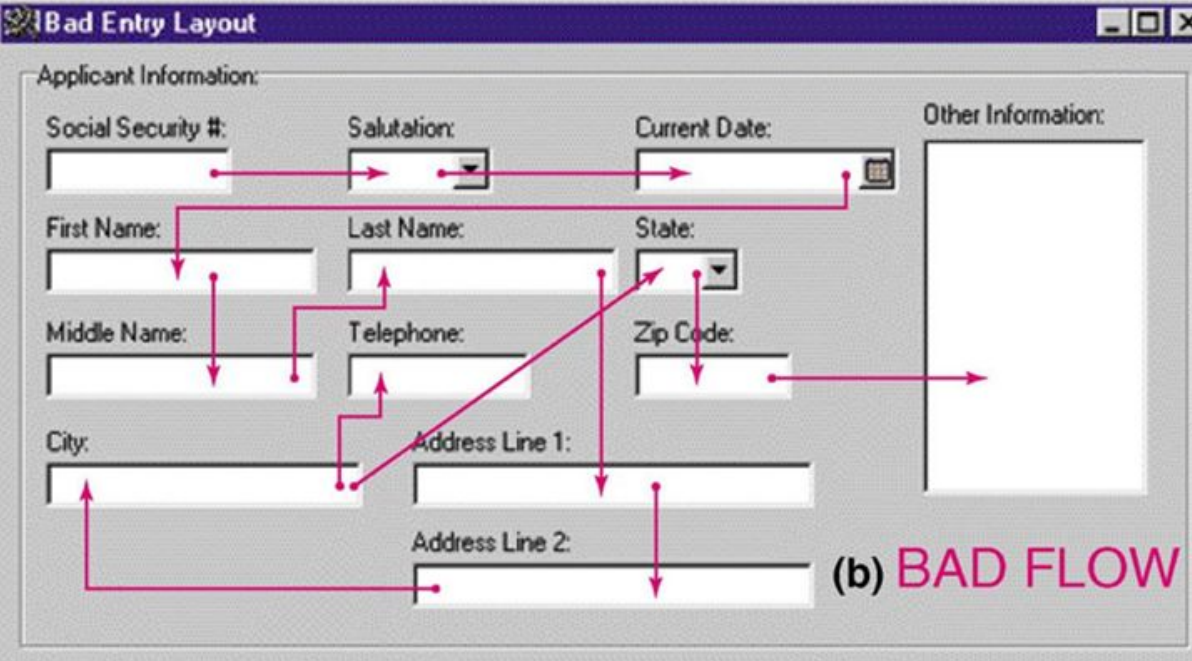
Middle Name: Telephone: Zip Code:

City: Address Line 1:

Address Line 2:

Other Information:

(b) BAD FLOW



The diagram illustrates a form titled "Bad Entry Layout" with a section "Applicant Information". The form contains several input fields: Social Security #, Salutation, Current Date, First Name, Last Name, State, Middle Name, Telephone, Zip Code, City, Address Line 1, Address Line 2, and a large "Other Information" box. Red arrows indicate a non-linear flow path: from Social Security # to Salutation, then to Current Date, then to First Name, then to Last Name, then to State, then to Zip Code, then to Address Line 1, then to Address Line 2, then to City, and finally to the "Other Information" box. This path is inefficient and non-intuitive, demonstrating "bad flow".

Good Flow in a Form

Good Entry Layout

Applicant Information:

Social Security #: Salutation: Current Date:

First Name: Middle Name: Last Name:

Address Line 1: Telephone: Other Information:

Address Line 2:

City: State: Zip Code:

(a) GOOD FLOW

Metaphoric Design

The screenshot shows a classic Windows-style application window titled "Order Tickets". The main content area is titled "Ticket Order Form" and contains several input fields and controls. At the top, there is a toolbar with icons for navigation and editing. The form includes fields for Customer Name, Event No., Tickets, Method of Payment, Credit Card Number, Expiration Date, Amount Paid, and Payment Notes. A status bar at the bottom displays the Order Number, a "Browse" button, and the current date.

Customer	Event No.	Tickets	Method of Payment	Credit Card Number	Expiration Date	Amount Paid	Payment Notes
Tony Polar	1	4	VISA	7705 5707 8235 8241	11/30/02	\$ 20.00	First credit card was declined. Second credit card was accepted.

Order Number: 9 Browse Monday, February 21, 2000

The background of the slide is a low-angle, upward-looking perspective of several modern skyscrapers. The buildings are rendered in a monochromatic blue color, creating a sense of depth and architectural scale. The grid-like patterns of the windows and structural elements of the buildings converge towards the top of the frame.

Input Controls

Input Controls

Button

Buttons are used to trigger an event.

Ex. Submit, Cancel, Undo, etc.

Input Controls

Button

SUBMIT



Cancel

Input Controls

Text Box

Enables user specified text to be captured.


Text boxes have two types.

Input Controls

Text Box

Single Line

Usually used for inputs with short lengths.



