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Selectors

UI cheat sheet: radio buttons, checkboxes, and other selectors

Pick me! Pick me! No, pick me! In today's cheat sheet we will be looking at selectors and how they differ. Unlike most of my other cheat...

**Tess Gadd**[Follow](#)

UX Collective a11y-light ~12 min read · May 3, 2020 (Updated: December 14, 2021) · Free: No

Pick me! Pick me! No, pick me! In today's cheat sheet we will be looking at selectors and how they differ. Unlike most of my other cheat sheets, this will focus on two components (radio buttons and checkboxes) side by side for easier comparison — while also comparing them to a few others.

In this cheat sheet we will cover the following:

1. What selectors are
2. Anatomy of checkboxes and radio buttons

5. States
6. Rules for label text
7. When you should use them
8. Accessibility checklist
9. Closing thoughts

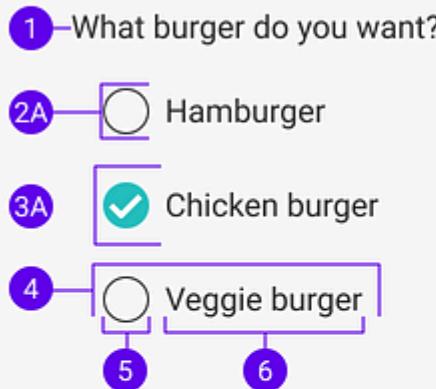
1. What selectors are

A selector is an input field where the user has to select one (or more) options, unlike a text field where the user has free rein. Selectors, like Lady Gaga's hairstyles, come in all different shapes and forms. Dropdowns, checkboxes, toggles, sliders, and more are all different types of selectors, yet they look nothing like each other. The main functional difference between these types of selectors is how many options the user can pick: one or more.

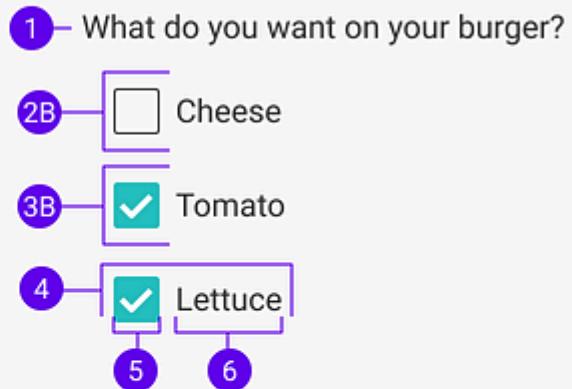
In a perfect world, where there was no more starvation, animal poaching, greenhouse gases, or crime, I would start a petition to change radio buttons to 'single selectors' and checkboxes to 'multi-selectors'. I think they describe what they are much better, but, alas, these legacy names are too ingrained and we are probably stuck with them.

2. Anatomy of checkboxes and radio buttons

While we will look at various selector types in this cheat sheet, we will focus on radio buttons and checkboxes. Below is their anatomy.



- 1. Question
- 2A. Radio button
- 3A. Selected radio button
- 4. Item or option
- 5. Selector
- 6. Label



- 1. Question
- 2B. Checkbox
- 3B. Selected checkbox
- 4. Item or option
- 5. Selector
- 6. Label

Anatomy of radio buttons and checkboxes

Note: There is some discrepancy in which of the parts above are referred to as the 'radio button'/'checkbox'. Sometimes people use 'radio button'/'checkbox' to refer to the label and the selector together, while other times they use the terms to refer to the selector alone. I prefer the latter.

3. What is the difference between radio buttons and checkboxes

Radio buttons and checkboxes are very similar, except for a few key differences. The primary difference is that with radio buttons you can only select one item, while with checkboxes you can select any number. I was going to write out a table to explain this, but didn't because a) it sounded boring, b) Medium doesn't allow you to insert tables, so I had a better idea:

POP QUIZ! Yay! Let's see who can get 100% — winner gets to buy me an apple and call me 'ma'am'!

ONE: In the standard checkbox component, how many items are you allowed to select (unless otherwise stated)?

2. 3

3. Unlimited

4. 0

TWO: What is the shape of a radio button's selector?

1. Square

2. Circle

3. Hexagon

4. Triangle

THREE: If you want to make a UI where a user can select multiple toppings to put on an ice cream, you would use:

1. Radio buttons

2. Checkboxes

FOUR: If you want to make a UI where a user can select what type of bank account they would like to open, you would use:

1. Radio buttons

2. Checkboxes

FIVE: If you wanted to create a 'subscribe to our emailer' selector, which selector type would you use?

