The Neo4j GraphQL Library

Contents

Lesson Overview

We will spend the rest of the course building a GraphQL API for an online bookstore using the Neo4j GraphQL Library. In this lesson we set up our online development environment using Codesandbox and Neo4j Sandbox. We then see how to use GraphQL type definitions to define a property graph data model in Neo4j and create a GraphQL API using the Neo4j GraphQL Library. We'll create data using GraphQL mutations and see how to query it using GraphQL.

Setting Up Your Environment

Now it's time to start using the Neo4j GraphQL Library to build GraphQL APIs! We'll be using a browser-based service called Codesandbox to run Node.js JavaScript code, which in this case will be a GraphQL API application making use of the Neo4j GraphQL Library. Using Codesandbox means we won't have to troubleshoot local development environment issues and makes it easier to share code. Each lesson will start with an initial skeleton application that we'll modify as we explore new concepts. If you get stuck, each lesson also has the solution available as a Codesandbox.

We'll also be using Neo4j Sandbox to spin up a hosted Neo4j instance in the cloud. We'll connect to our Neo4j Sandbox instance from the GraphQL API application running in Codesandbox. To do this we'll use the connection credentials specific to our Neo4j Sandbox instance.

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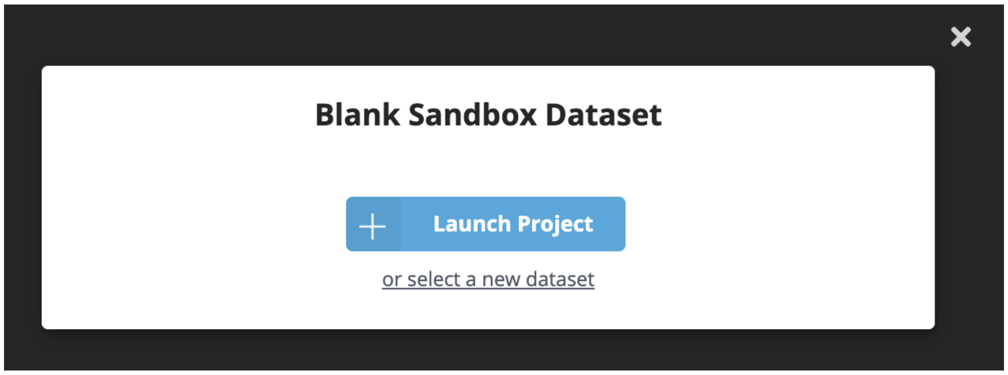
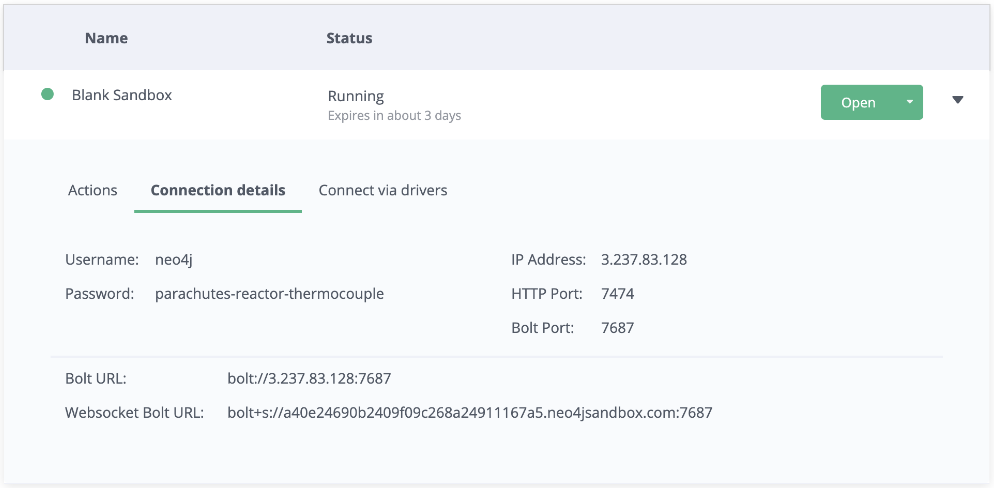
Follow these steps to get your development environment set up using Codesandbox and Neo4j Sandbox:

1. Create a blank Neo4j Sandbox instance using [this link.](#) ↗ You'll need to sign in to Neo4j Sandbox if you're not already authenticated, then click the "Launch Project" button.



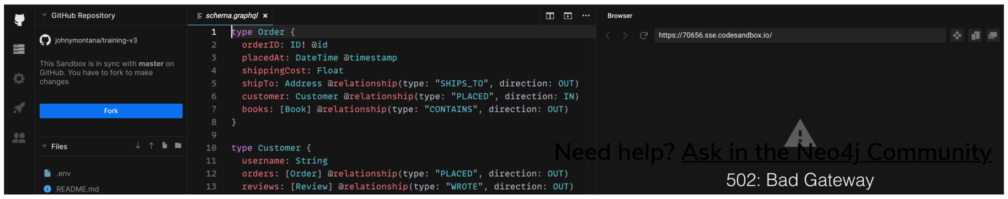
2. Once your blank Neo4j Sandbox instance is ready, you can go through the guide or close it. Then navigate to the "Connection details" tab for the sandbox instance. Make note of the "Bolt URL", "Username", and "Password" values for your sandbox instance. You'll need these values in the next step to connect to Neo4j from the GraphQL API application we'll be building and running in Codesandbox.



