Introduction to Databases checkpoint

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DataBase definition

❖ database is a collection of interrelated data organized so that individual records

or groups of records can be retrieved to satisfy various criteria.

❖ Database Management System (DBMS): is a software for storing and retrieving

users' data while considering appropriate security measures. It consists of a group

of programs which manipulate the database.

SQL vs NOSQL definition

- SQL: which stands for "Structured Query Language," is the programming language that's been widely used in managing data in relational database mangement systems (RDBMS).

- NOSQL: is a non-relational database, meaning it allows different structures than a SQL database (not rows and columns) and more flexibility to use a format that best fits the data.

SQL vs NOSQL

SQL	NOSQL
Relational database management system	Distributed database management system
Vertically Scalable	Horizentally Scalable
Fixed or predifined Schema	Dynamic Schema
Not suitable for hierarchical data storage	Best suitable for hierarchical data storage
Can be used for complex queies	Not good for complex queries

Mongodb vs SQL

➢ Mongodb: MongoDB is a **document-oriented NoSQL database** used for high volume data storage. Instead of using tables and rows as in the traditional relational databases, MongoDB makes use of collections and Documents.

➢ MySQL : MySQL is an open-source relational database management system.A relational database organizes data into one or more data tables in which data types may be related to each other; these relations help structure the data. SQL is a language programmers use to create, modify and extract data from the relational database.

Mongodb vs SQL

	MySQL	MongoDB
Query Language	Use Structered Query Language(SQL)	Uses MongoDB Query Languages
Flexibility of Schema	Pre-defined schema design	Uses role based access control
Relationships	Support JOIN statements	Does not support JOIN statements
Performance	Slower than MOongoDB	Faster than MySQL
Use Case	Legacy application or applications that require muilti-row transactions	Real-time analytics,content management, IOT, mobile apps
Security	Uses privilege-security based model	Uses roles based acces control