

BEYOND THE ENDPOINT

THE FOSS FILES SEASON 4 | EPISODE 2

API ALCHEMY

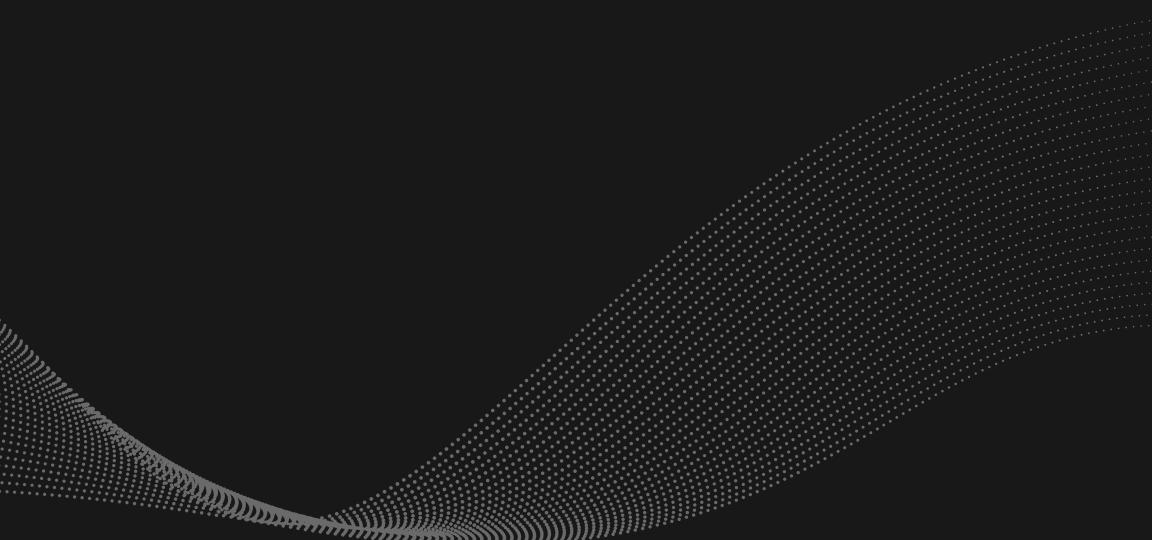


🎙 Shreyash Patil

🎙 Aditya Aparadh

22 June 2024

Table of Contents

- 
- 01 Introduction to RESTful Architecture
 - 02 RESTful Principles: Resources and Endpoints
 - 03 HTTP Methods, Status Codes and URIs
 - 04 CRUD Operations using REST APIs
 - 05 Using POSTMAN to test an API