Name	Status
Blank Sandbox	Running Expires in about 3 days

Username: neo4j
Password: parachutes-reactor-thermocouple
IP Address: 3.237.83.128
HTTP Port: 7474
Bolt Port: 7687
Bolt URL: bolt://3.237.83.128:7687
Websocket Bolt URL: bolt+s://a40e24690b2409f09c268a24911167a5.neo4jsandbox.com:7687

3. Open the Codesandbox for this lesson using [this link](#) ↗ . This Codesandbox contains the initial code for a GraphQL API application, however the application is throwing an error because it's not able to connect to a Neo4j instance. Fix this by adding **your** Neo4j Sandbox connection credentials.



This Sandbox is in sync with **master** on GitHub. You have to fork to make changes

```
type Order {
  orderID: ID! @id
  placedAt: DateTime @timestamp
  shippingCost: Float
  shipTo: Address @relationship(type: "SHIPS_TO", direction: OUT)
  customer: Customer @relationship(type: "PLACED", direction: IN)
  books: [Book] @relationship(type: "CONTAINS", direction: OUT)
}

type Customer {
  username: String
  orders: [Order] @relationship(type: "PLACED", direction: OUT)
  reviews: [Review] @relationship(type: "WROTE", direction: OUT)
```

502: Bad Gateway

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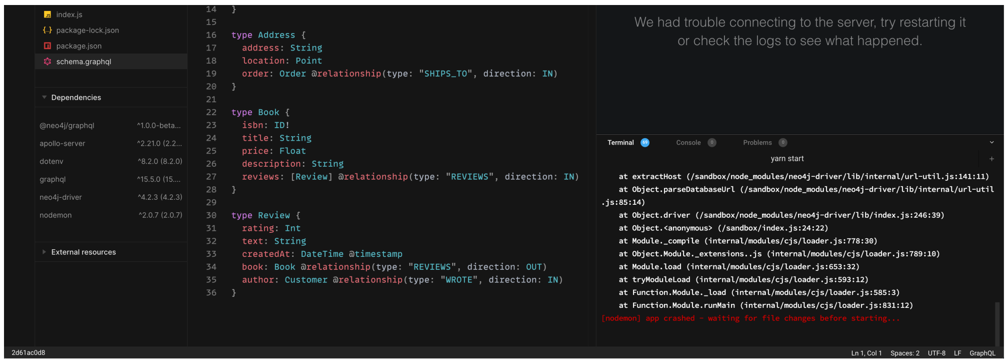


```graphql
}

type Address {
  address: String
  location: Point
  order: Order @relationship(type: "SHIPS_TO", direction: IN)
}

type Book {
  isbn: ID!
  title: String
  price: Float
  description: String
  reviews: [Review] @relationship(type: "REVIEWS", direction: IN)
}

type Review {
  rating: Int
  text: String
  createdAt: DateTime @timestamp
  book: Book @relationship(type: "REVIEWS", direction: OUT)
  author: Customer @relationship(type: "WROTE", direction: IN)
}
```

We had trouble connecting to the server, try restarting it or check the logs to see what happened.

```
    at extractHost (/sandbox/node_modules/neo4j-driver/lib/internal/url-util.js:141:11)
    at Object.parseDatabaseUrl (/sandbox/node_modules/neo4j-driver/lib/internal/url-util
.js:85:14)
    at Object.driver (/sandbox/node_modules/neo4j-driver/lib/index.js:246:39)
    at Object.<anonymous> (/sandbox/index.js:24:22)
    at Module._compile (internal/modules/cjs/loader.js:778:30)
    at Object.Module._extensions..js (internal/modules/cjs/loader.js:789:10)
    at Module.load (internal/modules/cjs/loader.js:653:32)
    at tryModuleLoad (internal/modules/cjs/loader.js:593:12)
    at Function.Module._load (internal/modules/cjs/loader.js:585:3)
    at Function.Module.runMain (internal/modules/cjs/loader.js:831:12)
[nodemon] app crashed - waiting for file changes before starting...
```