1. A radio button

2. A checkbox

SIX: In the below image, which is a radio button?

1. A

2. B

What burger do you want?

- Hamburger
- Chicken burger
- Veggie burger

What do you want on your burger?

- Cheese
- Tomato
- Lettuce

ANSWERS: ONE: 3. Unlimited TWO: 2. Circle THREE: 2. Checkboxes FOUR: 1. Radio buttons FIVE: 2. A checkbox SIX: 1. A

WOOOOO you passed! (I hope.)

4. Common styles of selectors

These are some of the common styles of checkboxes and radio buttons that you will come across in your field trip through the internet.

Standard style (radio buttons/checkboxes)

The most standard style of checkboxes and radio buttons uses buttons with 'checkmarks' or filled-in circles. I tend to prefer buttons with a checkmark UNLESS you are dealing with educational quizzes (see below).

Radio buttons | Single select

What burger do you want?

- Hamburger
- Chicken burger
- Veggie burger

Checkboxes | Multi-select

What do you want on your burger?

- Cheese
- Tomato
- Lettuce

What burger do you want?

Hamburger

Chicken burger

Veggie burger

What do you want on your burger?

Cheese

Tomato

Lettuce

Standard style without checkmarks

Quiz button style (radio buttons/checkboxes)

When a user is answering questions in a quiz, we have to make sure of two things: 1) that they can clearly see what answers they are choosing, 2) that they don't get confused about when they get feedback on their answer.

If you look at the example below, you can see that the 'checkmark' can get confusing — it looks like those answers are correct, even though it hasn't been graded yet.

<p>2+2 = ?</p> <p></p> <p><input checked="" type="radio"/> 4</p> <p><input type="radio"/> 6</p> <p><input type="radio"/> 2</p>	<p>What is a multiple of 2?</p> <p><input checked="" type="checkbox"/> 4</p> <p><input type="checkbox"/> 5</p> <p><input checked="" type="checkbox"/> 6</p>
<p>2+2 = ?</p> <p></p> <p><input type="radio"/> 4</p> <p><input type="radio"/> 6</p> <p><input type="radio"/> 2</p>	<p>What is a multiple of 2?</p> <p><input type="checkbox"/> 4</p> <p><input type="checkbox"/> 5</p> <p><input type="checkbox"/> 6</p>

Quiz selectors showing that having a checkmark causes confusion in eLearning

Basic image style (radio buttons/checkboxes)

While this style of selector can give the user a better idea of what they are selecting, I seldom use them as the image will always be too small to see clearly anyway.

<p>What burger do you want?</p> <p><input checked="" type="radio"/>  Hamburger</p> <p><input type="radio"/>  Chicken burger</p> <p><input type="radio"/>  Veggie burger</p>	<p>What do you want on your burger?</p> <p><input checked="" type="checkbox"/>  Cheese</p> <p><input type="checkbox"/>  Tomato</p> <p><input checked="" type="checkbox"/>  Lettuce</p>
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Radio buttons and checkboxes with images. Photo credits (from unSplash): Hamburger by @amir_v_ali | Chicken burger by @amir_v_ali | Veggie burger by @swimstaralex | Cheese by @swimstaralex | Tomatoes by @lmablankers | Lettuce by @producteurslocaux

Image in a grid style (single/multi-select)

I prefer this style to the basic image style as you are able to make the images a lot bigger, and it also just looks better.

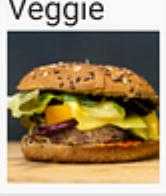
<p>Single select</p> <p>What do you want on your burger?</p> <p> Beef</p> <p> Chicken</p> <p> Veggie</p>	<p>Multi-select</p> <p>What do you want on your burger?</p> <p> Cheese</p> <p> Tomato</p> <p> Lettuce</p>
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Image grid selectors. Photo credits (from unSplash): Hamburger by @amir_v_ali | Chicken burger by @amir_v_ali | Veggie burger by @swimstaralex | Cheese by @swimstaralex | Tomatoes by @lmablankers | Lettuce by @producteurslocaux

I first became aware of this style in [Buzzfeed's quizzes](#). (If you have never heard of Buzzfeed's quizzes — a whole new world of procrastination awaits you.) Here they just show the image and have no text. If you go with that layout, **pretty please make sure that you have alt text** for users who use a screen reader or have a poor internet connection.