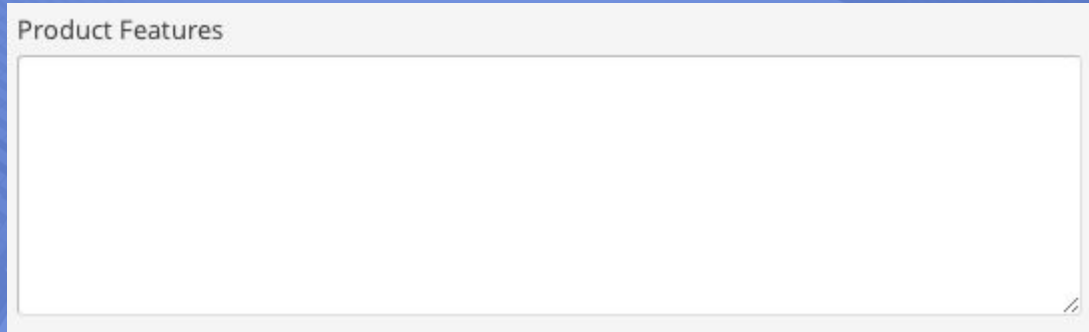
Three examples of single-line text input controls are shown stacked vertically. The top control is a search box with a magnifying glass icon on the left. The middle control is a text box with the placeholder text "You can type here...". The bottom control is a dropdown menu with a downward-pointing arrow on the right side.

Input Controls

Text Box

Multiple Line

Usually used for lengthy inputs.



The image shows a user interface element titled "Product Features". It consists of a light gray header bar with the title text. Below the header is a large, empty white rectangular area, which is a multi-line text input field. The entire form is set against a blue background with a faint grid pattern.

Input Controls

Drop-down Items

Drops down a list of values to be chosen by the user when clicked

Usually holds 3 or more values.

Input Controls

Drop-down Items

Fruit:

Apple



Fruit:

Apple



Banana

Orange

Peach

Input Controls

Radio Button

A list of items are displayed and only one of those can be selected.

Usually holds not more than 6 items to be chosen.

Input Controls

Radio Button

Select a size for pizza

- ☐ Small
- ☒ Medium
- ☐ Large

CANCEL

OK

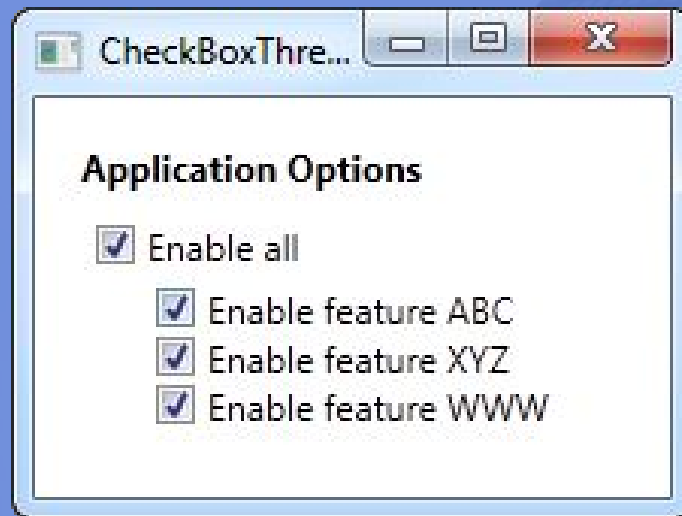
Input Controls

Check Box

Similar to radio buttons, but multiple items can be selected.

Input Controls

Check Box



Input Controls

File Input Box


Enables users to upload a file to the system.

File types are usually specified when uploading.


Input Controls

File Input Box


Bootstrap style button 1

  File selection

Bootstrap style button 2

  Open

Bootstrap style button 3

  Select a File

Input Controls

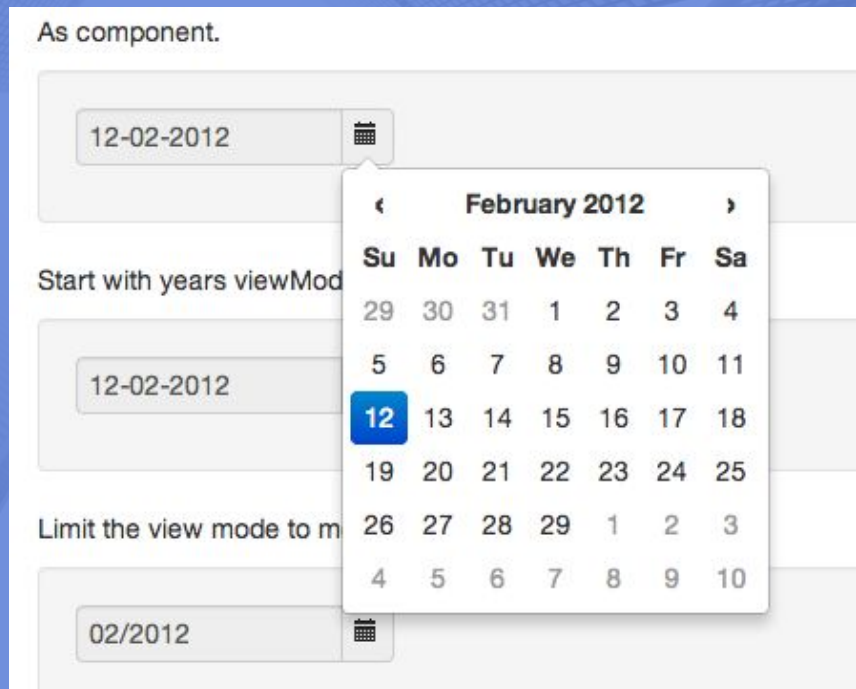
Drop Down Calendar

Used as an alternative when entering dates.

