



# What is an API?

**Definition:** API stands for **Application Programming Interface**. It allows two software applications to communicate.

**Example:** Ordering food using a food delivery app → app communicates with restaurant system using an API.



# HTTP

## What is a REST API?

**REST** = Representational State Transfer A style of web architecture that uses HTTP for communication.

### Key Points:

- Uses HTTP methods (GET, POST, etc.)

- Stateless operations

- Resource-based (everything is a resource: users, posts, etc.)

- Data is usually sent in **JSON** format



# What is HTTP?

**HTTP (Hypertext Transfer Protocol)** is the protocol used to transfer data over the web.

## Key Terms:

### URL:

The address of the resource

### Method:

Action you want to perform  
(GET, POST, etc.)

### Status Codes:

Response from the server (e.g., 200 OK, 404 Not Found)



# HTTP Methods Explained

Method	Purpose	Example
GET	Read or fetch data	Get a user's profile
POST	Create new data	Add a new user
PUT	Update/replace data	Update user details completely
PATCH	Partially update data	Update just the email
DELETE	Remove data	Delete a user account



# REST API Example - User Resource

## Endpoint:

```
https://api.example.com/users
```

## Actions:

- GET /users → Get list of users
- POST /users → Create a new user
- GET /users/1 → Get user with ID 1
- PUT /users/1 → Replace user 1's info
- DELETE /users/1 → Delete user 1

# Sample API Request (Using CURL)

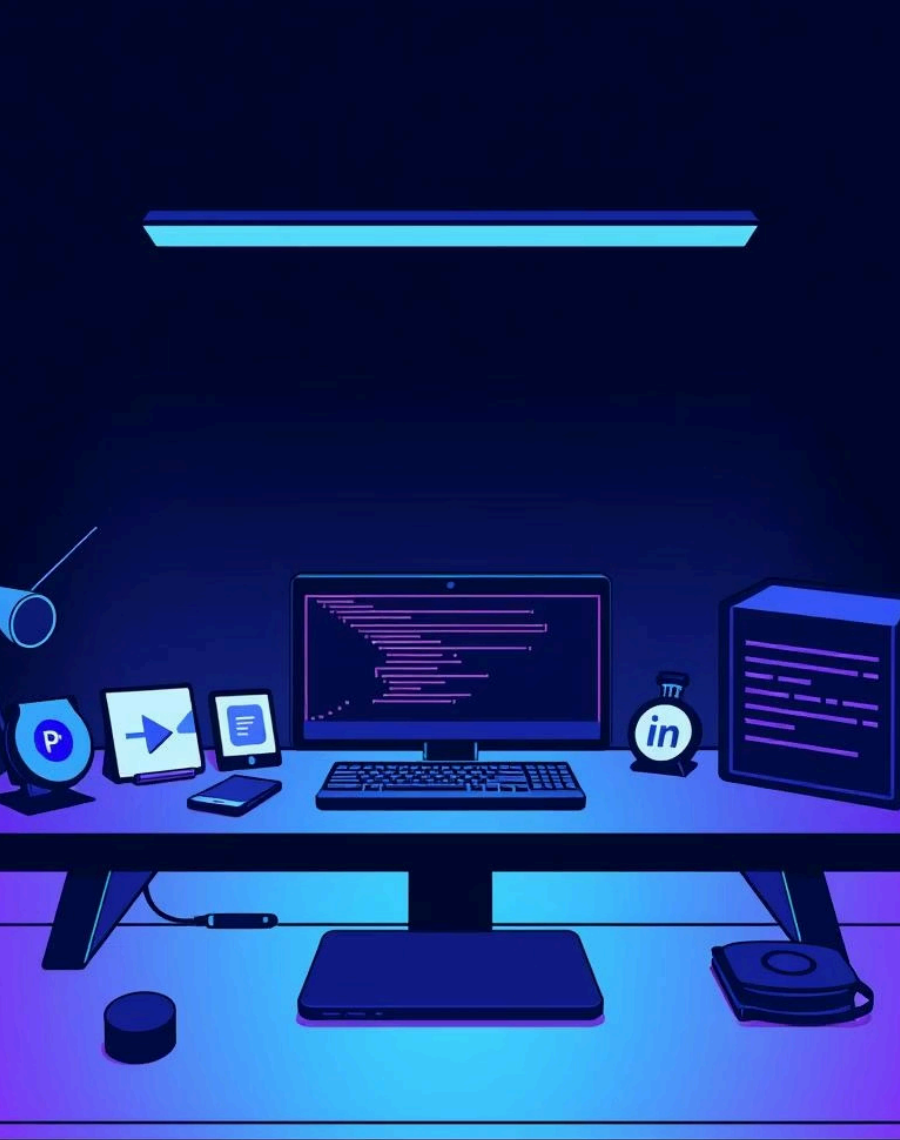
```
curl -X GET https://api.example.com/users
```

