POSTMAN

Design, Develop & Mock APIs with Postman

PRESENTED BY
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@kaustavdm

POSTMAN

What we will cover

Concepts
- Real-life API collaboration
- API Design: What we need
- Postman fundamentals

Role: Producer
- Creating collections and Mocks
- Using “API” and schema

Role: Consumer
- Using Mocks
- Collaborating with producer

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Part 1: Concepts

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Let’s talk about APIs

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Applications today are built of multiple interacting components

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When systems talk to each other, we should carefully design how they interact

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Design your APIs before you implement them

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Agree on domain boundaries and data models before you implement them

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Agree on domain boundaries and data models before you implement them

$\Uparrow$

Collaborate

Business use case
Abstraction
Encapsulation

Agree on <u>domain boundaries</u> and data models before you implement them

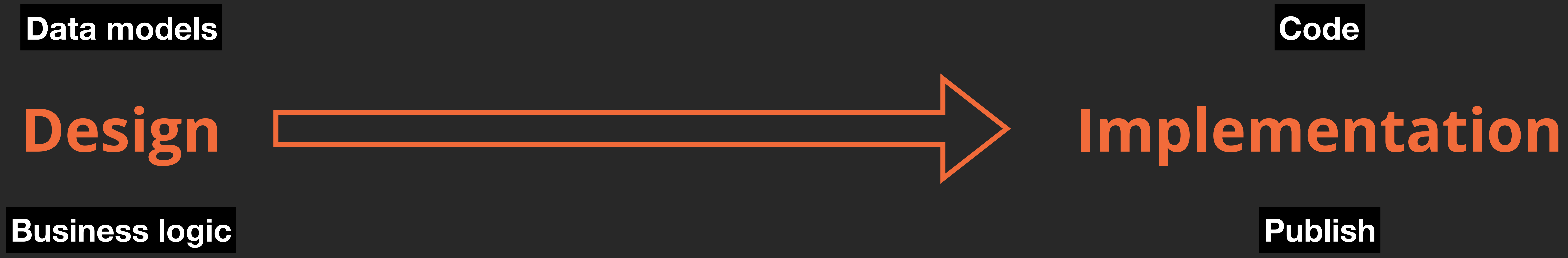
Collaborate

Business use case
Abstraction
Encapsulation

Entities
Resources
Data structures

Agree on domain boundaries and data models before you implement them

Collaborate


Data models
Design
Business logic
Code
Implementation
Publish

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A good design should adapt to changes

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Key concepts

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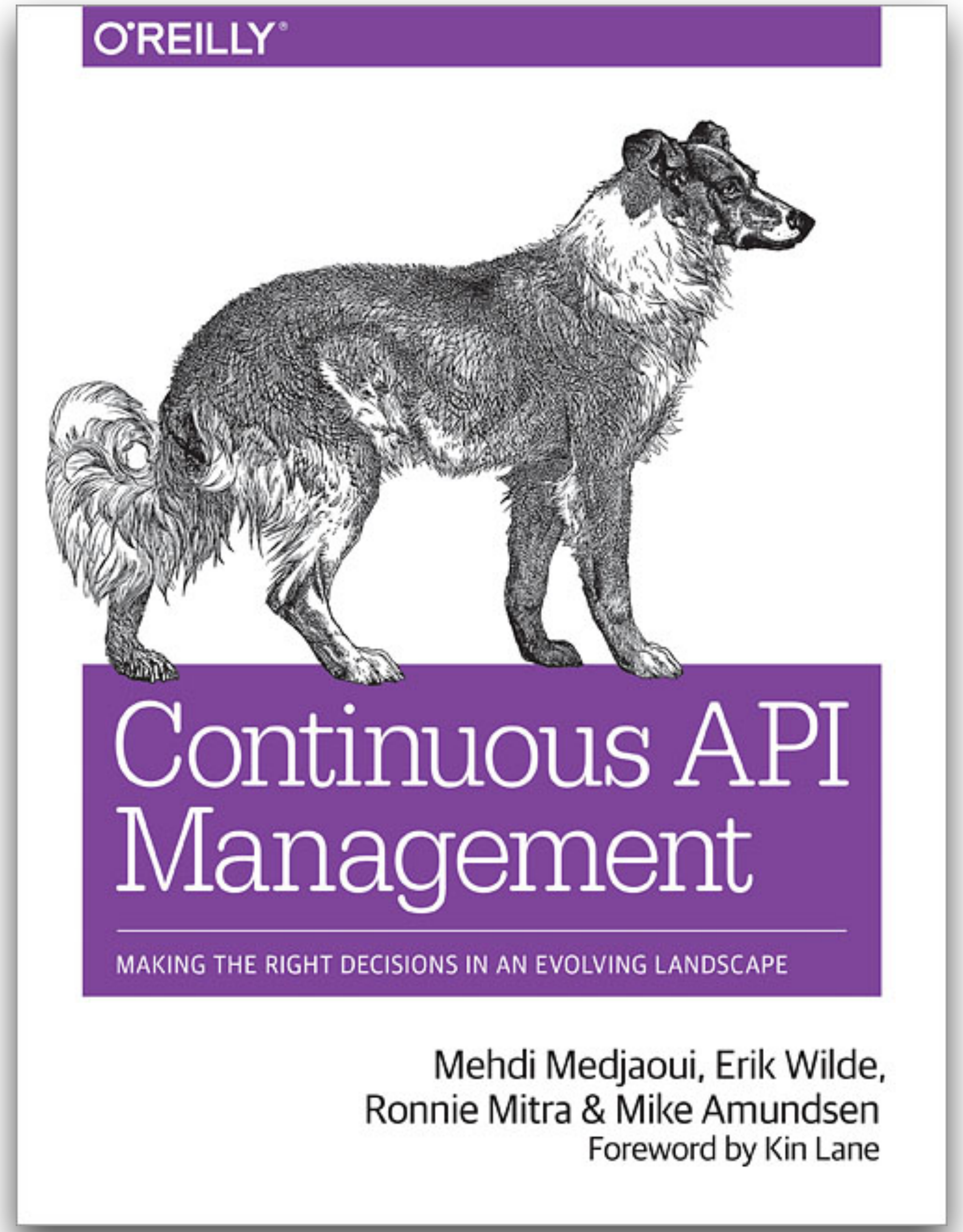
If you work with APIs...



O'REILLY

Continuous API Management

MAKING THE RIGHT DECISIONS IN AN EVOLVING LANDSCAPE

Mehdi Medjaoui, Erik Wilde, Ronnie Mitra & Mike Amundsen

Foreword by Kin Lane

What is an API?

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What is an API?

Interface

Schema
OpenAPI
RAML
GraphQL
Postman

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What is an API?

Interface	**Implementation**
Schema	**Code**
OpenAPI	Databases
RAML	Repositories
GraphQL	Microservices
Postman	...

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What is an API?

Interface	Implementation	Instance
Schema	**Code**	**Deployed**
OpenAPI	Databases	Interface +
RAML	Repositories	Implementation +
GraphQL	Microservices	Servers
Postman	...	...