Example of a grid-style single selector. Screenshot from: <https://www.buzzfeed.com/jessicamisener/which-sandwich-are-you>

Multi-level checkboxes

Multi-level checkboxes are needed if the items need to be split up into groups. Also, notice that if only a few of the child items are selected, the parent category is only partially selected.

The screenshot shows a mobile application interface with a light gray background. At the top, the text "What do you want on your burger?" is displayed. Below it is a list of items under three main categories, each preceded by a small teal square icon with a white checkmark or minus sign:

- Toppings** (with an upward arrow icon to its right):
 - Bacon
 - Tomato
 - Lettuce
- Cheese** (with an upward arrow icon to its right):
 - Cheddar
 - Mozzarella
- Sauces** (with a downward arrow icon to its right):
 - (empty checkbox)

Multi-level checkboxes

One of the trickier UI elements around this is that the top item (parent) acts both as a selector and an accordion. So, if you click the label does it select the selector or does it open/close the accordion? I can't find any definitive research on which way is the best, as this is a bit of an unusual pattern, but in the past, I have made the label part of the accordion and not the selector. Let me know if you have any suggestions for how to deal with this dilemma in the comments.

Forced selection

Sometimes you will only want to allow your users to select a certain number of an item. To force this, if the user clicks one more than the selected amount, their oldest selection will deselect and the recent selection will update.

What do you want on your burger?

Select two

Cheese

Tomato

Lettuce

Pickles

Chili sauce

Checkboxes with forced selection

Button style (single/multi-select)

This style allows you to stack a whole lot of different items on top of each other, which means you get to save space and have more options. Because this pattern isn't that common, I suggest that you let the user know how many options they can select. While there is no reason to not use this for single selectors, I have never seen it in the wild.

Single select

What burger do you want?

Hamburger

Veggie burger

Chicken burger

Beef burger

Mushroom burger

Cheese burger

Multi-select

What do you want on your burger?

