

Database and Datamodeling

Day 1: Assignment 1

1. Student Management System

Database Type: SQL (Relational Database)

- Student management system stores structured data like student, courses, marks, enrollment etc.
- SQL databases support **relationships** using primary keys and foreign keys (e.g., student ↔ course).
- Easy to run queries like:
 - student-wise marks
 - course-wise enrollments.

2. Netflix

Database Type: NoSQL

- Netflix handles massive amount of unstructured data such as user_activity, recommendations, history etc.
- It uses databases like Casandra which offers higher scalability and fault tolerance.
- It can be also be distributed at multiple locations for high speed and low latency.

3. Instagram Feed when offline

Database Type: In-memory Database

- When you open Instagram while online, the app downloads recent posts, stories, and profile data and

stores them temporarily in an in-memory database(cache) on the device

- When you go offline Instagram shows the already-loaded feed. The data shows comes from in-memory storage, not the internet.