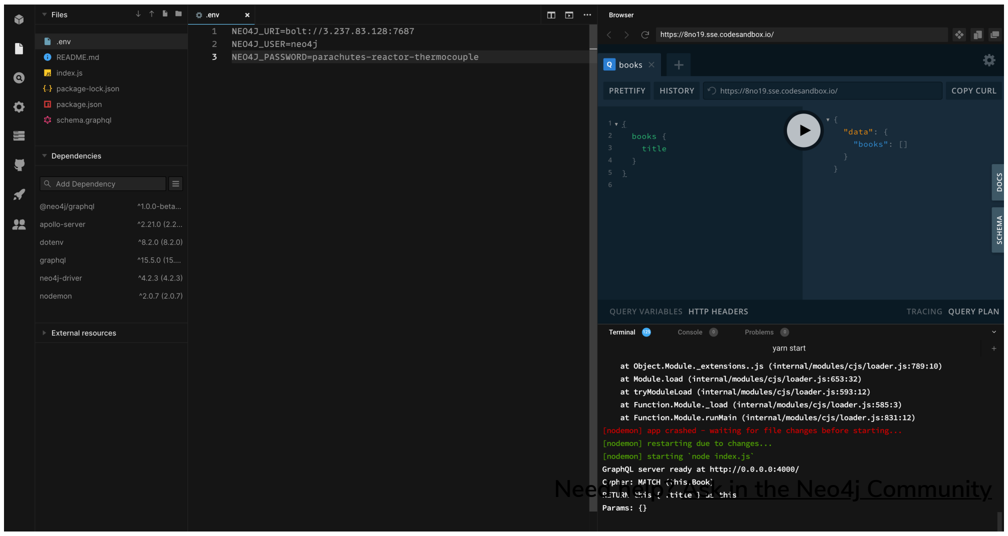
4. In order to save changes to the Codesandbox you'll be prompted to sign in to Codesandbox so that the changes are specific to your Codesandbox. Open the `.env` file, adding values for `NEO4J_URI`, `NEO4J_USER`, and `NEO4J_PASSWORD` specific to your Neo4j Sandbox instance. Save the file and wait for the application to reload. You will now see the GraphQL Playground application running in Codesandbox.

You can test that it's working by running the following query in the GraphQL Playground window in your Codesandbox (you will get back an empty array without any error messages).

GraphQL　　　　Copy to Clipboard

```graphql
{
  books {
    title
  }
}
```

You will see a screen like this after updating the values in the `.env` file, with GraphQL Playground allowing your to execute GraphQL operations against your GraphQL API application connected to Neo4j Sandbox.



```
NEO4J_URI=bolt://3.237.83.128:7687
NEO4J_USER=neo4j
NEO4J_PASSWORD=parachutes-reactor-thermocouple
```

```graphql
{
  books {
    title
  }
}
```

```json
{
  "data": {
    "books": []
  }
}
```

```
    at Object.Module._extensions..js (internal/modules/cjs/loader.js:789:10)
    at Module.load (internal/modules/cjs/loader.js:653:32)
    at tryModuleLoad (internal/modules/cjs/loader.js:593:12)
    at Function.Module._load (internal/modules/cjs/loader.js:585:3)
    at Function.Module.runMain (internal/modules/cjs/loader.js:831:12)
[nodemon] app crashed - waiting for file changes before starting...
[nodemon] restarting due to changes...
[nodemon] starting `node index.js`
GraphQL server ready at http://0.0.0.0:4000/
Cypher: MATCH (this:Book)
RETURN this { .title } as this
Params: {}
```

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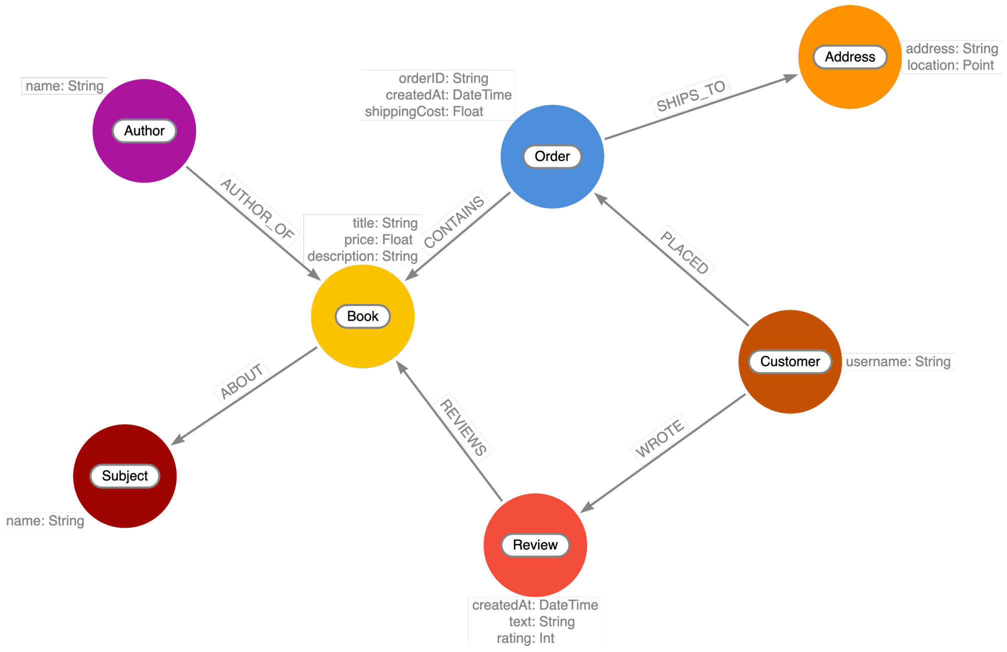
GraphQL Type Definitions And The Property Graph Model

Now that your development environment is set up, let's take a look at what we'll be building throughout this course. The goal of this course is to build a GraphQL API application for an online bookstore. We'll need to handle customers searching for books, placing orders, as well as leaving reviews for books they've purchased.

