Database Management Systems (DBMS) Overview:- DBMS are pivotal in creating, managing, and manipulating databases, providing a systematic approach to data management.- They support various database models, including relational, NoSQL, and in-memory databases, each serving different needs.Key Functions:- Data Storage, Retrieval, and Update: DBMS stores data in an organized manner, allows for efficient retrieval, and supports updates to ensure data remains current.- Data Security: Implements access controls and authentication measures to safeguard data.- Data Integrity: Maintains data accuracy and consistency through integrity constraints.- Backup and Recovery: Ensures data preservation and recovery mechanisms are in place to handle system failures.Advantages of Using a DBMS:- Improved data sharing and data security.- Better data integration and minimized data inconsistency.- Enhanced data access and responsiveness to user queries.- Increased end-user productivity.Types of DBMS:- Relational DBMS (RDBMS): Uses a table-based structure and SQL for data manipulation. Examples include MySQL, PostgreSQL, and Oracle.- NoSQL DBMS: Designed for unstructured data and scalability challenges, supporting document, key-value, wide-column, and graph databases. Examples include MongoDB, Cassandra, and Neo4j.- In-memory DBMS: Stores data in the main memory to achieve faster response times. Examples include Redis and SAP HANA.Choosing the Right DBMS:- The selection depends on the specific requirements, such as data complexity, scalability needs, and performance criteria. Consider factors like data model support, transaction throughput, and ecosystem compatibility.