# Welcome to the
# Web Application Development with Python L-4
## Training Program

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**Web Application Development with Python**

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**Lecture**

**00**

✓ **Django REST Framework Theory**

# What is API?

- **API** stand for **Application Programming Interface**. An API is a set of rules that allow different software applications to communicate with each other.

- It acts as a messenger, enabling one application to request services or data from another, without needing to know the internal workings of the other application.
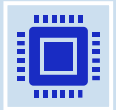
**Example:** Think of it like a waiter in a restaurant: you (the client) tell the waiter (the API) what you want (the request), and the waiter relays that information to the kitchen (the server) to prepare it, and then brings the food (the response) back to you.
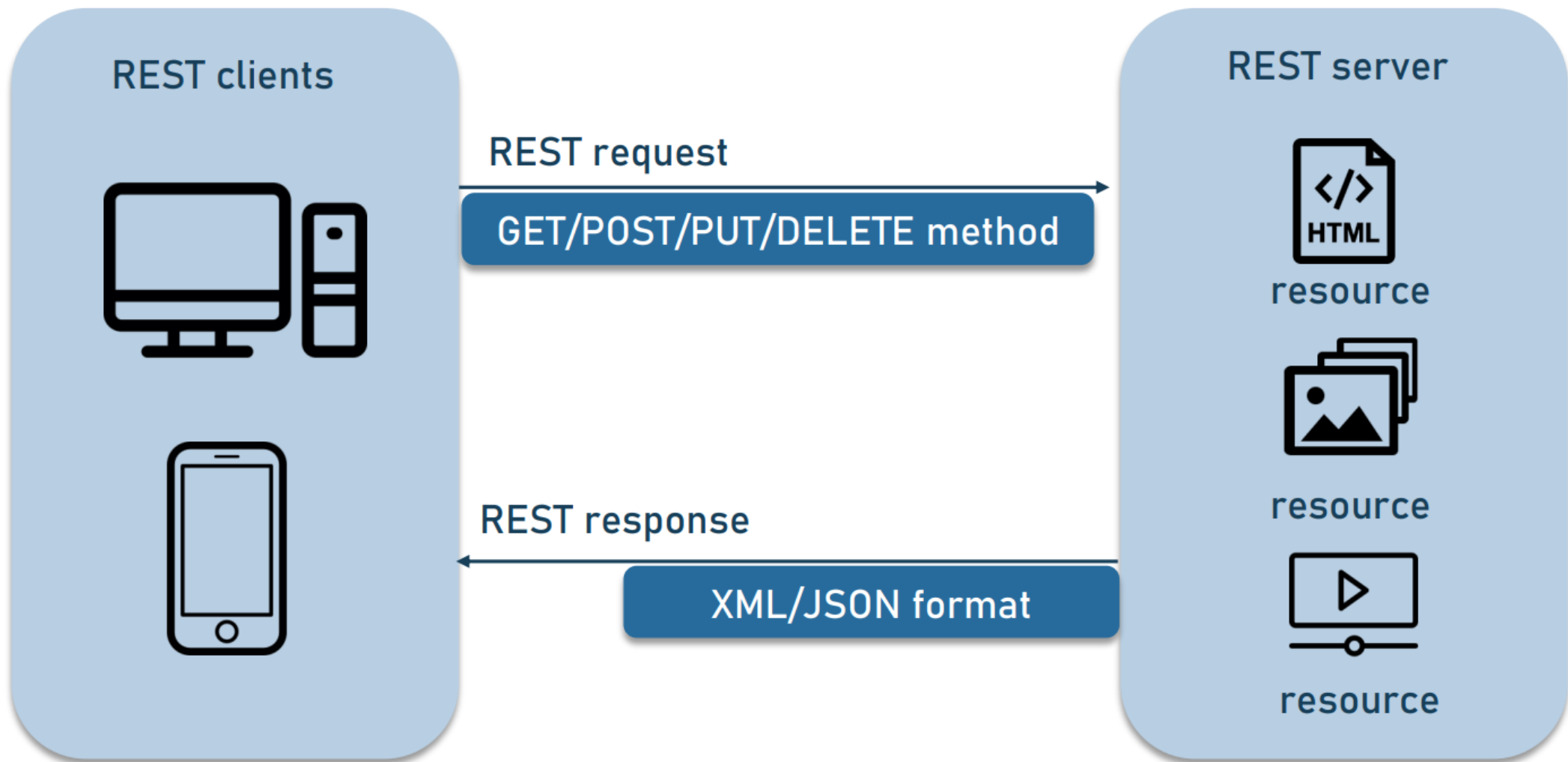
**Communication between Apps:** APIs allow different software systems to talk to each other.

**Save time and effort:** APIs let developers reuse features instead of building everything from scratch.

**Secure Access to Data:** APIs can control what data to features are allowed to be accessed.

**Connect Frontend & Backend:** In web or mobile apps, the frontend uses APIs to get or send data to the backend.

# How Do APIs Work?

**Request:** A client (user) sends a request through the API's URI (Uniform Resource Identifier).

**Processing:** The API forwards the request to the server.

**Response:** The server processes the request and sends the response back to the API.

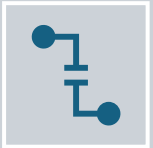**Delivery:** The API returns the server's response to the client.

# Django REST Framework(DRF)

Django REST Framework (DRF) is a powerful toolkit for building Web APIs in Django. It offers an easy-to-use interface to build REST APIs and comes with many features such as authentication, serialization, and viewsets that make developing APIs easier.

# Key components of DRF

**Serializers:** Convert complex data like Django models/ querysets into JSON or XML format.

**View:** Define views that handle API requests and responses.

**URL Routing:** Map URLs to your API views so they can be accessed by clients.

# What is REST API?

- **REST** stands for **Representational State Transfer**, REST is an architecture style or set of rules for building web APIs. It defines a set of functions (GET, PUT, POST, DELETE) that clients use to access server data.

- It tells how APIs should behave, such as:
  - Use **HTTP methods** (GET, POST, PUT, DELETE)
  - Use **URLs** (endpoints) to access resources
  - Be **stateless** (every request is independent)
  - Use **JSON or XML** for data
  - Use proper **HTTP status codes** (200, 404, etc.)

**Note:** Django Rest Framework is a RESTful API. If API follows REST principles correctly, then it's called a RESTful API.

# Thanks All

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