



AUGUST 2021

# Human Centered Design

Beyond the Buzzwords







# Agenda

- 1 Goals
- 2 What is HCD?
- 3 Practical Solutions
- 4 Exercise
- 5 Conclusion



# Goals

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## Provide

A foundational understanding of HCD.

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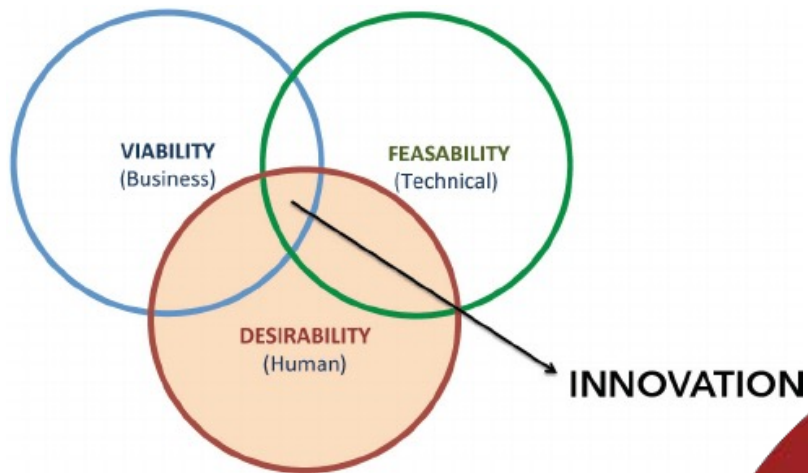
## Share

Move past the buzzwords, and discuss some practical you can use on your current project work.

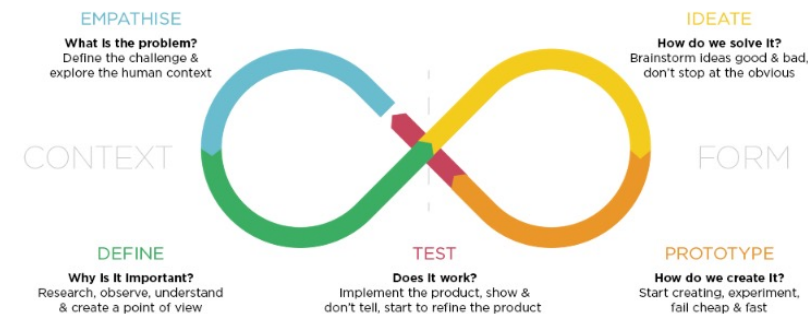
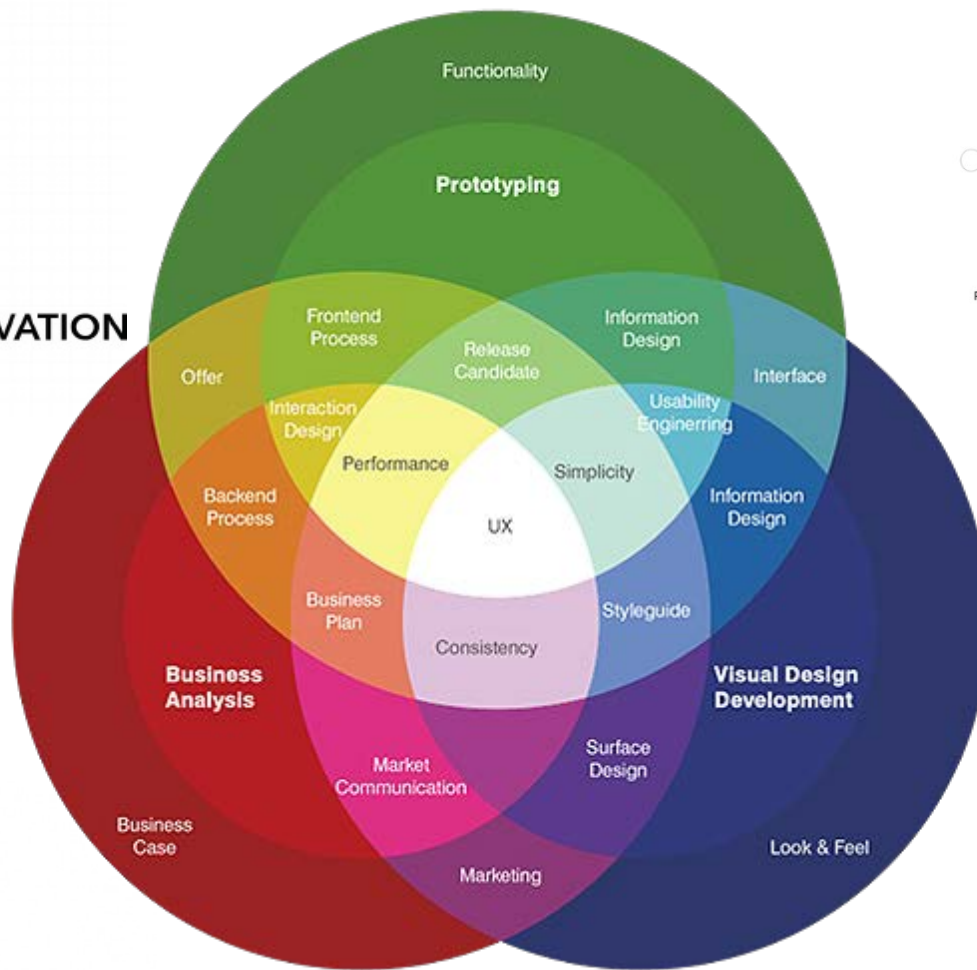
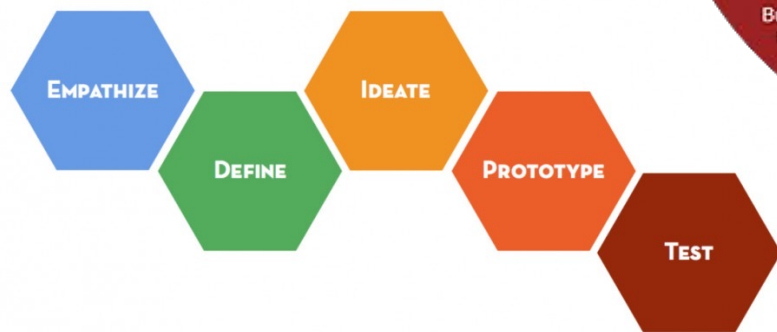


What is HCD?





