EJS

SENG 4640
Software Engineering for Web Apps
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Review

- Node.js and Express allow us to build server-side web apps in JavaScript
- HTTP Requests and Responses are represented as JavaScript objects
- We can get data from user either via the URL or through form submissions

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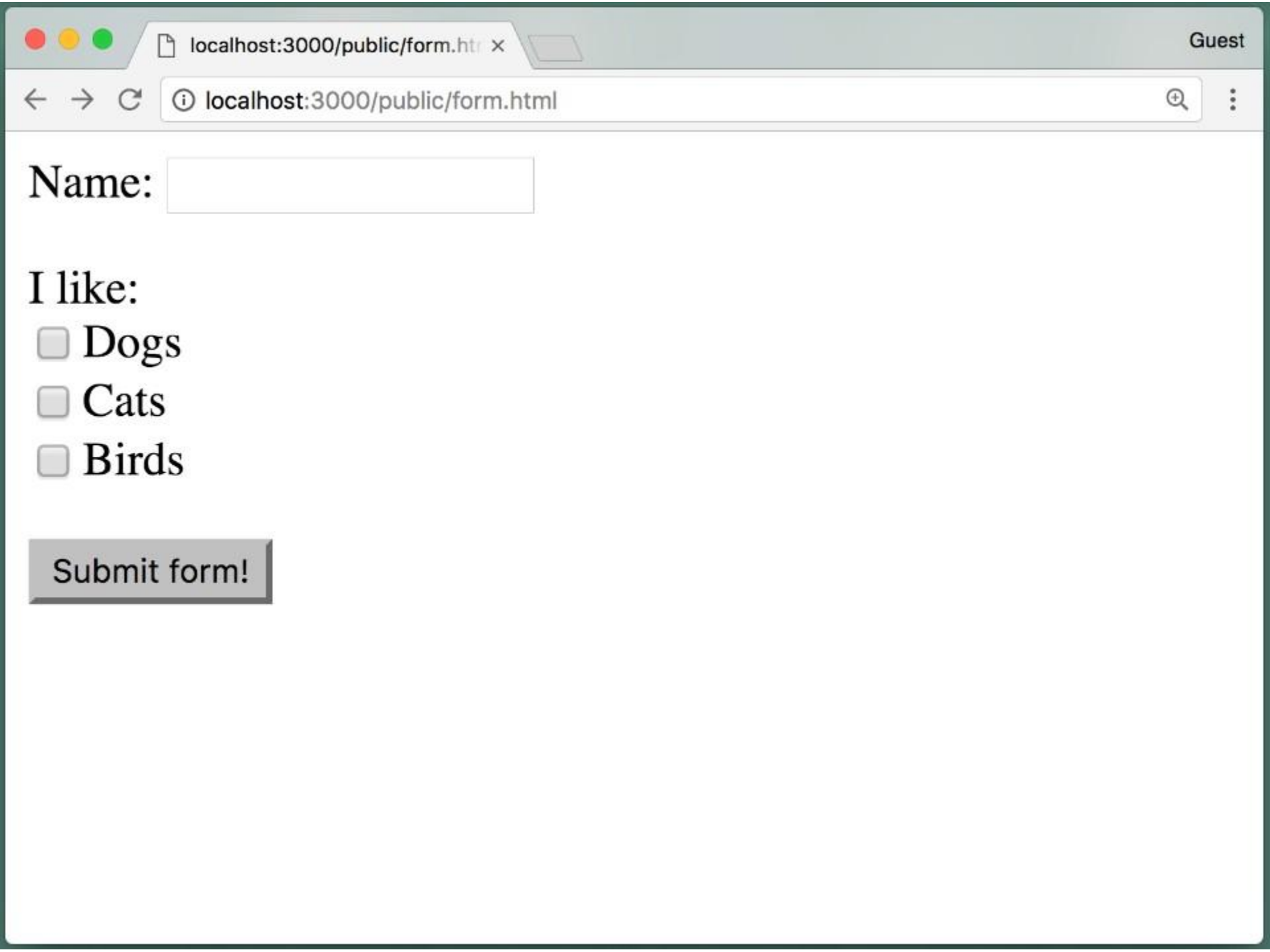
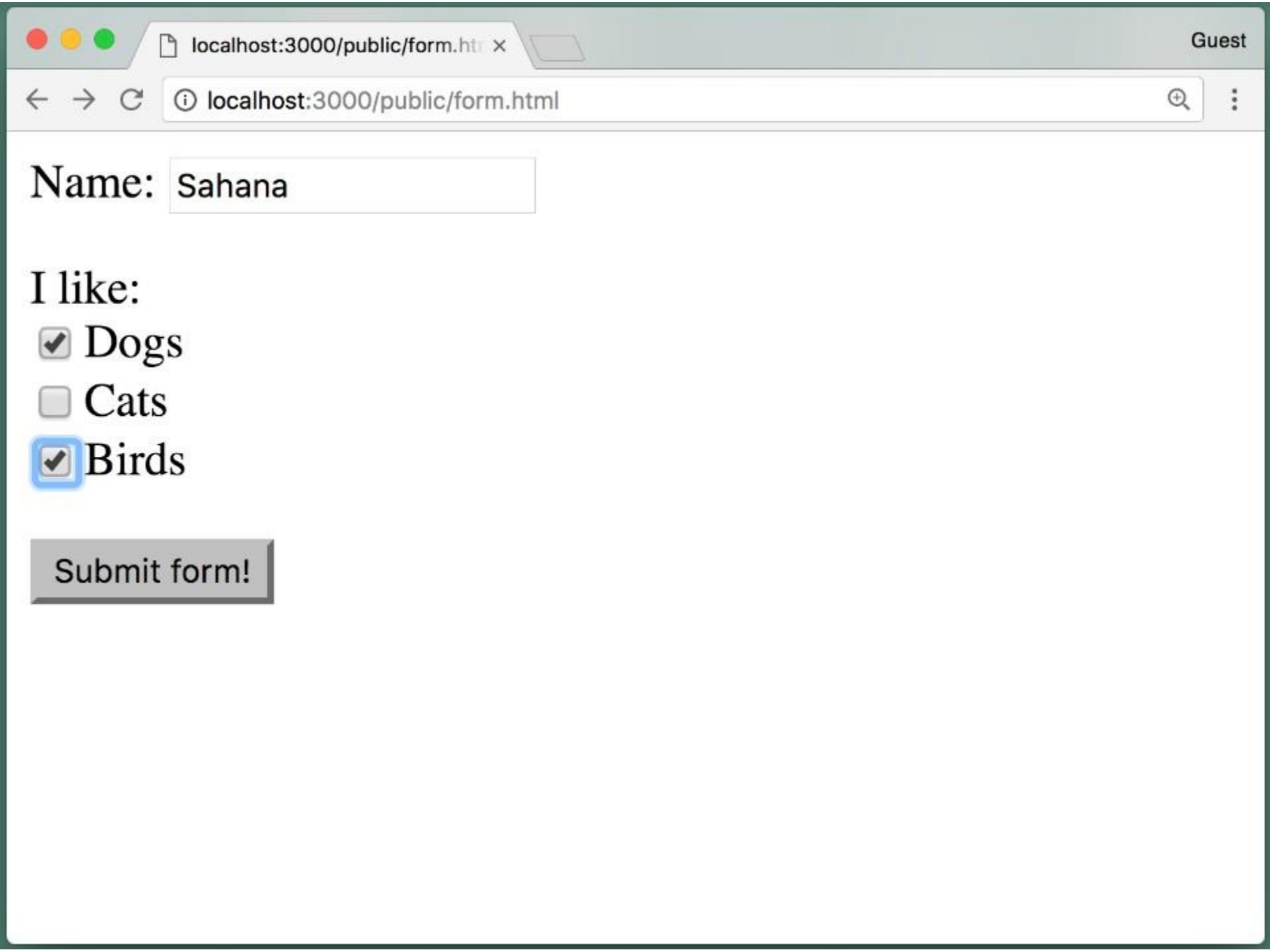
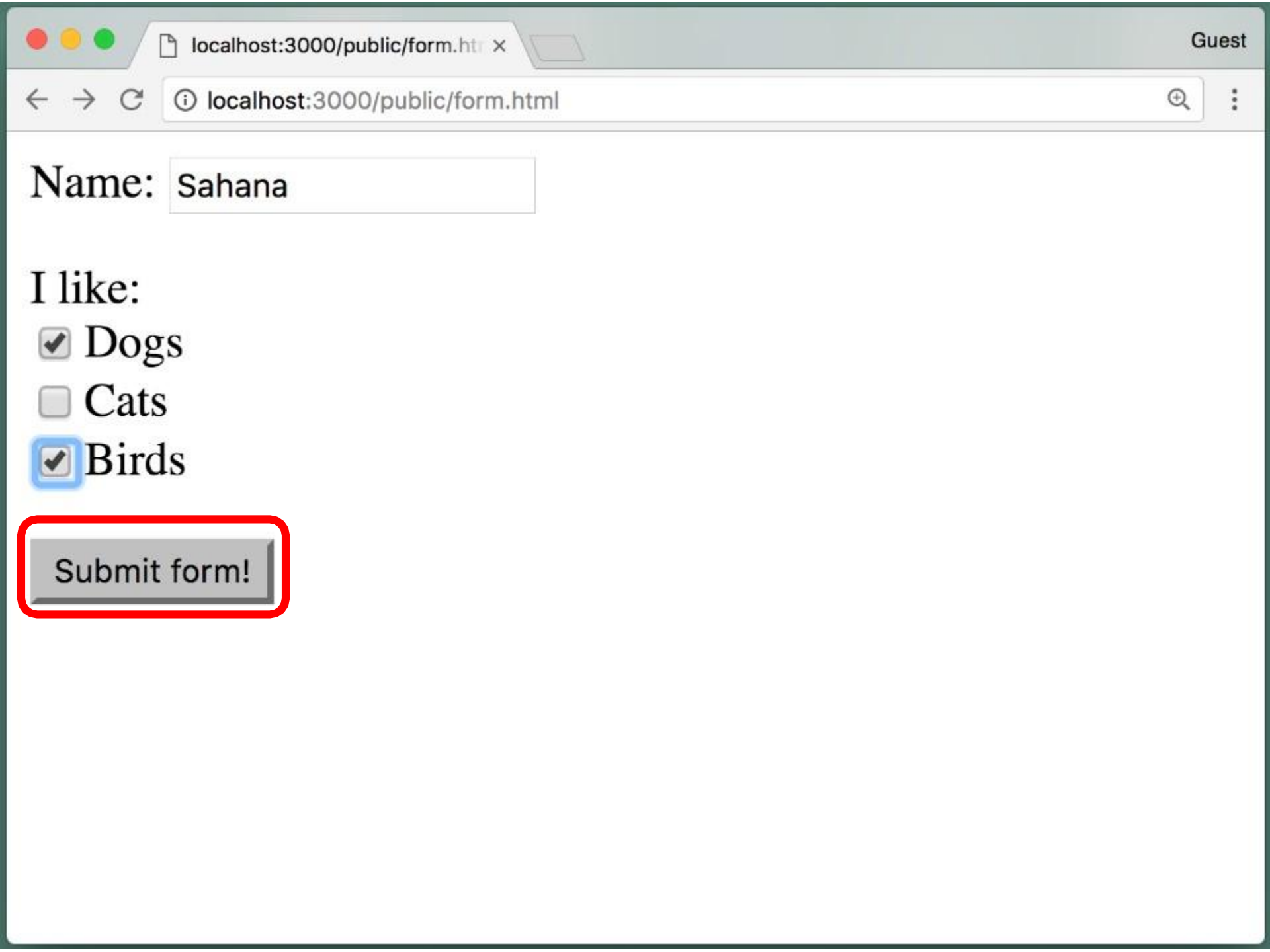
In the next few lectures, we'll start to put all these together into a full fledged web application, where we're serving content based on different functionality in our app.


