API

Application Programming Interface

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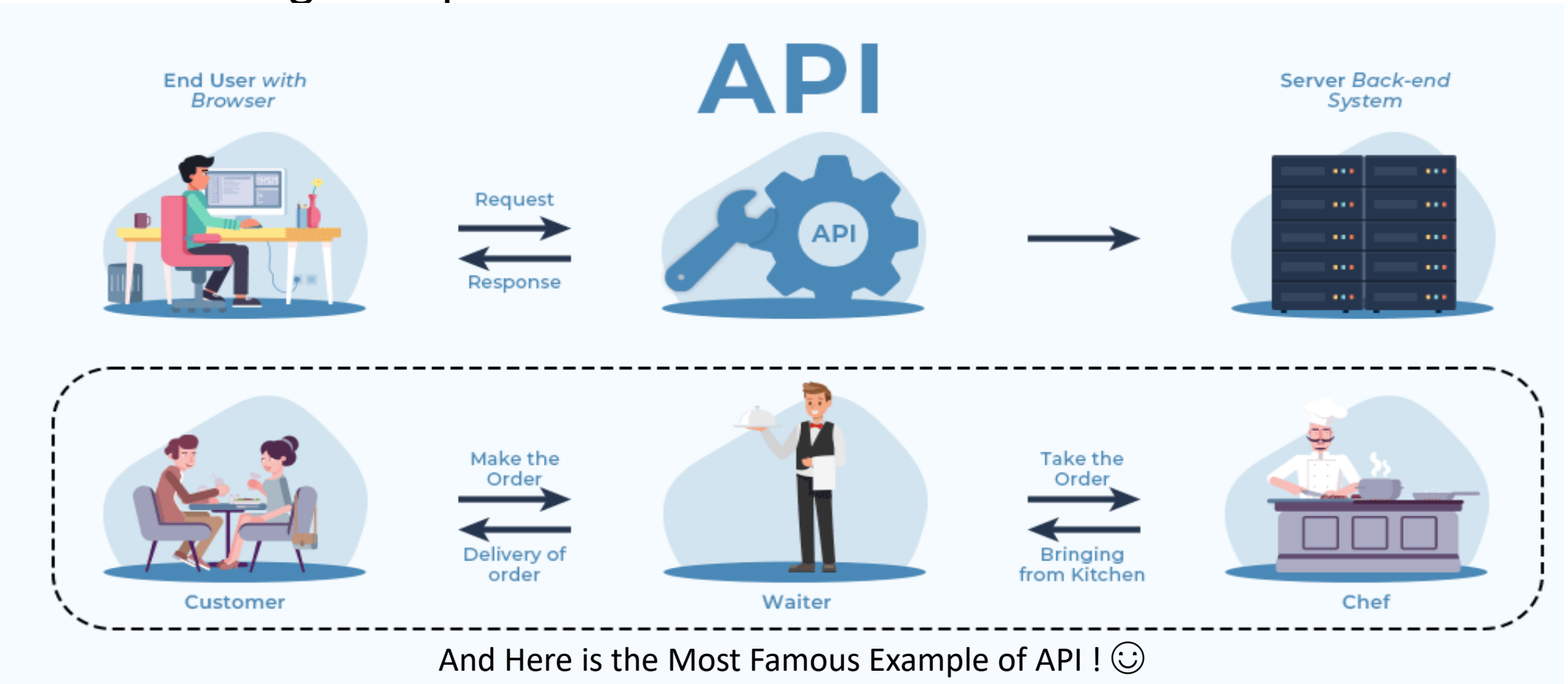
What is API?

