HTML Forms

HTML Forms

Problem Statement

Up to this point, all of the HTML elements we've seen are used to display data *to* users. This is great, but what happens when we want to get information *from* our users? In order to get user information we need to write HTML forms. We will learn to write them in this lesson.

Objectives

1. State the purpose of a form
2. Write an HTML `form` tag
3. Define the `GET` vs `POST` HTTP methods
4. Write HTML `form` data elements

State The Purpose Of a Form

Forms gather user information. They're just like surveys you might fill out at a supermarket or a questionnaire you'd fill out at the doctor's office.

Let's suppose that you're the owner of a dog walking business that needs a way to gather information from clients. You would use an HTML form to collect information like:

- owner's name
- owner's address
- dog's name
- dog's age
- walking frequency

You collect this information in HTML tags called `input`s located within the `form` tag. You will also code a "Submit" button so the client can say "OK! I'm done!" We'll discuss `input`s in more detail below.

When the owner fills out the form's inputs and clicks "Submit," a record of their responses will be sent to a server where the information can be stored. Once the server has the information stored, software can be written to use the server's information to create newsletters, login accounts, or invitations to client-appreciation parties.

To store the information, we need a language like Ruby, PHP, or Java. We won't be covering storage and usage in this lesson. Writing code to handle things like that is "*back-end engineering*." Luckily, all those languages are designed to receive the information sent by an HTML `form`.

Let's write an HTML form. We'll use the `form` tag.

Write An HTML Form Tag

The starting element in an HTML form is the `<form>` tag. The `form` element wraps all the `input` elements that will collect our users' information inside of them. We will cover `input` elements in great detail after finishing discussing the attributes within a `form` tag.

The `form` tag's first attribute, `action`, decides where the user information is sent. This is typically the URL of a server. This server will run the Ruby, PHP, or Java (or other!) code required to store the information the `form` sends.

The second attribute, `method`, sets the *HTTP method* the browser will use to send the user information to the server. You can think of "*HTTP method*" as being like an envelope type. Some envelopes are good for documents, others are good for confidential letters, and yet others are good for overseas mail. The *HTTP methods* used in forms are `GET` and `POST`.

While you won't write the "back-end" code here, we'll describe what you see as a user when an HTML author chooses `GET` versus `POST`.

Define The `GET` vs. `POST` HTTP Methods

GET

Below we see the `form` example code for making a `GET` request.

When the user clicks the submit button, their responses in the `input` fields are captured and labeled using the `name` attributes from each element. The browser stores this information behind the scenes like this:

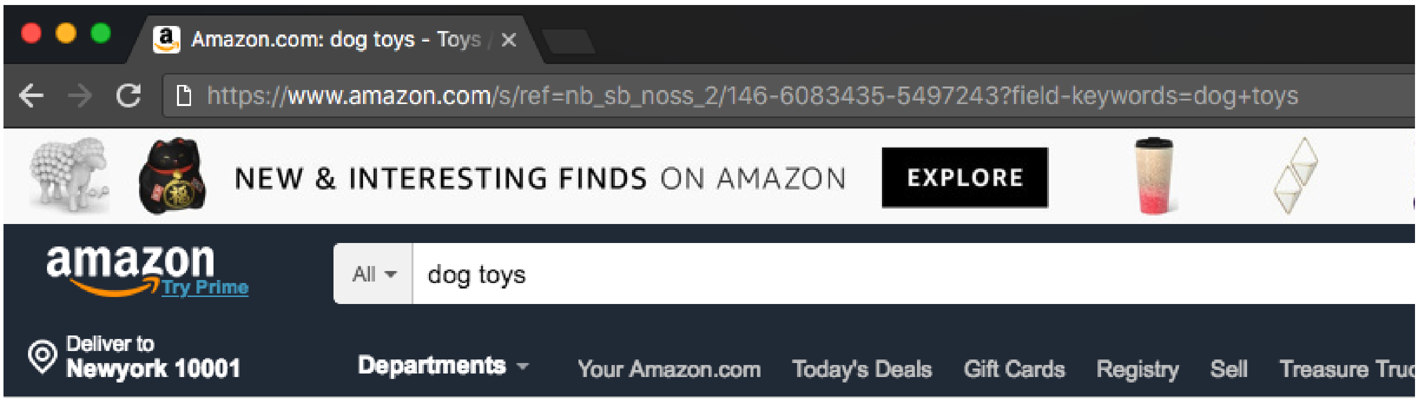
`owner-name=Bob+Barkley&dog-name=SirBarksALot&favorite-toy=ball`

