APIS: THE INVISIBLE INTERNET

A BEGINNERS CLASS

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Understanding the backbone of every digital product you'll design

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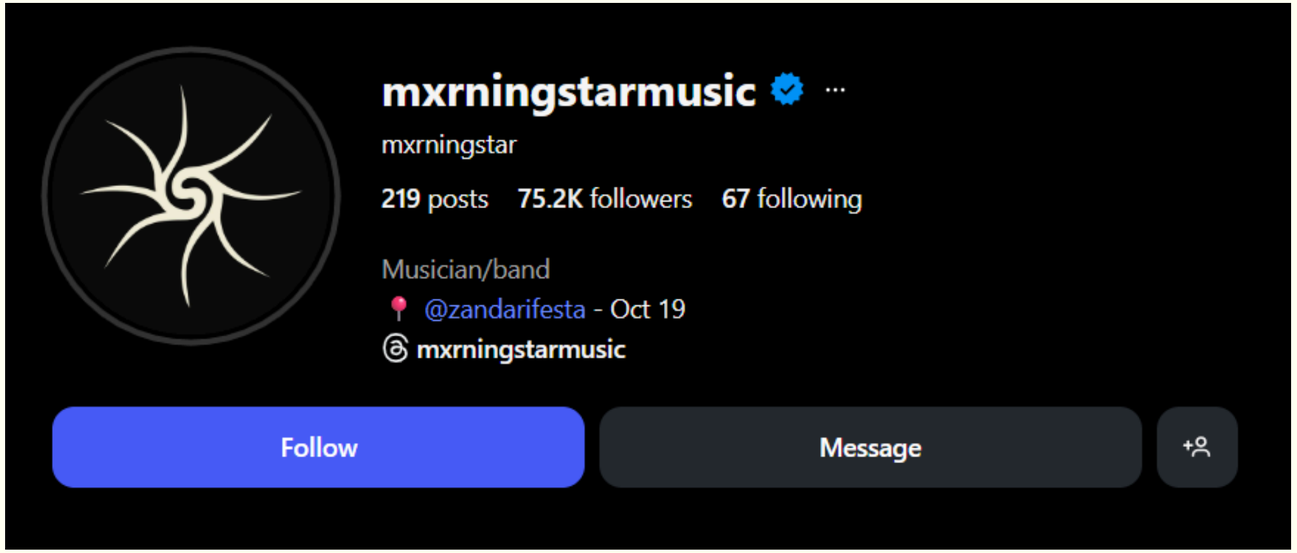
SCENARIO

WHAT HAPPENS WHEN YOU TAP THIS?

- Their follower and following count are displayed
- You follow → it's increased
- Everyone else sees it too
- It's saved forever



Source: https://www.instagram.com/mxrningstarmusic/

HOW DOES INSTAGRAM KNOW?