What is an API?

Interface	Implementation	Instance
Schema	**Code**	**Deployed**
OpenAPI	Databases	Interface +
RAML	Repositories	Implementation +
GraphQL	Microservices	Servers
Postman	...	...

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What is an API?

Interface

Schema
OpenAPI
RAML
GraphQL
Postman

Implementation

Code
Databases
Repositories
Microservices
...

Instance

Deployed
Interface +
Implementation +
Servers
...

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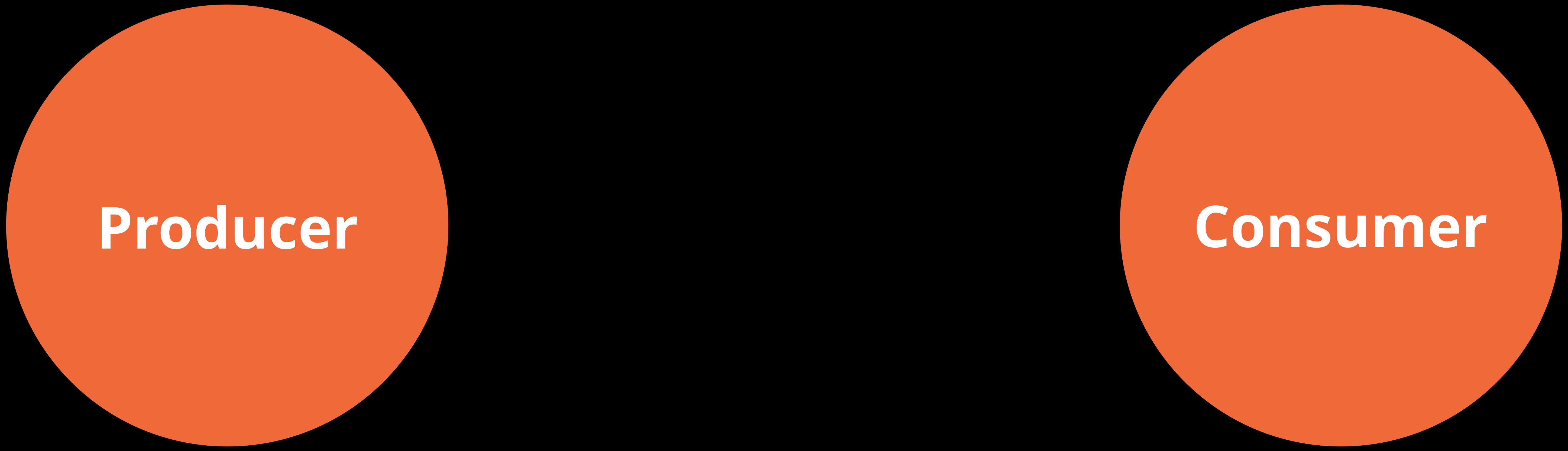

Roles

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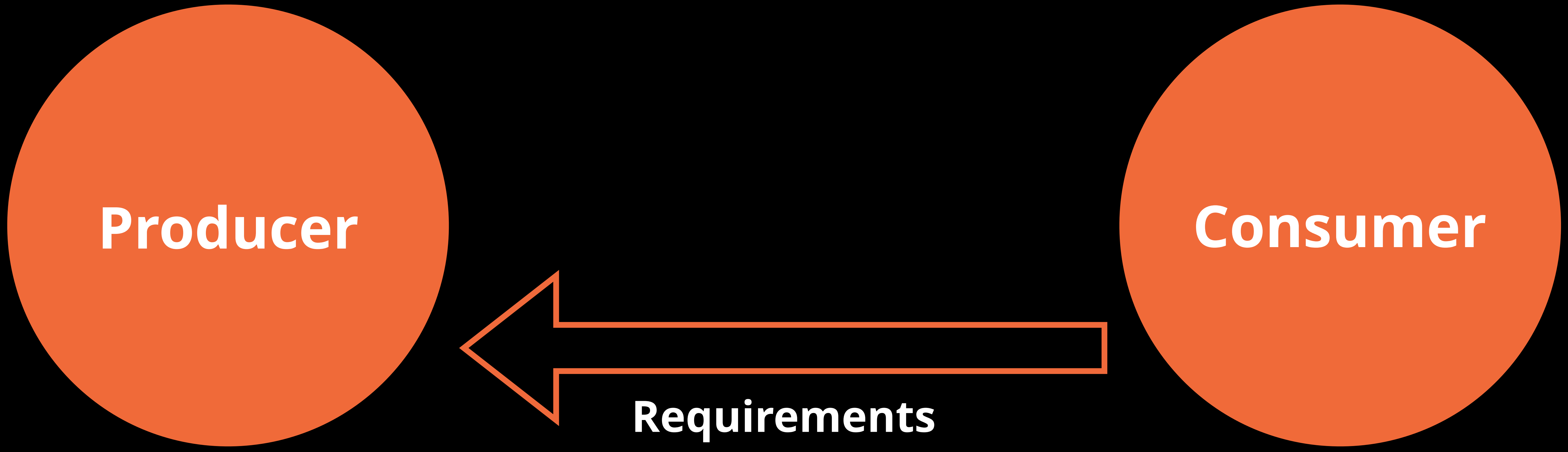

Roles

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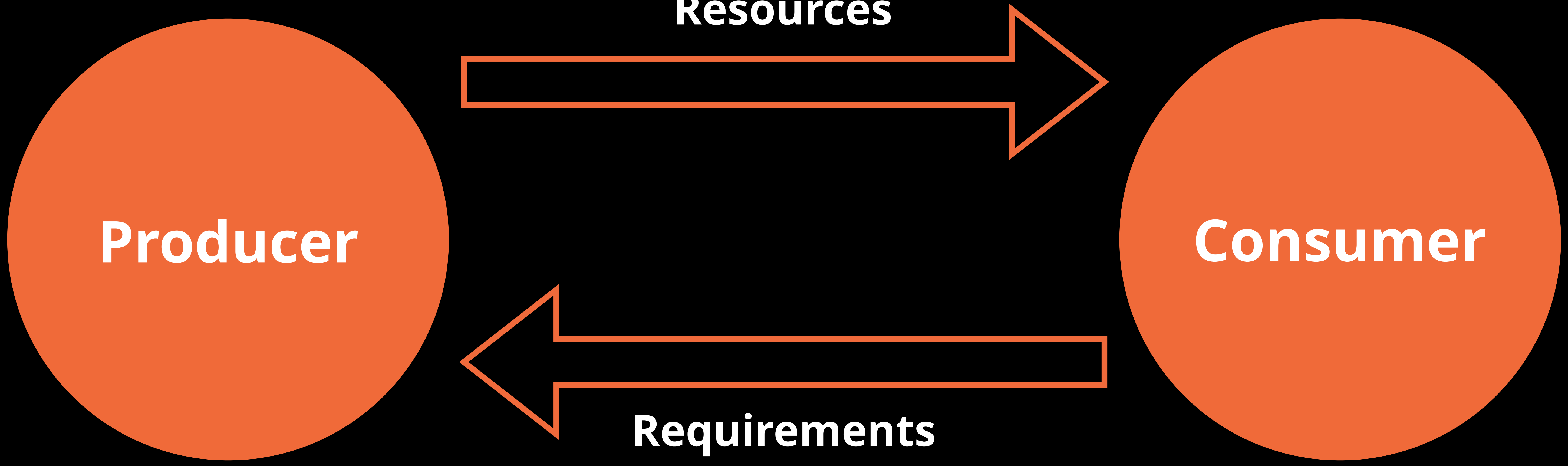

