Chapter 06
Database Engines

Software Development Frameworks
SDEV 3308
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Outline

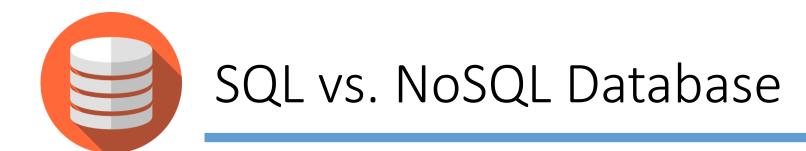- In this chapter, we present some common database engines.

Outline

- SQL vs. NoSQL Database

- Common SQL Database Engines

- Common NoSQL Database Engines

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- **SQL vs. NoSQL Database**
- Common SQL Database Engines
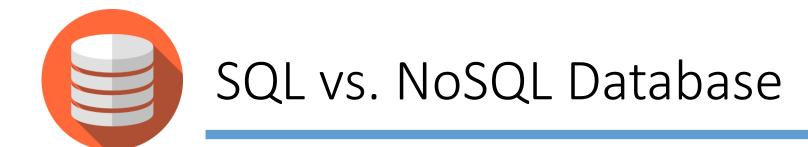- Common NoSQL Database Engines

SQL vs. NoSQL Database

- **SQL Database** (Relation Database) is the base type of database that consists of tables that have relations (foreign keys) together.

- SQL database fully depends on table structure. It cannot use any other data structure.

- In SQL database, the SQL language is used for all CRUD operations.

SQL vs. NoSQL Database

- NoSQL Database is an engine that doesn't use a table or restricted data structure as the base structure of the data store.

- NoSQL store the data in collections (like tables in SQL DB), and usually there are no real relations between the collections. Instead of it, the relations between data items are logical; and handled by the application; not in the database.

- Each NoSQL DB engine has its syntax, API, functions, and packages for programming languages. There is no one standard language or method.

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- **SQL vs. NoSQL Database**
- **Common SQL Database Engines**
- Common NoSQL Database Engines

Common SQL Database Engines

- MySQL
  - Good with PHP and Python
  - Good for small-to-mid-size applications

- PostgreSQL
  - Good with Python and Java
  - Good for small-to-mid-size applications

Common SQL Database Engines

- Oracle
  - Good with Java
  - Good for very large-scale applications
  - Good for legacy systems

- SQL Server
  - Good with .NET frameworks
  - Good for large scale applications

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- **SQL vs. NoSQL Database**

- **Common SQL Database Engines**

- **Common NoSQL Database Engines**

Common NoSQL Database Engines

- MongoDB
  - Store data in BSON files
  - Good with PHP, Python, NodeJS
  - Good for all sizes of applications

- Firestore
  - Store data in JSON files
  - A Firebase service
  - Good with Java and mobile

- Firebase Database
  - Store data in JSON files
  - Good with Java, mobile, and networking
  - Used for real-time operations, like instant messaging

Common NoSQL Database Engines

- Redis
  - Store data in the cache
  - Good with PHP and Java frameworks

- ElasticSearch
  - Store data in the file system in the OS
  - Good for store a huge amount of data
  - Good for operations of searching and sorting

End of

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