It's not magic

It's APIs

01

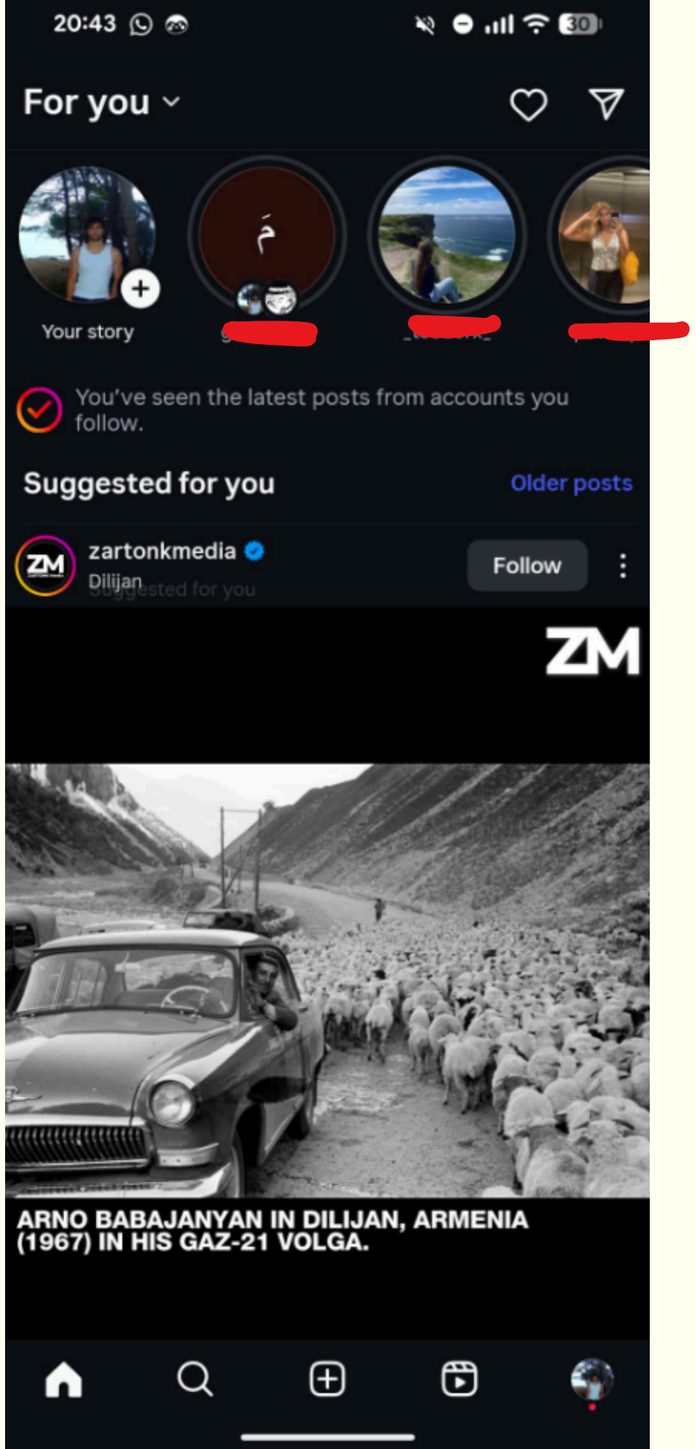
HOW DOES AN APP WORK??

WHAT IS A FRONTEND?

The part that runs on your device

Shows ui, captures clicks

Your device is doing the work!!