### Design Thinking Models



# Origins of Design Thinking

Herbert A. Simon



**Design as a  
"way of thinking"**

Robert McKim



Bryan Lawson



**Applied to  
architectural  
discourse**

Nigel Cross



**Brings design  
thinking to  
education**

Peter Rowe



**First significant  
use of the term**

Rolf Faste



**Stanford**

David Kelley



**IDEO**

**Design thinking  
adapted to  
business**

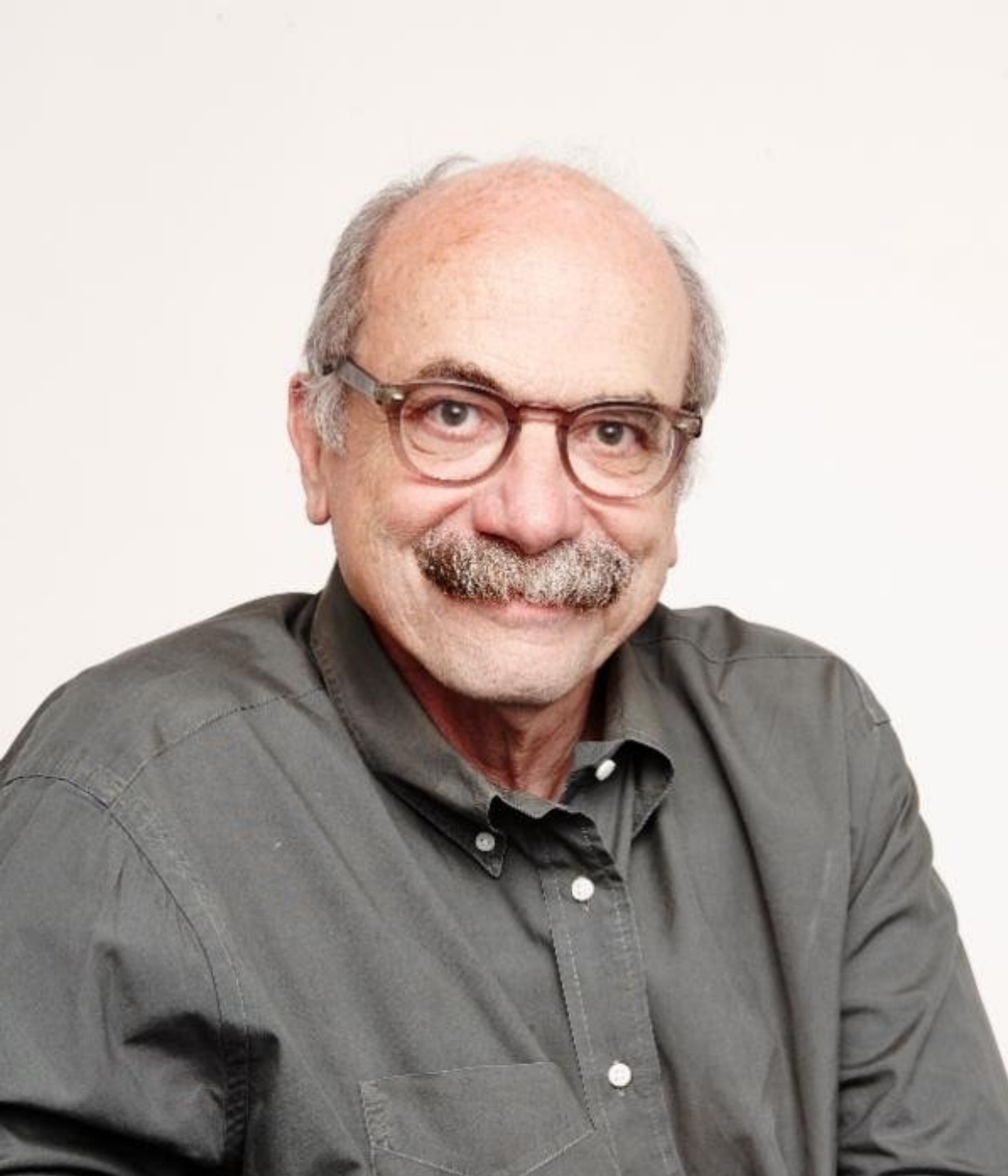
Richard Buchanan



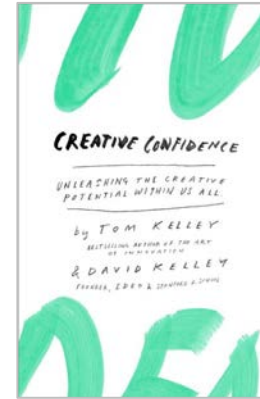
**Address human  
concerns through  
design**

1969

1992



<https://www.youtube.com/watch?v=GYkb6vfKMI4>



# David Kelley

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**Researcher, Professor, Author**