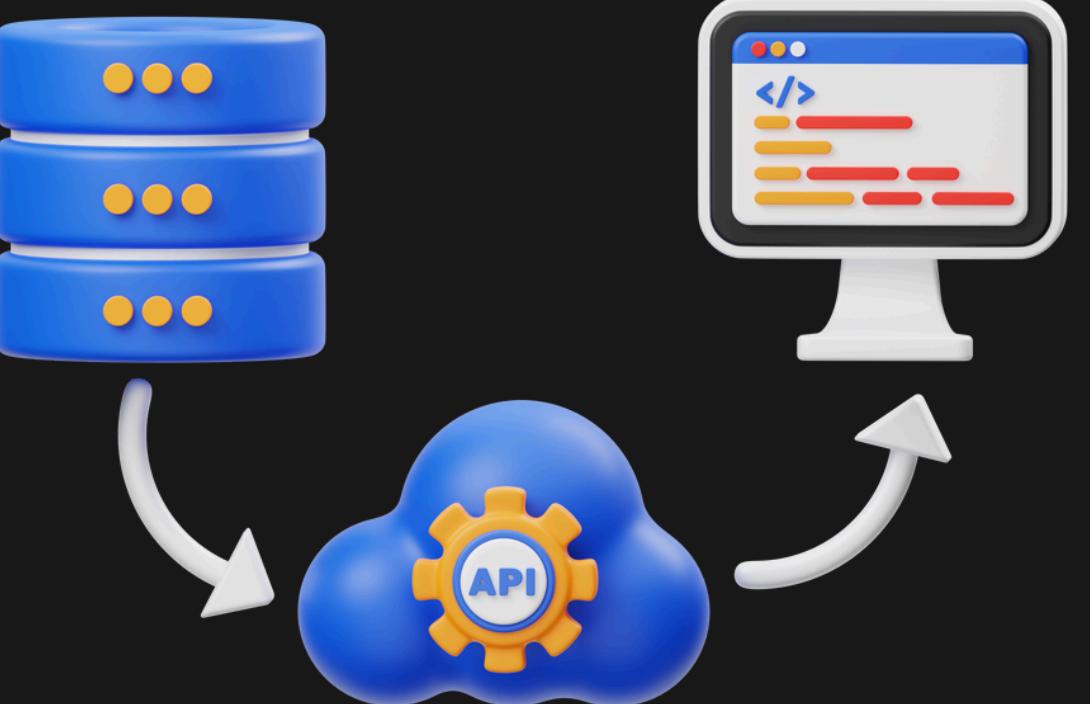
Let's revise APIs

- ❖ Full form of API?
- ❖ What do APIs do?
- ❖ How do APIs do it?
- ❖ Why APIs?



RESTful APIs

- ❖ Follow REST specification rules
- ❖ Stand for REpresentational State Transfer
- ❖ REST is a specification that controls communication of systems on web
- ❖ Use and implements HTTP



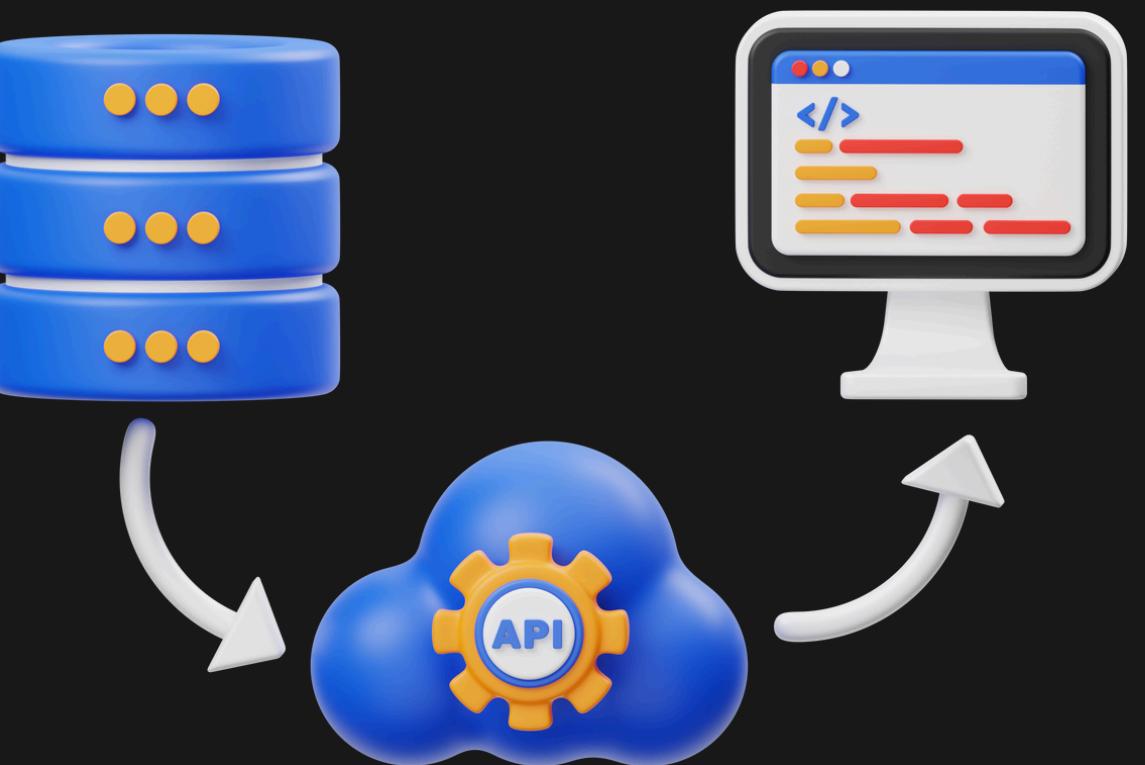
Principles of REST

- ❖ Stateless
- ❖ Client-Server Separation
- ❖ Uniform Interface
- ❖ Resource Identification through URLs
- ❖ Representations



Resources

- ❖ Any piece of Information or object that can be accessed
- ❖ Can be represented in XML, JSON etc.
- ❖ Identified by URIs
- ❖ State manipulated by HTTP methods
- ❖ Ex. users, orders, products, etc.