Roles

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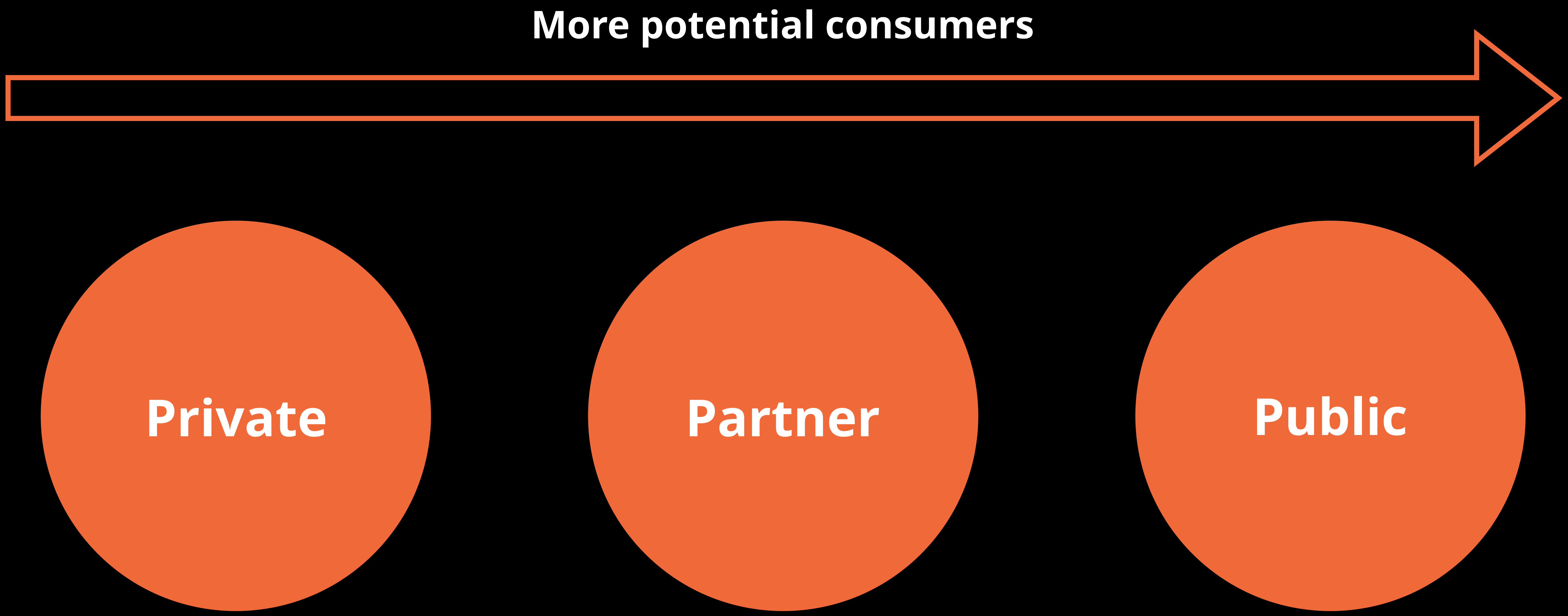
Private

Partner

Public

Scopes



Scopes

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Schema

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OpenAPI
2.0 | 3.0

GraphQL

RAML

Postman
Collections

WSDL

API Blueprint

Schema

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Questions to ask

Producers

How do we gather requirements?

How do we share API docs?

How do we collect feedback?

Consumers

How do we give our inputs?

How do we consume docs?

How do we test our requirements?

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What we need for effective API design

Design the interface
Write API schema
Build a testable, executable spec
Collaborate on decisions

Document the interface
Resource & usage descriptions
Request/Response examples

Collaborate on implementation
API Mocks
API Contracts

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What is the single source of truth?

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Part 2: Setting things up

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```
GET postman.com
```

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What we will build today

Design API for a hypothetical service to manage list of cats.

As both producer and consumer.

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v0.1

Routes:

```
- GET /cats
  Returns list of all cats
- POST /cats
  Add a new cat
```

Cat schema:

```
- id: Integer
- name: String
- breed: String
- age: Integer
```

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v0.2

Routes (new):

