Get Hands On

MongoDB Developer Fundamentals Exercise

Daniel Coupal
Senior Staff Developer Advocate
Strategic Accounts

Tool used for the workshop

No setup or installation

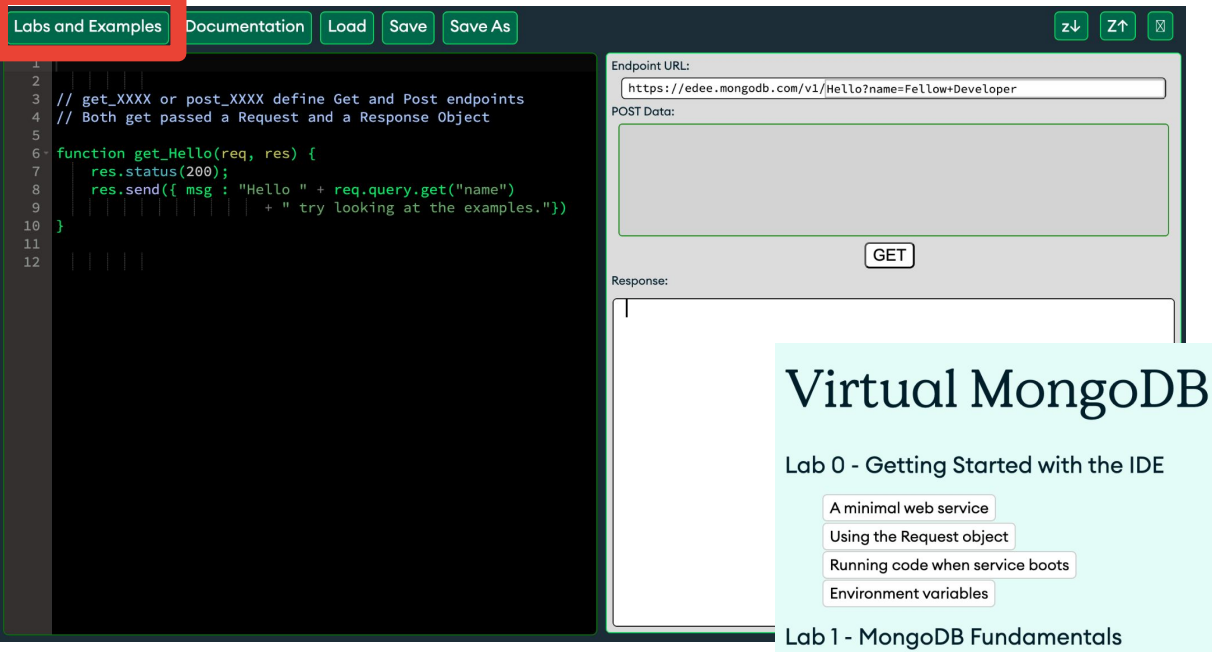
No firewall friction

Not MongoDB platform like Atlas, Compass, or Shell

Mimics a Web Service, so more code than just MongoDB operations

Time to open your laptops and discover the environment.

https://edee.mongodb.com/?org=morganstanley25



Virtual MongoDB Day examples

Lab 0 - Getting Started with the IDE

- A minimal web service
- Using the Request object
- Running code when service boots
- Environment variables

Lab 1 - MongoDB Fundamentals

- Query by multiple attributes
- The Bucket pattern

Lab 2 - Indexes, Locking and Transactions

- Indexed vs Unindexed query speed.
- Reading explain plans for queries.
- Create an optimal index.
- Using Multi Document ACID Transactions
- Observe transaction collision behavior
- Document level write locks.
- Long duration pessimistic locks.
- Long duration optimistic locks.

Bonus Lab - Beyond the Basics

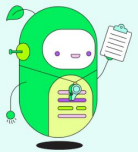
- Correctly querying Arrays with $elemMatch
- Expressions in Queries
- Expressions in Updates
- Enforce schema on a collection
- CHALLENGE: Enforce calculated fields