Resource Types

○ ○ ○

```
{  
  "user": {  
    "id": 1,  
    "name": "Tim Smith",  
    "email": "tim.smith@example.com",  
    "privateinfo" : {  
      "age": 25,  
      "gender": "Male"  
    }  
  }  
}
```

JSON

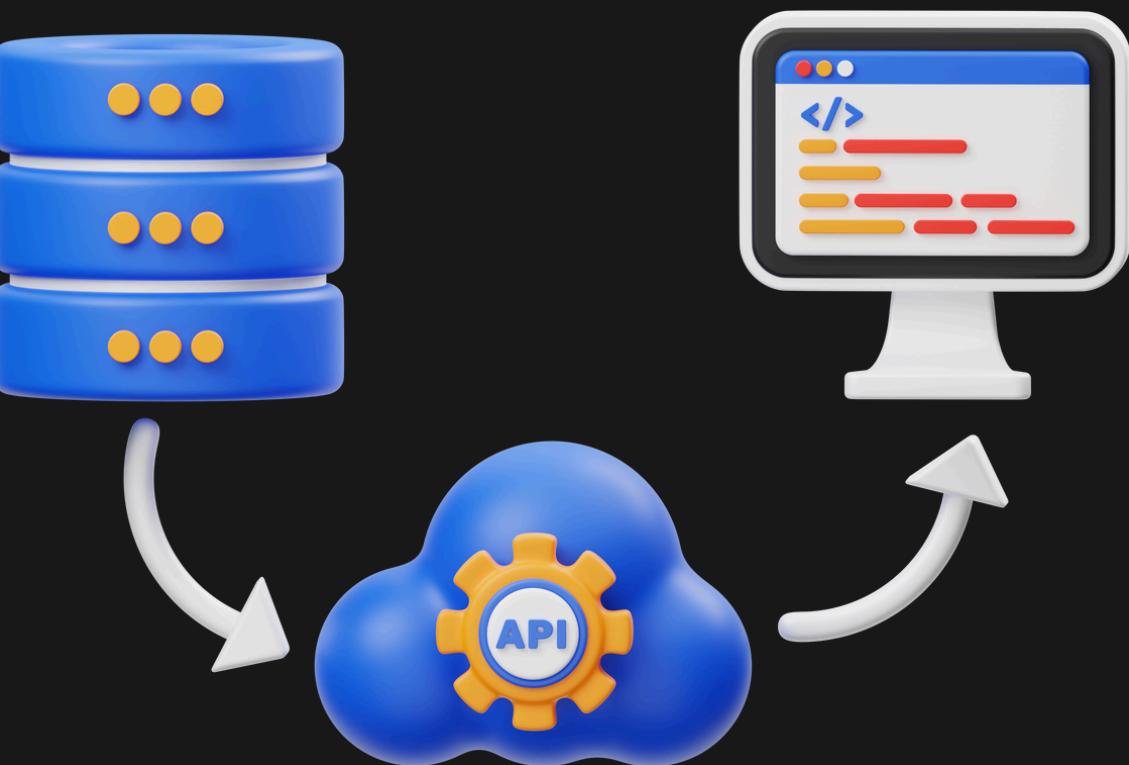
○ ○ ○

```
<user>  
  <id>1</id>  
  <name>Tim Smith</name>  
  <email>tim.smith@example.com</email>  
  <privateinfo>  
    <age>25</age>  
    <gender>Male</gender>  
  </privateinfo>  
</user>
```

XML

Endpoints

- ✿ Route containing resources
- ✿ Every endpoint serves a single resource
- ✿ Support various HTTP methods to provide operations
- ✿ Ex. /users - collection of users
/users/123 - single user



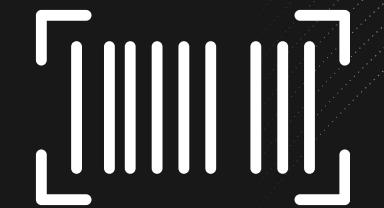
URIs



Uniform Resource Locators are used to uniquely identify resources on the internet

Includes exact protocol to access the resource over the network

Eg:
<http://www.wcewlug.org/blogs>



Uniform Resource Names are used to uniquely identify any type of resource

Does not include a protocol as part of its syntax, as it does not specify how to access the resource, only its identity.