This is known as the *Query String*. The browser *then* attaches the *Query String* onto the location listed in the `form`'s `action` attribute after a `?` to create a URL that looks like this:

`http://example.com/process-user.php?owner-name=Bob+Barkley&dog-name=SirBarksALot&favorite-toy=ball`

The browser then goes to this new URL. The server then uses *back-end programming* to use the information in the *Query String* to change what it will show.

When a *Query String* is added to a URL, it's a **great** solution for filtering the information that comes back. Forms are a nice way for users to add those filters without typing them in by hand. You've probably seen this on the internet.


Amazon.com: dog toys - Toys
https://www.amazon.com/s/ref=nb_sb_noss_2/146-6083435-5497243?field-keywords=dog+toys
NEW & INTERESTING FINDS ON AMAZON
EXPLORE
amazon Try Prime
All
dog toys
Deliver to Newyork 10001
Departments
Your Amazon.com
Today's Deals
Gift Cards
Registry
Sell
Treasure Truc

Here, Amazon uses a `form` tag with `method` of `GET` to filter their *huge* store. They filter based on matches of the `<input type="text" name="field-keywords">`. We typed in "dog toys" into that text field input.

While this is a great method for things like search, this is bad for passwords, obviously! A *Query String* with `password=ByronBestPoodle` will stand out! When you need to send your response in a way that doesn't leak information, you want your form to use the `POST` *HTTP method*.

> **ADVANCED**: An advanced concept is that a `GET` request is "idempotent." That means the browser can run it repeatedly without changing information on the back-end. We can ask for a filtered list of dog toys again and again and again by hitting Refresh again and again and again. Nothing changes on the server if we do that.

POST

Below we see the same form example code for making a POST request.

It's the same form you would write for a `GET`-method `form`, but with the `method` attribute changed.

When the user clicks the submit button, their responses in the `input` fields are captured and labeled using the `name` attributes from each element. The browser stores this information like this:

`owner-name=Bob+Barkley&dog-name=SirBarksALot&favorite-toy=ball`

A `POST` is like a secure envelope. We can't see the information being sent. That's why `POST` is the right call when sending sensitive information like passwords or national IDs. The user's browser **is not redirected** in this case. We can't show you a screenshot of what this looks like because, well, there's nothing to show. Usually after a successful POST, the web site will send you to a page that says "Thanks for your purchase" or "Thanks for joining our site."

> **ADVANCED**: An advanced concept is that a `POST` request is **not** "idempotent." If the browser runs it repeatedly, it **will** change data on the back end. Submitting payment for a credit card is

> **not** idempotent. Each refresh will take money out of your bank account! That's why many finance sites say "Don't refresh this page while we process your request."

Now that we know how to write a `form` tag and we understand the HTTP action that goes in its `action` attribute, let's talk about different ways we can ask for information within our `form` by choosing the right `input`.

Write HTML Form Data Elements

What *is* an `input`?

Think about a doctor's questionnaire: sometimes they ask you to fill-in-the-blank, sometimes they ask you to mark checkboxes next to symptoms, and other times they ask you to write a short answer. They ask all these different *types* of questions within the same questionnaire or *form*. All of those types of questionnaire prompts have a cousin in an HTML `input`. A fill-in-the-blank is an `<input type="text">`. A short essay's twin is `<input type="textarea">`.

The rest of this lesson will be spent introducing you to the `input` elements.

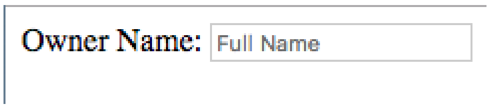
Text Field Input

Creating an `input` tag with `type="text"` gives our users a place to type in a single line of text. It looks like this:

`<input type="text" name="owner-name" placeholder="Full Name">`

The `placeholder` attribute puts some dummy text into the element. That text will be replaced when the user starts filling it in. The `name` attribute gives our input a name.