```
– GET /cats/{{catId}}
  Find a specific cat
```

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Part 3: Postman fundamentals

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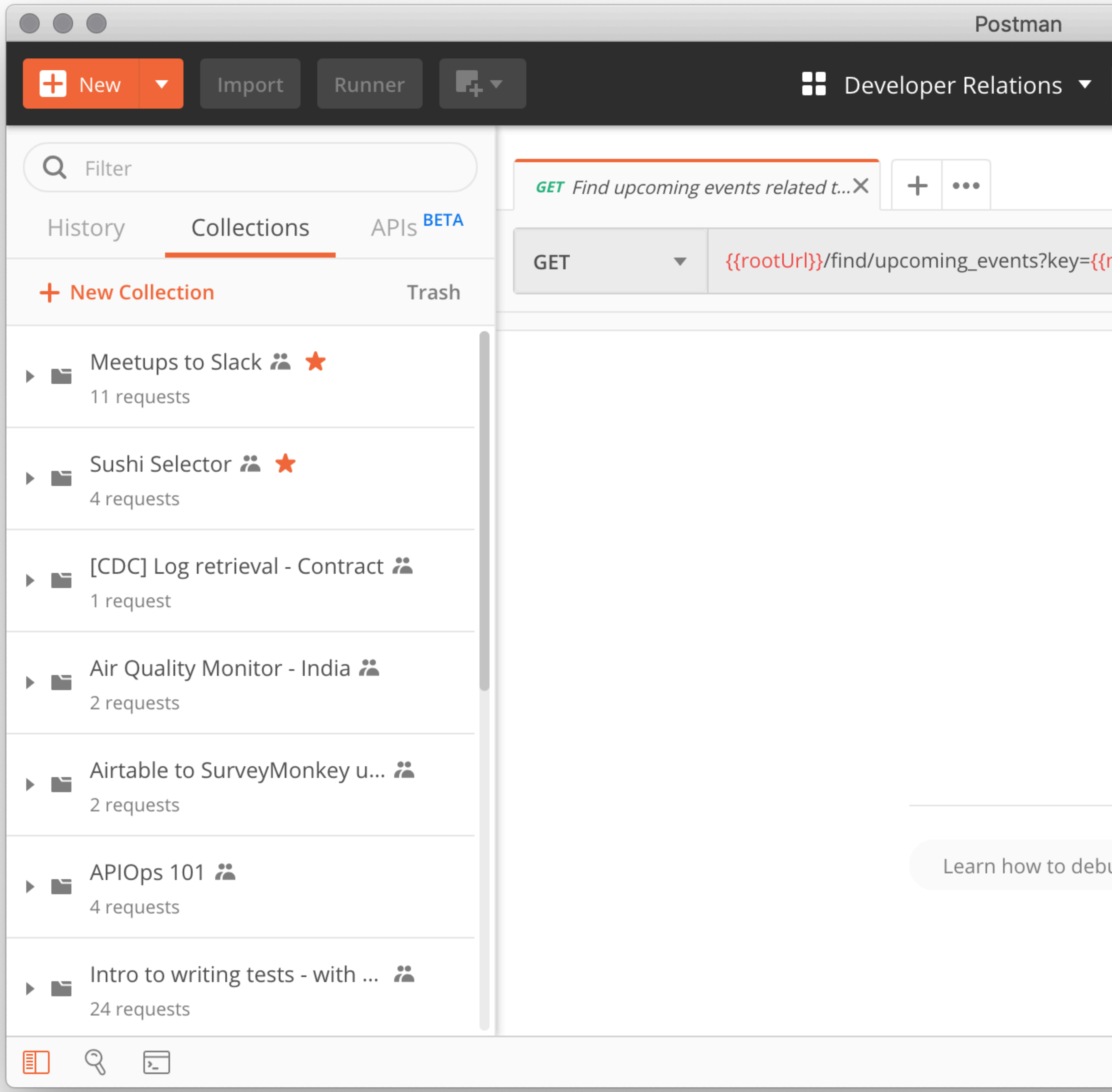
Collections

Group and organize your requests into meaningful collections.



Meetups to Slack
11 requests

Sushi Selector
4 requests

[CDC] Log retrieval - Contract
1 request

Air Quality Monitor - India
2 requests

Airtable to SurveyMonkey u...
2 requests

APIOps 101
4 requests

Intro to writing tests - with ...
24 requests

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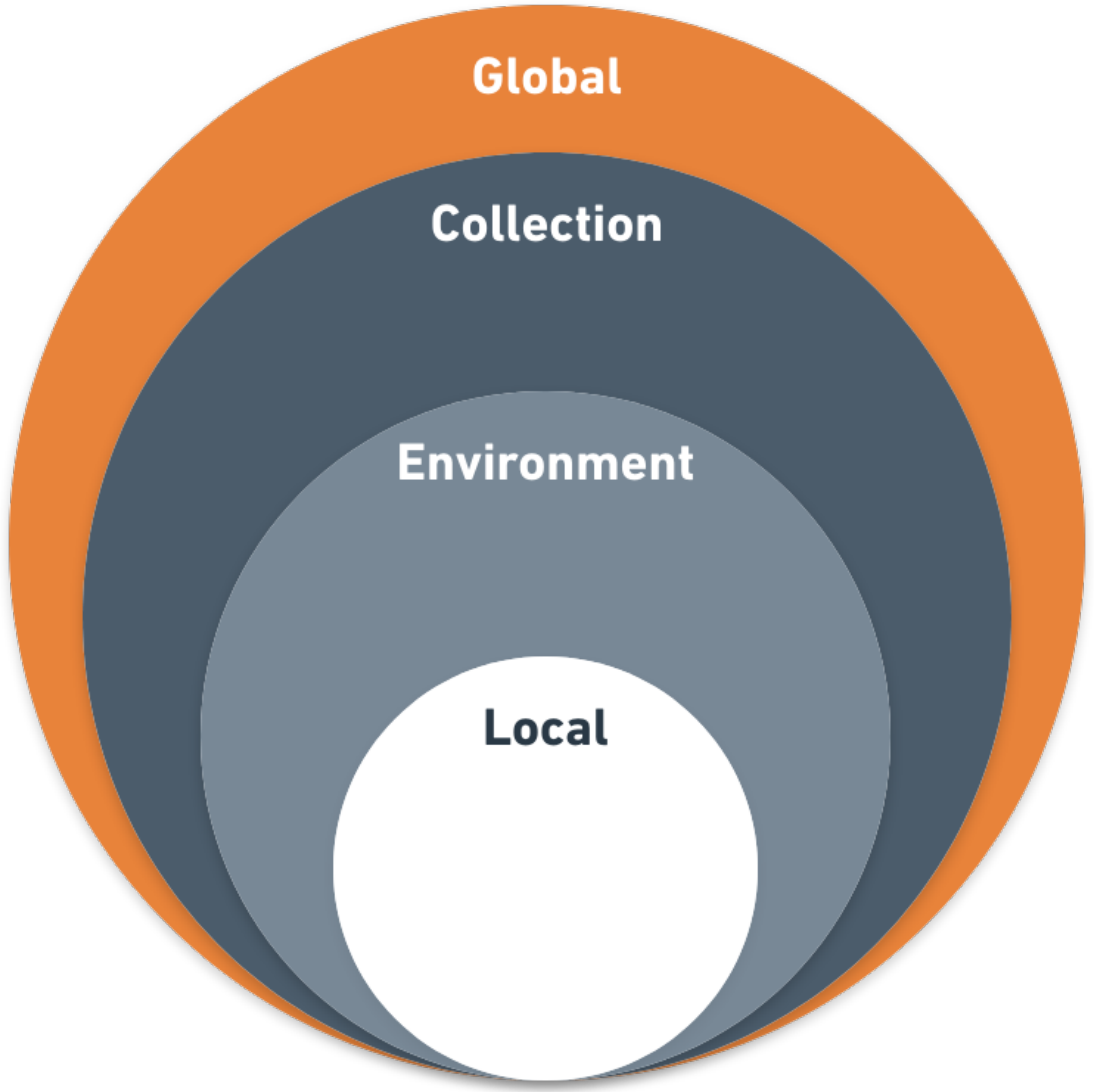
Variables

Foundation of dynamic values for requests. Can be manipulated programmatically.



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Workspaces

- Organised by service and function
- Service producers and consumers share their collections in them

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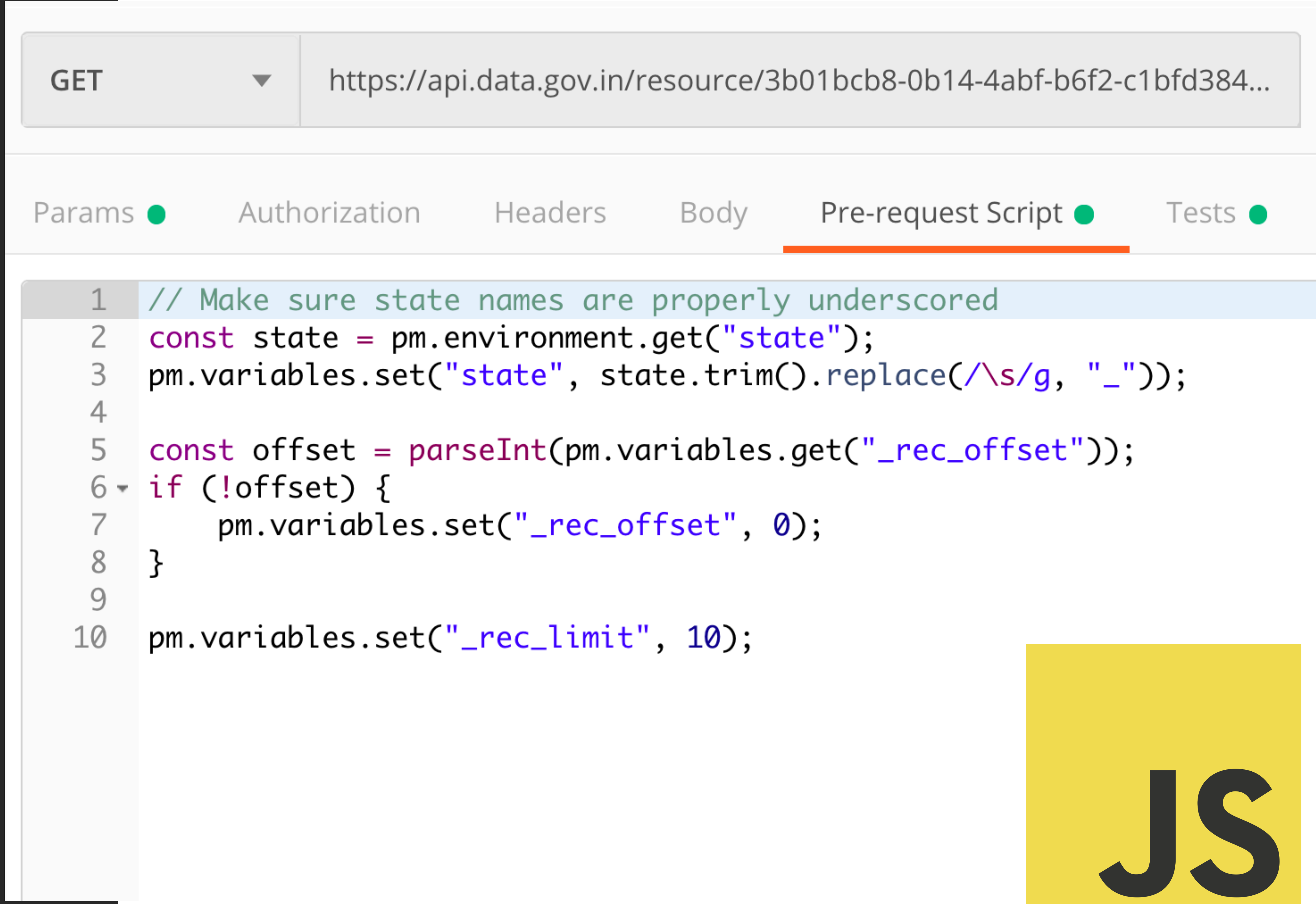
Pre-request Script

- Written in JavaScript
- Executed in a sandboxed NodeJS environment
- **Executed *before* request is sent**
- **Modify request through variables**



GET https://api.data.gov.in/resource/3b01bcb8-0b14-4abf-b6f2-c1bfd384...