Select three

Cheese

Tomato

Lettuce

Bacon

Mushroom sauce

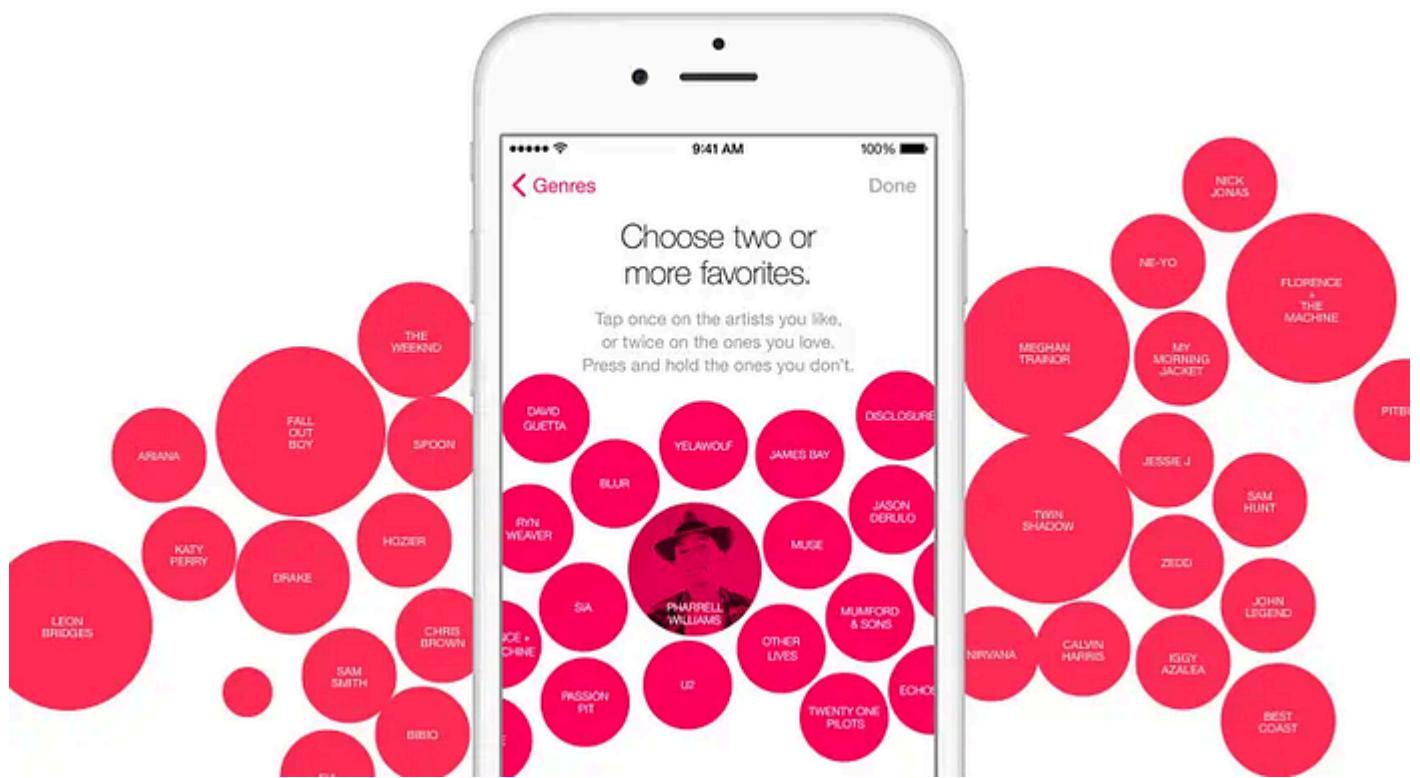
Chili

Gherkin

Mayo

Button style selector

This style is very common when asking the user to choose multiple content tags (although they may not be aware of it). In the below example, Apple Music is

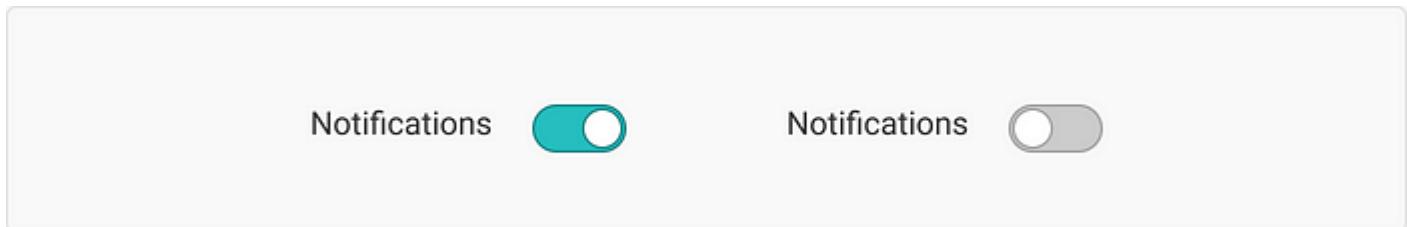


Apple Music genre selection on register. Image credit: <https://www.businessinsider.com/apple-will-shut-down-beats-music-on-november-30-2015-11?IR=T>

Toggle (single select)

The toggle is most often used for settings and allows the user to choose between yes/no options.

On mobile, the toggle itself usually sits on the far right while the label sits on the far left. This is to make it easier for the right thumb to change options.



Example of a Toggle (corrected post publish – thanks [Suhail Gupta / Audiini](#) for picking this up!)

5. States

nudge the user in the right direction using patterns that they already know and understand.

Default/active

This is the starting state of selectors. This state indicates to the user that they can click the items in the questions.

Radio buttons Single select	Checkboxes Multi-select
<p>What burger do you want?</p> <p><input type="radio"/> Hamburger</p> <p><input type="radio"/> Chicken burger</p> <p><input type="radio"/> Veggie burger</p>	<p>What do you want on your burger?</p> <p><input type="checkbox"/> Cheese</p> <p><input type="checkbox"/> Tomato</p> <p><input type="checkbox"/> Lettuce</p>

Example of radio buttons and checkboxes in their default/active state

Inactive

When the inactive state is set, the user won't be able to interact with the options. It is seldom that a user will encounter this state unless the product rules specify it.

Radio buttons Single select	Checkboxes Multi-select
<p>What burger do you want?</p> <p><input type="radio"/> Hamburger</p> <p><input type="radio"/> Chicken burger</p> <p><input type="radio"/> Veggie burger</p>	<p>What do you want on your burger?</p> <p><input type="checkbox"/> Cheese</p> <p><input type="checkbox"/> Tomato</p> <p><input type="checkbox"/> Lettuce</p>

Example of radio buttons and checkboxes in their inactive state

Like buttons, selectors should indicate to the users that they are interactive or clickable. Usually this is done with highlighting the background of the item on hover. It also indicates what area of the items is clickable. If you hover off it, it should revert to its original state.