Eg:
`urn:isbn:0451450523`

URLs

protocol :// subdomain . domain / endpoint ? query

HTTP methods

- ◆ Also known as Verbs
- ◆ Define action to be performed
- ◆ Commonly used methods:

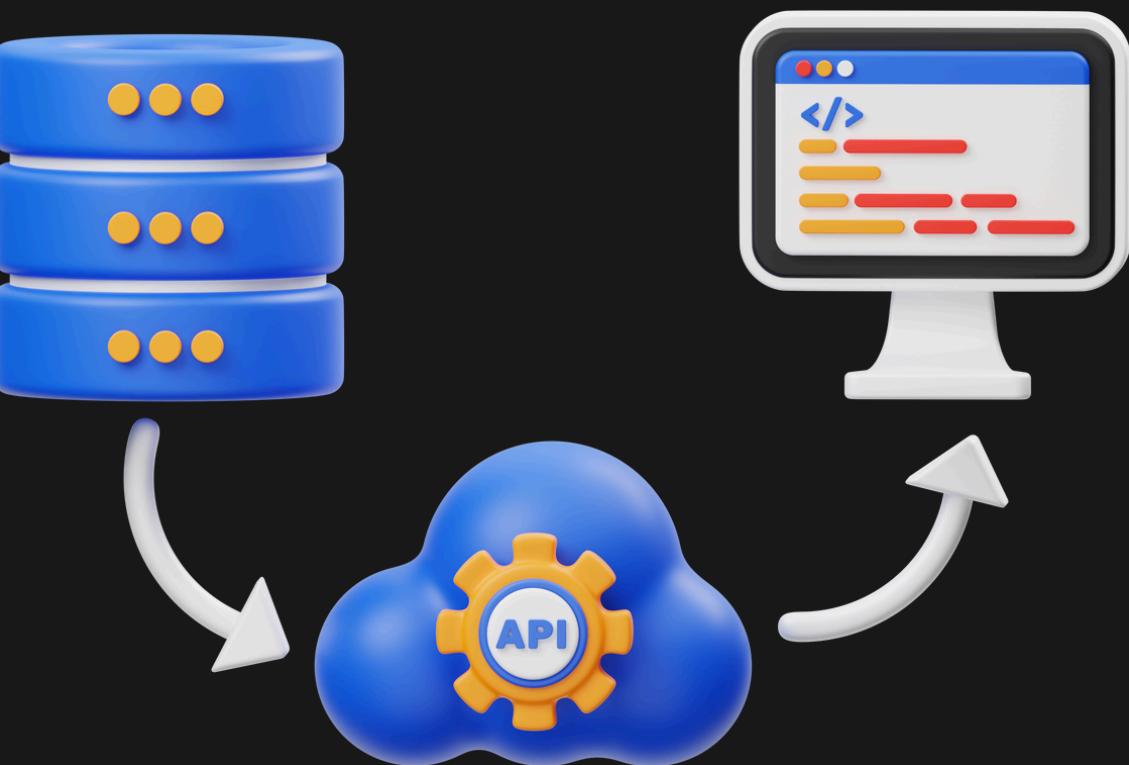
GET

POST

PUT