We'll start with the following property graph data model:



Let's see how we would define this property graph model using GraphQL type definitions. Each node label becomes a GraphQL type. Node properties are defined as GraphQL fields. Relationships are expressed as GraphQL objects or object array fields and include a special GraphQL schema directive `@relationship` that is used to capture the direction and relationship type.

Open the schema.graphql file, then make sure types as defined here are in Schema of your Codesandbox.

GraphQL Copy to Clipboard

```graphql
#schema.graphql

type Order {
  orderID: ID! @id
  placedAt: DateTime @timestamp
```

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```
  shippingCost: Float
  shipTo: Address @relationship(type: "SHIPS_TO", direction: OUT)
  customer: Customer @relationship(type: "PLACED", direction: IN)
  books: [Book] @relationship(type: "CONTAINS", direction: OUT)
}

type Customer {
  username: String
  orders: [Order] @relationship(type: "PLACED", direction: OUT)
  reviews: [Review] @relationship(type: "WROTE", direction: OUT)
}

type Address {
  address: String
  location: Point
  order: Order @relationship(type: "SHIPS_TO", direction: IN)
}

type Book {
  isbn: ID!
  title: String
  price: Float
  description: String
  reviews: [Review] @relationship(type: "REVIEWS", direction: IN)
}

type Review {
  rating: Int
  text: String
  createdAt: DateTime @timestamp
  book: Book @relationship(type: "REVIEWS", direction: OUT)
  author: Customer @relationship(type: "WROTE", direction: IN)
}
```

A few important concepts to note:

- The `@relationship` directive is used to define relationships.
- `DateTime` and `Point` scalar types are available and map to the equivalent native Neo4j database types.
- The `@timestamp` directive is used to indicate the property will be automatically updated when the node is created and updated.
- The `@id` directive marks a field as a unique identifier and enables auto-generation when the node is created.

Read more about using GraphQL type definitions with the Neo4j GraphQL Library in the documentation here ↗. For more information on the GraphQL schema directives available with the Neo4j GraphQL Library refer to this page. ↗

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Generated Mutations

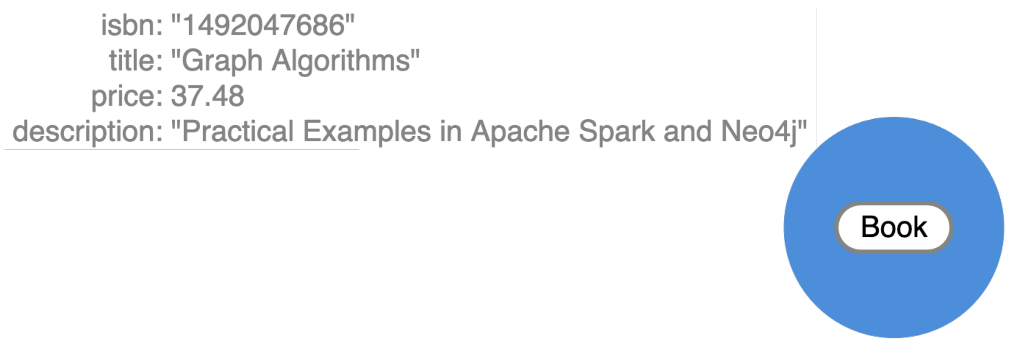
The first thing we'll need to do is add some books to our catalog using the GraphQL API - we wouldn't have much of a bookstore without any books! We'll do this using a GraphQL mutation. There are several ways to use mutations generated by the Neo4j GraphQL Library.

First, let's add a single book using the `createBooks` mutation. Copy and paste this mutation to run it in GraphQL Playground running in your Codesandbox:

GraphQL Copy to Clipboard