Radio buttons Single select	Checkboxes Multi-select
<p>What burger do you want?</p> <p><input type="radio"/> Hamburger </p> <p><input type="radio"/> Chicken burger</p> <p><input type="radio"/> Veggie burger</p>	<p>What do you want on your burger?</p> <p><input type="checkbox"/> Cheese </p> <p><input type="checkbox"/> Tomato</p> <p><input type="checkbox"/> Lettuce</p>

Example of radio buttons and checkboxes in their hover state

Don't be a n00b tip: Touch devices don't have a hover state.

Focus/highlighted

The focus or highlighted state is usually indicated with a blue halo around the clickable item. You can see this for yourself by tabbing through an interface — which is the same thing someone who is poor sighted or had poor motor skills would do. It is seldom that a user will encounter this state, unless before someone clicks 'enter' to select an item.

What burger do you want?

Hamburger

Chicken burger

Veggie burger

What do you want on your burger?

Cheese

Tomato

Lettuce

Example of radio buttons and checkboxes in their focus/highlight state

Pressed

This is the state where the user holds down their mouse/finger and the item indicates back to the user that it is being clicked.

Radio buttons | Single select

What burger do you want?

 Hamburger

Chicken burger

Veggie burger

Checkboxes | Multi-select

What do you want on your burger?

 Cheese

Tomato

Lettuce

Example of radio buttons and checkboxes in their pressed state

Selected

Once the user has clicked an item, the UI should let them know. As mentioned earlier, radio buttons can only have one selected item, while checkboxes can have multiple, depending on business rules.

What burger do you want?

Hamburger

Chicken burger

Veggie burger

What do you want on your burger?

Cheese

Tomato

Lettuce

Example of radio buttons and checkboxes in their selected state

Fail feedback

With free text input, it is possible for a user to make a typo, etc. However, since the options in a selector are predetermined, there should only be one type of fail feedback: the 'incomplete' type, which the user will only receive if they click the 'submit' button before they finished filling out the form. For checkboxes, this will only be necessary if the question forces them to choose one or more items.

Radio buttons | Single select

What burger do you want?

Hamburger

Chicken burger

Veggie burger

*Please select an option.

Checkboxes | Multi-select

What do you want on your burger?
(min 1)

Cheese

Tomato

Lettuce

*Please select an option.

Example of radio buttons and checkboxes in their fail state

6. Rules for label text

There is only one hard and fast rule for selector labels: **be consistent**.

2. Make sure that all items either end in a period or not.
3. Try to make sure that all the items are either a sentence, phrase, or word. Try to avoid some options being sentences and others being single words. Using a combination makes it tricky to decide on what case and punctuation to use.

<p>Select a cheese:</p> <p><input type="radio"/> Mozzarella</p> <p><input type="radio"/> Gouda, from a cow named Daisy in Spring Valley who is only milked on a full moon by a fair maiden.</p> <p><input type="radio"/> Cheddar</p> <p style="text-align: center;">X</p>	<p>Select a cheese:</p> <p><input type="radio"/> Mozzarella</p> <p><input type="radio"/> Gouda</p> <p><input type="radio"/> Cheddar</p> <p style="text-align: center;">✓</p>
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Examples of item labels

