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**Spring for GraphQL: @SchemaMapping and @QueryMapping**

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In the last article [Getting started with Spring Boot GraphQL service](https://medium.com/@pankaj02/getting-started-with-spring-boot-graphql-service-47cdaf56ef33), we discussed features of GraphQL and its implementation in Spring for GraphQL using low-level APIs of GraphQL Java.

While low-level GraphQL Java implementation is fine for understanding the concept, you’ll mostly use higher-level abstraction provided by Spring.

In this article, we will discuss the @Controller, @QueryMapping, and @SchemaMapping of Spring for GraphQL.

Here, we’ll use the same book catalog GraphQL API, described in an earlier article (also shown below).

GraphQL query

Let’s get started!

**Controller**

Like REST API, Spring Boot offers **@Controller annotation to implement GraphQL APIs**. All you need to do is to annotate your controller class with @Controller annotation and define either @QueryMapping or @SchemaMapping annotation on the handler method.

Spring detects **@Controller beans and registers their annotated handler methods**( @QueryMapping or @SchemaMapping) as DataFetcher s (also known as a resolver).

A ***resolver/DataFetcher*** is a function that’s responsible for populating the data for a single field in your GraphQL schema.

**SchemaMapping Annotation**

The @SchemaMapping **annotation maps a handler method to a field in the GraphQL schema as**DataFetcher. All you need to do is to define the typeName and, optionally, the field with @SchemaMapping.

Additionally, if you keep the method name as same as the field name then you can omit the field from @SchemaMapping.

What happens if you don’t specify the typeName with @SchemaMapping (as shown below) ?

In this case, Spring can’t figure out which parent-type field books belong to; therefore, it'll throw BeanCreationException, at the application startup, with a helpful error message.

No parentType specified, and a source/parent method argument was also not found: BooksCatalogController#books[0 args]

Similarly, for the field bookById, you can define a data fetcher as:

Here, we have used @Argument annotation to map argument id as @Argument("id") Integer id.

Finally, you can test this by heading over to [http://localhost:8080/graphiql?path=/graphql](http://localhost:8080/graphiql?path=%2Fgraphql) in your browser.

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**Data Fetcher for the child ‘Type’ field**

If you query GraphQL service with the ratings field of Book the response includes "ratings": null.

*Why?*

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If you don’t specify a Data Fetcher for a field the GraphQL Java assigns a default PropertyDataFetcher. Subsequently, at the runtime this PropertyDataFetcher looks for public getRatings() field in the Book POJO (as field ratings belongs to the Book).

To solve this, you can define a Data Fetcher for ratings. As the field ratings belongs to the parent type Book, you need to pass Book in the argument.

**While GraphQL Java is executing a query, it calls the appropriate DataFetcher for each field it encounters in the query. If you don't define any DataFetcher it assigns** *PropertyDataFetcher as default.*

And, you can write without specifying the field as:

Also as:

In @SchemaMapping you can also leave out typeName and field attributes, in which case the **field name defaults to the method name**, while the type name defaults to the **simple class name of the source/parent object injected into the method**.

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**QueryMapping annotation**

Instead of using @SchemaMapping, you can use @QueryMapping. Effectively,**this is a shortcut annotation to bind annotated methods for fields under the Query type**.

Moreover, you can skip the name from annotation. In this case, Spring derives the query field from the method name.

Similarly, for the Query field bookById:

You can’t use @QueryMapping for the field ratings as it doesn't belong to the type Query.

**Configuration**

By default, the Boot starter checks in src/main/resources/graphql for GraphQL schema files with extensions ".graphqls" or ".gqls ". To override this behavior, you can change the following property.

spring.graphql.schema.locations=classpath:graphql/ spring.graphql.schema.fileExtensions=.graphqls, .gqls

**Code example**

The working code example of this article is listed on [GitHub](https://github.com/techdozo/graphql-spring-annotation) . To run the example, clone the repository, and import **graphql-spring-annotation** as a project in your favorite IDE as a Gradle project.