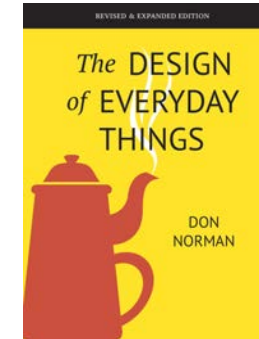
IDEO founder

Stanford d.school creator





<https://www.nngroup.com/videos/principles-human-centered-design-don-norman/>



# Don Norman

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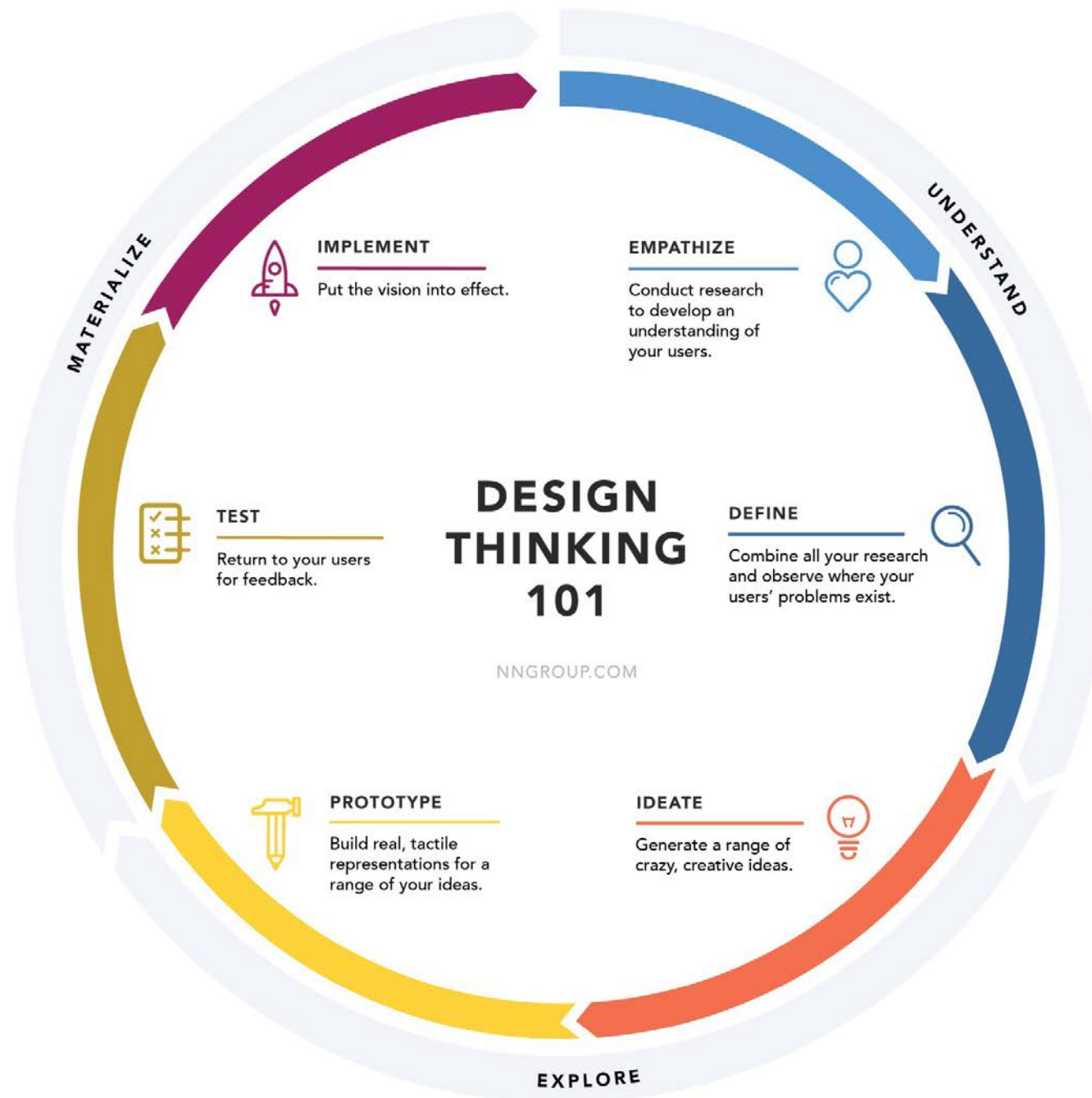
## Researcher, Professor, Author

Expert in fields of design, usability engineering, and cognitive science.

Co-founder and consultant at Nielsen Norman Group.

IDEO fellow.







# User-Centered Design vs. Customer Centered Design



# Definitions

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## User-Centered

“User-centered design is an iterative design process in which designers focus on the **users** and their **needs** in each phase of the design process [...].”(Interaction Design Foundation)

“The User-centered design (UCD) process outlines the phases throughout a design and development life-cycle all while focusing on gaining a deep understanding of **who** will be **using** the product.” (usability.gov)

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## Customer- and Business-Centered

“[...] customer centricity is deeply understanding **customer needs** and fulfilling on those needs [...].”  
(customerthink.com)

“Customer-centric design always starts with research to find out what the **end customers** actually **need** and what the business and technology requirements are.”  
(sofokus.com)

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## Deadline Centered

“We need this by tomorrow to review with the client. Just add the button to this screen wherever it will fit.”

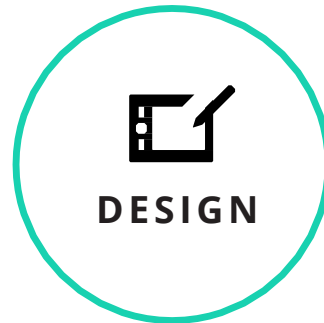
# Deloitte's Approach

Our approach spans across all delivery methods, supporting agile, waterfall and hybrid methodologies. This requires discipline, research, and relentlessly talented and creative minds to make insights into something tangible on which we can build, test, and iterate. Our approach follows a four-step methodology: **discover**, **design**, **develop**, and **deploy**.