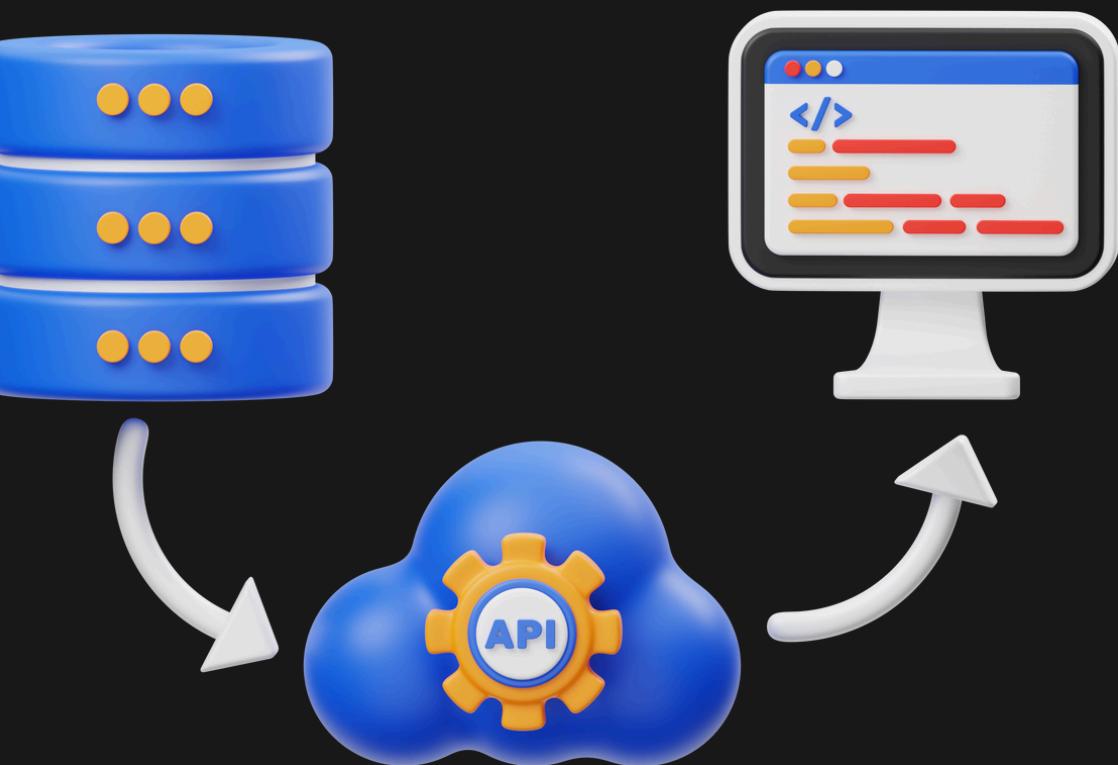
DELETE

PATCH



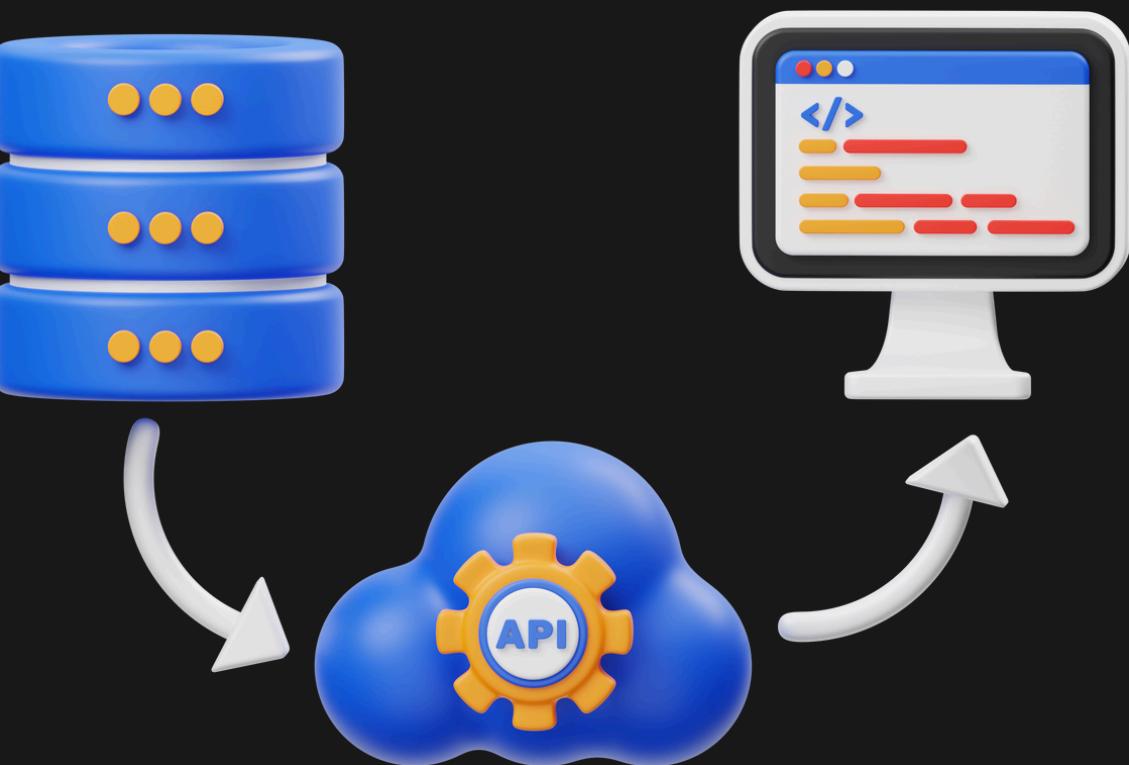
HTTP Status Codes

- ★ Display current state of request
- ★ Few important codes:
 - 2xx: Sucessful
 - 4xx: Client error
 - 5xx: Server error