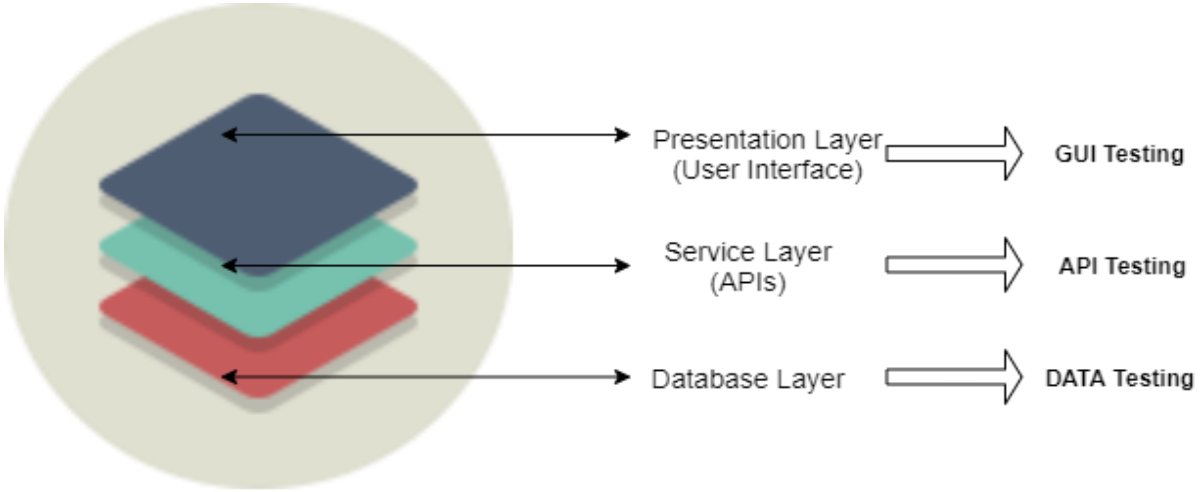
- An application programming interface (API) functions with the goal of allowing different systems, applications and devices to share information with each other. APIs work by translating a user's input into data, which helps a system send back the right response.



And Here is the Most Famous Example of API ! ☺

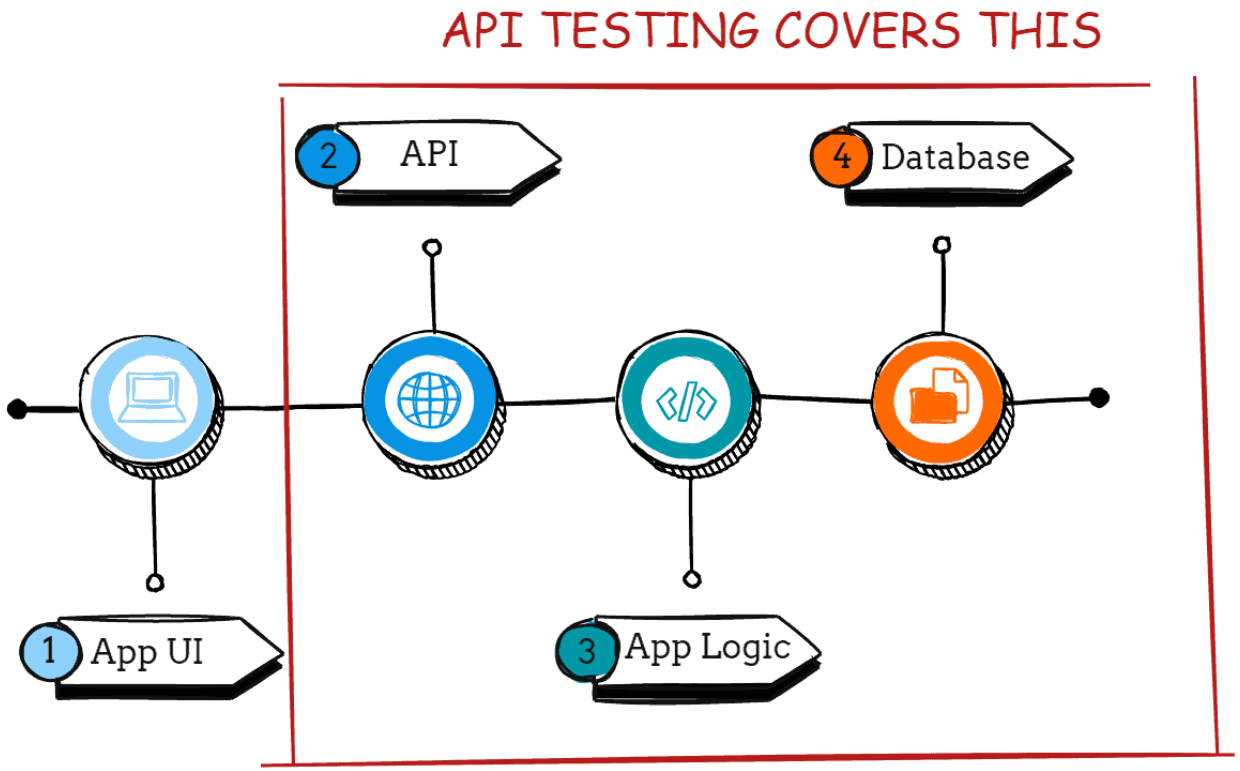
What is API?