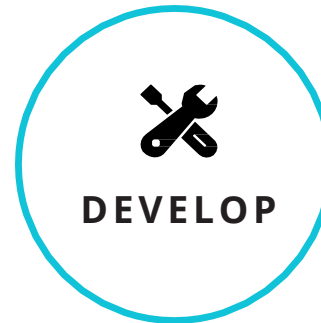
**Discover** insight into the problem. During this phase, we seek to understand the problem from the perspective of the end-user.

- Workshops
- Heuristic analysis
- User research
- Content inventory/audit
- Analytic analysis
- Technical assessment
- Product Visioning



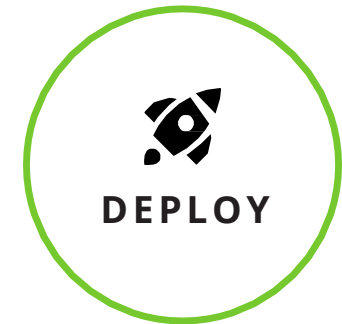
**Design** the area to focus on. Here, we combine research findings and insight to identify the real customer needs.

- Information architecture
- Sitemaps & Experience maps
- User flows
- Personas and audience profiles
- Brand (style) guide
- Wireframes & Visual Comps
- Product Roadmap



**Develop** solutions, ensuring we design for the right idea. This phase uses iteration to build prototypes and technical foundations that will be tested with real users.

- Prototypes
- User Stories
- Content strategy
- Working code
- Technical design and functional design documents



**Deploy** solutions that work. Here, the product design is finalized, produced, and launched.

- Quality assurance testing
- Production-quality code and working product(s)
- Deployment plan
- Strategies to encourage adoption

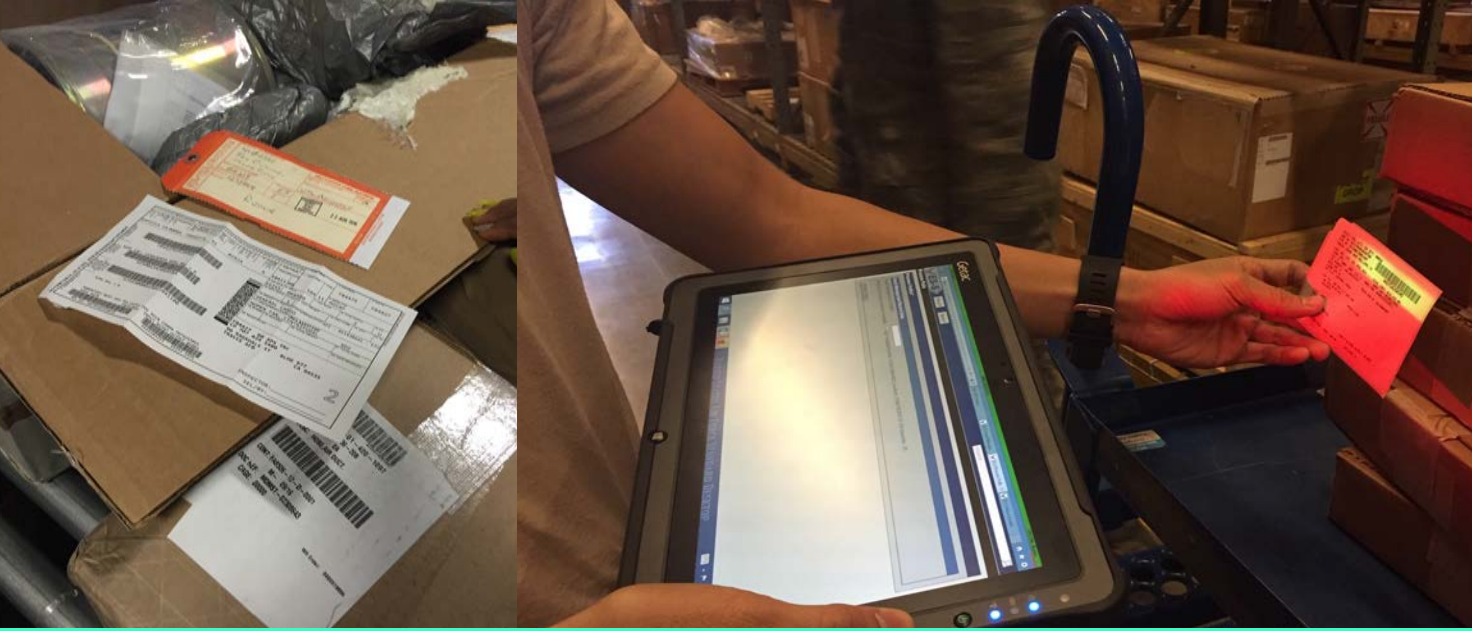
*Please note activities listed above are **potential** activities of our four-step approach and subject to change.*





Solutions:  
Ideal vs. Alternatives





# Ideal Solutions vs. Actual Solutions





# Ideal: Contextual Interviews



## Alternatives:

- Phone/Zoom conversations with real users
- Conversations with people you know who are actual users
- Social media inquiries
- Google search
- Stakeholder conversations
- Search for articles and references using "Guerilla Research"



Forms

Regarding Forms:

“They’re actually some of the most powerful and sensitive things humans interact with online. Forms inherently put us in a vulnerable position, because each request for information forces us to define ourselves: I am this, I am not that. And they force us to reveal ourselves: this happened to me.”

