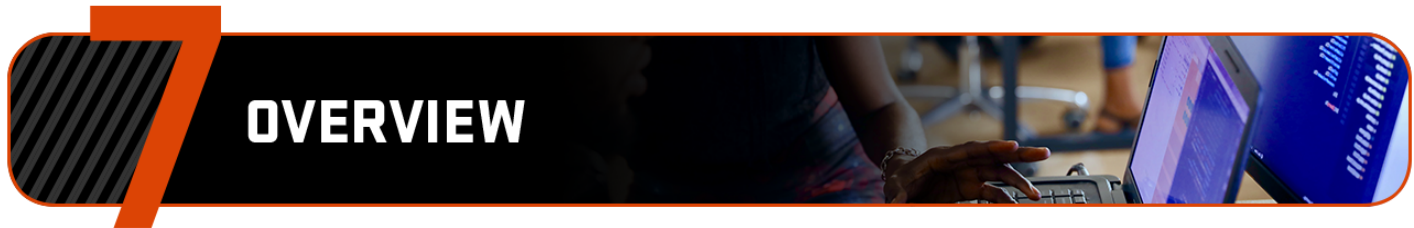


# Module 7 — Overview



## Introduction

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In this module, we add the capability of using Database Management Systems (DBMSs) to our web apps. We first introduce some general concepts about DBMSs and then introduce MongoDB which is the DBMS we will use in this course. We then study Mongoose, a popular tool used in Node applications to interact with MongoDB. By the end of this module, we will have created an Express web app that can manage data in MongoDB and provides support for all 4 CRUD (create, retrieve, update and delete) operations on that data.

## Module Learning Outcomes

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



1. What are database management systems (DBMSs)? (CLO 1, CLO 2)
  - What is the use of a DBMS in a web app?
  - How do relational DBMSs organize data?
  - How do document DBMSs organize data?
  - Relational DBMSs provide which language for CRUD operations on data?
2. What is MongoDB? (CLO 1, CLO 2)
  - What type of DBMS is MongoDB?
  - What is a collection in MongoDB?
  - What is a document in MongoDB?
3. What is the MVC pattern? (CLO 1)
  - What functionality does the model layer perform?
  - What functionality does the view layer perform?
  - What functionality does the controller layer perform?
4. What is Mongoose? (CLO 1, CLO 2)
  - What is an ODM?
  - What is the schema concept in Mongoose?
  - What is the model concept in Mongoose?

## 5. How can we perform CRUD operations using Mongoose? (CLO 1, CLO 2)

- What is the use of the method `save`?
- What is the use of the method `find`?
- What is the use of the method `updateOne`?
- What is the use of the method `deleteOne`?
- How can we create complex conditions for Mongoose operations?

## Explorations

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

- **Exploration — Introduction to Database Management Systems**  
(<https://canvas.oregonstate.edu/courses/1879154/pages/exploration-introduction-to-database-management-systems>)
- **Exploration — Interacting with MongoDB**  
(<https://canvas.oregonstate.edu/courses/1879154/pages/exploration-interacting-with-mongodb>)
- **Exploration — Using Mongoose For MongoDB**  
(<https://canvas.oregonstate.edu/courses/1879154/pages/exploration-using-mongoose-for-mongodb>)
- **Exploration — Using Mongoose to Implement CRUD Operations**  
(<https://canvas.oregonstate.edu/courses/1879154/pages/exploration-using-mongoose-to-implement-crud-operations>)

## Task List

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In order to achieve these learning outcomes, please make sure to complete the following:

- Complete the exercises provided in the Explorations.
- Take the Module quiz.
- Complete the optional Assignment 6.
- Complete the Module Feedback Survey.