- API tests are very different from GUI Tests and won't concentrate on the look and feel of an application. It mainly concentrates on the business logic layer of the software architecture.



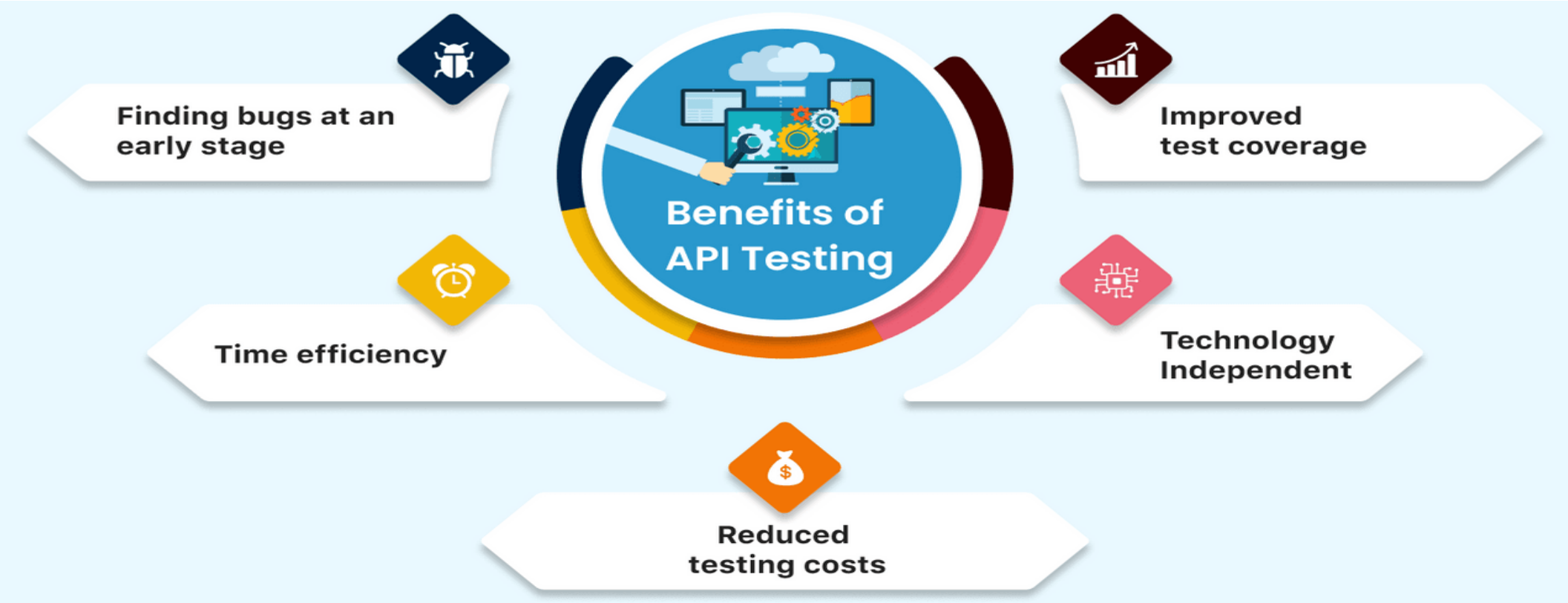
- API development refers to the process of designing, building, and implementing APIs. The goal of API development is to create a high-quality, reliable, and efficient API that can be used by other software applications or developers.

- API testing, on the other hand, refers to the process of verifying the functionality, reliability, and performance of the API. The goal of API testing is to ensure that the API meets the requirements and specifications and performs as expected under different scenarios and conditions.