```
mutation {
  createBooks(
    input: {
      isbn: "1492047686"
      title: "Graph Algorithms"
      price: 37.48
      description: "Practical Examples in Apache Spark and Neo4j"
    }
  ) {
    books {
      isbn
      title
      price
      description
      __typename
    }
  }
}
```

This will create a single node in the database with the label `Book` and properties `isbn`, `title`, `price`, and `description`.


isbn: "1492047686"
title: "Graph Algorithms"
price: 37.48
description: "Practical Examples in Apache Spark and Neo4j"
Book

When executing create GraphQL mutations generated by the Neo4j GraphQL Library we can also "connect" the newly created nodes to other nodes, which will create a relationship in the database.

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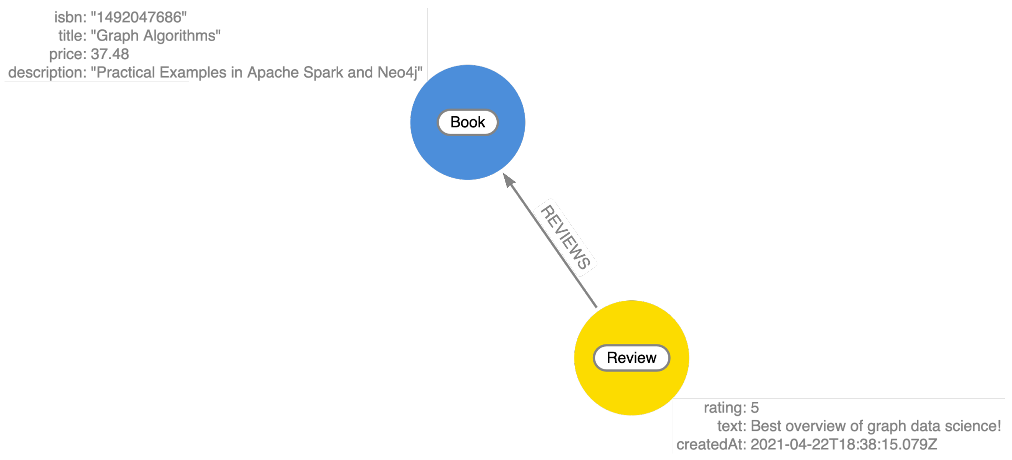
Here we create a `Review` node and connect it to the `Book` node we created in the previous mutation. Go ahead and run this mutation as well:

GraphQL Copy to Clipboard

```
mutation {
  createReviews(
    input: {
      rating: 5
      text: "Best overview of graph data science!"
      book: { connect: { where: { title: "Graph Algorithms" } } }
    }
  ) {
    reviews {
      rating
      text
      createdAt
      book {
        title
      }
    }
  }
}
```

The data in our database now looks like this:


isbn: "1492047686"
title: "Graph Algorithms"
price: 37.48
description: "Practical Examples in Apache Spark and Neo4j"
Book
REVIEWS
Review
rating: 5
text: Best overview of graph data science!
createdAt: 2021-04-22T18:38:15.079Z

> *Note that we didn't need to specify an input value for the `createdAt` field. Since we used the `@timestamp` directive ↗ in our GraphQL type definitions this value was added automatically when the mutation was executed.*

We can even create more complex nested structures using this nested mutation feature of the Neo4j

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GraphQL Library. Here we'll create a `Customer`, `Order`, and `Address` nodes and their associated relationships in this single mutation.

GraphQL Copy to Clipboard

```
mutation {
  createCustomers(
    input: {
      username: "EmilEifrem7474"
      reviews: {
        connect: { where: { text: "Best overview of graph data science!" } }
      }
      orders: {
        create: {
          books: { connect: { where: { title: "Graph Algorithms" } } }
          shipTo: {
            create: {
              address: "111 E 5th Ave, San Mateo, CA 94401"
              location: {
                latitude: 37.5635980790
                longitude: -122.322243272725
              }
            }
          }
        }
      }
    }
  ) {
    customers {
      username
      orders {
        placedAt
        books {
          title
        }
        shipTo {
          address
        }
      }
      reviews {
        text
        rating
        book {
          title
        }
      }
    }
  }
}
```

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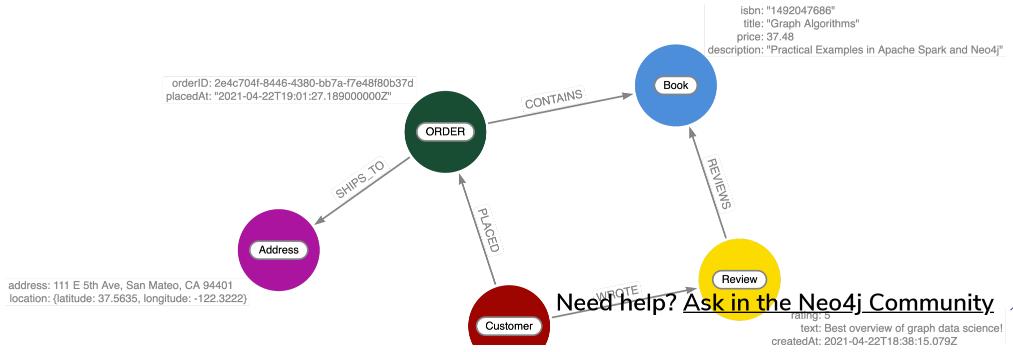
The response data from this mutation will match the shape of our selection set. We don't need to include all the fields we created in the mutation, the data will be created even if not returned. Here’s what the response to the above mutation will look like:

JSON

