

TD

GraphQL

Objective of the session :
A first step with GraphQL.

1 GraphQL and REST

Exercises

1. What is GraphQL ? What does it mean that it is a specification ?
2. Let's imagine the following scenario : You have two resources books and authors, each of them have several fields (name, description, same for authors). A client is to be built to get the name of an author and the books and their respective titles that have been written by that author.
How would you do this using REST and how would you do it using GraphQL ? Discuss the advantages and disadvantages between the two approaches.

2 GraphQL API

Using the SpaceX GraphQL API¹ we should get some interesting information about capsules, cores, platforms, launches, missions, payloads, rockets, spacecraft and much more, by performing GraphQL queries.

Exercises

GraphQL queries look like one of :

query { foo } - An unnamed query
{ foo } - An unnamed query (shorthand form)
query name_query { foo } - A named query

1. Write a query to get the following information about all ships, their name, the port they belong to, the missions they have been assigned to, the year they were built, if they are active and also an image of them (if available).
2. Get all available information about the ship "GOPURSUIT".
3. Write a query to get the following information about all rockets, their name, the company they belong to, a description of the rocket, their height and the date of their first flight.

1. <https://api.spacex.land/graphql/>

4. Try executing the following query :

```
{
  rocket(id: "falcon1") {
    company
    country
    name
    description
  }

  rocket(id: "falcon9") {
    company
    country
    name
    description
    height {
      meters
    }
    diameter {
      meters
    }
  }
}
```

What happens? And what does the error mean? How would you solve it?

5. As can be seen there is a part of the previous query that is repeated for both rockets. Rewrite this query using fragments, a fragments is a group of fields that can be reused. What happens if you specify a field twice (in both the fragment and the query that uses it)?
 6. What type of HTTP request is made to the SpaceX graphql server when accessing the <https://api.spacex.land/graphql/> link? and when executing a query, what type of HTTP request is sent to the server?
 7. Check your answers to the above questions by repeating the same steps but first press the "F12" key and explore the messages in the "Network" tab.
 8. Now we will query the SpaceX GraphQL API using a simple python client. Download the client.py file and install `pip install -pre gql[all]`. Define the url where the SpaceX GraphQL API is available and reproduce the previous queries. Verify that the results are the same.
 9. You can also test the client with the following API <https://countries.trevorblades.com/>. You can access the link to get information about the graphql schema.
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