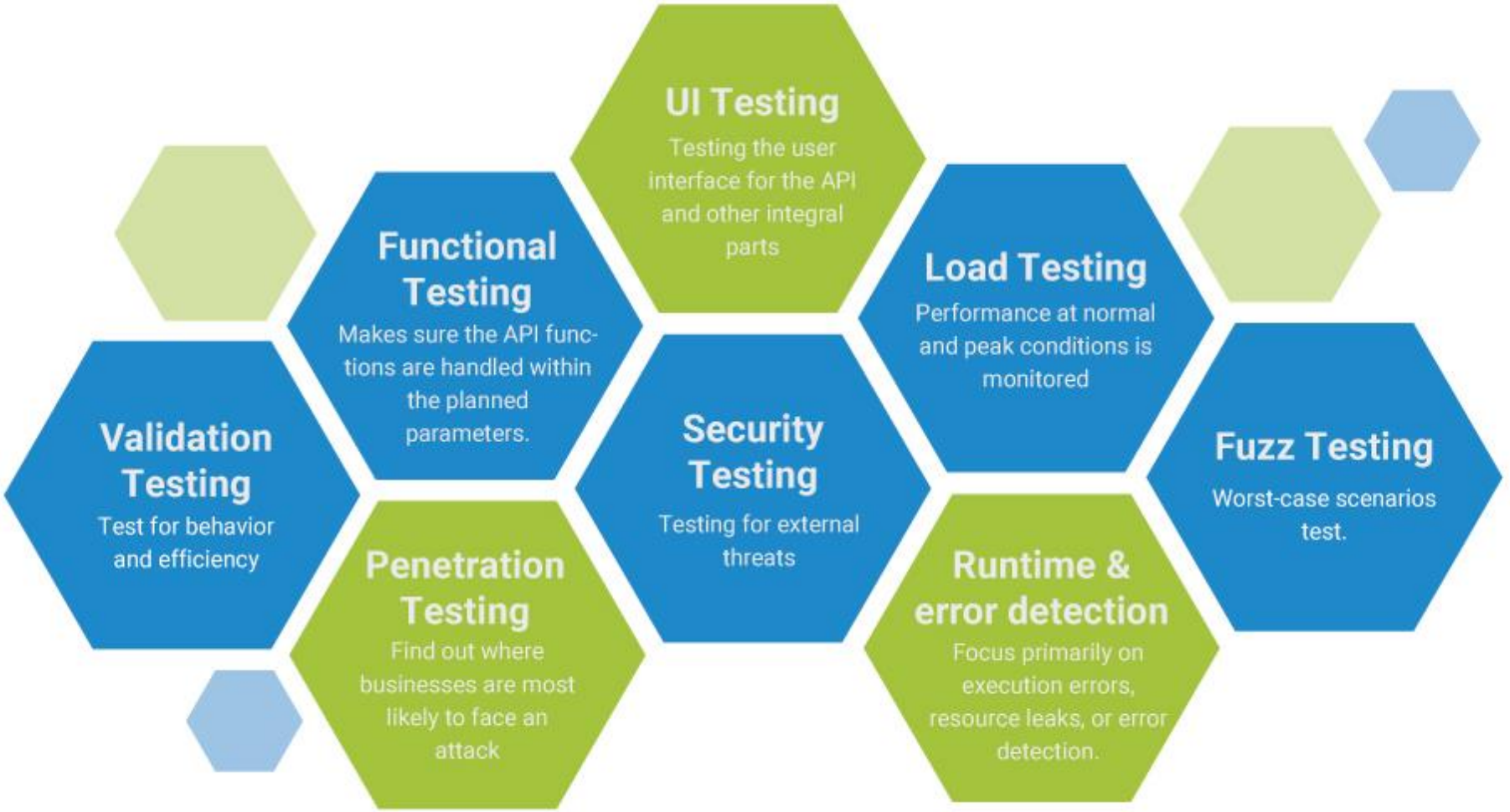
Why we use API Testing

- API testing is important for ensuring the quality, reliability, and security of APIs, and for ensuring that they meet the needs of the applications and services that rely on them.
- By testing APIs early and often, developers can catch issues before they become major problems, and ensure that their software systems are functioning as expected.