```
{
  "data": {
    "createCustomers": {
      "customers": [
        {
          "username": "EmilEifrem7474",
          "orders": [
            {
              "placedAt": "2021-04-22T19:01:27.189Z",
              "books": [
                {
                  "title": "Graph Algorithms"
                }
              ],
              "shipTo": {
                "address": "111 E 5th Ave, San Mateo, CA 94401"
              }
            }
          ],
          "reviews": [
            {
              "text": "Best overview of graph data science!",
              "rating": 5,
              "book": {
                "title": "Graph Algorithms"
              }
            }
          ]
        }
      ]
    }
  }
}
```

And in the database our graph now look like this:


isbn: "1492047686"
title: "Graph Algorithms"
price: 37.48
description: "Practical Examples in Apache Spark and Neo4j"
Book
orderID: 2e4c704f-8446-4380-bb7a-f7e48f80b37d
placedAt: "2021-04-22T19:01:27.189000000Z"
ORDER
CONTAINS
SHIPS_TO
PLACED
REVIEWS
Address
address: 111 E 5th Ave, San Mateo, CA 94401
location: {latitude: 37.5635, longitude: -122.3222}
Customer
WROTE
Review
rating: 5
text: Best overview of graph data science!
createdAt: 2021-04-22T18:38:15.079Z

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username: EmilEifrem7474

In addition to the create mutations, mutations are also generated for update and delete operations. You can explore the "Docs" tab in GraphQL Playground to see all the mutation operations available and refer to the Mutations section ↗ in the documentation for more detail.

Clear The Database

In the next section we will explore how to query our GraphQL API using the generated Query fields, but first let's clear our database and load some initial sample data.

First, clear your database by running this Cypher statement in Neo4j Browser. You can find the link to open Neo4j Browser in Neo4j Sandbox - look for the green "Open" button.

> *Be sure you're running this query in the correct Neo4j instance as this will delete all data in the database!*

Cypher Copy to Clipboard

```
MATCH (a) DETACH DELETE a
```

Now, in GraphQL Playground running in your Codesandbox, run the following GraphQL mutation to add some sample data:

GraphQL Copy to Clipboard

```
mutation {
  createBooks(
    input: [
      {
        isbn: "1492047686"
        title: "Graph Algorithms"
        price: 37.48
        description: "Practical Examples in Apache Spark and Neo4j"
      }
      {
        isbn: "1119387507"
        title: "Inspired"
        price: 21.38
        description: "How to Create Tech Products Customers Love"
      }
      {
```

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```
        isbn: "190962151X"
        title: "Ross Poldark"
        price: 15.52
        description: "Ross Poldark is the first novel in Winston Graham's sweeping saga of
Cornish life in the eighteenth century."
      }
    ]
  ) {
    books {
      title
    }
  }

  createCustomers(
    input: [
      {
        username: "EmilEifrem7474"
        reviews: {
          create: {
            rating: 5
            text: "Best overview of graph data science!"
            book: { connect: { where: { isbn: "1492047686" } } }
          }
        }
        orders: {
          create: {
            books: { connect: { where: { title: "Graph Algorithms" } } }
            shipTo: {
              create: {
                address: "111 E 5th Ave, San Mateo, CA 94401"
                location: {
                  latitude: 37.5635980790
                  longitude: -122.322243272725
                }
              }
            }
          }
        }
      }
      {
        username: "BookLover123"
        reviews: {
          create: [
            {
              rating: 4
              text: "Beautiful depiction of Cornwall."
              book: { connect: { where: { isbn: "190962151X" } } }
            }
          ]
        }
        orders: {
          create: {
            books: {
              connect: [
```

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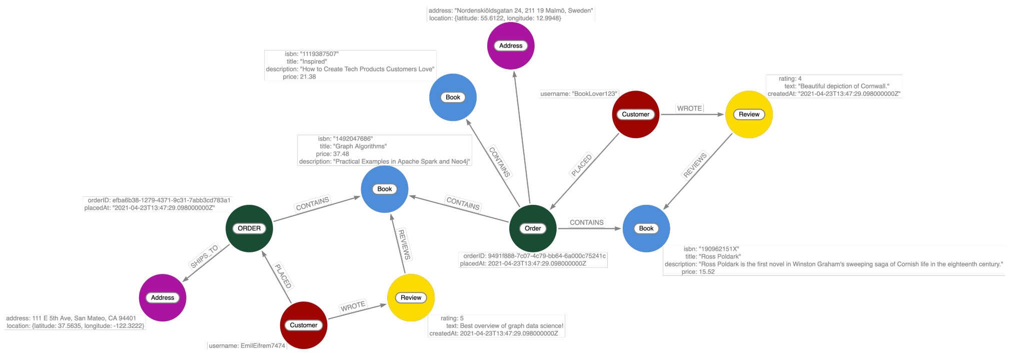
```
        { where: { title: "Ross Poldark" } }
        { where: { isbn: "1119387507" } }
        { where: { isbn: "1492047686" } }
       ]
      }
      shipTo: {
       create: {
        address: "Nordenskiöldsgatan 24, 211 19 Malmö, Sweden"
        location: { latitude: 55.6122270502, longitude: 12.99481772774 }
       }
      }
     }
    }
   }
  ]
 ) {
  customers {
   username
  }
 }
}
```

