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CI & CD Pipelines

Think of building a mobile app or website like cooking food in a restaurant.

- CI (Continuous Integration) - preparing the food quickly every time a new order (code) comes in.
- CD (Continuous Deployment) - Serving the food to the customer (user) automatically and efficiently.

Real-life Analogy:

- You're a chef (developer).
- You get many orders (code changes).
- You have kitchen helpers (tools) who help you.
- Mix ingredients (merge code).
- Taste the food (test code).
- Plate it nicely (build the app).
- Deliver to customer's table (deploy to server).

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Layers of CI/CD pipelines:-

1. Source Layer (Github/Gitlab)

- Code is stored and versioned here.
- Trigger: A push or pull request starts the pipeline.

2. Build Layer

- Code is compiled or converted into a usable format.
- Example: .apk, .zip, .exe, or Docker image.

3. Test Layer

- Automated tests run: unit tests, integration tests.
- Ensures no bugs sneak through.

4. Artifact Layer.

- The "ready-to-ship" version is saved.
- Example: Docker image, app file.

5. Deployment layer:-

- The app is deployed to ...
- Staging server (test environment).
- Production server (live environment).

6. Monitoring layer:-

- Keep an eye on the app is it working or not.
- Get alerts if something crashes.