Day 1: DevOps, DevOps Lifecycle, GitHub, and Diagrams.net

1. DevOps Introduction

What is DevOps?

DevOps = **Development + Operations**

It's a **culture + set of practices + tools** that help:

- Developers (who write code)

- Operations (who deploy/manage systems)

➡️ Work **together**, instead of working in **silos**.

Real-Time Example:

Imagine you're building a mobile app like **Swiggy**.

- The developer writes code to add "Track My Order" feature.

- Without DevOps: Developer gives code to Ops team → they manually deploy → bugs happen → delays.

- With DevOps: Code is **automatically tested and deployed** → customers get updates **faster** and **safely**.

DevOps Helps You:

- Release features faster (like adding new payment methods in Zomato)

- Fix bugs quickly (like fixing login issue in IRCTC)

- Automate repetitive tasks (like server restarts, database backups)

2. DevOps Lifecycle

🔄 **The 8 Phases of DevOps Lifecycle:**

Phase	Description	Real-Time Example
Plan	Define what to build	Swiggy decides to add a "Dark Mode" feature
Develop	Write the code	Developers write Java/Kotlin code for UI
Build	Compile code into deployable format	Android APK is built automatically
Test	Check for bugs automatically	Selenium test checks if "Dark Mode" works
Release	Approve the build for deployment	QA signs off the build
Deploy	Push app to servers or app store	APK is uploaded to Play Store
Operate	Keep app running, fix any issues	Monitor if app is crashing
Monitor	Analyze performance and feedback	Firebase or New Relic shows app metrics

🔄 **Cycle continues: Feedback from users → back to Plan.**

3. GitHub Basics :

What is Git & GitHub?

- **Git** = Version control system (local)

- **GitHub** = Online platform to store Git projects

🧠 **Real-Life Analogy:**

Like **Google Docs** for code. You can:

- Track changes

- Go back to previous versions

- Work together on the same project

Real-Time Example:

You're working with a team on an **online shopping website**:

- You add a "Wishlist" page.

- Your friend adds "Product Ratings".

- GitHub helps **merge**, **track**, and **resolve conflicts** if both change same code.