Now, the data in our database will look something like this:


address: "Nordenskiöldsgatan 24, 211 19 Malmö, Sweden"
location: {latitude: 55.6122, longitude: 12.9948}
Address
isbn: "1119387507"
title: "Inspired"
description: "How to Create Tech Products Customers Love"
price: 21.38
Book
username: "BookLover123"
Customer
WROTE
Review
rating: 4
text: "Beautiful depiction of Cornwall."
createdAt: "2021-04-23T13:47:29.098000000Z"
isbn: "1492047686"
title: "Graph Algorithms"
price: 37.48
description: "Practical Examples in Apache Spark and Neo4j"
CONTAINS
PLACED
REVIEWS
orderID: efba6b38-1279-4371-9c31-7abb3cd783a1
placedAt: "2021-04-23T13:47:29.098000000Z"
CONTAINS
Book
CONTAINS
ORDER
Order
CONTAINS
Book
orderID: 9491f888-7c07-4c79-bb64-6a000c75241c
placedAt: 2021-04-23T13:47:29.098000000Z
isbn: "190962151X"
title: "Ross Poldark"
description: "Ross Poldark is the first novel in Winston Graham's sweeping saga of Cornish life in the eighteenth century."
price: 15.52
SHIPS_TO
PLACED
REVIEWS
Address
WROTE
Review
Customer
address: 111 E 5th Ave, San Mateo, CA 94401
location: {latitude: 37.5635, longitude: -122.3222}
rating: 5
text: Best overview of graph data science!
createdAt: 2021-04-23T13:47:29.098000000Z
username: EmilEifrem7474

Now that we have some data loaded and we've reviewed how to add data using GraphQL mutations and the Neo4j GraphQL Library, let's see how we can query that data using GraphQL.

Querying Data With GraphQL

We will review some examples now using the data we just loaded above, refer to the Neo4j GraphQL Library documentation ↗ for more information and examples.

GraphQL Query Fields

By default, each type defined in the GraphQL type definitions will have a GraphQL Query field generated and added to the Query type as the pluralized name of the type (for example the type

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`Movie` becomes a Query field `movies`). Each query field is an entry point into the GraphQL API. Since GraphQL types are mapped to node labels in Neo4j, you can think of the Query field as the starting point for a traversal through the graph.

Let’s start with an example, querying for all books and their titles.

GraphQL   Copy to Clipboard

```
{
  books {
    title
  }
}
```

If we loaded our sample data correctly we will see the follow result:

JSON

```
{
  "data": {
    "books": [
      {
        "title": "Graph Algorithms"
      },
      {
        "title": "Inspired"
      },
      {
        "title": "Ross Poldark"
      }
    ]
  }
}
```

The response data matches the shape of our GraphQL query - as we add more fields to the GraphQL selection set those fields are included in the response object. This query:

GraphQL   Copy to Clipboard

```
{
  books {
    title
    description
    price
```

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```
  }
}
```

produces the following result:

JSON

```json
{
  "data": {
    "books": [
      {
        "title": "Graph Algorithms",
        "description": "Practical Examples in Apache Spark and Neo4j",
        "price": 37.48
      },
      {
        "title": "Inspired",
        "description": "How to Create Tech Products Customers Love",
        "price": 21.38
      },
      {
        "title": "Ross Poldark",
        "description": "Ross Poldark is the first novel in Winston Graham's sweeping saga of
Cornish life in the eighteenth century.",
        "price": 15.52
      }
    ]
  }
}
```

Traversals through the graph are expressed by adding nested fields to the GraphQL selection set.

GraphQL Copy to Clipboard

```graphql
{
  books {
    title
    reviews {
      rating
      text
      author {
        username
      }
    }
  }
}
```

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JSON

```
{
  "data": {
    "books": [
      {
        "title": "Graph Algorithms",
        "reviews": [
          {
            "rating": 5,
            "text": "Best overview of graph data science!",
            "author": {
              "username": "EmilEifrem7474"
            }
          }
        ]
      },
      {
        "title": "Inspired",
        "reviews": []
      },
      {
        "title": "Ross Poldark",
        "reviews": [
          {
            "rating": 4,
            "text": "Beautiful depiction of Cornwall.",
            "author": {
              "username": "BookLover123"
            }
          }
        ]
      }
    ]
  }
}
```

Each generated Query field accepts two arguments `where` and `options`. The `where` argument is used to specify filtering arguments while `options` is used for sorting and pagination.

Let's cover sorting and pagination first.

Sorting and Pagination

A sorting input type is generated for each type in the GraphQL type definitions, allowing for Query results to be sorted by each field using the `options` field argument.

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GraphQL Copy to Clipboard

```graphql
{
  books(options: { sort: { price: DESC } }) {
    title
    price
  }
}
```

JSON

```json
{
  "data": {
    "books": [
      {
        "title": "Graph Algorithms",
        "price": 37.48
      },
      {
        "title": "Inspired",
        "price": 21.38
      },
      {
        "title": "Ross Poldark",
        "price": 15.52
      }
    ]
  }
}
```

We can also sort in ascending order and pass multiple sort input objects to order by multiple fields. See the documentation ↗ for more information.

Page-based pagination is available by passing `skip` and `limit` values as part of the `options` argument. For example:

GraphQL Copy to Clipboard