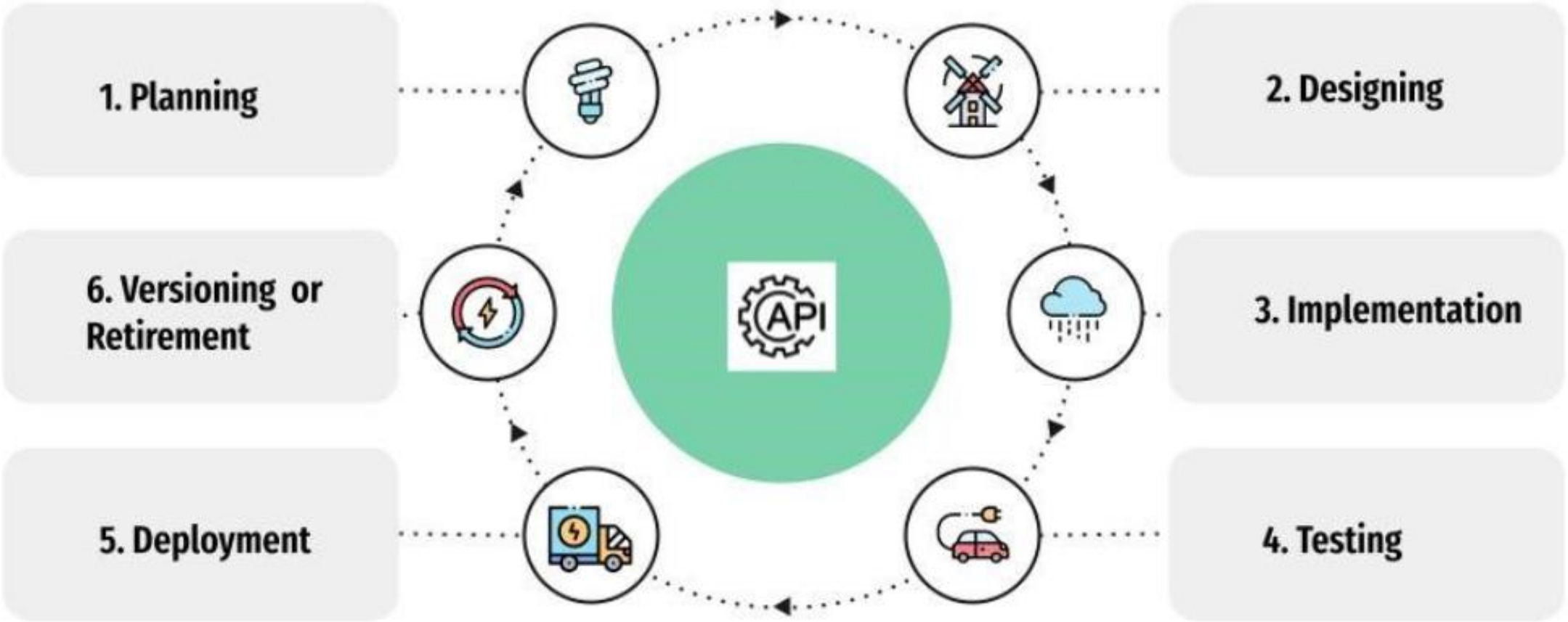


API testing types

Basically, on API Testing, we send a request to the API with the known data [Expected Result] and we analyze the response [Actual Result]:



Life cycle of APIs



Types of APIs (access)

Open APIs (Public APIs)

- There are no restrictions to access these types of APIs because they are publicly available. Ex: Twitter application.