localhost:3000/public/form.ht
Guest
localhost:3000/public/form.html
Name:
I like:
Dogs
Cats
Birds
Submit form!


localhost:3000/public/form.ht
Guest
localhost:3000/public/form.html
Name:
Sahana
I like:
Dogs
Cats
Birds
Submit form!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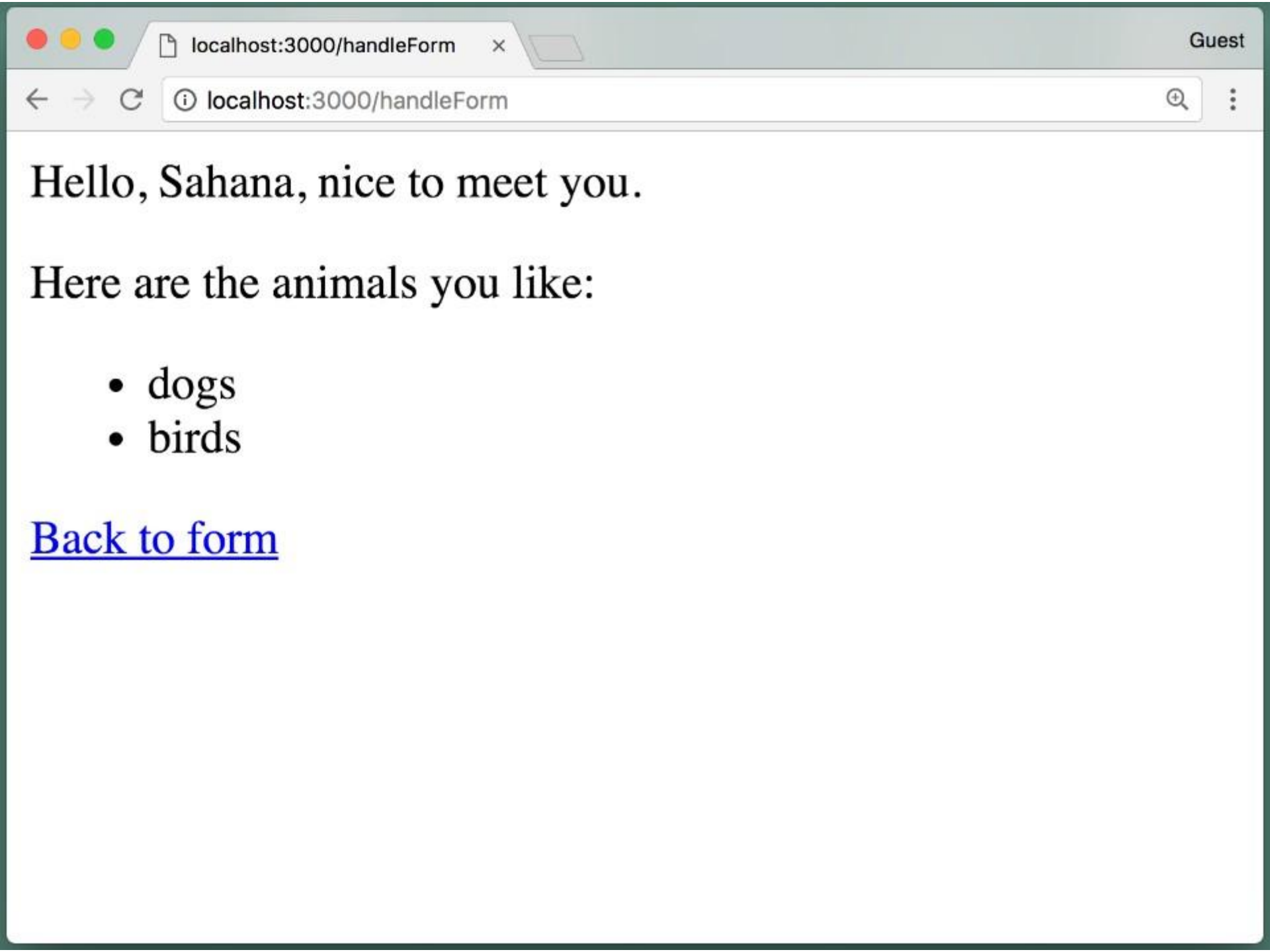
localhost:3000/handleForm