7. When you should use them

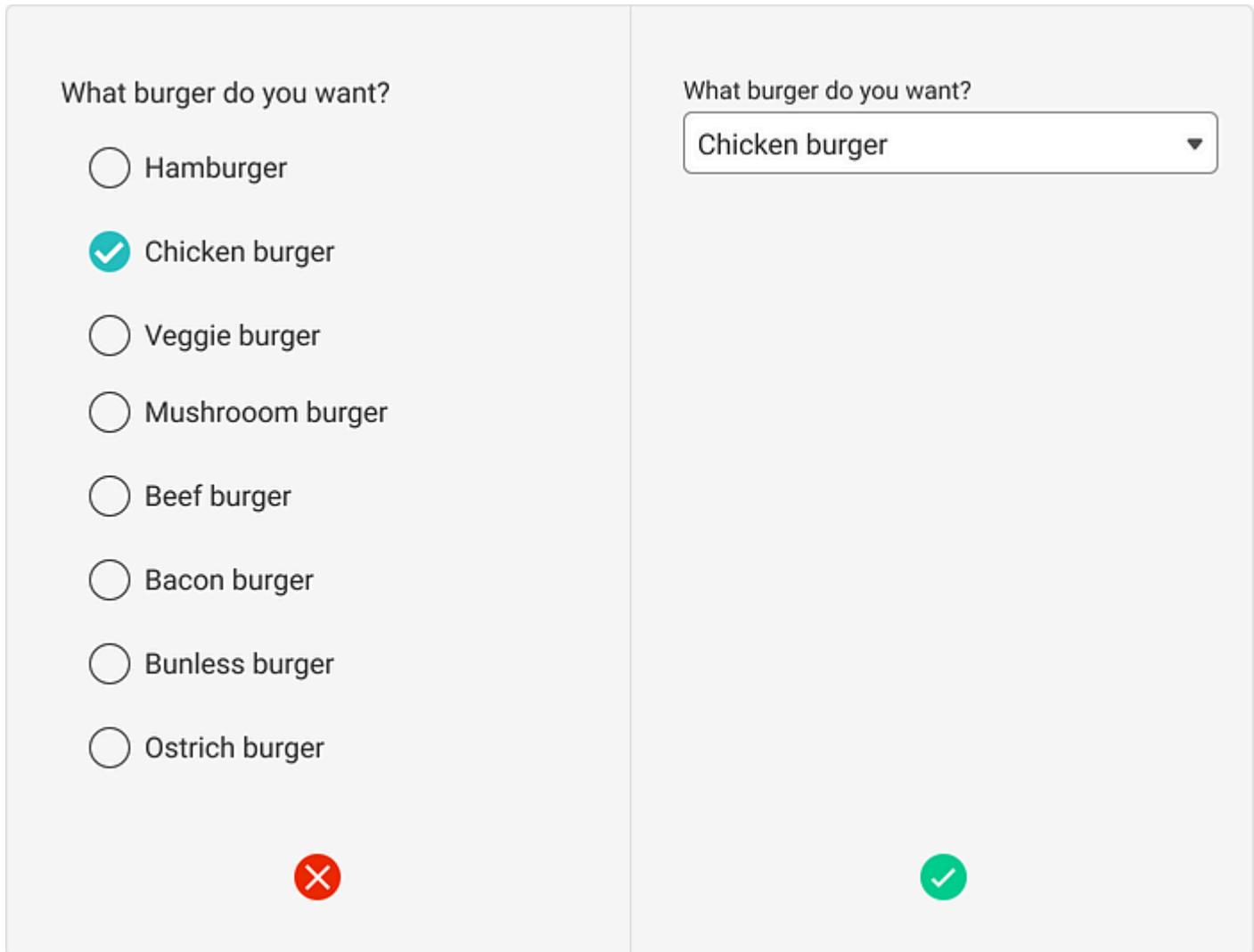
When should you use radio buttons or checkboxes? This relies entirely on what question you are asking. If you want your users to select multiple options, use checkboxes. If you want your users to select only one option, use radio buttons (or another alternative).

When to use a radio button

I have four rules about when, or when not to, use radio buttons. They are:

1. **When you only want the user to select one item** If you want the user to select more than one item then you should rather use checkboxes.

know that they are clunky, but they save a lot of space in your design.



Comparison of a dropdown and radio buttons

That being said, if space isn't an issue, maybe consider using radio buttons instead — particularly if you are designing for mobile. I have seen it work well for fast food deliveries.