Bonus Lab - Aggregation

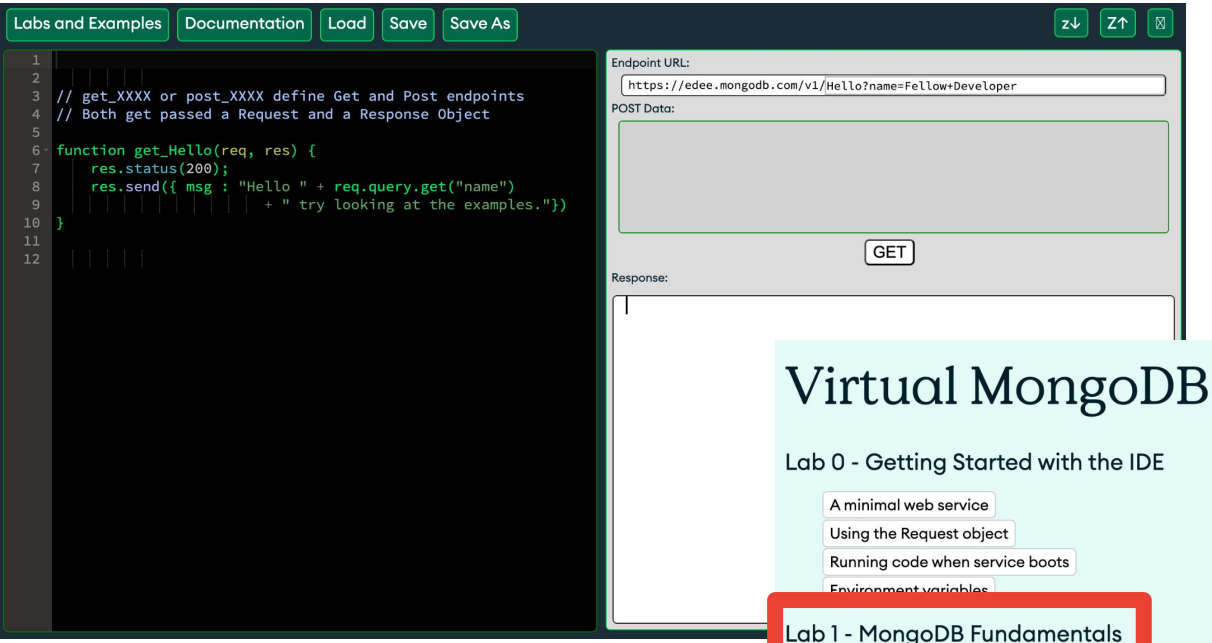
- Simple first aggregation
- Summarising data with $group
- Determining cohorts with $bucketAuto
- Join data from rapidly changing dimensions with $lookup
- CHALLENGE: Power a Management Dashboard

Other MongoDB Code Examples

- List and Drop Databases and Collections
- Query for Movies by title
- Load a batch of JSON documents
- List,Create and Drop indexes
- Atomic update with read
- Using Array Expressions like $filter



Navigating
Toggle between the IDE and the examples.



Virtual MongoDB Day examples

Lab 0 - Getting Started with the IDE

- A minimal web service
- Using the Request object
- Running code when service boots
- Environment variables

Lab 1 - MongoDB Fundamentals

- Add and Retrieve a simple document
- Query by multiple attributes
- Update data with conditions
- The Bucket pattern

Lab 2 - Indexes, Locking and Transactions

- Indexed vs Unindexed query speed.
- Reading explain plans for queries.
- Create an optimal index.
- Using Multi Document ACID Transactions
- Observe transaction collision behavior
- Document level write locks.
- Long duration pessimistic locks.
- Long duration optimistic locks.

Bonus Lab - Beyond the Basics

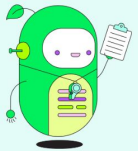
- Correctly querying Arrays with $elemMatch
- Expressions in Queries
- Expressions in Updates
- Enforce schema on a collection
- CHALLENGE: Enforce calculated fields