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Here are the animals you like:
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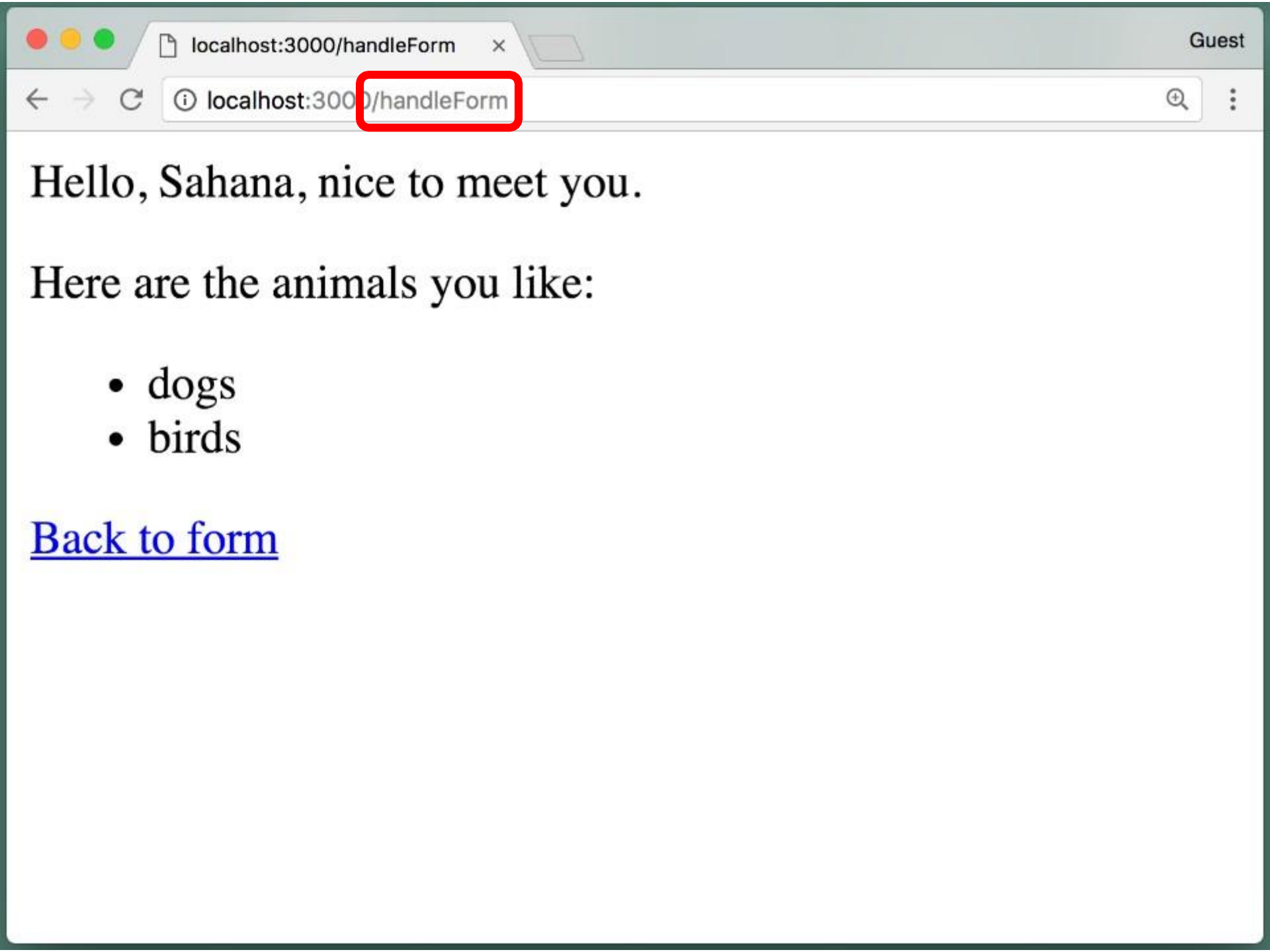
birds
Back to form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```
var bodyParser = require('body-parser');
app.use(bodyParser.urlencoded({ extended: true }));

