LEARNING graphql

#graphql

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About

Chapter 1: Getting started with graphql

Remarks

> GraphQL is a query language for APIs and a runtime for fulfilling those queries with your existing data. GraphQL provides a complete and understandable description of the data in your API, gives clients the power to ask for exactly what they need and nothing more, makes it easier to evolve APIs over time, and enables powerful developer tools.

When should I use GraphQL?

GraphQL is intended to be the outward facing HTTP API for any kind of application but it is most powerful when the data is normalized with highly interconnected Collections|Tables|Nodes. The GraphQL Query Language (GQL) is designed to project interconnected data in a very intuitive and flexible way.

Implementations

GraphQL itself is a Spec and is implemented by a number of different programming languages. These are the most popular supported languages

- GraphQL.js
- graphql-ruby
- Graphene (Python)
- Sangria (Scala)
- graphql-java
- graphql-clj (Clojure)
- graphql-go
- graphql-php
- graphql-dotnet (C# / .Net)
- absinthe (Elixir)

Client Libraries

Running queries from the client side can be done with any HTTP client but client side libraries can be very beneficial.

- Relay
- Apollo
- Lokka

Dev Tools

- graphiql / ˈgrafək(ə)l/ - An interactive in-browser GraphQL IDE.
- libgraphqlparser - A GraphQL query language parser in C++ with C and C++ APIs.
- GraphQL Language Service - An interface for building GraphQL language services for IDEs (diagnostics, autocomplete etc).

Versions

Version	Release Date
v0.5.0	2016-04-08
v0.6.0	2016-05-10
v0.6.1	2016-07-07
v0.6.2	2016-07-21
v0.7.0	2016-08-26
v0.7.1	2016-09-29
v0.7.2	2016-10-10
v0.8.0	2016-11-10
v0.8.1	2016-11-11
v0.8.2	2016-11-16

Examples

Server Installation & Implementation

GraphQL.js

GraphQL.js is a JavaScript reference implementation for GraphQL. You can install it via npm:

- Initialize npm in your project if you have not done so already: `npm init`
- Install GraphQL.js from npm: `npm install --save graphql`

Example Server

```
var { graphql, buildSchema } = require('graphql');
```

```
// Construct a schema, using GraphQL schema language
var schema = buildSchema(`
  type Query {
    hello: String
  }
`);

// The root provides a resolver function for each API endpoint
var root = {
  hello: () => {
    return 'Hello world!';
  },
};

// Run the GraphQL query '{ hello }' and print out the response
graphql(schema, '{ hello }', root).then((response) => {
  console.log(response);
});
```

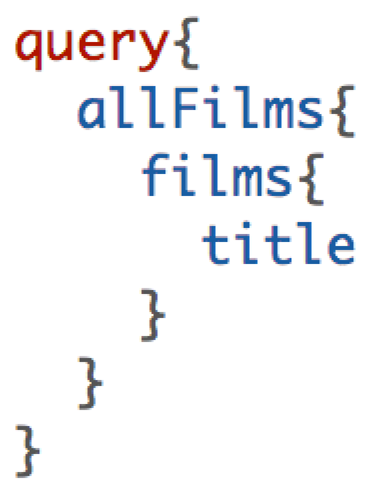
Server Middleware Alternatives

- Express GraphQL Middleware
- Hapi GraphQL Middleware
- Koa GraphQL Middleware

GraphQL Query Language (GQL)

Instead of defining URL endpoints for each data resource, in GraphQL you define a single endpoint that accepts GraphQL queries. Unlike traditional database query languages, GraphQL Query Language (GQL) is a projection of data returned by a root level query. The GraphQL schema will define the data model and root level queries and mutations. GQL executes those queries and defines what data to return.

Query for All Film Titles from Star Wars Schema



```
query{
  allFilms{
    films{
      title
    }
  }
}
```

GraphiQL Query

Query for Planet Residents to Star Wars film "A New Hope"

```
query{
  film(id: "ZmlsbXM6MQ=="){
    id
    title,
    planetConnection{
      planets{
        name
        residentConnection{
          residents{
            name
          }
        }
      }
    }
  }
}
```

GraphiQL Query

Notice how the root query `film()` takes in the id parameter of the film "A New Hope" and the projection from GQL returns the title, planets connected to the film, and then resident names of the planets. Check out the Star Wars GraphiQL site to experiment with querying in GraphQL.

Schema Definition

In GraphQL the Schema defines the root execution queries and mutations as well as the types for your data.

Schema Object Type

The `Person` type has two fields, one is a standard Scalar type and the other represents a relationship to a list of other Person types that are 'friends'. Linking other types is what makes GraphQL so powerful. Now in GraphQL Query Language (GQL), the client can traverse the friends graph without any additional code or advanced querying.

```
type Person {
  id: ID
  name: String
  friends: [Person]
}
```

Schema Query

The `person` query looks up a single person by it's id. This is the entry point to your data for clients using GQL.

```
type Query {
  person(id: ID!): Person
}
```

Query Nick's Friend's Friend's Friends

Now that we have a Person type and a person root query we can look up a person and as many degrees of separation we want of the person's friends network.

```
query {
  person(id: 'nick'){
    id
    name
    friends{
      id
      name
      friends{
        id
        name
        friends{
          id
          name
        }
      }
    }
  }
}
```

Read Getting started with graphql online: https://riptutorial.com/graphql/topic/7649/getting-started-with-graphql

Credits

S. No	Chapters	Contributors
1	Getting started with graphql	Community, jengeb, Nikordaris