```
// Make sure state names are properly underscored
const state = pm.environment.get("state");
pm.variables.set("state", state.trim().replace(/\s/g, "_"));

const offset = parseInt(pm.variables.get("_rec_offset"));
if (!offset) {
    pm.variables.set("_rec_offset", 0);
}

pm.variables.set("_rec_limit", 10);
```

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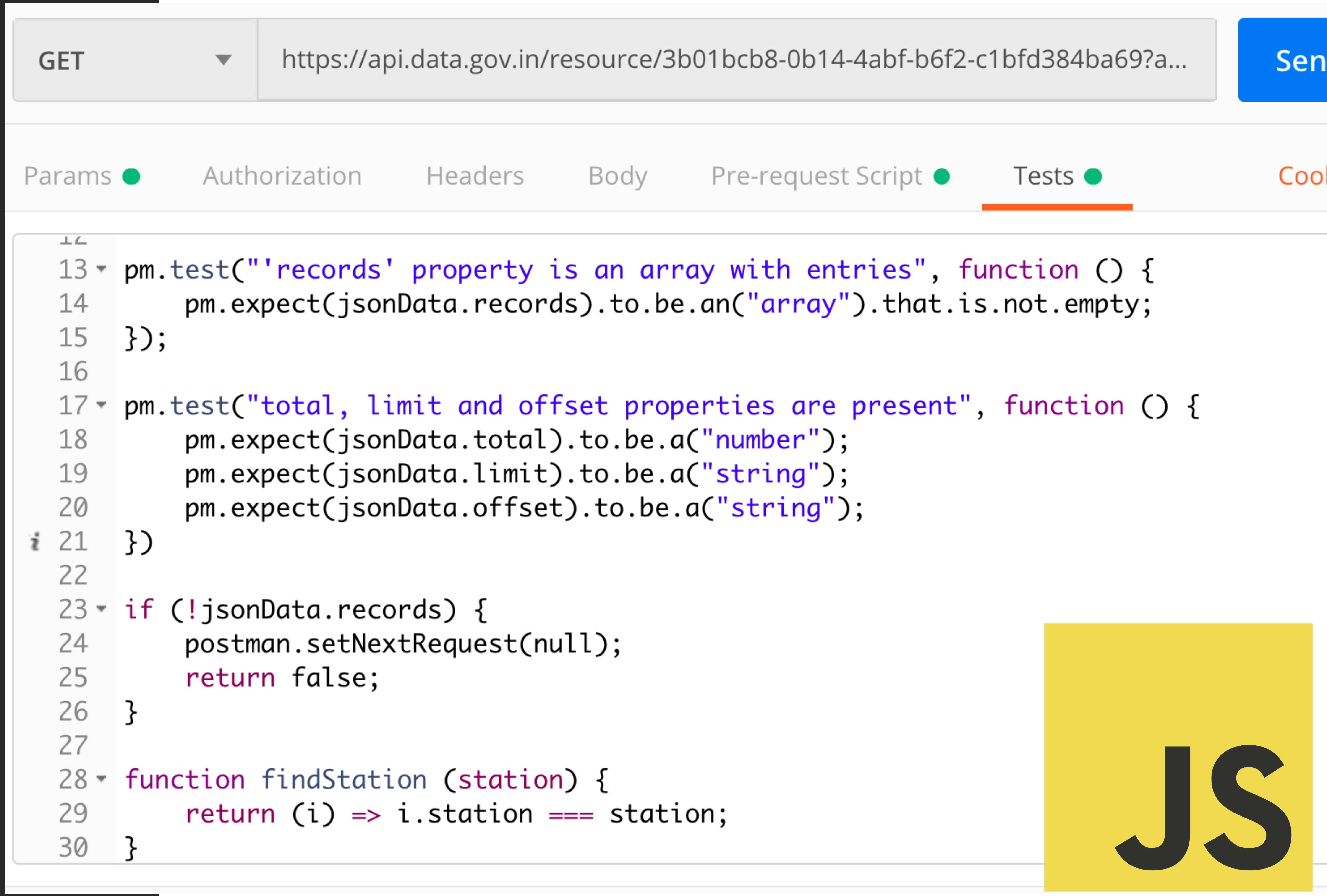
Tests

- Written in JavaScript
- Executed in a sandboxed NodeJS environment
- **Executed *after* response is received**
- **Can have assertions**
- Quick-start snippets


GET
https://api.data.gov.in/resource/3b01bcb8-0b14-4abf-b6f2-c1bfd384ba69?a...
Sen
Params
Authorization
Headers
Body
Pre-request Script
Tests
Coo
JS