## Response:

```
[ { "id": 1, "name": "Tayyab", "email": "tayyab@example.com" } ]
```

```
curl ) >
```

```
3Q curl J imalis:  
net lise cart respoonset.  
API.
```



# Testing REST APIs

## Tools:



Postman



cURL (Command Line)







Insomnia






Browser (for simple GET requests)

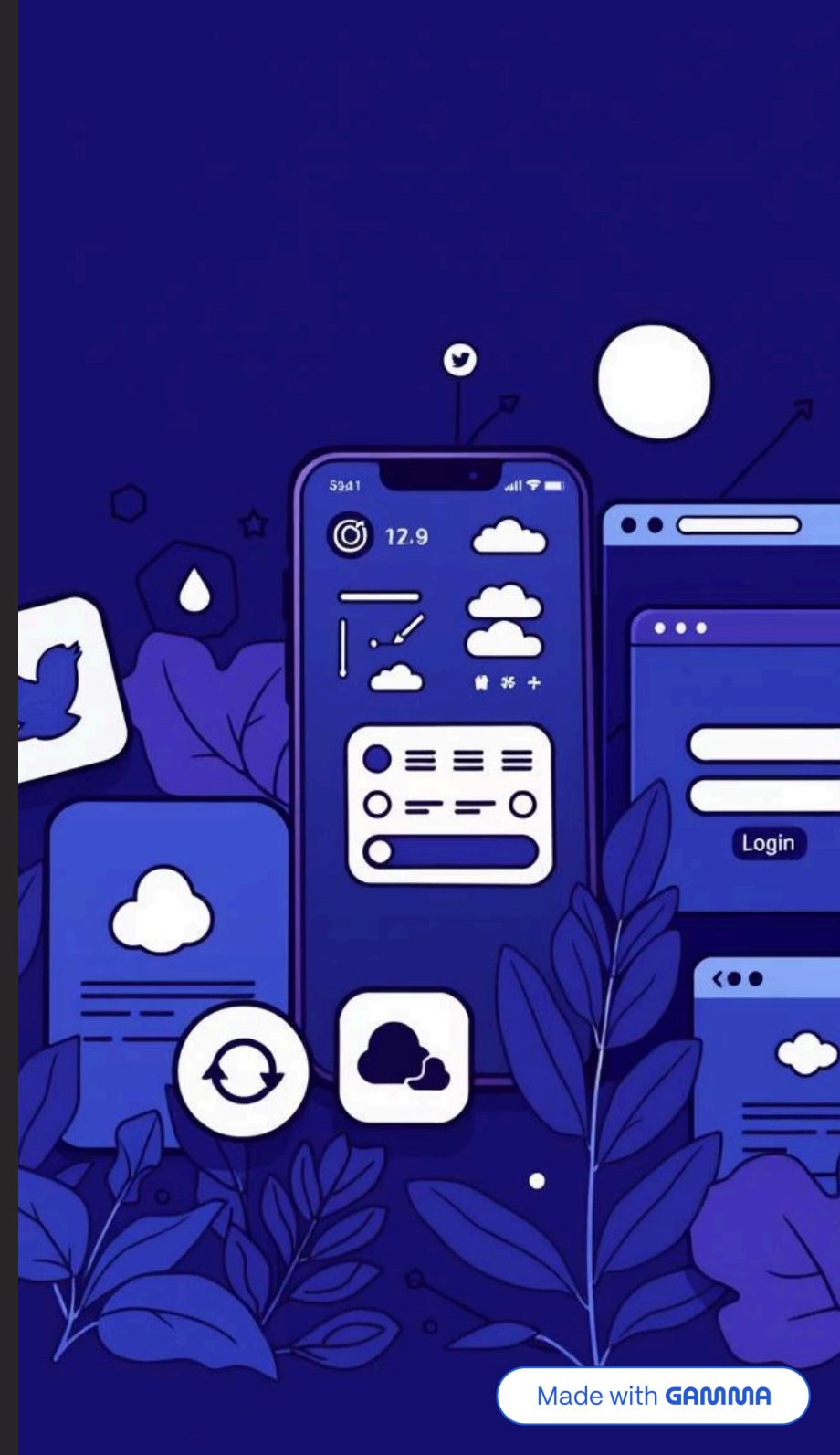
# REST API in Real Life

## Examples:

-  Logging into a website
-  Viewing posts on social media
-  Submitting a form
-  Weather apps fetching data

## Popular REST APIs:

-  GitHub API
-  Twitter API
-  OpenWeatherMap API





# REST vs Other API Styles (Optional)

Feature	REST	GraphQL
Structure	Multiple endpoints	Single endpoint
Flexibility	Fixed data shape	Query only what you need
Learning curve	Easy	Slightly higher