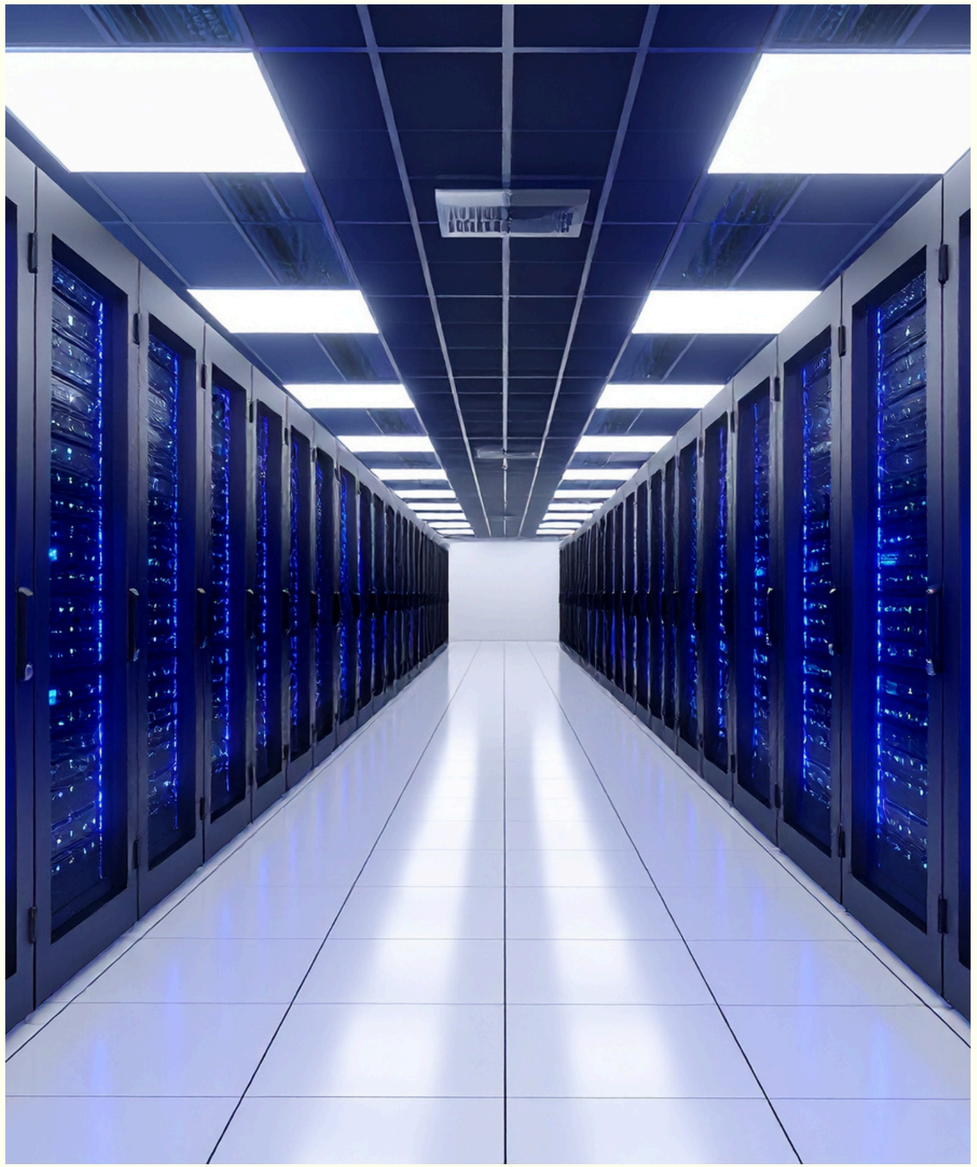


WHAT IS A SERVER/ BACKEND??

Server:

“A server is just another computer, but it's always running and waiting for requests”

→ In big Data Centers



Backend:

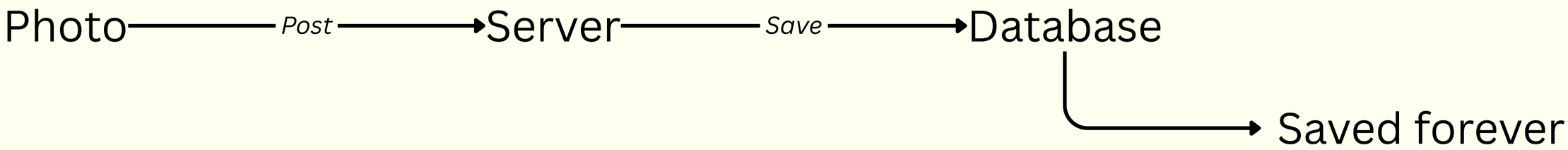
Usually run on servers
Processes API Requests → “Business Logic”

WHAT IS A DATABASE??

"A database is organized storage for data”

Data needs to survive
even if the server restarts

Example: Instagram Post



API = RESTAURANT?

Food Storage:

The Database

Kitchen:

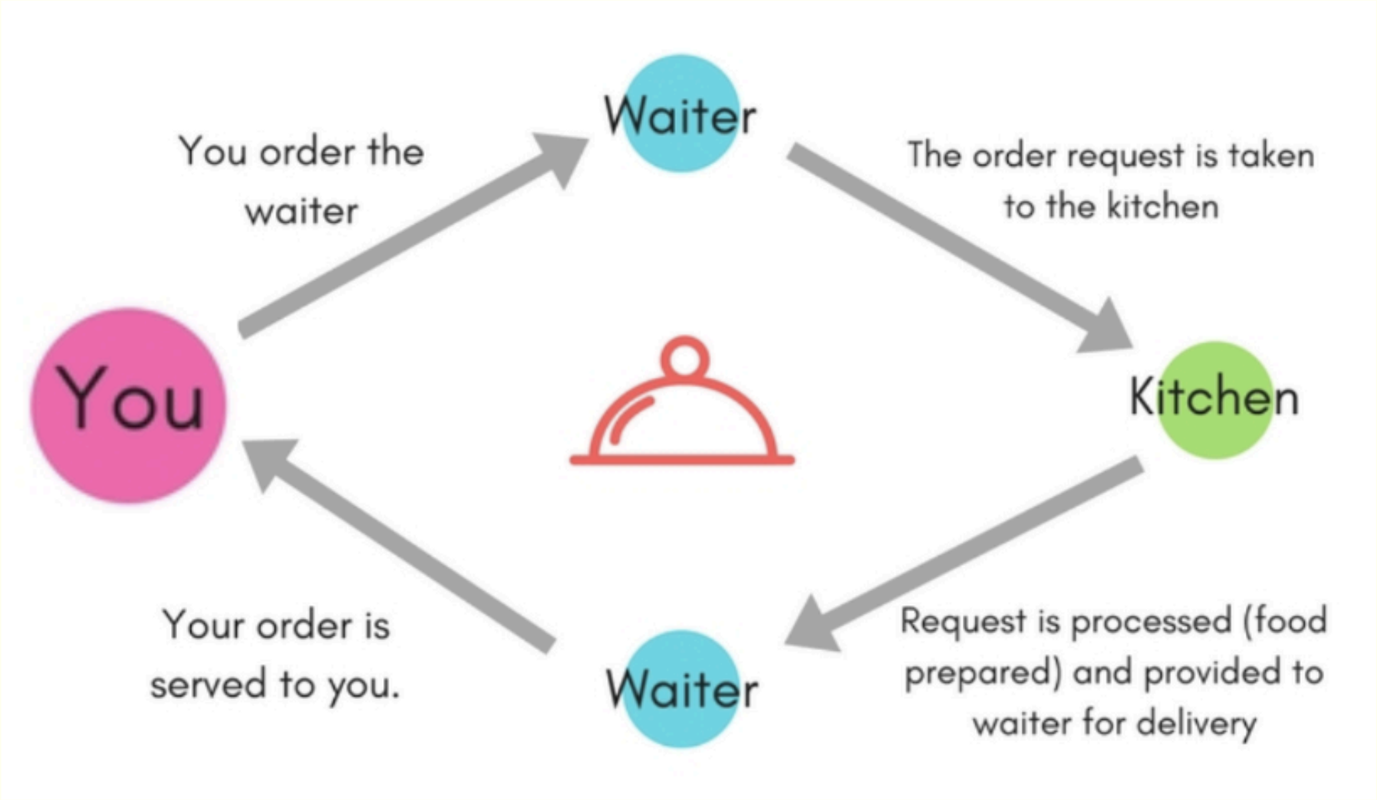
Backend preparing the data (ingredients)

Waiter:

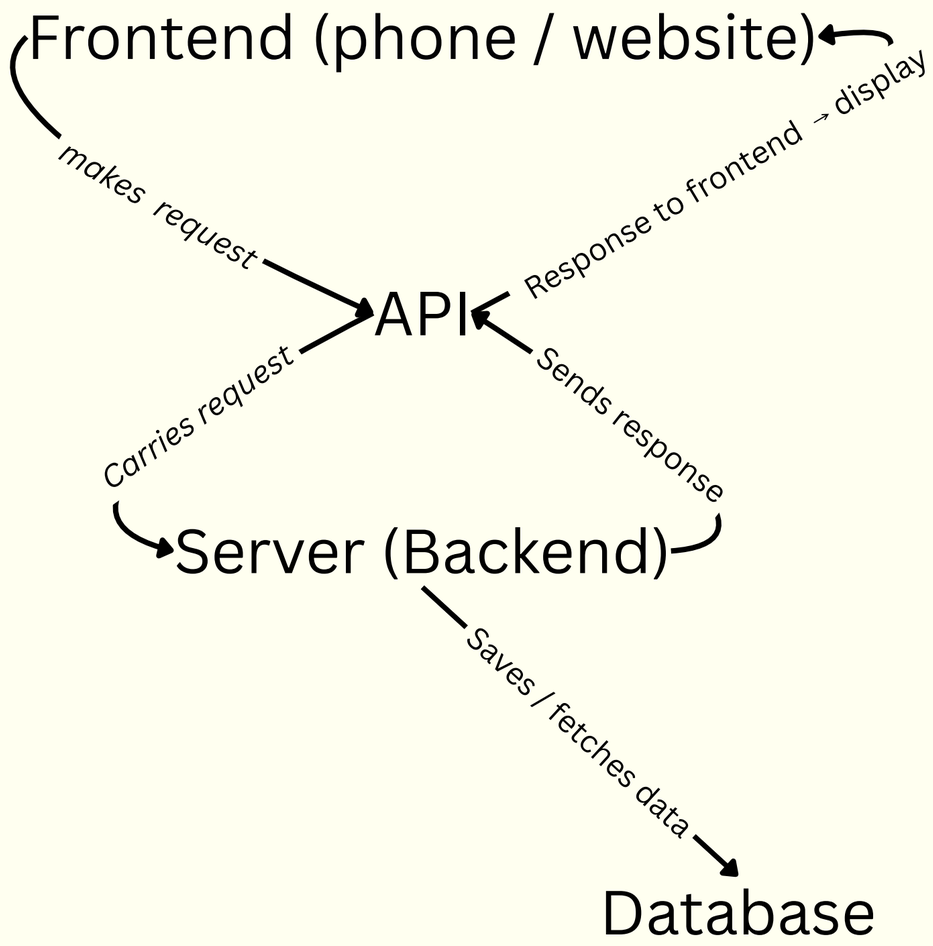
API communicating
takes orders (request)
brings food (response)

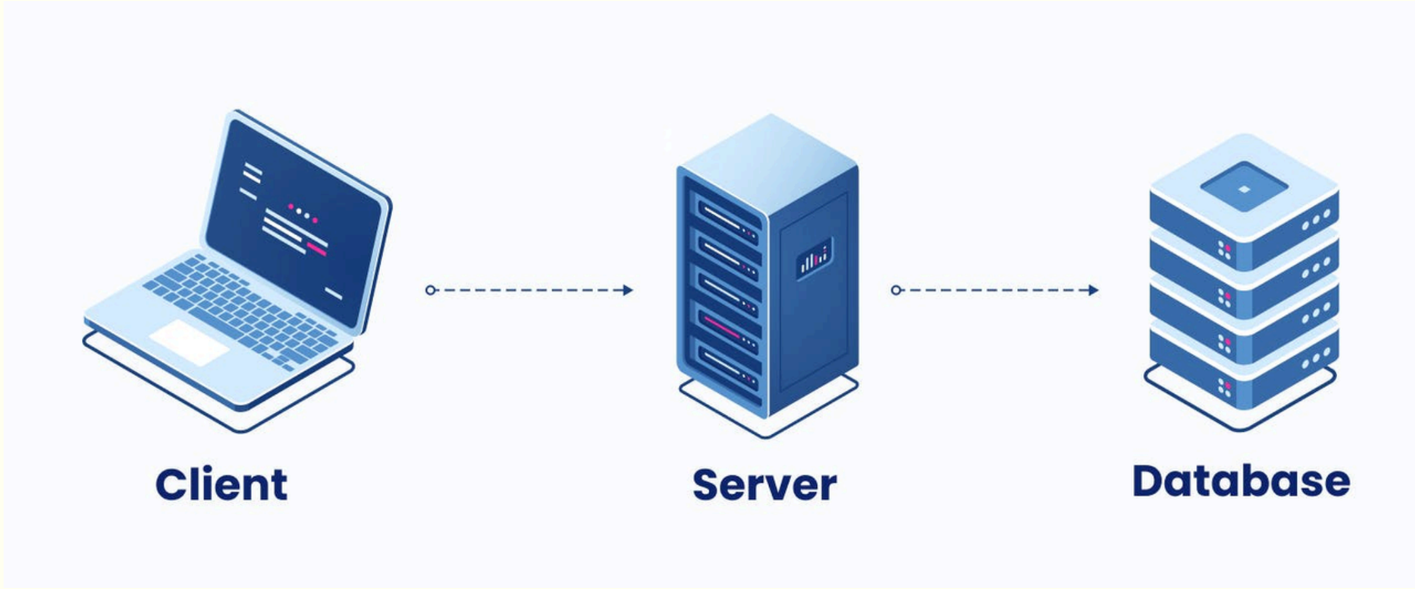
You:

What you see: website / app



REQUEST - RESPONSE - FLOW





REQUEST - RESPONSE - FLOW (MORE SPECIFIC)

1. You tap ❤️ (User action)
2. Frontend captures the click
3. Frontend sends request to API
4. API receives it & validates
5. API tells Backend: "Save this like"
6. Backend updates Database
7. Database confirms
8. Backend tells API
9. API sends response to Frontend
10. Frontend updates the UI: 42 → 43

02

HTTP

WHAT IS HTTP

HyperText Transfer Protocol

Protocol = Set of Rules (languages)
Transfer = moving Data
HyperText = Web Context (text, images, etc)

“Set of Rules to move Data across the internet”

With HTTP you will need:

1. URL (Servers Address): https://api.instagram.com
2. Method (what action you want)
3. Headers (extra info)
4. Body (the actual data): post, comment

THE 4 HTTP METHODS

CRUD

Get → View Data: DMs, shopping cart

POST → Create Data: post comment, picture, like

PUT (/Patch) → Edit Data: edit comment, change address

DELETE → Remove: deleting old chats😔😔

STATUS CODES

✅200	OK	Success: comment posted, follower count fetched
❌404	Not Found	Page not found, user non-existent
⚠️500	Server Error	Server / DB crashed
🛑401	Unauthorized	Not logged in / no rights (admin)

03

REAL WORLD USE

TYPES OF APIS

REST API

- Request → Response → Done
- Most common
- What we built today

Real-Time API

- Persistent connection
- Instant updates
- Chat, notifications, live data

WHERE APIS ARE USED

When you design a product, you'll use external APIs

Authentication

- "Sign in with Google" button → Google OAuth API
- "Login with Apple" → Apple Sign-In API

Maps & Location:

- Any app with maps → Google Maps / Mapbox API
- Food delivery tracking → Location APIs

Payments:

Checkout process → Stripe, PayPal API

→ Don’t build everything from scratch; integrate

04

CODE DEMO

05

API OR NOT

You open your calculator app and add 5 + 3

Your weather app shows tomorrow's forecast

You save a photo from Instagram to your phone

Uber shows your driver's location moving in real-time

You crop a photo in your photo editor

Shazam identifies a song playing in a café

Your fitness app shows how many steps you walked today

06

API WORKSHOP

FH RECIPE SHARING

Students can:

- Browse recipes
- Save their own recipes
- Mark favorites
- Share with classmates

In Groups:

List the Actions

What can users DO in this app?
Example: "View all recipes", "Add new recipe"...

Identify the Data

What information needs to be stored? Example: "Recipe name, ingredients, instructions"...

Match HTTP Methods

For each action, which method?

07

Q&A

Ask me anything about IT that interests you
I’ll give my best to answer each question

BABAI

More questions?
You can always text me
But please not today🙏🙏

You can find the demo here:
https://github.com/mutantboy/Coffee-Tracker

Sources

Restaurant pic

csd pic

This playlist so tuff 🌶️🌶️