```
pm.test("'records' property is an array with entries", function () {
    pm.expect(jsonData.records).to.be.an("array").that.is.not.empty;
});

pm.test("total, limit and offset properties are present", function () {
    pm.expect(jsonData.total).to.be.a("number");
    pm.expect(jsonData.limit).to.be.a("string");
    pm.expect(jsonData.offset).to.be.a("string");
})

if (!jsonData.records) {
    postman.setNextRequest(null);
    return false;
}

function findStation (station) {
    return (i) => i.station === station;
}
```

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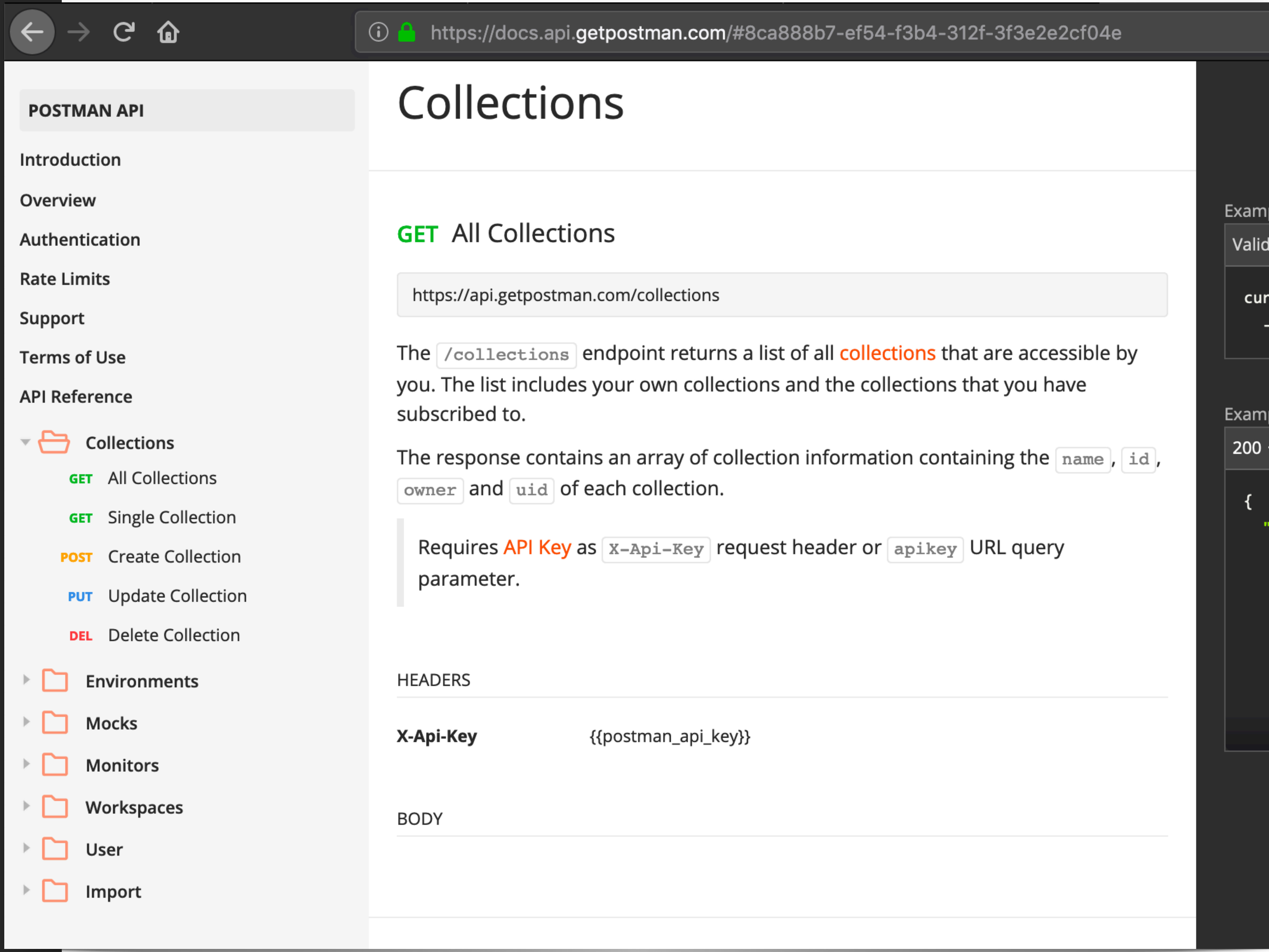
Postman API

Programmatically interact with elements in the Postman ecosystem

`api.getpostman.com`



https://docs.api.getpostman.com/#8ca888b7-ef54-f3b4-312f-3f3e2e2cf04e

POSTMAN API

- Introduction
- Overview
- Authentication
- Rate Limits
- Support
- Terms of Use
- API Reference
- Collections
  - GET All Collections
  - GET Single Collection
  - POST Create Collection
  - PUT Update Collection
  - DEL Delete Collection
- Environments
- Mocks