**Summary**

Spring greatly simplifies the development of GraphQL APIs by the way of @Controller annotation. You just need to annotate your Controller classes with @Controller annotation and define either @QueryMapping or @SchemaMapping annotation on the handler method.

Spring detects @Controller beans and registers their annotated handler methods as DataFetcher s (also known as a resolver).

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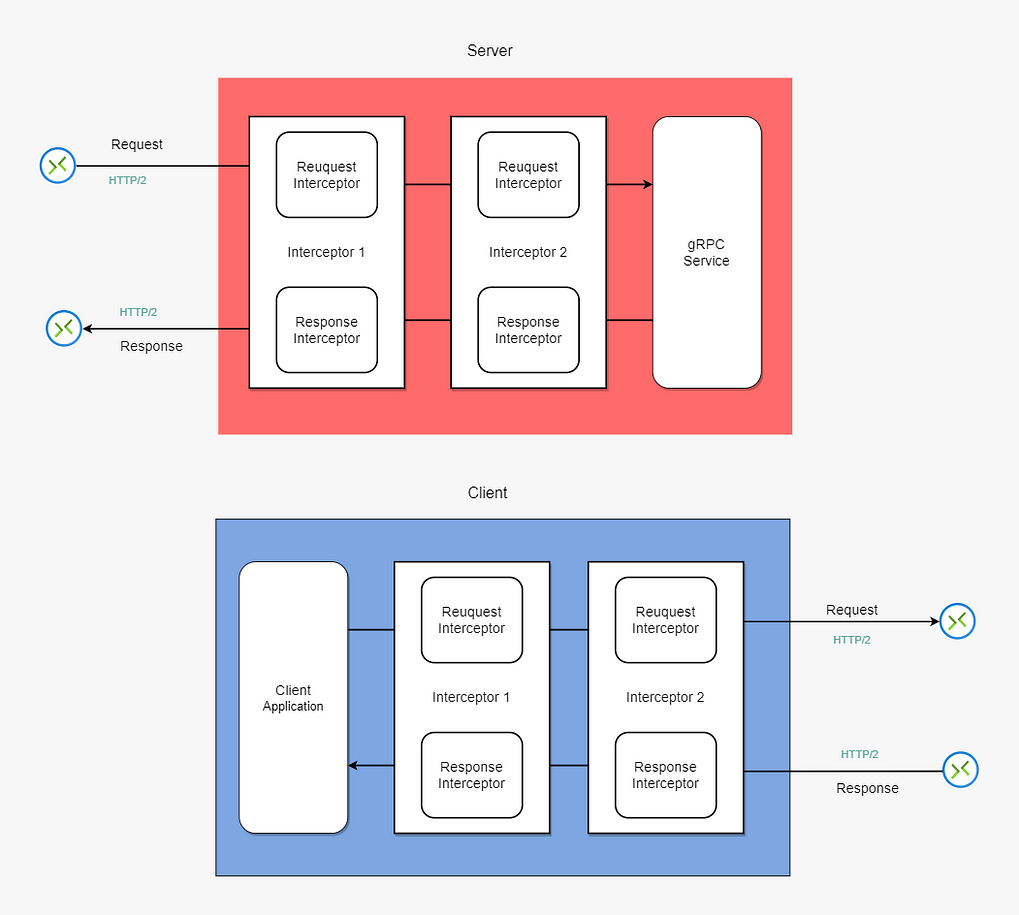
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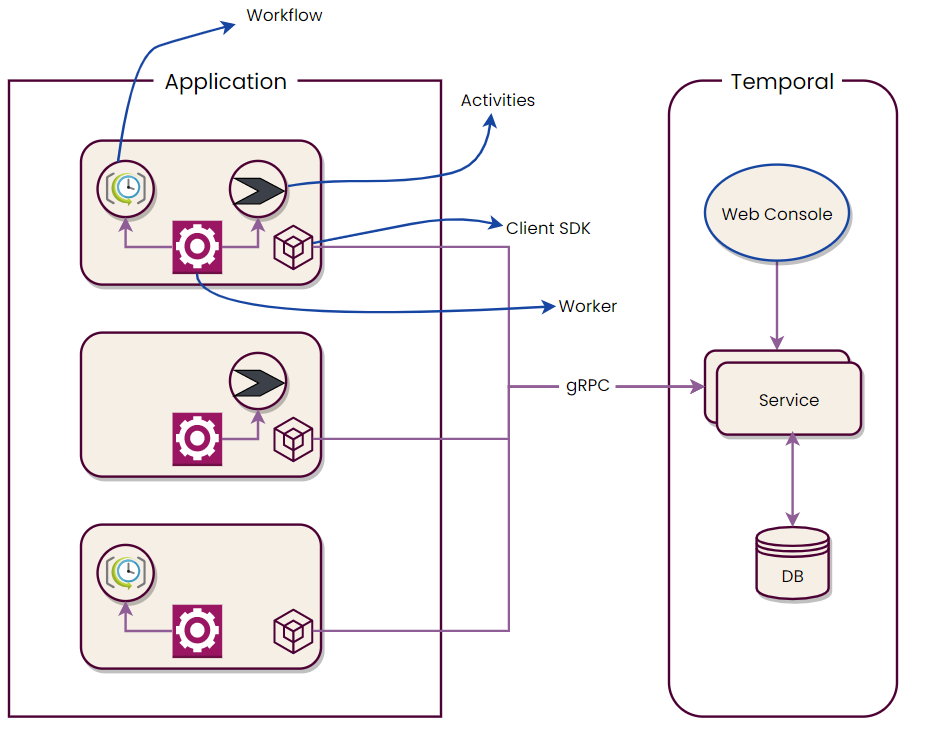
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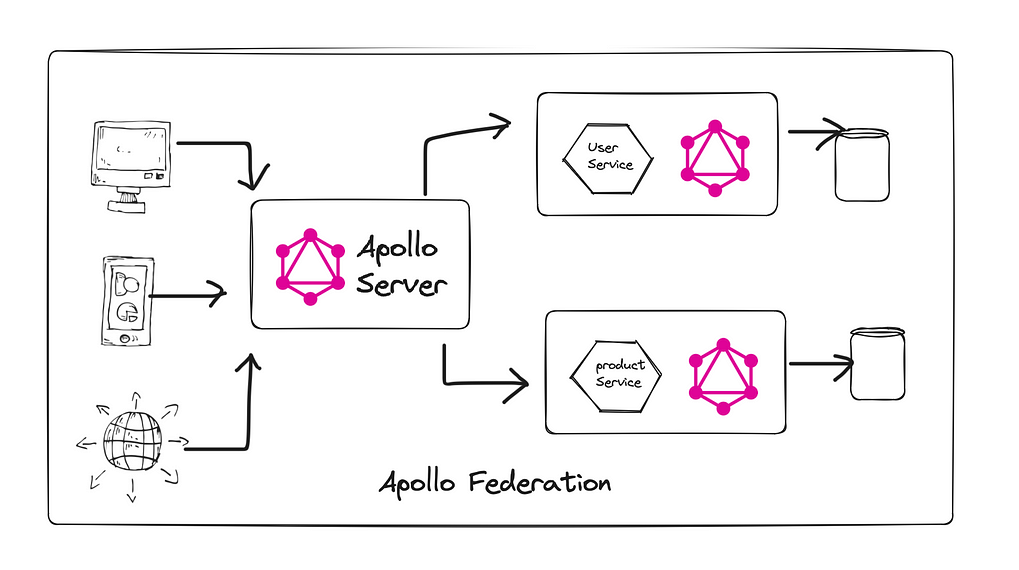
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