~ Sara Wachter-Boettcher, *Technically Wrong*



Labels

Spacing

Sentence case

Placeholders

The Question Protocol

Password reveal

Button Appearance

Button Text/Wording

Error Handling

## Register

First Name

Last Name

Email Address

[Forgot Password?](#)

Password

At least 8 characters and include one number

Next 

Labels

Spacing

Sentence case

Placeholders

The Question Protocol

Password reveal

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First Name

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Email Address

Password

[Forgot Password?](#)

At least 8 characters and include one number

Next 



✓ Labels

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Placeholders

The Question Protocol

Password reveal

Button Appearance

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Error Handling

## Register

First Name

Last Name

Email Address

Password

[Forgot Password?](#)

At least 8 characters and include one number

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First name

Last name

Email address

Password

[Forgot password?](#)

At least 8 characters and include one number

Next 

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  - ✓ Spacing
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  - ✓ Placeholders
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- Password reveal
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- Error Handling

## Register [Forgot password?](#)

First name

Last name

Email address

Password

At least 8 characters and include one number

Next 

- ✓ Labels
- ✓ Spacing
- ✓ Sentence case
- ✓ Placeholders

The Question Protocol

Who within your organization uses the answers to each question?

What do they use them for?

## Register [Forgot password?](#)

First name

Last name

Email address

Password

At least 8 characters and include one number

Next 



- ✓ Labels
- ✓ Spacing
- ✓ Sentence case
- ✓ Placeholders
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- ✓ Spacing
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- ✓ Placeholders
- ✓ The Question Protocol

Password reveal

Button Appearance

Button Text/Wording

Error Handling

## Register [Forgot password?](#)

Email address

khollenbeck@deloitte.com

Password

At least 8 characters and include one number

.....

Next 

- ✓ Labels
- ✓ Spacing
- ✓ Sentence case
- ✓ Placeholders
- ✓ The Question Protocol

Password reveal

Button Appearance

Button Text/Wording

Error Handling

## Register [Forgot password?](#)

Email address

khollenbeck@deloitte.com

Password

At least 8 characters and include one number

.....

[Show](#)

Next 



- ✓ Labels
- ✓ Spacing
- ✓ Sentence case
- ✓ Placeholders
- ✓ The Question Protocol
- ✓ Password reveal

Button Appearance

Button Text/Wording

Error Handling

## Register [Forgot password?](#)

Email address

khollenbeck@deloitte.com

Password

At least 8 characters and include one number

WillowDog1

[Show](#)

Next 

- ✓ Labels
- ✓ Spacing
- ✓ Sentence case
- ✓ Placeholders
- ✓ The Question Protocol
- ✓ Password reveal
- ✓ Button Appearance

Button Text/Wording

Error Handling

## Register [Forgot password?](#)

Email address

khollenbeck@deloitte.com

Password

At least 8 characters and include one number

WillowDog1

[Show](#)

Next

- ✓ Labels
- ✓ Spacing
- ✓ Sentence case
- ✓ Placeholders
- ✓ The Question Protocol
- ✓ Password reveal
- ✓ Button Appearance
- ✓ Button Text/Wording

Error Handling

## Register [Forgot password?](#)

Email address

khollenbeck@deloitte.com

Password

At least 8 characters and include one number

WillowDog1


[Show](#)

Submit



- ✓ Labels
- ✓ Spacing
- ✓ Sentence case
- ✓ Placeholders
- ✓ The Question Protocol
- ✓ Password reveal
- ✓ Button Appearance
- ✓ Button Text/Wording

Error Handling

 Password Error!

Email address

khollenbeck@deloitte.com


Password

At least 8 characters and include one number

WillowDog1 [Show](#)

Submit

- ✓ Labels
- ✓ Spacing
- ✓ Sentence case
- ✓ Placeholders
- ✓ The Question Protocol
- ✓ Password reveal
- ✓ Button Appearance
- ✓ Button Text/Wording
- ✓ Error Handling

 The password you entered is invalid.  
Please try again or [reset your password](#).

Email address

khollenbeck@deloitte.com


Password

At least 8 characters and include one number

Please enter a valid password.

WillowDog1

[Show](#)



Submit

# Keep it short.

Eliminating unnecessary fields requires more time, but the reduced user effort and increased completion rates makes it worthwhile.

Every time you remove a field or question from a form, you increase its conversion rate (percentage of users who take a desired action).

\* - Denotes Required Information

> 1 Donation > 2 Confirmation > Thank You!

### Donor Information

First Name\*

Last Name\*

Company

Address 1\*

Address 2

City\*

State\*

Zip Code\*

Country\*

Phone

Fax

Email\*

Donation Amount\* ☒ None ☐ \$50 ☐ \$75 ☐ \$100 ☐ \$250 ☐ Other  
(Check a button or type in your amount) Other Amount \$

Recurring Donation ☐ I am interested in giving on a regular basis.  
(Check if yes) Monthly Credit Card \$  For  Months

### Honorarium and Memorial Donation Information

I would like to make this donation ☐ To Honor ☐ In Memory of

Name

Acknowledge Donation to

Address

City

State

Zip

### Additional Information

Please enter your name, company or organization as you would like it to appear in our publications:

Name

☐ I would like my gift to remain anonymous.

☐ My employer offers a matching gift program. I will mail the matching gift form.

☐ Please save the cost of acknowledging this gift by not mailing a thank you letter.

Comments  
(Please type any questions or feedback here)

How may we contact you? ☐ E-mail ☐ Postal Mail ☐ Telephone ☐ Fax

I would like to receive newsletters and information about special events by:  
☐ E-mail ☐ Postal Mail

☐ I would like information about volunteering with the

Donate online with confidence. You are on a secure server.

If you have any problems or questions, please contact support.



# Group related labels and fields.

Eliminating unnecessary fields requires more time, but the reduced user effort and increased completion rates makes it worthwhile.

Every time you remove a field or question from a form, you increase its conversion rate (percentage of users who take a desired action).

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:

# Present fields in a single column layout.

Rather than requiring users to visually reorient themselves, keep them in the flow by sticking to a single column with a separate row for each field.

Exceptions: short and/or logically related fields such as City, State, and Zip Code can be presented in the same row.