Here's a screenshot:



Generally, HTML form attributes should not contain spaces. Common exceptions to this rule are `placeholder` and `class`. If you're not sure whether or not your attribute can contain a space, check out **this article (https://www.htmlgoodies.com/primers/html/article.php/3881421)**.

A Note on Labels

You might have noticed we sneaked an extra tag in, the `label` tag. When writing forms, we don't want to describe what goes in the form by using `p` tags. We can more meaningfully "tie" descriptive text (that is, a label) to an input field using the `label` tag. The `id` attribute of the `input` is provided to the `label`'s `for` attribute and the browser knows to put them close to each other.

Labels are not strictly necessary on HTML forms. **But** they make our site better for those using assistive devices. It's the Right Thing to Do.

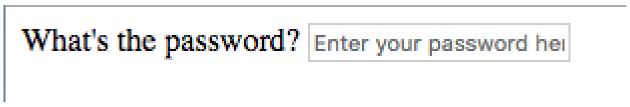
Why do we put *both* labels *and* placeholders? First, not all browsers and assistive devices support placeholder attributes. Labels help assistive devices help users who need them more easily enter data. Again, it's part of our desire to create an inclusive and accessible web.

Password Inputs

Creating an `input` tag with `type="password"` gives our users a place to type information that will *not* be displayed by the browser. Most of the time browsers put `*` or dots instead of the character. This is useful when private information is entered, so your password isn't displayed for others to see.

```
What's the password?
```

Here's a screenshot:



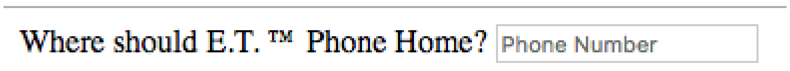
What's the password? Enter your password her

Telephone Inputs

Creating an `input` tag with `type="tel"` behaves like a text field, but will bring up the numeric keypad on supported mobile devices.

```
Where should E.T. ™ Phone Home?
```

Here's a screenshot:



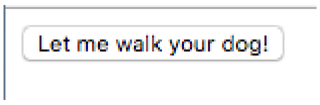
Where should E.T. ™ Phone Home? Phone Number

Submit Inputs

Creating an `input` tag with `type="submit"` creates a submit button that, when clicked, will do something with a user's `form` data. The `value` attribute holds the text that will appear on the button.

```

```

Here's a screenshot:



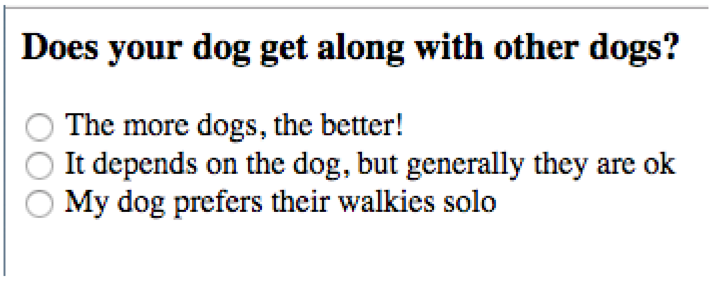
Radio Inputs

Radio inputs show users many options. But radio buttons allow users to select only one. You will set different `value` attributes for each radio button, but they *must* have the same `name` attribute.

Does your dog get along with other dogs?

```
The more dogs, the better!

It depends on the dog, but generally they are ok

My dog prefers their walkies solo
```

Here's a screenshot:


Does your dog get along with other dogs?

- ◯ The more dogs, the better!
- ◯ It depends on the dog, but generally they are ok
- ◯ My dog prefers their walkies solo

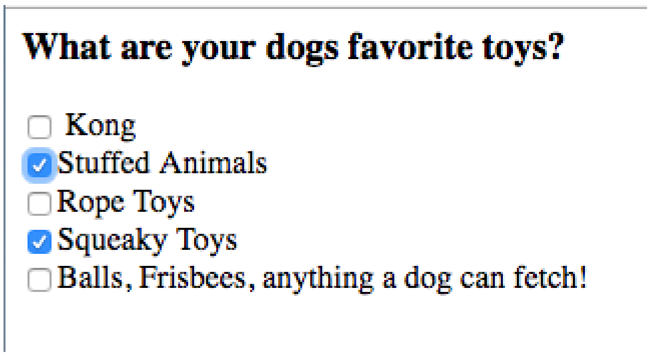
Checkboxes

Checkboxes are like radio buttons...but you can choose more than one.