- Monitors
- Workspaces
- User
- Import

Collections

GET All Collections

https://api.getpostman.com/collections

The `/collections` endpoint returns a list of all collections that are accessible by you. The list includes your own collections and the collections that you have subscribed to.

The response contains an array of collection information containing the `name`, `id`, `owner` and `uid` of each collection.

Requires API Key as `X-Api-Key` request header or `apikey` URL query parameter.

HEADERS

X-Api-Key	{{postman_api_key}}

BODY

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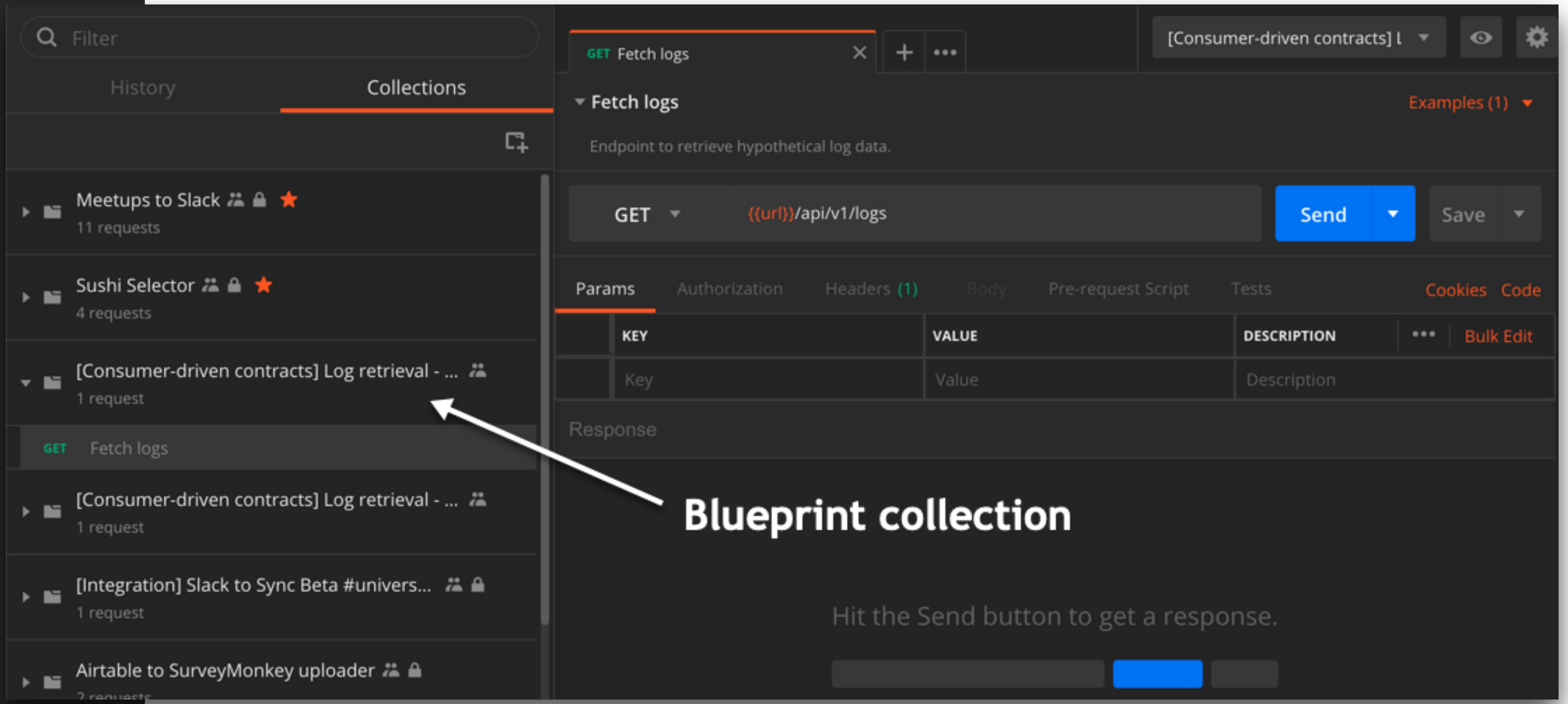
Blueprints

- **Collections** created by service producers to describe an API
- Includes **examples** of each request to document responses



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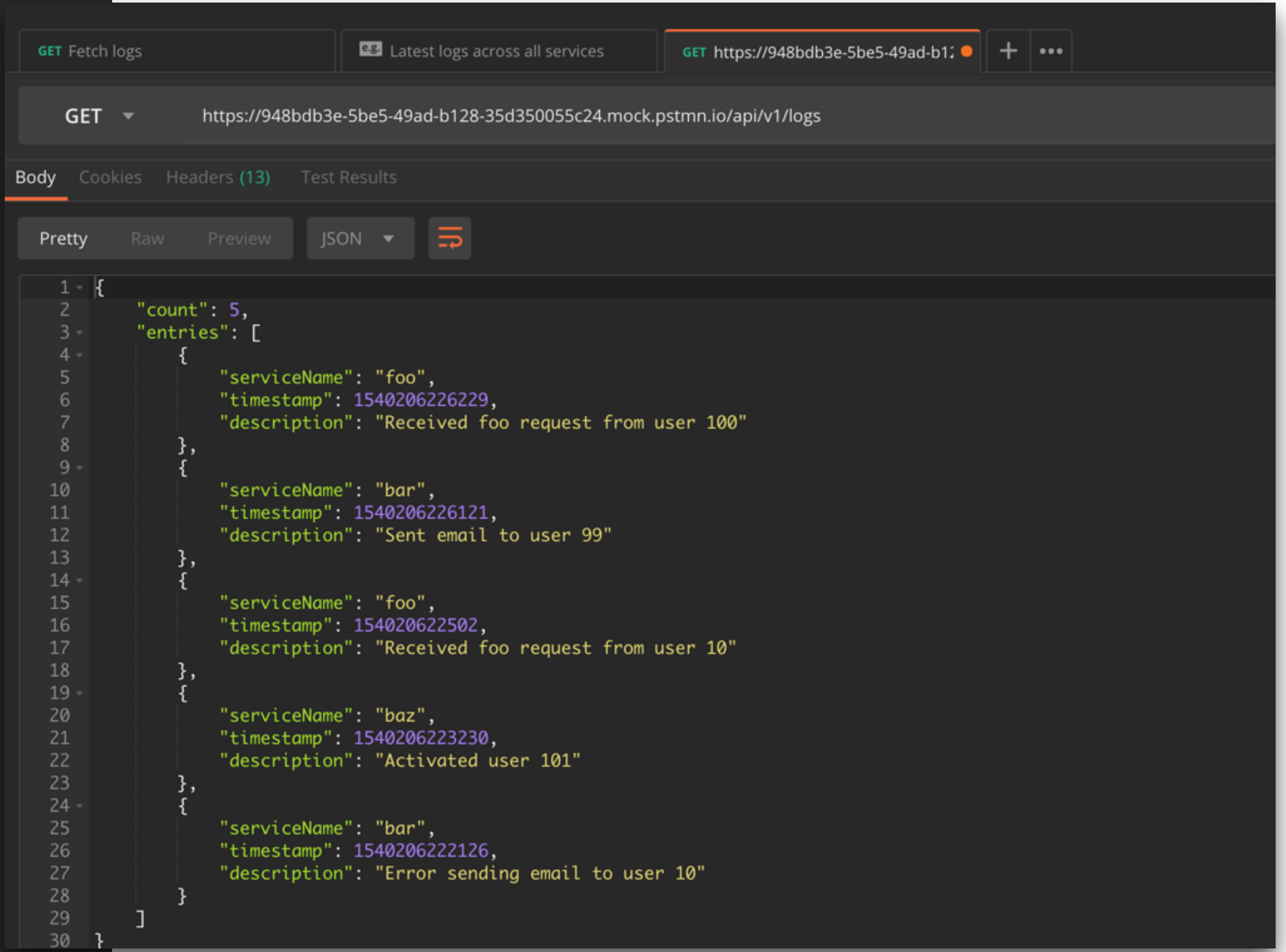
Mock servers

- Created by service producers from blueprint collections
- Used by service consumers to test API contracts



https://948bdb3e-5be5-49ad-b128-35d350055c24.mock.pstmn.io/api/v1/logs