```graphql
{
  books(options: { sort: { price: DESC }, limit: 1, skip: 0 }) {
    title
    price
  }
}
```

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See the documentation ↗ for more information.

Filtering

Query results can be filtered using the `where` argument. Filter inputs are generated for each field and expose comparison operators specific to the type of the field. For example, for numeric fields filter input operators include equality, greater than (`_GT`), less than (`_LT`), etc. String fields expose the common string comparison operators such as `_STARTS_WITH`, `_CONTAINS`, `_ENDS_WITH`, etc.

Let's search for all books where the price is less than 20.00:

GraphQL Copy to Clipboard

```
{
  books(where: { price_LT: 20.00 }) {
    title
    price
  }
}
```

JSON

```
{
  "data": {
    "books": [
      {
        "title": "Ross Poldark",
        "price": 15.52
      }
    ]
  }
}
```

For `Point` fields we can filter results by the distance to another point. Here we search for addresses within 1km of a specified point:

GraphQL Copy to Clipboard

```
{
  addresses(
    where: {
      location_LT: {
        distance: 1000
```

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```
          point: { latitude: 37.56169133066, longitude: -122.3232480481 }
        }
      }
    ) {
      address
    }
}
```

We can also use the `where` argument in nested selections to filter relationships. Here we are filtering for reviews created after Jan 1, 2021 using the `createdAt_GT` filter input on the `createdAt` DateTime type, specifying the date using the ISO format.

GraphQL Copy to Clipboard

```
{
  books(where: { price_LT: 20.00 }) {
    title
    price
    reviews(where: { createdAt_GT: "2021-01-01" }) {
      text
      rating
    }
  }
}
```

Note that the filters are applied at the level of the selection where the filter is used. So in the above example, all books with a price less than 20.00 will be returned, regardless of the reviews connected to the book.

Let's look at an example that applies filtering at the root of our query, but using a relationship. Let's say we want to search for all orders where the shipTo address is within 1km of a certain point. To do that we'll use the `where` argument at the root of the query (in the `orders` Query field), but use a nested input to specify we want to filter using the `shipTo` relationship and the corresponding `Address` node.

GraphQL Copy to Clipboard

```
{
  orders(
    where: {
      shipTo: {
        location_LT: {
          distance: 1000
          point: { latitude: 37.56169133066, longitude: -122.3232480481 }
```

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```
          }
        }
      }
    ) {
      orderID
      customer {
        username
      }
      books {
        title
      }
    }
  }
```

For more information and examples see the **filtering section in the Neo4j GraphQL Library documentation** ↗ .

Exercise: Updating The GraphQL Schema

To successfully perform the steps in this exercise, you will have executed all of the GraphQL code after you cleared the database above and loaded the sample books data.

If we refer back to our original graph data model we see that we're missing the `Author` and `Subject` nodes! In this exercise you will update the GraphQL schema adding the `Author` and `Subject` types including relationships.

1. Update `schema.graphql` to add these two types to the GraphQL schema.

2. Execute a GraphQL mutation to add authors to the graph according to the following table.

> *Try to do this in a single nested mutation operation and be sure to connect the authors to their books.*

Title	Author(s)
Inspired	Marty Cagan
Ross Poldark	Winston Graham

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Graph Algorithms	Mark Needham, Amy E. Hodler

3. Execute a GraphQL mutation to add the book subjects and connect them to the books according to this table.

Title	Subject(s)
Inspired	Product management, Design
Ross Poldark	Historical fiction, Cornwall
Graph Algorithms	Graph theory, Neo4j

If you get stuck you can find the solutions in the README.md file in this Codesandbox. ↗ Be sure to add your sandbox credentials to the `.env` file after loading the Codesandbox.

Check Your Understanding

Question 1

When creating GraphQL type definitions using the Neo4j GraphQL Library the `@relationship` directive is used to define relationships.

Is the above statement true or false?

☐ True

☐ False

Question 2

For the GraphQL schema we created in this lesson, which of the follow GraphQL mutations would create an address for an already existing order?

Select the correct answer.

☐
```
mutation { createAddresses( input: { address: "111 E 5th Ave, San Mateo,
```

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`CA 94401" order: { connect: { where: { orderID: "123" } } } } ) { addresses { address } } }`

☐ `mutation { createAddresses( input: { address: "111 E 5th Ave, San Mateo, CA 94401" order: { create: { books: { connect: { where: { title: "Graph Algorithms" } } } } } } ) { addresses { address } } }`

☐ `CREATE (a:Address {address: "111 E 5th Ave, San Mateo, CA 94401"}) MATCH (o:Order {orderID: "123"}) CREATE (a)<-[:SHIPS_TO]-(o)`

Question 3

Filter inputs are generated for the following types when using the Neo4j GraphQL Library:

Select all correct answers.

☐ DateTime

☐ Point

☐ String

☐ Int

Summary

In this lesson, we saw how to use GraphQL type definitions to generate a GraphQL API using the Neo4j GraphQL Library. In the next lesson we explore adding custom logic to our GraphQL API using the Cypher query language.

✔ Check Answers

Prev
‹ Intro To GraphQL & Neo4j(../01-graph

Next
Adding Custom Logic ›

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