What are your dogs favorite toys?

```
 Kong

Stuffed Animals

Rope Toys

Squeaky Toys

Balls, Frisbees, anything a dog can fetch!
```

Here's a screenshot:


What are your dogs favorite toys?

- ☐ Kong
- ☑ Stuffed Animals
- ☐ Rope Toys
- ☑ Squeaky Toys
- ☐ Balls, Frisbees, anything a dog can fetch!

Select Menus

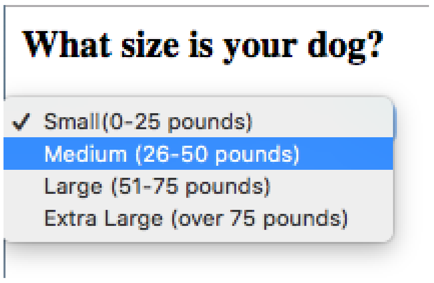
This is pretty advanced!

Select menus create a drop-down menu. Inside the `select` tag you use `option` tags to create a menu. Inside the `option` tag you say what will be shown in the menu. In the `value` option you say what will be sent as part of the *Query String*. For the example below the *Query String* would contain `size="small"`.

What size is your dog?

```
Small(0-25 pounds)
Medium (26-50 pounds)
Large (51-75 pounds)
Extra Large (over 75 pounds)
```

Here's a screenshot:



What size is your dog?

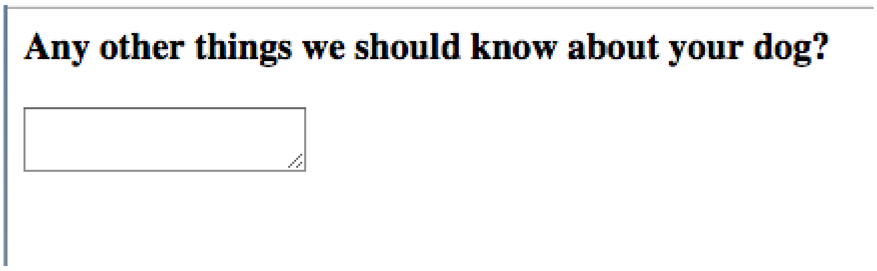
✓ Small(0-25 pounds)
Medium (26-50 pounds)
Large (51-75 pounds)
Extra Large (over 75 pounds)

Textarea

Textarea elements are useful if we want our users to be able to be able to write multiple lines of text. For example, if we wish to allow our clients to write special notes for their dogs, we can let them write as much or as little as they like.

Any other things we should know about your dog?

Here's a screenshot:



Any other things we should know about your dog?

Summary

We use HTML `form`s to collect data from users. Start with a form element. Give it an `action` and `method`, probably `POST`. Inside the `form` add several `input` elements. Use the best `input` for the data you're requesting. Make sure that your `input`s are clearly labeled. If you follow these guidelines you'll soon be getting all the user data you can handle!

Resources

- HTML Forms and Iframes (https://www.youtube.com/embed/eiCtXc2YMKc?rel=0)
- Presentation Slides (https://docs.google.com/presentation/d/115ECvsMyDnFBcc-Rvb4Jn876JhOycXxKVN6sv7OiJ1Y/edit?usp=sharing)
- MDN - HTML - Form (https://developer.mozilla.org/en-US/docs/Web/HTML/Element/form)
- MDN - HTML - Button (https://developer.mozilla.org/en-US/docs/Web/HTML/Element/button)
- HTML Goodies - Form Basics (http://www.htmlgoodies.com/primers/html/article.php/3881421)
- HTML Form Generator (http://www.phpform.org/)

How do you feel about this lesson?

Have specific feedback?

Tell us here! (https://flatironschoolforms.formstack.com/forms/canvas_feedback?CourseID=79&LessonID=html-forms&LessonType=pages&CanvasUserID=227&Course=None)