```
{
    "count": 5,
    "entries": [
        {
            "serviceName": "foo",
            "timestamp": 1540206226229,
            "description": "Received foo request from user 100"
        },
        {
            "serviceName": "bar",
            "timestamp": 1540206226121,
            "description": "Sent email to user 99"
        },
        {
            "serviceName": "foo",
            "timestamp": 154020622502,
            "description": "Received foo request from user 10"
        },
        {
            "serviceName": "baz",
            "timestamp": 1540206223230,
            "description": "Activated user 101"
        },
        {
            "serviceName": "bar",
            "timestamp": 1540206222126,
            "description": "Error sending email to user 10"
        }
    ]
}
```

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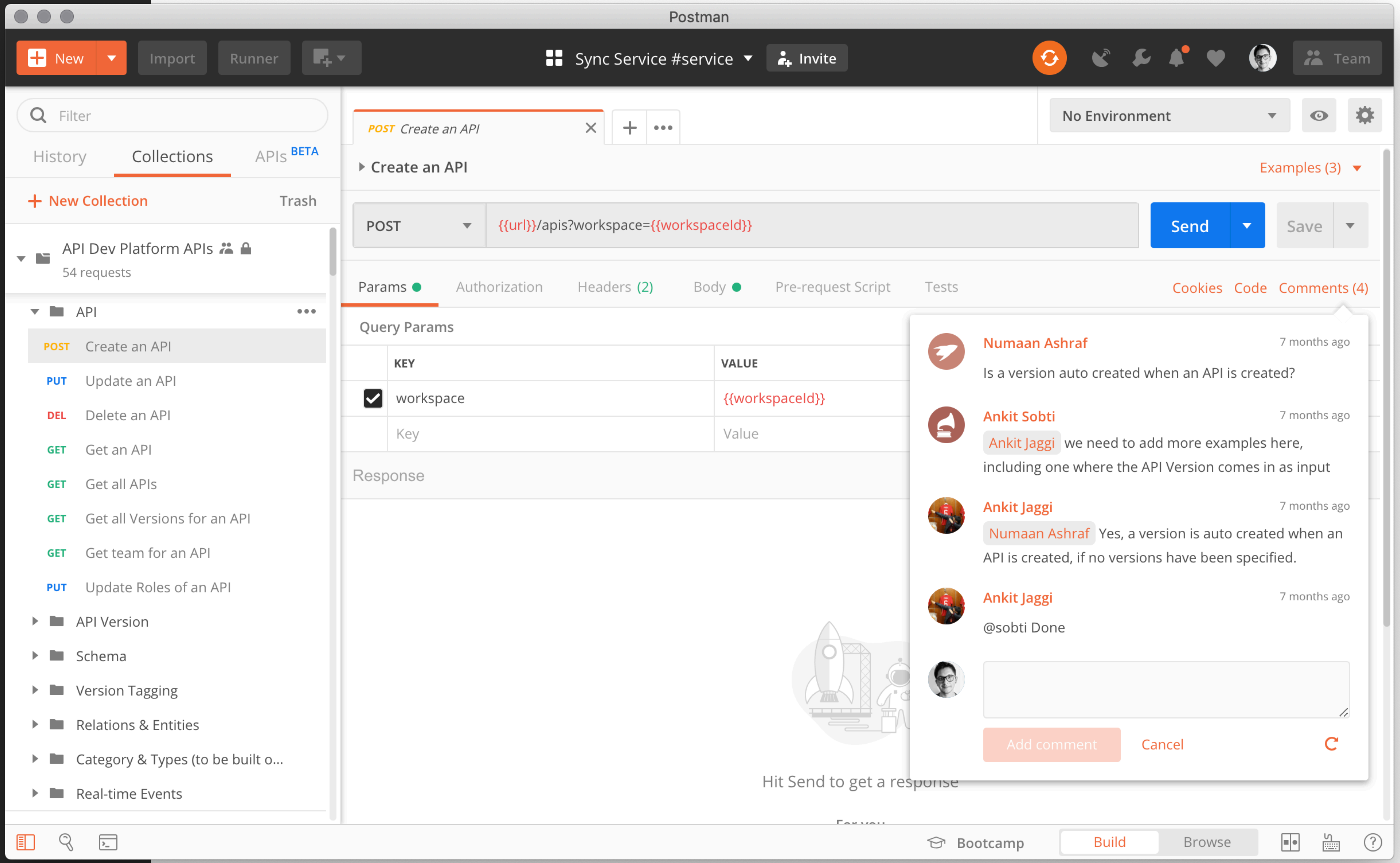
Comments

- To make **contextual** comments and tag other team members in collections, in the app, and in the browser
- Used to **negotiate** API design among stakeholders



API Dev Platform APIs
54 requests

API
- POST Create an API
- PUT Update an API
- DEL Delete an API
- GET Get an API
- GET Get all APIs
- GET Get all Versions for an API
- GET Get team for an API
- PUT Update Roles of an API

API Version
Schema
Version Tagging
Relations & Entities
Category & Types (to be built o...
Real-time Events

POST Create an API

Create an API

POST {{url}}/apis?workspace={{workspaceId}}

Query Params

	KEY	VALUE
✓	workspace	{{workspaceId}}
	Key	Value

Numaan Ashraf 7 months ago
Is a version auto created when an API is created?

Ankit Sobti 7 months ago
Ankit Jaggi we need to add more examples here, including one where the API Version comes in as input

Ankit Jaggi 7 months ago
Numaan Ashraf Yes, a version is auto created when an API is created, if no versions have been specified.

Ankit Jaggi 7 months ago
@sobti Done

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Questions?

(and a quick break)

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Part 4: Role - API Producer

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Create blueprint collection

- Build a blueprint collection
  - Add requests
  - Add documentation
  - Add examples
    - Success cases
    - Failure cases
- Share collection in Workspace
- Comments on requests

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Create Mock Server

- What is a Mock Server? (Recap)
- Create a mock server from Blueprint collection
- Execute Blueprint collection against Mock

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Create “API” and schema

- Create a new “API”
- Add OpenAPI 3.0 YAML schema
  - From: bit.ly/postman-api-yaml
  - File: api-v0.1.yaml

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Use versioning

- Edit API version tag to v0.1
- Add blueprint collection and mock to API v0.1

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Questions?

(and another quick break)

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Part 5: Role - API Consumer

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Using Mocks as a consumer

- Build contract collection based on blueprint collection
- Send requests to Mock endpoint
- Save and document requests
- Add tests to assert on response
- Switch base URL using environments

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Part 6: Work with versions

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Create v0.2

- Create v0.2 for the API
- Update OpenAPI schema
  - From: bit.ly/postman-api-yaml
  - File: api-v0.2.yaml
- Update blueprint
- Update contract
- Tag collections with new version

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Questions?

(and we’re done!)

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Thank you!

@postmanclient
@kaustavdm
betterpractices.dev