<b>Title: *</b> Astronomy for Poets		<b>Short Title: *</b> Astr. for Poets		<b>Subj.:</b> BLST	<b>Num.:</b> 10	<b>Section:</b> 01	<b>Year:</b> 0910
<input type="checkbox"/> Enrollment limit	<b>Num.:</b> <input type="text"/>	<b>Rationale:</b> <input type="text"/>			<b>Class Meetings/Week:</b> <input type="text" value="1"/>		<b>Keywords:</b> <input type="checkbox"/> Science for non-majors <input type="checkbox"/> Fine arts for non-majors <input type="checkbox"/> Lab science course <input type="checkbox"/> Artistic practice <input type="checkbox"/> Foreign language/culture taught in English <input type="checkbox"/> Community based learning <input type="checkbox"/> Writing attentive <input type="checkbox"/> Writing intensive
<input type="checkbox"/> Consent required	<b>Rationale:</b> <input type="text"/>			<b>Class Hours/Week:</b> <input type="text" value="0"/>			
<input type="checkbox"/> Limit class level	<b>Code:</b> <input type="text"/>	<b>Rationale:</b> <input type="text"/>			<b>Semester(s) Offered:</b> <input type="text" value="- None -"/>		
<b>How to handle over-enrollment:</b> <input type="text"/>			<input checked="" type="checkbox"/> Incl. semester in prereqs. <input type="checkbox"/> Offered only once <input type="checkbox"/> Incl. in printed catalog				
<input type="checkbox"/> Prerequisite	<b>Rationale:</b> <input type="text"/>						
<b>Required Prereqs. (major, course):</b> <input type="text"/>							
<b>Recommended Prereqs.:</b> <input type="text"/>							
<b>Approvals:</b>		<b>Date:</b>		<b>Comment:</b>			
<input type="checkbox"/> CEP		<input type="text" value="⊕"/>		<input type="text" value="⊕"/>			
<input type="checkbox"/> Committee of Six		<input type="text" value="⊕"/>		<input type="text" value="⊕"/>			
<input type="checkbox"/> Faculty		<input type="text" value="⊕"/>		<input type="text" value="⊕"/>			

# Present fields in a single column layout.

Rather than requiring users to visually reorient themselves, keep them in the flow by sticking to a single column with a separate row for each field.

Exceptions: short and/or logically related fields such as City, State, and Zip Code can be presented in the same row.

BILLING ADDRESS - BLUE NILE

• Please enter a valid zip code for your region.

Would you like to create a Blue Nile Account and store this information? ☐ Yes ☒ No

*First Name	<input type="text" value="John"/>	*Address	<input type="text" value="2125 Chestnut st"/>
*Last Name	<input type="text" value="Newman"/>		<input type="text"/>
Company	<input type="text"/>	*City	<input type="text" value="San Francisco"/>
*Phone	<input type="text" value="4158484445"/>		<input type="text" value="Intl. number?"/>
	<small>Phone Number Ext.</small>	*State	<input type="text" value="CA -- California"/>
*Email	<input type="text" value="john.newman@baymard.com"/>	*Zip Code	<input type="text" value="9412w"/>
*Re-type E-mail	<input type="text" value="john.newman@baymard.com"/>	*Country	<input type="text" value="United States"/>
	<small>Enter an address where we can send an e-mail confirming your order.</small>	*Address Type	<input type="radio"/> Home <input type="radio"/> Business

Are you shipping this order to your billing address? ☒ Yes ☐ No

<b>Title: *</b>		<b>Short Title: *</b>		<b>Subj.:</b>	<b>Num.:</b>	<b>Section:</b>	<b>Year:</b>
<input type="text" value="Astronomy for Poets"/>		<input type="text" value="Astr. for Poets"/>		BLST	<input type="text" value="10"/>	<input type="text" value="01"/>	<input type="text" value="0910"/>
<input type="checkbox"/> Enrollment limit	<b>Num.:</b>	<b>Rationale:</b>					
	<input type="text"/>	<input type="text"/>					
<input type="checkbox"/> Consent required	<b>Rationale:</b>						
	<input type="text"/>						
<input type="checkbox"/> Limit class level	<b>Code:</b>	<b>Rationale:</b>					
	<input type="text"/>	<input type="text"/>					
	<b>How to handle over-enrollment:</b>						
	<input type="text"/>						
<input type="checkbox"/> Prerequisite	<b>Rationale:</b>						
	<input type="text"/>						
	<b>Required Prereqs. (major, course):</b>						
	<input type="text"/>						
	<b>Recommended Prereqs.:</b>						
	<input type="text"/>						
<b>Class Meetings/Week:</b>		<b>Keywords:</b>					
<input type="text" value="1"/>		<input type="checkbox"/> Science for non-majors					
<b>Class Hours/Week:</b>		<input type="checkbox"/> Fine arts for non-majors					
<input type="text" value="0"/>		<input type="checkbox"/> Lab science course					
<b>Semester(s) Offered:</b>		<input type="checkbox"/> Artistic practice					
<input type="text" value="None"/>		<input type="checkbox"/> Foreign language/culture taught in English					
<input checked="" type="checkbox"/> Incl. semester in prereqs.		<input type="checkbox"/> Community based learning					
<input type="checkbox"/> Offered only once		<input type="checkbox"/> Writing attentive					
<input type="checkbox"/> Incl. in printed catalog		<input type="checkbox"/> Writing intensive					
<b>Approvals:</b>		<b>Date:</b>		<b>Comment:</b>			
<input type="checkbox"/> CEP	<input type="text"/>	<input type="text"/>	<input type="text"/>				
<input type="checkbox"/> Committee of Six	<input type="text"/>	<input type="text"/>	<input type="text"/>				
<input type="checkbox"/> Faculty	<input type="text"/>	<input type="text"/>	<input type="text"/>				

# Avoid placeholder text.

Designers like placeholder text because it eliminates visual clutter. But placeholder text causes many usability problems and is best avoided.