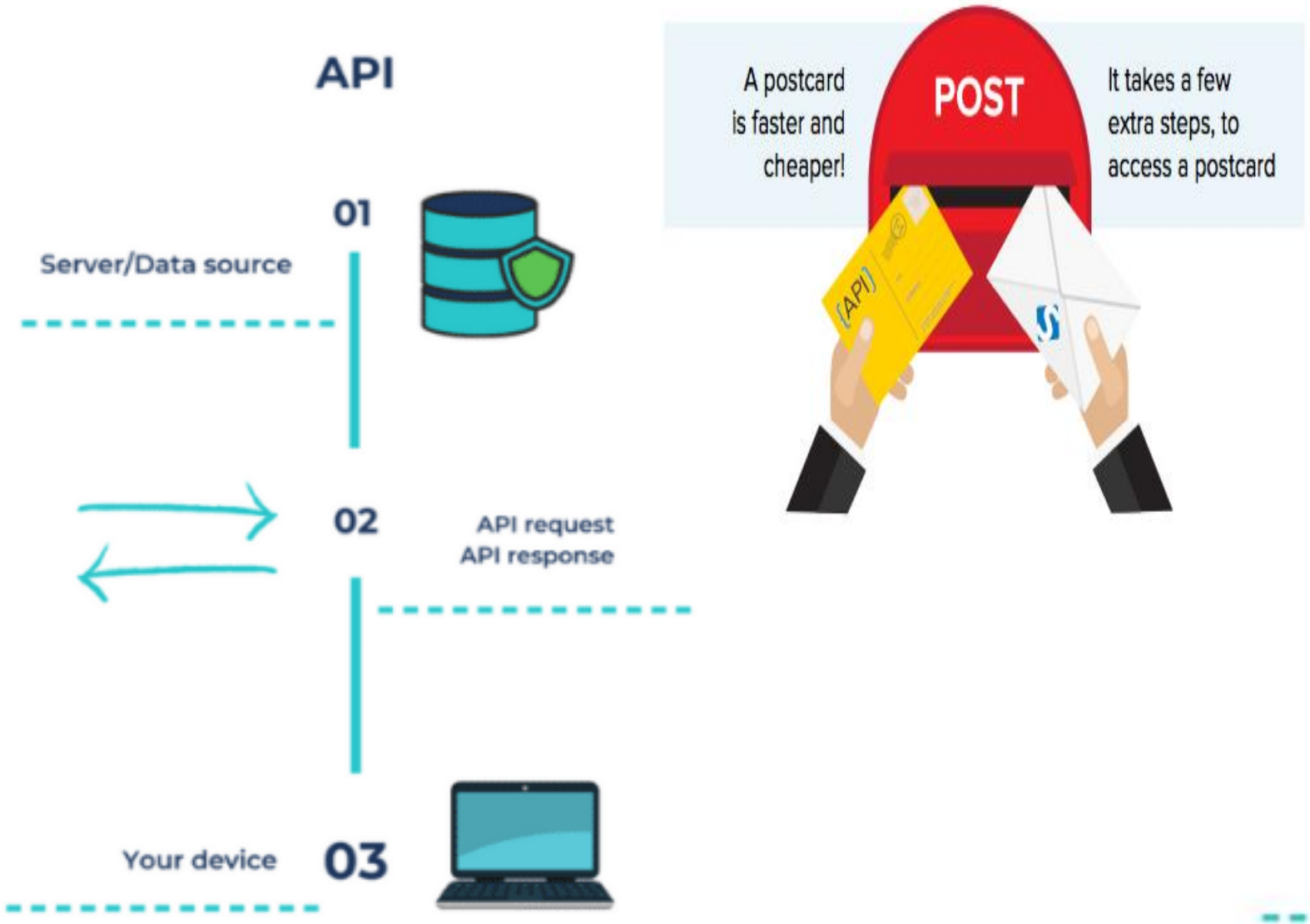
Partner APIs

- A developer needs specific rights or licenses in order to access this type of API because they are not available to the public. Ex: Uber application, Banking applications.

Internal APIs (Private APIs)

- These are usually designed for internal use within a company. The company uses this type of API among the different internal teams to be able to improve its products and service. Ex: inside same company.

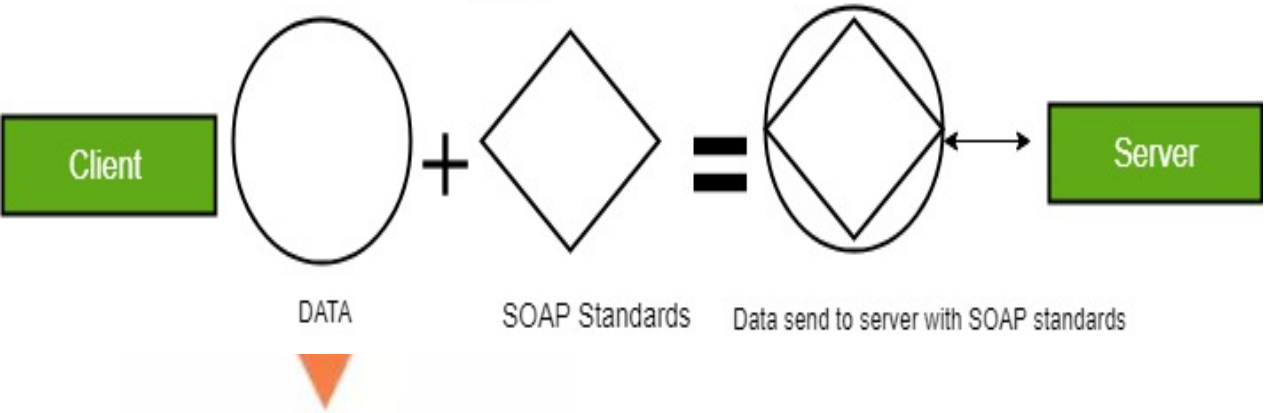
Web Services



Soap & Rest

SOAP APIs: Simple Object Access Protocol

SOAP APIs typically use the HTTP or HTTPS protocol for transport, and they require a WSDL (Web Services Description Language) file to describe the API operations and data types.



