

Module 3 — Overview



Introduction

In the previous modules we have gotten an overview of the web and an introduction to JavaScript. In this module, we will start learning how to create web applications using Node. In particular, we will study the `npm` package manager and the Express.js web framework, both of which are widely used with Node. In addition to that we will study HTML which is a fundamental technology underlying all web applications. We will learn the basic concepts of HTML and how to create HTML documents. We will also study HTML forms which are the primary mechanism for users to submit data to web applications. We will create a simple web application that allows a user to submit data, and that can process data submitted by the user and send back an HTTP response using that data.

Module Learning Outcomes

After successful completion of this module, you should be able to do the following (in addition to answering the questions listed below):



1. What tools and libraries we can use to develop web applications using Node? (CLO 1, CLO 2)
 - What is `npm`?
 - How can we create Node applications using `npm`?
 - What is Express.js?
 - How can we use Express.js to create web applications?
2. What is HTML and what are the fundamental concepts of HTML? (CLO 1, CLO 2)
 - What is the primary use of HTML?
 - What is meant by HTML elements?
 - How can we specify HTML elements using tags?
 - How is the general structure of an HTML document?
 - What are attributes and how do we specify values of attributes?
 - How do we nest multiple tags in an HTML document?
 - What is meant by percent-encoding?
3. What are some of the important HTML elements and their uses? (CLO 1, CLO 2)

- What are the different types of header elements?
 - What are the uses of the elements `section`, `article` and `div`.
 - How can we create links using the anchor element?
 - What is the use of the `img` element?
 - What are the uses of the elements `strong`, `b`, `em`, and `i`?
 - Update April 12: The element `i` is not discussed in the explorations, so I have struck it out from the list in the preceding bullet. Optional: if you want to learn about this element, [see the MDN page](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/i) [_\(https://developer.mozilla.org/en-US/docs/Web/HTML/Element/i\)_](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/i).
 - How can we create different types of lists in HTML?
 - How can we create tables in HTML?
4. How can we create links from an HTML document to other HTML documents and write a web application that can serve such HTML documents? (CLO 1, CLO 2)
- What is the difference between absolute and relative URLs?
 - What is the `link` element and how we can use to specify a relationship between a document and an external recourse?
 - What is the `script` element and its use?
 - How can we use Express and Node to write a web application to serve static HTML documents?
5. What are HTML forms and how can we process them using Node? (CLO 1, CLO 2)
- What is the `form` tag and its important attributes?
 - What is the `input` tag and how we can use it to create different types of input elements in our HTML documents?
 - How can we submit form data using GET and POST methods?
 - How do GET and POST HTTP methods differ in how data is transmitted in the HTTP request?
 - How can we use Express and Node to write a web application that can process data submitted by a GET or a POST request?

Explorations

Use the pages within this module to explore the following concepts:

- [Exploration — Using npm and Express.js to Create Web Applications](https://canvas.oregonstate.edu/courses/1879154/pages/exploration-using-npm-and-express-dot-js-to-create-web-applications)
[_\(https://canvas.oregonstate.edu/courses/1879154/pages/exploration-using-npm-and-express-dot-js-to-create-web-applications\)_](https://canvas.oregonstate.edu/courses/1879154/pages/exploration-using-npm-and-express-dot-js-to-create-web-applications)
- [Exploration — Introduction to HTML](https://canvas.oregonstate.edu/courses/1879154/pages/exploration-introduction-to-html)
[_\(https://canvas.oregonstate.edu/courses/1879154/pages/exploration-introduction-to-html\)_](https://canvas.oregonstate.edu/courses/1879154/pages/exploration-introduction-to-html)
- [Exploration — HTML Tags](https://canvas.oregonstate.edu/courses/1879154/pages/exploration-html-tags) [_\(https://canvas.oregonstate.edu/courses/1879154/pages/exploration-html-tags\)_](https://canvas.oregonstate.edu/courses/1879154/pages/exploration-html-tags)
- [Exploration — Linking HTML Documents and Serving Static Content](https://canvas.oregonstate.edu/courses/1879154/pages/exploration-linking-html-documents-and-serving-static-content)
[_\(https://canvas.oregonstate.edu/courses/1879154/pages/exploration-linking-html-documents-and-serving-static-content\)_](https://canvas.oregonstate.edu/courses/1879154/pages/exploration-linking-html-documents-and-serving-static-content)

[serving-static-content](#)),

- [Exploration — HTML Forms](#)

(<https://canvas.oregonstate.edu/courses/1879154/pages/exploration-html-forms>)

Task List

Please make sure to complete the following assignments and other tasks:

- Complete the exercises provided in the Explorations.
- Take the Module quiz.
- Complete Assignment 3.
- Complete the Module Feedback Survey.



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(<https://canvas.oregonstate.edu/courses/1879154/modules>)