



MongoDB Aggregation Framework

Course Overview

One of the defining features of MongoDB is its robust aggregation framework, allowing for high functionality of a data store and more efficient queries. This course outlines the main stages of the framework, how to clean up queries using the framework, and the expressions it employs. The course demonstrates the key concepts of the framework by working through examples and using hands-on activities through the MongoDB Shell.

Length: 3-4 hours

Level: Intermediate

Course Content

All course content can be accessed in the [Google Drive folder](#).

The course is formatted into two lessons:

1. The MongoDB Aggregation Framework
2. Querying Data with the MongoDB Aggregation Framework

It is recommended to go through the lessons in sequential order as the content and complexity builds as you go. The lessons are formatted on slide decks with detailed instructor notes. There are also corresponding PDF versions available to [download](#).

Quiz questions with explained answers on key concepts are embedded throughout the lessons to enhance knowledge retention.

The materials are freely available for non-commercial use and are licensed under Creative Commons Attribution-NonCommercial-ShareAlike 3.0 Unported [License](#).

Learning Objectives

At the end of this course, learners will be able to:

- Describe the aggregation framework and its functionality
- Compare aggregation stages with their MQL find() equivalents
- Identify the correct aggregation framework syntax
- Identify approaches to debugging aggregation framework pipelines
- Create a basic aggregation pipeline using expressions and the following commands: \$group, \$addFields, \$set, \$unionWith
- Query data with the aggregation framework using the following commands: \$match, \$project, \$unwind, \$facet, \$merge

Prerequisite Knowledge

Learners will need to have an understanding of the document model and MongoDB Query Language (MQL) before this course. Lecture materials on these topics can be found in the [Introduction to Modern Databases with MongoDB](#) course.

Suggested Uses

The course materials can be incorporated into your curriculum in a variety of ways:

- Slide decks can be easily used during lecture classes. Code snippets in the PDF handouts allow students to follow along with hands-on activities.
- The handouts can be used for asynchronous learning or as supplemental material to be completed outside of class.
- Instructional slides can be used during a lecture class, and the hand-on activities completed outside of class.
- Lessons can be combined with self-paced online learning and labs. Each lesson includes suggestions for complementary learning content.
- The slides and handouts can be used for self-paced learning for students and educators alike.

Hands-On Exercises

The hands-on exercises in this course use the MongoDB Shell. Users who prefer to use a GUI to interact with their data can do so using MongoDB Compass or the MongoDB Atlas UI.

Share Your Feedback

We hope these curriculum materials will be a valuable resource for you and your learners. Let us know how the materials work for you, what we can improve on, and how MongoDB for Academia can support you via our brief [feedback form](#).

MongoDB for Academia

MongoDB for Academia offers resources for educators and students to support teaching and learning MongoDB. Check out our [educator resources](#) and join the Educator Community. Students can receive \$50 in Atlas credits and free certification through the [Github Student Developer Pack](#).

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