A calendar drops down and users can interact with it.

Input Controls

Drop Down Calendar



Input Controls

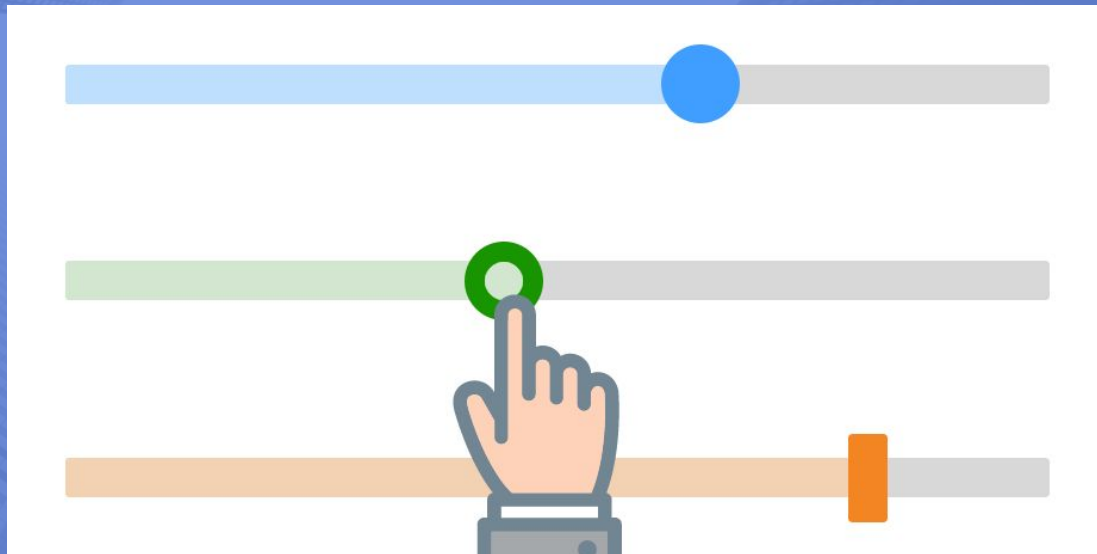
Sliders

Usually used for configurations.

Examples are audio and volume controls, brightness, and other game settings.

Input Controls

Sliders



Input Controls

Spin Button

Usually used to increase or decrease numerical values by clicking buttons.

Input Controls

Spin Button

The image shows a software interface with three tabs: **Plantilla**, **Pagina**, and **View**. The **Pagina** tab is selected and contains two sections: **Margenes** and **Tamaño Pagina**.

Margenes: This section contains four input fields with spin buttons for setting margins:

- Superior:** Input field with a spin button.
- Inferior:** Input field with a spin button.
- Izquierdo:** Input field with a spin button.
- Derecho:** Input field with a spin button.

Tamaño Pagina: This section contains a dropdown menu and two input fields with spin buttons:

- Carta:** A dropdown menu showing the selected page size.
- Ancho:** Input field with a spin button for page width.
- Alto:** Input field with a spin button for page height.

Internal Controls for Inputs

- The number of inputs should be monitored (to minimize risk of lost transactions)
- For batch processing
 - Use batch control slips
 - Use one-for-one checks against post-processing detail reports

Internal Controls for Inputs

- For online systems
- Log each transaction as it occurs
in a separate audit file

Internal Controls for Inputs

- Validate all data
- Existence checks
- Data-type checks
- Domain checks
- Combination checks
- Self-checking digits
- Format checks



Input Design Considerations

Input Design Considerations

- Identify system inputs and review logical requirements
- Select appropriate GUI controls
- Design, validate and test inputs using some combination of:
 - Layout tools
 - Prototyping tools
 - As necessary design source documents

A Logical Data Structure for Input Requirements

Order = Order Number

- Order Date

- Customer Number

- Customer Name

- Customer Shipping Address = Address

- (Customer Shipping Address = Address)

- 1 { Product Number + Quantity Ordered }

n

- (Default Credit Card Number)

A Logical Data Structure for Input Requirements

Address = (Post Office Box Number)

- Street Address
- City
- State
- Postal Zone

Activity

Access it using this link:

**[http://tinyurl.com/
SYSTIMP-INPUT](http://tinyurl.com/SYSTIMP-INPUT)**

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