Bonus Lab - Aggregation

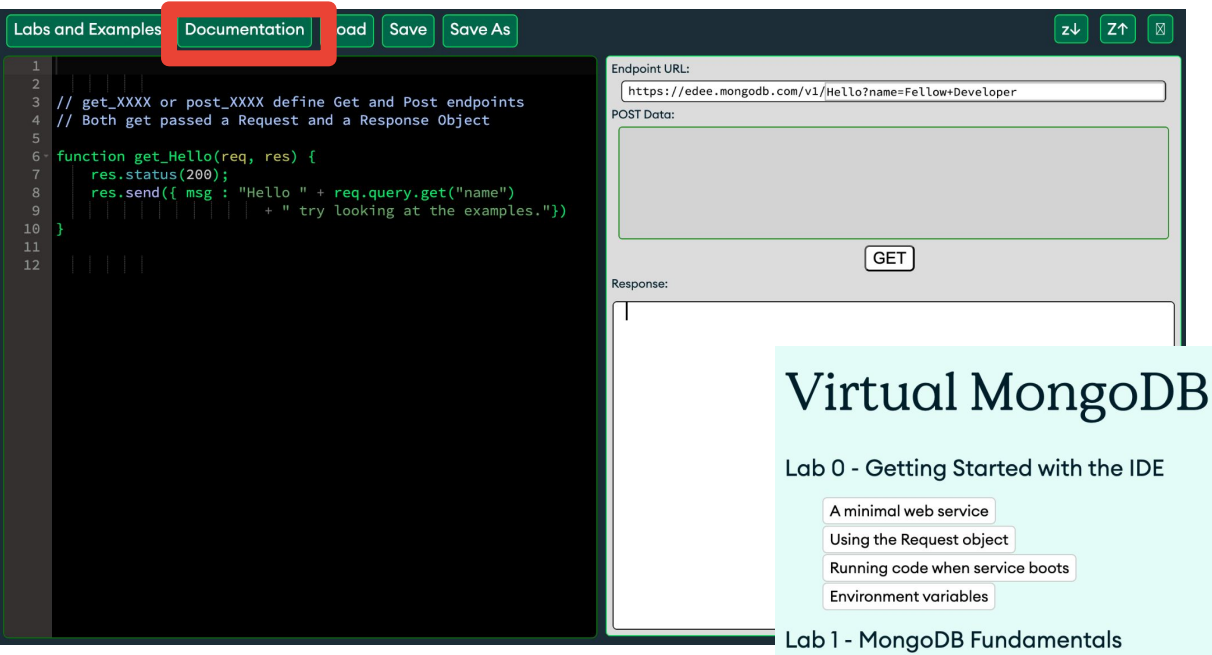
- Simple first aggregation
- Summarising data with $group
- Determining cohorts with $bucketAuto
- Join data from rapidly changing dimensions with $lookup
- CHALLENGE: Power a Management Dashboard

Other MongoDB Code Examples

- List and Drop Databases and Collections
- Query for Movies by title
- Load a batch of JSON documents
- List,Create and Drop indexes
- Atomic update with read
- Using Array Expressions like $filter



Your tasks
This is what you will be doing today.



Virtual MongoDB Day examples

Lab 0 - Getting Started with the IDE

- A minimal web service
- Using the Request object
- Running code when service boots
- Environment variables

Lab 1 - MongoDB Fundamentals

- Add and Retrieve a simple document
- Query by multiple attributes
- Update data with conditions
- The Bucket pattern

Lab 2 - Indexes, Locking and Transactions

- Indexed vs Unindexed query speed.
- Reading explain plans for queries.
- Create an optimal index.
- Using Multi Document ACID Transactions
- Observe transaction collision behavior
- Document level write locks.
- Long duration pessimistic locks.
- Long duration optimistic locks.

Bonus Lab - Beyond the Basics

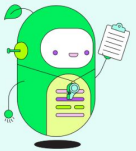
- Correctly querying Arrays with $elemMatch
- Expressions in Queries
- Expressions in Updates
- Enforce schema on a collection
- CHALLENGE: Enforce calculated fields

Bonus Lab - Aggregation

- Simple first aggregation
- Summarising data with $group
- Determining cohorts with $bucketAuto
- Join data from rapidly changing dimensions with $lookup
- CHALLENGE: Power a Management Dashboard