SOAP

- Financial
- Telecommunication
- Payment Gateways

REST APIs: Representational State Transfer

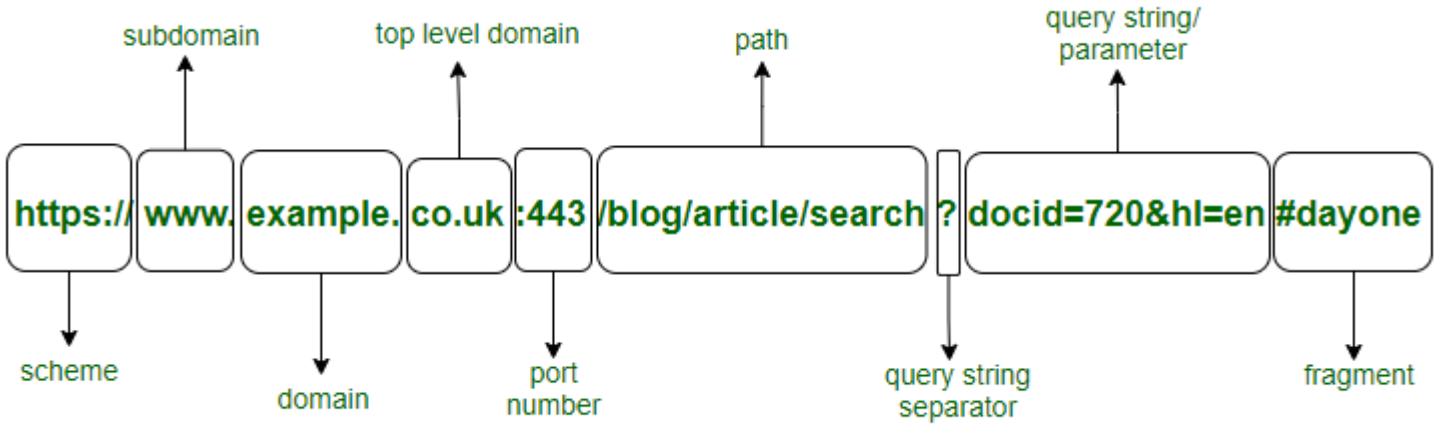
REST APIs use standard HTTP methods such as GET, POST, PUT, and DELETE to interact with resources, and they typically return data in JSON or XML format.