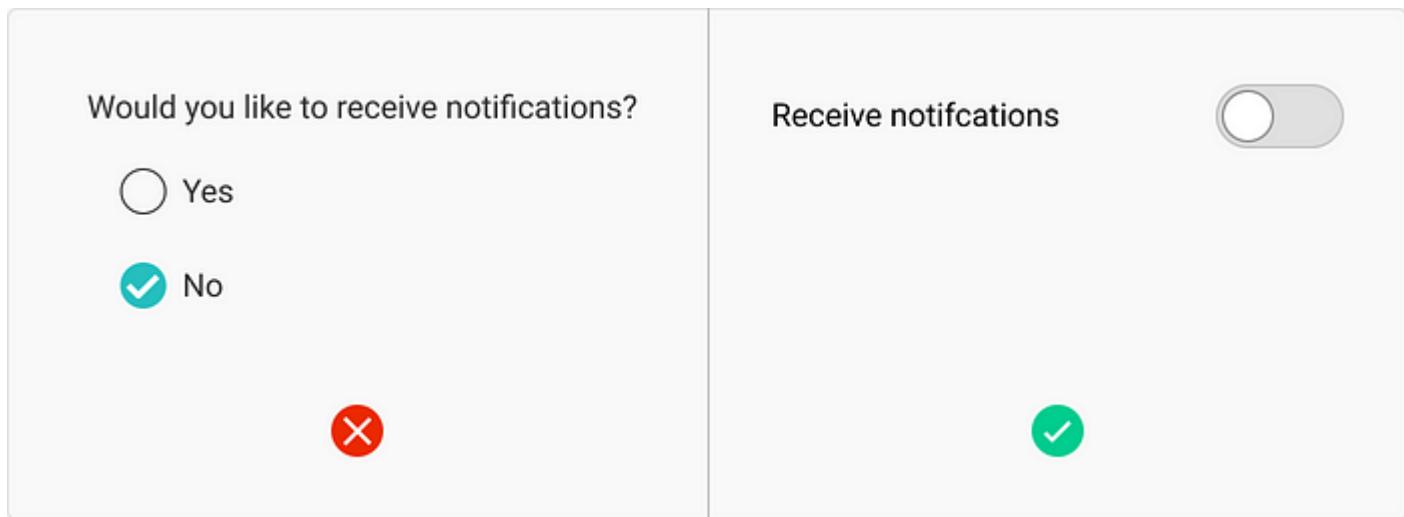
If you are interested in learning more about dropdowns, check out my previous cheat sheet here:

UI cheat sheet: dropdown field

Dropdowns get a lot of flak from the UI world – and if we are honest, it's not without reason. Done badly, they become...

3. You want to force a selection of one When you select an item in a radio button list, you can't deselect it. You can select something else and change your selection, but you can't un-answer the question once you have selected an answer.

4. If the question only has two options that are yes/no If your question is 'Would you like to receive notifications?', 'Play background music?' etc., then rather use a toggle. They take up much less space, are cleaner, and — because they are a newer selector type — they have the added bonus of being trendy.



Comparison of radio buttons and a toggle

POST PUBLISH UPDATE: 5. If you want your users to click 'save' to implement the option If you are in a settings page, or in a place where you want to allow the user to umm and err about their options before they click the big green save button - rather use radio buttons (or checkboxes). However, if you want your setting to happen immediately (turning wi-fi on/off) then rather use a toggle.

This suggestion comes from [Thomas Veit](#), so go give them some claps in the comments below :)

POST PUBLISH UPDATE: 6. If your option's labels are short, consider using a multiple-choice toggle You very seldom see this cutie out in the wild, but it is a delight when you do. Multi-choice toggles merge the best of radio buttons and

Select an option

1

2

3

Example of a multiple-choice toggle

This suggestion came from Thomas Weitz, so give them some claps in the comments below :)

When to use checkboxes

I have two rules about when to use checkboxes, and here they are:

- 1. When you want the user to be able to select multiple options or none at all** If you want your user to be able to add multiple toppings to their pizza, this is the selector for you. The user could select all, some, or none of the checkboxes.
- 2. Single item** Follow-up pop quiz: Why is the 'I have read the terms and conditions' always a checkbox and not a radio button? Surely it makes sense for it to be a radio button as it is better for 'yes/no' type questions?



I have read the Terms and Services.



I have read the Terms and Services.

Answer: Because you can **deselect it**. Unlike a radio button with only one item, where you can't deselect it. If you click it, soz for you: it is now selected FOREVER.

8. Accessibility checklist

You've done it! You have completed designing your selectors, and it is time to ship it off to the development team. But wait! Have you checked that they are

1. Does your selector meet the W3C AA colour contrast standards? Some designers use the AA standards instead, but I'm far too paranoid for that. My current favourite contrast checker is [WebAIM](#).
2. Are your options/items bigger than 44px for touch screens? (Differing reports use 36px.)
3. Is there more than 8px between each option/item?
4. Is the label/question always visible?
5. Do the relevant fields have helpful feedback text? (E.g. "Please complete this question")

If you want to read more, check out:

<https://webaim.org/techniques/forms/controls>

9. Closing thoughts

After this cheat sheet, I am going to move away from 'form' UI patterns and move onto other types of UI patterns. BUT if you have any requests to look into any other form field types let a girl know in the comments.

Stay safe out there Medium friends, the world is a crazy, crazy place right now.

#ux-design #ui #ux #usability #user-experience