app.use('/handleForm', (req, res) => {
   var name = req.body.username;
   var animals = [].concat(req.body.animal);
   res.type('html').status(200);
   res.write('Hello, ' + name + ', nice to meet you.');
   res.write('<p>Here are the animals you like:');
   res.write('<ul>');
   animals.forEach( (animal) => { res.write('<li>'
      + animal + '</li>');
   });
   res.write('</ul>');
   res.write("<a href='/public/form.html'>" + "Back to
                                              form</a>");
   res.end();
});
```

use the body-parser middleware, because the data coming from the user is part of the form that was submitted using an HTTP post request.

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Username from our form.
And remember the body parser middleware, would put the form data into the body property of the request.

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we want to be an array of the animals. So here's a little JavaScript trick, start with an empty array and then use the .concat function to concatenate whatever is in the body of the request with that empty array.

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Keep in mind that all of the code we're seeing here is server-side, it's not client-side. All of this code is running in the server.

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- EJS is a view engine that combines data or static content, with embedded JavaScript, and executes the JavaScript to generate HTML.

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- In order to separate the JavaScript from the HTML, in Express we can us a tool called EJS, or EmbeddedJS, or embedded JavaScript.
- EJS is a view engine that combines data or static content, with embedded JavaScript, and executes the JavaScript to generate HTML.
- This means that our HTML can be rendered dynamically on the server, and then sent back as content to the browser.

What is EJS?

- EJS, or **EmbeddedJS**, is a **view engine** that uses data and embedded JavaScript to produce HTML

- This allows webpages to be developed statically and rendered dynamically server-side

- EmbeddedJS is a package that can be installed with the command: `npm install ejs`

Using EJS in an Express app

- Set EJS as the default rendering method in your app with **`app.set('view engine', 'ejs');`**