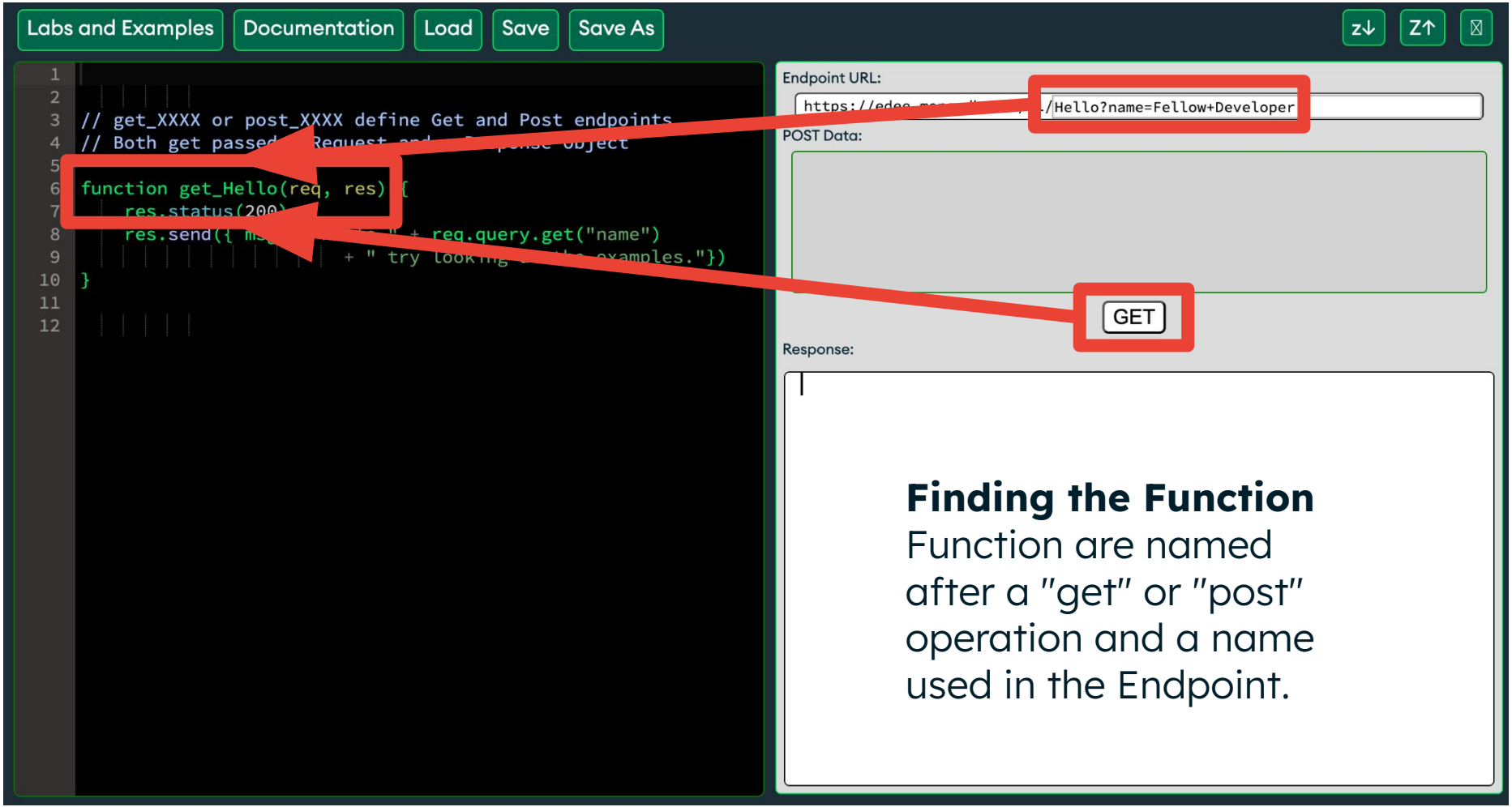
Other MongoDB Code Examples

- List and Drop Databases and Collections
- Query for Movies by title
- Load a batch of JSON documents
- List,Create and Drop indexes
- Atomic update with read
- Using Array Expressions like $filter



Finding Help

The "Documentation" button will open an additional window.


Labs and Examples
Documentation
Load
Save
Save As
z↓
Z↑
// get_XXXX or post_XXXX define Get and Post endpoints
// Both get passed
function get_Hello(req, res) {
res.send({
+ req.query.get("name")
+ " try looking
examples."})
}
Endpoint URL:
/Hello?name=Fellow+Developer
POST Data:
GET
Response:
Finding the Function
Function are named after a "get" or "post" operation and a name used in the Endpoint.

Labs and Examples | Documentation | Load | Save | Save As

```
var mongoClient = null;
var listingsCollection;
/*
Challenge: Can you modify this to find the cheapest house
in Canada with a pool (under amenities)? What suburb is it in?

Click on "Explanation" to see the challenge details

*/
async function get_PropertyDetails(req, res) {
  // 5 Bedrooms or more in Turkey
  var query = {};
  query.beds = { $gte: 5 };
  query["address.country"] = "Turkey";

  var projection = { summary: true, beds: true,
    property_type: true, "address.market": true, price: true};

  // 1 for an ascending sort, -1 for descending
  var sortOrder = { price: -1 };

  console.log(`Query: ${JSON.stringify(query)}
Projection: ${JSON.stringify(projection)}
Sort: ${JSON.stringify(sortOrder)}`);

  var cursor = listingsCollection
    .find(query, projection)
    .limit(10)
    .sort(sortOrder);

  var properties = await cursor.toArray();
  res.status(200);
  res.send(properties);
}
```

Endpoint URL:

https://edee.mongodb.com/v1/PropertyDetails

POST Data:

GET | Show Sample Document | Explanation

Response:

Finding the code

There is a lot of code, a few lines send the operation to MongoDB.

https://edee.mongodb.com/?org=morganstanley25