CRUD Operations

- ✿ Create : POST
- ✿ Read : GET
- ✿ Update : PUT, PATCH
- ✿ Delete : DELETE



HTTP Headers

Request Headers

Request Method
User Agent
Accept
Accept-Encoding
Accept-Language
Host

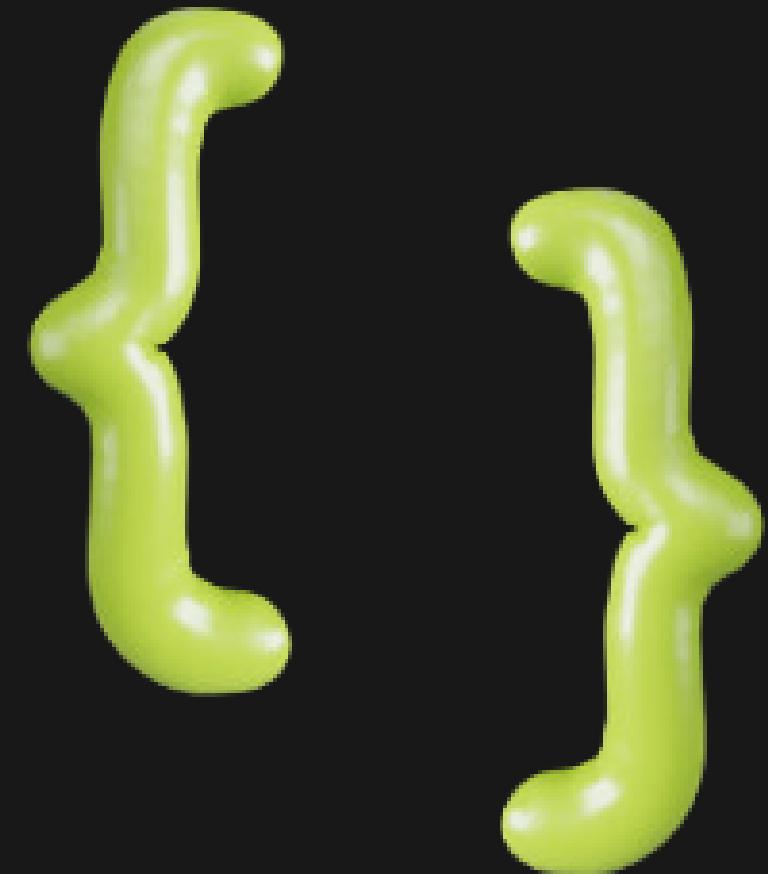
Response Headers

Status Code
Server
Content Length
Content Type
Timestamp
Cache Control

Authentication

JSON Web Tokens (JWTs)

