Types of DBMS

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Introduction :

- DBMS (Database management systems) come in various types, each created to meet particular data administration and storage requirements.
- Here are some common types:
- Relational Databases (SQL databases)
- NoSQL Databases
- Graph Databases
- Object-Oriented Databases
- Time-Series Databases
- In-Memory Databases
- Spatial Databases

- Relational Database Management System (RDBMS):
- These databases use structured query language (SQL) for defining and manipulating data.
- They organize data into tables with rows and columns, and relationships between them are established using foreign keys.
- Advantages :
- Constraints enforce data quality and consistency.
- Enables users to utilize SQL to run effective queries.
- Disadvantages
- Complex joins and large-scale data retrieval may have an impact

- NoSQL Databases:
- NoSQL databases are designed to handle large volumes of unstructured data.
- They offer flexible schemas and are often used in big data and real-time web applications.

- Advantages :
- NoSQL databases can handle enormous volumes of data and heavy traffic loads by scaling horizontally.
- Enables users to utilize SQL to run effective queries.
- Disadvantages
- Data can become disorganized or fragmented without a rigid framework

- Object-Oriented Databases:
- Object-oriented databases store data in the form of objects, similar to the way objects are represented in object-oriented programming languages.
- Advantages :
- Compared to relational databases, OODBMS manages complex data relationships more naturally.
- Disadvantages
- Compared to relational databases, OODBMS implementations and query languages are less standardized.

- In-Memory Databases:
- In-memory databases store data primarily in main memory (RAM), rather than on disk, for faster data access and processing.
- Advantages :
- getting data from memory is much faster.
- Disadvantages
- Memory is more expensive than disc storage in terms of price.
- In-memory databases need procedures like regular snapshots or replication to ensure data persistence.

- Time-Series Databases:
- Time-series databases are optimized for storing and querying time-stamped data, such as sensor data, financial market data, and IoT data.
- Advantages :
- reduce storage needs by optimizing storage for sequential and time-based data.
- Disadvantages
- The initial historical data loading procedure can be time-consuming.
- Keeping track of data retention rules can be difficult.