```
var express = require('express');
var app = express();

app.set('view engine', 'ejs');

app.get('/', (req, res) => {
  res.render('welcome', {username:
  'CandyLover'});
});
```

There are many different view engines that we can use, and ejs is just one of them, and in our app, we would set the view engine to ejs.

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Then, rather than using the response, write, or send function, we would use the render function.

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The render function takes the name of the EJS file as it's first argument. By default the ejs files should go in the **views** sub directory or folder, and we don't need to say .ejs at the end because it's understood.

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var app = express();

app.set('view engine', 'ejs');

app.get('/', (req, res) => { res.render('welcome',
  {username: 'CandyLover'});
});
```

If we want to pass arguments to the ejs file, we do that using JavaScript objects.

So now let's see what an .ejs file looks like.

Writing EJS files

- A .ejs file is just an HTML file that has JavaScript code embedded in it
- Anything between **<%=** and **%>** tags will be evaluated and incorporated into the HTML
- By default, the .ejs files should be in the **views/** subdirectory of the Express project

```
<!-- This is views/welcome.ejs -->

<!DOCTYPE html>
<html>
<body>

<h1>Welcome, <%= username %>!</h1>

</body>
</html>
```

EJS and JavaScript

- EJS will execute any JavaScript that appears between **<%** and **%>** tags when generating the HTML page on the server

```
res.render('welcome', {username: 'CandyLover', isAdmin: true});
```

```
<!DOCTYPE html>
<html>
<body>

<h1>Welcome, <%= username %>!</h1>
<% if (isAdmin) { %>
    <p> Remember to check your email every 24 hours! </p>
<% } %>

</body>
</html>
```

render function on the response uses welcome.ejs and would send the argument that includes two key value pairs

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evaluate username using <% and %>