REST

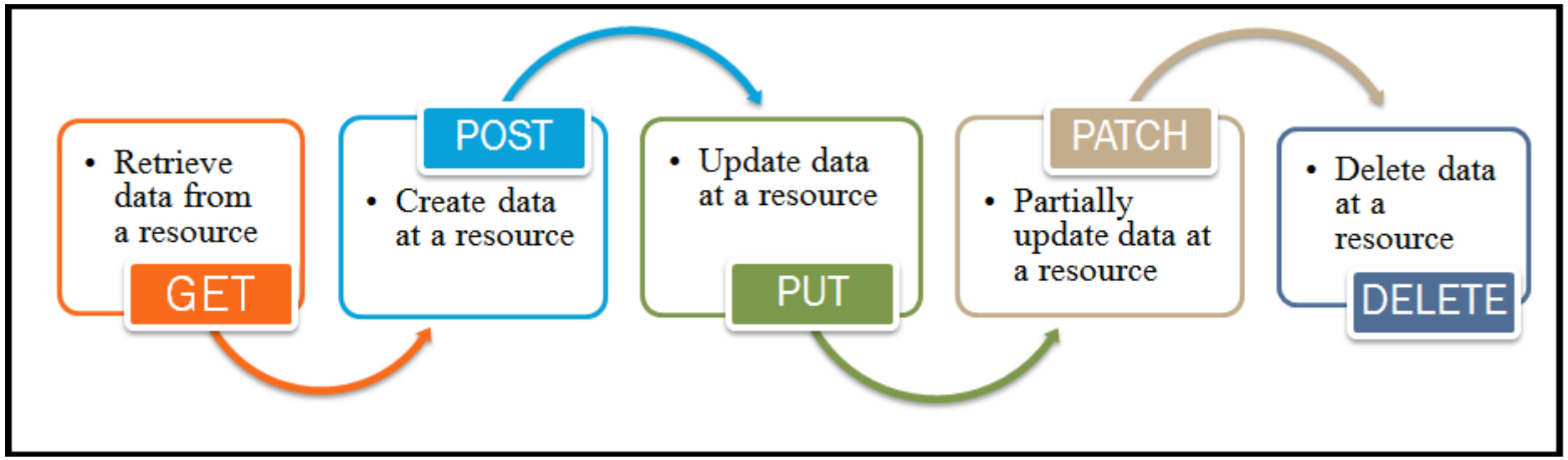
- Social Media
- Web Chat
- Mobile

Request Component

1. The Endpoint



2. The Method



Request Component

3. The Headers

used to provide information to both the client and server. It can be used for many purposes, such as authentication and providing information about the body content.

- Content-Type: application/json
- Connection: Keep-alive
- Authorization:<Type> <Credintials>

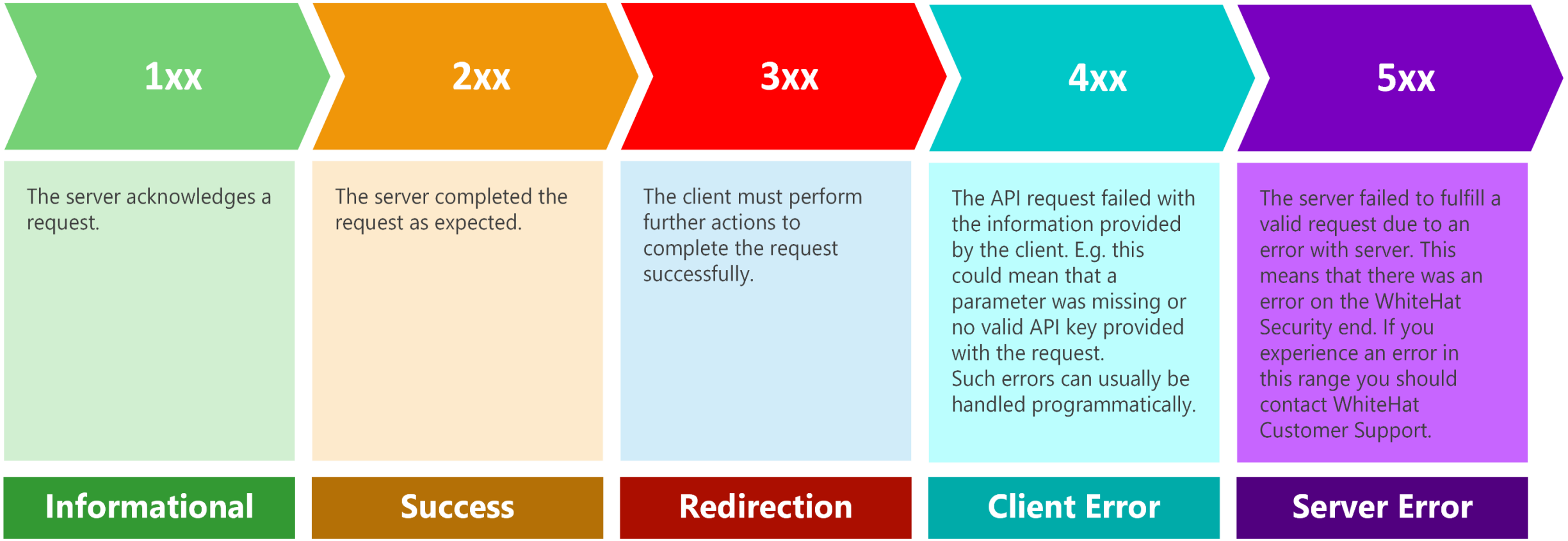
4. The Body (Data)

contains information you want to be sent to the server.

This option is only used with : POST / PUT or PATCH.

Response Component

1. The Status code
2. The Status massage
3. The Data



API Tools

Product	Katalon	REST-assured	apigee	JMeter	POSTMAN
Application Under Test	API, Web, Mobile, and Desktop apps	REST API	API	Web application and API	API
Supported platform	Windows Linux MacOS	Windows Linux MacOS	Windows Linux MacOS	Windows Linux MacOS	Windows Linux MacOS
Ease of installation and usability	Easy to set up and use	• Easy to install and use • Require basic knowledge of Java	Require knowledge of endpoint management	• Easy to install and use • Require basic knowledge of Java	Easy to set up and use

Types of Bugs in APIs