- ✿ Can be time based
- ✿ Primarily used for Webpages
- ✿ Added in HTTP Headers



Authentication

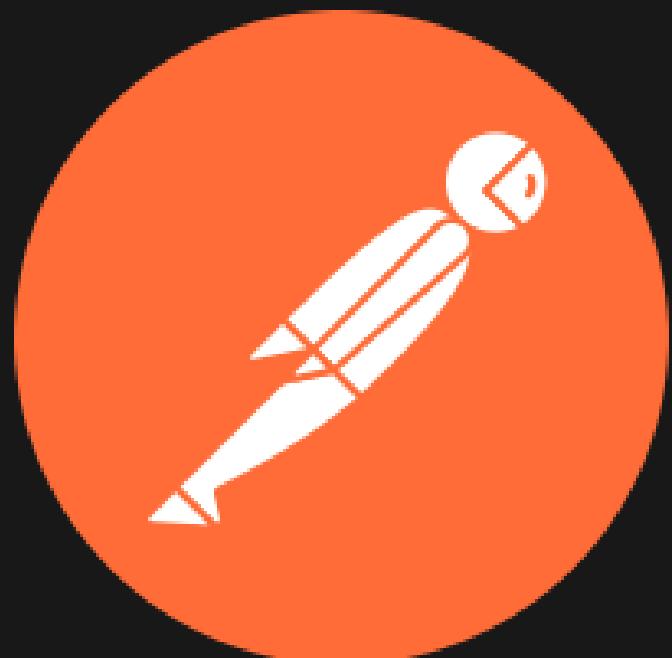
API Keys

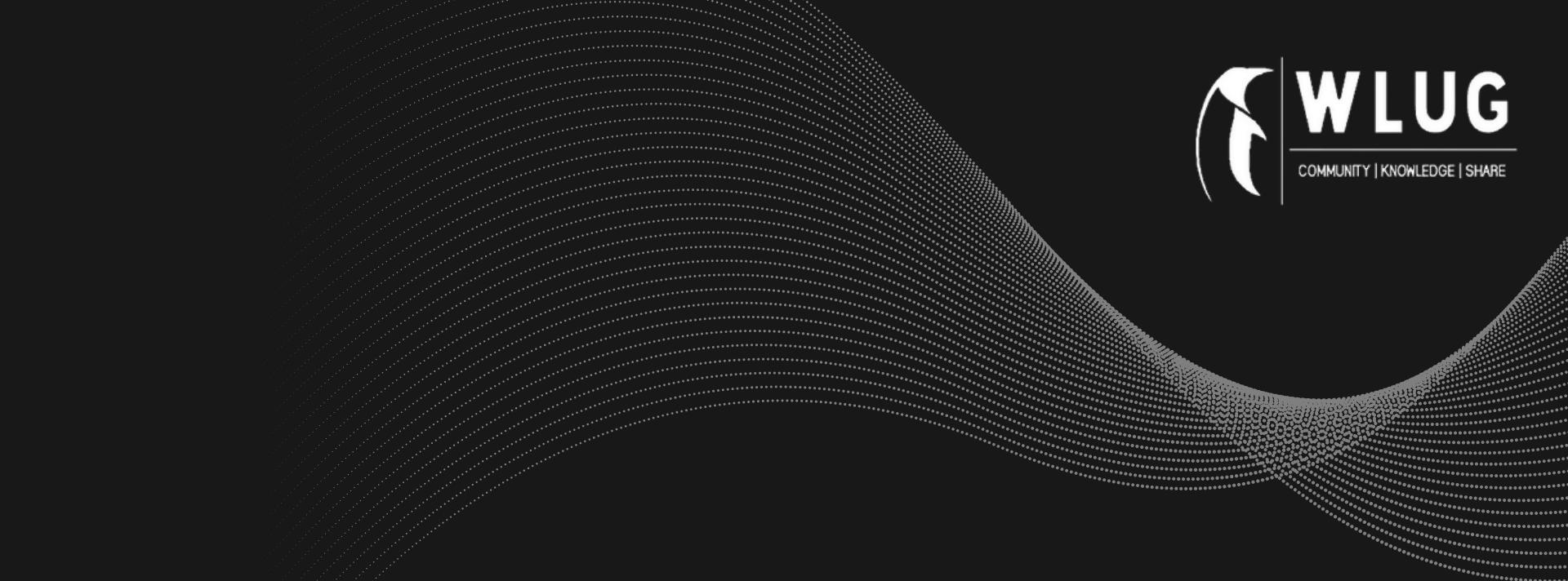
- ◆ Keys are handled by API Provider
- ◆ Primarily used for Third Party APIs
- ◆ Added in HTTP Queries



POSTMAN

- ❖ HTTP Client used to test APIs
- ❖ Can be used to inspect detailed information about all aspects of HTTP requests and responses
- ❖ Supports various API patterns like REST, GraphQL, gRPC, WebSockets





REST QUEST: Using REST

REST QUEST: Using REST

`http://aditya.software:3000`

1. **POST** to `/signup` : With name in query
2. **GET** to `/???` : For questions
3. **POST** to `/quiz`: token in header and json in body

THANK YOU

Community | Knowledge | Share

API ALCHEMY



🎙 Shreyash Patil

🎙 Aditya Aparadh



22 June 2024