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javascript using <% and %>

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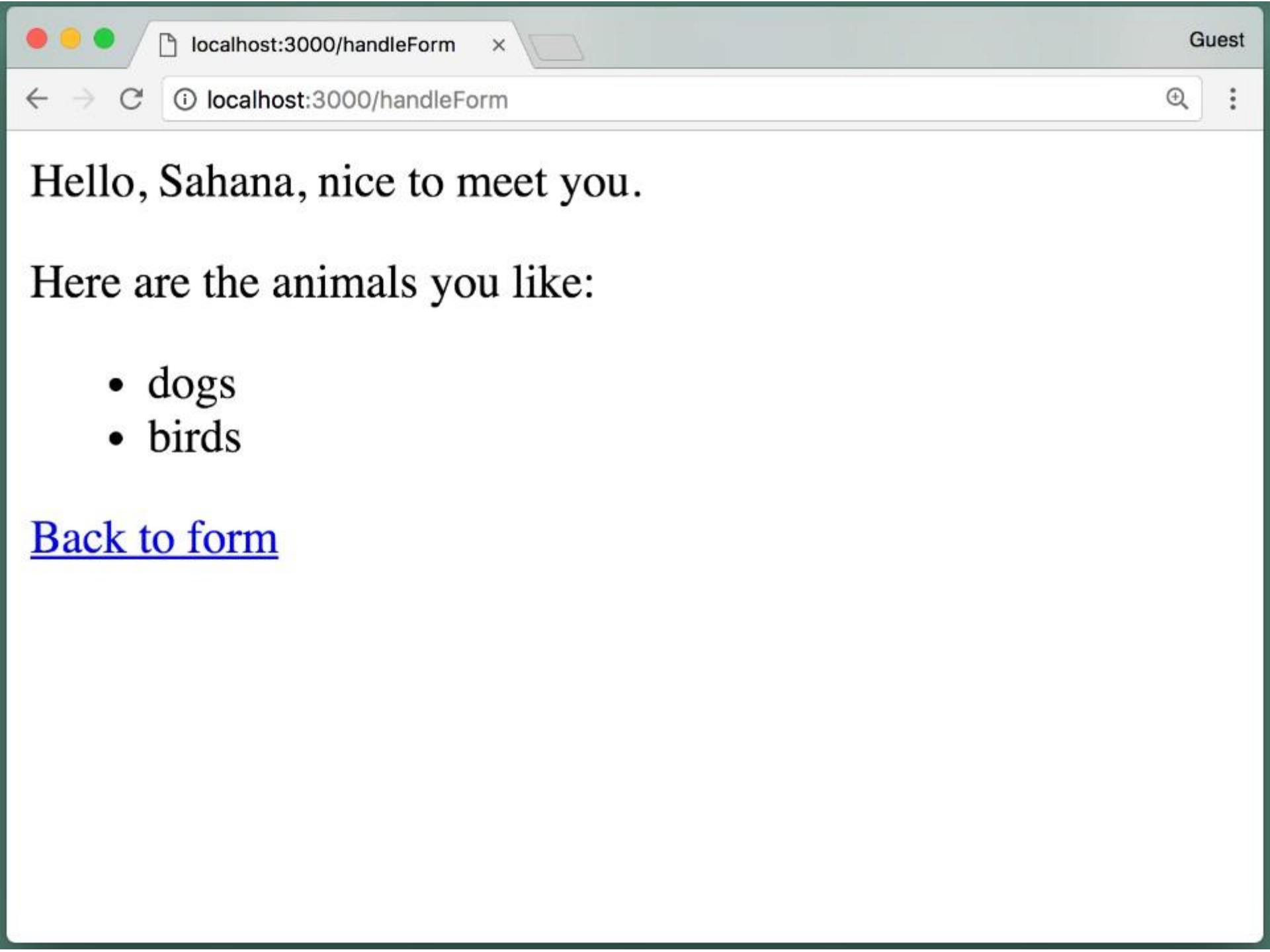
</html>
```

use EJS to separate the JavaScript and the HTML

Let's go back to our motivating example.
Whereas part of handling the form, we want to echo back the data that the user sent but we wanna do that without tangling up all of our JavaScript and HTML within the index.js file.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 var animals = [].concat(req.body.animal);
 res.type("html").status(200);
 res.write("Hello, " + name + ", nice to meet you.");
 res.write("<p>Here are the animals you like:");
 res.write("<ul>");
 animals.forEach((animal) => {
   res.write("<li>" + animal + "</li>");
 });
 res.write("</ul>");
 animals.forEach((animal) => {
   res.write("<li>" + animal + "</li>");
 });
 res.write("</ul>");
 res.write("<a href='/public/form.html'>" + "Back to form </a>");
 res.end();
});
```

And all of this code is the code we'd like to remove.

```
var bodyParser = require("body-parser");
app.use(bodyParser.urlencoded({ extended: true }));

app.use("/handleForm", (req, res) => {
 var name = req.body.username;
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```

All this code is not really the code for the logic of our program.
But is really just the rendering of the HTML.

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app.use(bodyParser.urlencoded({ extended: true }));

app.use("/handleForm", (req, res) => {
 var name = req.body.username;
 var animals = [].concat(req.body.animal);
 res.render("showAnimals", {name:name, animals:animals});
});
```

we move that entirely and replace it with the render function.
the ejs file, that we want to render, is showanimals.

```
var bodyParser = require("body-parser");
app.use(bodyParser.urlencoded({ extended: true }));

app.use("/handleForm", (req, res) => {
 var name = req.body.username;
 var animals = [].concat(req.body.animal);
 res.render("showAnimals", {name:name, animals:animals});
});
```

```
<!-- This is views/showAnimals.ejs -->
Hello, <%= name %>, nice to meet you.
<p>Here are the animals you like:
<ul>
<% animals.forEach( (animal) => { %>
   <li> <%= animal %> </li>
<% }); %>
</ul>
<a href='/public/form.html'>Back to form</a>
```

Note: showanimals.ejs would need to be in the views subdirectory.

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var bodyParser = require("body-parser");
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name came as one of the arguments that was passed to the render function.

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   <li> <%= animal %> </li>
<% }); %>
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```

iterate over all of the animals that are in the array, using the forEach function.

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   <li> <%= animal %> </li>
<% }); %>
</ul>
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Summary

- **EJS** allows webpages to be developed statically and rendered dynamically server-side

- An Express app can generate and send the HTML from a .ejs file using the Response's `render` function

- EJS will execute any JavaScript that appears between `<%` and `%>` tags when generating the HTML page on the server