The image shows a web form for an insurance policy, titled "FORAGENTS ONLY". The form is divided into several sections, each with a title and a help icon (i).

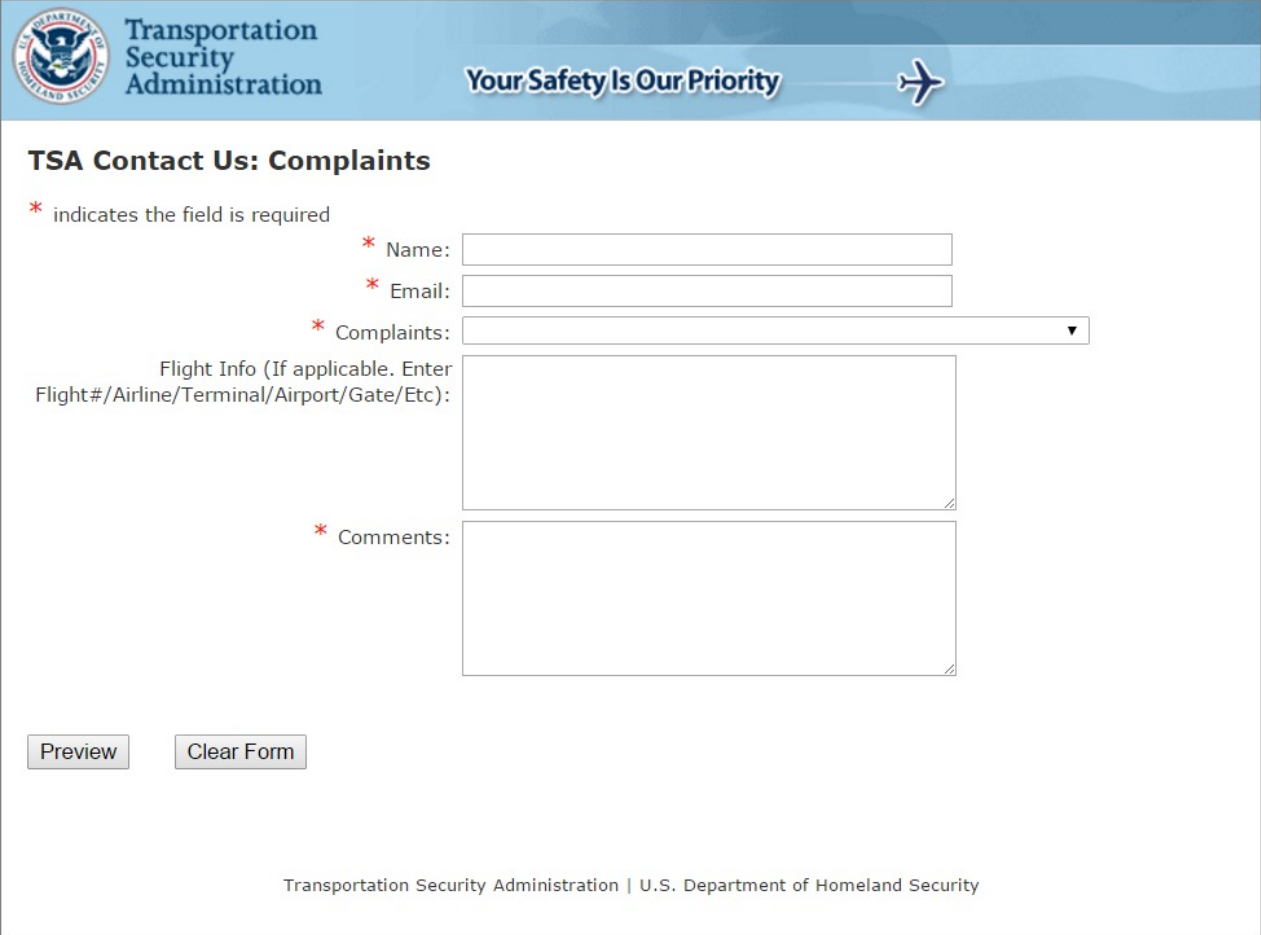
- Policy**: Agent Code (3451), Policy Effective Date (Select Date), Is this named operator policy? (Select).
- Principal Named**: First Name (Jona |), Middle Name (Karl), Last Name (Ex. Smith), Suffix (Mr.), Date of Birth (Select Date), Gender (Male, Female).
- Contact Information (optional)**: Customer Email (mpowell@gmail.com), Phone Number/Type (Home, Ex. (330) 123-4567).
- Mailing Address**: Address Line 1 (West 22nd Street), Address Line 2 (Ex. Floor 6, Apartment 4c), City (Enter City), State (Utah), Zip Code (Enter ZIP), P.O. Box or Military address (Yes, No), Address for a single family dwelling? (Yes, No), How long has the insured lived on this address? (Select).
- Prior Insurance**: Insured/Spouse has a continuous vehicle liability insurance for the past 6 months with no more than a 31 day lapse: (Yes, No).
- Disclosure**: For phone quote, read the following, if in-person, print and provide to the customer. It is a long established fact that a reader will be distracted by the readable content of a page when looking at its layout. The point of using Lorem ipsum is that it has a more-or-less normal distribution of letters, as opposed to using 'Content here, content here', making it look like readable English. Was the above disclosure read or provided to the customer? (Yes, No).

At the bottom of the form, there are links for Privacy Statement, Terms of Use, Sitemap, and Contact Us. The footer includes copyright information: Copyright 1997-2016 Progressive Casualty Insurance Company. All rights reserved. The bottom right corner has a "NEXT PRODUCTS" button.



