**MODULE-3: Working with Databases**

Theoretical Assignments:

1. Compare SQL and NoSQL Databases

Ans:

* **SQL**

Use SQL when you need structured data and reliable transactions.

* **NoSQL**

Use NoSQL when you need flexibility, scalability, or work with big, unstructured, or rapidly changing data.

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| Aspect | SQL (Relational) | NoSQL (Non-relational) |
| Data Structure | Tables (rows and columns) | Documents, key-value pairs, graphs, etc. |
| Schema | Fixed schema (predefined structure) | Flexible schema (dynamic structure) |
| Examples | MySQL, PostgreSQL, Oracle, SQL Server | MongoDB, Firebase, Cassandra, Redis |
| Query Language | SQL (Structured Query Language) | Varies (e.g., JSON queries in MongoDB) |
| Scalability | Vertical (add more power to one server) | Horizontal (add more servers) |
| Best For | Structured data, complex queries, joins | Unstructured data, fast changes, big data |
| ACID Compliance | Strong (ensures reliability) | Weaker or eventual consistency |
| Use Cases | Banking, ERP, CRM | Real-time apps, IoT, social media |
| Flexibility | Less | More |