

17-625 API Design: Homework #3 – gRPC

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Part 1: GitHub Repository

My repository is available at the following link:

https://github.com/jaharvey2000/Jaredhar_17625_Assignment3

Part 2: Testing

I implemented a small set of test cases to test my gRPC API implementation. Since there are only two RPCs, there are only a few tests run in total. Tests were implemented using one of two common helper functions which are defined in my `./service/inventory_client.py` script. All tests are shown below:

RPC	Test Case	Inputs	Outputs
CreateBook	“Happy Path”	A valid Book object with all parameters given	A success message (Status: OK)
CreateBook	Incomplete Book information	A Book object which is missing one or more parameters	An error message with the missing parameter (Status: INVALID_ARGUMENT)
CreateBook	Book already exists in database	A valid Book object, but the ISBN already belongs to another book in the database	An error message saying the book already exists (Status: INVALID_ARGUMENT)
GetBook	“Happy Path”	The ISBN for a book stored in the database	The book with the given ISBN (Status: OK)
GetBook	No book exists with given ISBN	An ISBN for a book that does not exist in the database	An error message saying that no book exists (Status: INVALID_ARGUMENT)

The output of my `./service/inventory_client.py` script is shown at the end of this report.

I also tested my API using Postman’s gRPC feature. I have attached screenshots of each test below:

CreateBook: “Happy Path”

localhost:50051

InventoryService / CreateBook

Invoke

Message

Authorization

Metadata

Service definition

Scripts

Settings

```
1 {
2   "book": {
3     "author": "Jared Harvey",
4     "genre": 3,
5     "ISBN": "4812162024",
6     "publishedYear": 2022,
7     "title": "A Book About gRPC"
8   }
9 }
```

{ }

Generate Example Message

Response

Metadata (1)

Trailers

Test results

Status code: 0 OK

Time: 79 ms

1
2
3

```
"message": "New book created with ISBN 4812162024"
```

CreateBook: Incomplete Book Information

localhost:50051

InventoryService / CreateBook

Invoke

Message

Authorization

Metadata

Service definition

Scripts

Settings

```
1 {
2   "book": {
3     "author": "Jared Harvey",
4     "publishedYear": 2022
5   }
6 }
```

{ }

Generate Example Message

Response


Metadata (1)

Trailers

Test results

Status code: 3 INVALID_ARGUMENT

Time: 70 ms



Invalid argument

You have specified an invalid argument. Check the message and invoke the method again.

Book missing field "ISBN"

CreateBook: Book Already Exists

localhost:50051

InventoryService / CreateBook

Invoke

Message

Authorization

Metadata

Service definition

Scripts

Settings

1 {

2 "book": {

3 "author": "Jared Harvey",

4 "genre": 3,

5 "ISBN": "4812162024",

6 "publishedYear": 2022,

7 "title": "A Book About gRPC (Again)"

8 }

9 }

{ }

Generate Example Message

Response


Metadata (1)

Trailers

Test results

Status code: 3 INVALID_ARGUMENT

Time: 70 ms



Invalid argument

You have specified an invalid argument. Check the message and invoke the method again.

Book already exists with ISBN 4812162024

GetBook: “Happy Path”

localhost:50051

InventoryService / GetBook

Invoke

Message

Authorization

Metadata

Service definition

Scripts

Settings

1 {

2 "ISBN": "1234567890"

3 }

{ }

Generate Example Message

Response


Metadata (1)

Trailers

Test results

Status code: 0 OK

Time: 104 ms



1 {

2 "book": {

3 "ISBN": "1234567890",

4 "title": "Book Title 1",

5 "author": "Book Author 1",

6 "genre": "FANTASY",

7 "publishedYear": 2000

8 }

9 }

GetBook: No Book Exists

localhost:50051

InventoryService / GetBook

Invoke

Message

Authorization

Metadata

Service definition

Scripts

Settings

1

2

3

"ISBN": "0000000000"

{ }

e.g. Generate Example Message

Response


Metadata (1)

Trailers

Test results

Status code: 3 INVALID_ARGUMENT

Time: 68 ms



Invalid argument

You have specified an invalid argument. Check the message and invoke the method again.

No book with ISBN "0000000000" exists

Part 2.1: Testing RPCs via inventory_client.py Script

1. CREATEBOOK VALID CASE

Input Book:

ISBN: "4812162024"

title: "Title 4"

author: "Author 4"

genre: NONFICTION

publishedYear: 2022

Client received:

New book created with ISBN 4812162024

=====

2. CREATEBOOK MISSING FIELDS

Input Book:

ISBN: "6121824303"

author: "An Author"

genre: NONFICTION

publishedYear: 2022

Client received error:

Error code: INVALID_ARGUMENT ((3, 'invalid argument'))

Details: Book missing field "title"

=====

=====

3. CREATEBOOK INVALID ISBN

Input Book:

ISBN: "4812162024"

genre: NONFICTION

Client received error:

Error code: INVALID_ARGUMENT ((3, 'invalid argument'))

Details: Book already exists with ISBN 4812162024

=====

=====

4. GETBOOK VALID CASE

Client received:

ISBN: "4812162024"

title: "Title 4"

author: "Author 4"

genre: NONFICTION

publishedYear: 2022

=====

5. GETBOOK INVALID ISBN

Client received error:

Error code: INVALID_ARGUMENT ((3, 'invalid argument'))

Details: No book with ISBN "5101520253" exists

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