# Distinguish optional and required fields.

First, eliminate as many optional fields as possible (see the first recommendation above). If some fields truly are necessary, but only apply to a subset of users, don't make users find out through trial and error. Limit the form to only 1 or 2 optional fields, and clearly label them as optional.



The screenshot shows the "TSA Contact Us: Complaints" form. At the top is a blue header with the TSA logo, the text "Transportation Security Administration", the slogan "Your Safety Is Our Priority", and an airplane icon. Below the header, the title "TSA Contact Us: Complaints" is displayed. A red asterisk is followed by the text "indicates the field is required". The form contains the following fields: "Name:" (required), "Email:" (required), "Complaints:" (a dropdown menu, required), "Flight Info (If applicable. Enter Flight#/Airline/Terminal/Airport/Gate/Etc):" (an optional text area), and "Comments:" (an optional text area). At the bottom left are "Preview" and "Clear Form" buttons. At the bottom right is the footer text "Transportation Security Administration | U.S. Department of Homeland Security".

**TSA Contact Us: Complaints**

\* indicates the field is required

\* Name:

\* Email:

\* Complaints:

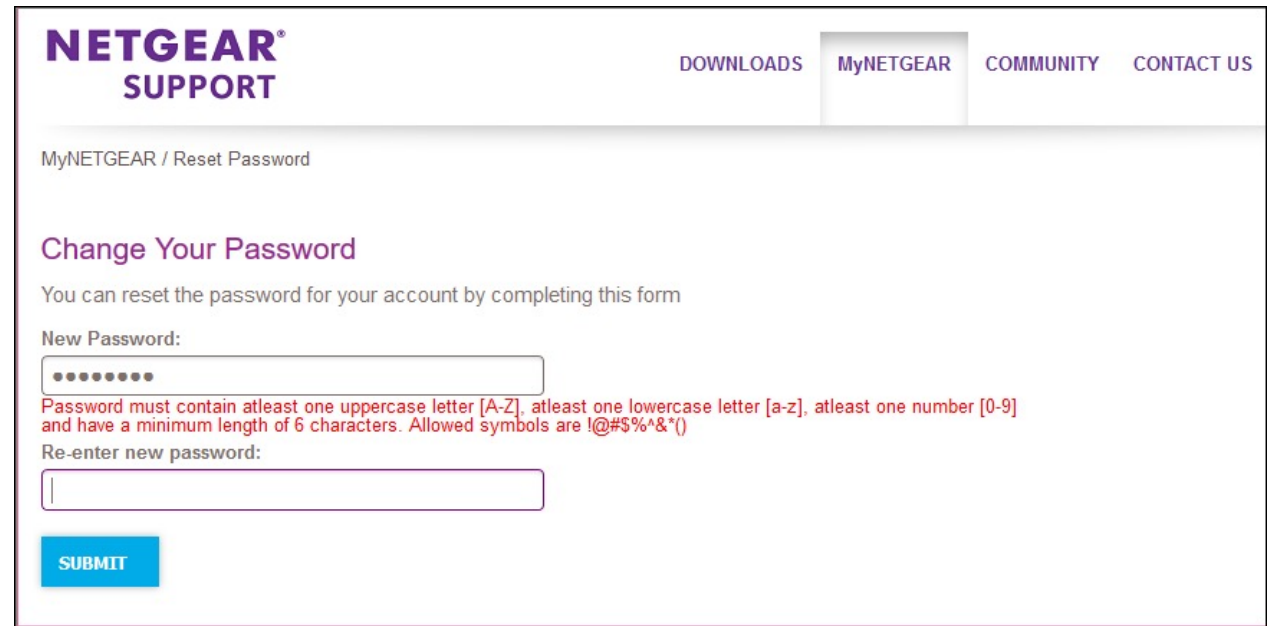
Flight Info (If applicable. Enter Flight#/Airline/Terminal/Airport/Gate/Etc):

\* Comments:

Transportation Security Administration | U.S. Department of Homeland Security

# Explain any input or formatting requirements.

If a field requires a specific format or type of input, state the exact instructions. Don't make users guess your obscure password requirements. The same applies to syntax rules such as punctuation or spacing for phone numbers or credit cards.



The screenshot shows the 'MyNETGEAR / Reset Password' page on the NETGEAR Support website. The page has a navigation bar with links for 'DOWNLOADS', 'MyNETGEAR' (which is highlighted), 'COMMUNITY', and 'CONTACT US'. The main heading is 'Change Your Password'. Below the heading, a message states: 'You can reset the password for your account by completing this form'. The form consists of two input fields: 'New Password:' and 'Re-enter new password:'. The 'New Password:' field is currently filled with eight dots. Below the first field, a red error message reads: 'Password must contain atleast one uppercase letter [A-Z], atleast one lowercase letter [a-z], atleast one number [0-9] and have a minimum length of 6 characters. Allowed symbols are !@#\$\$%^&\*()'. At the bottom of the form is a blue 'SUBMIT' button.

NETGEAR<sup>®</sup>  
SUPPORT

DOWNLOADS MyNETGEAR COMMUNITY CONTACT US

MyNETGEAR / Reset Password

### Change Your Password

You can reset the password for your account by completing this form

New Password:

••••••••

Password must contain atleast one uppercase letter [A-Z], atleast one lowercase letter [a-z], atleast one number [0-9] and have a minimum length of 6 characters. Allowed symbols are !@#\$\$%^&\*()

Re-enter new password:

SUBMIT



Exercise

# Resources

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## Articles & Books

Form Design Patterns by Adam Silver

Technically Wrong by Sara Wachter-Boettcher

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## Websites

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

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## Videos

<http://www.ideo.com/people/david-kelley>

<https://www.interaction-design.org/literature/article/essential-design-thinking-videos-and-methods>