

Difference between SQL and NoSQL

Parameter	SQL	NOSQL
Definition	SQL databases are primarily called RDBMS or Relational Databases	NoSQL databases are primarily called as Non-relational or distributed database
Design for	Traditional RDBMS uses SQL syntax and queries to analyze and get the data for further insights. They are used for OLAP systems.	NoSQL database system consists of various kind of database technologies. These databases were developed in response to the demands presented for the development of the modern application.
Query Language	Structured query language (SQL)	No declarative query language
Type	SQL databases are table based databases	NoSQL databases can be document based, key-value pairs, graph databases
Schema	SQL databases have a predefined schema	NoSQL databases use dynamic schema for unstructured data.
Ability to scale	SQL databases are vertically scalable	NoSQL databases are horizontally scalable
Examples	Oracle, Postgres, and MS-SQL.	MongoDB, Redis, , Neo4j, Cassandra, Hbase.
Best suited for	An ideal choice for the complex query intensive environment.	It is not good fit complex queries.
Hierarchical data storage	SQL databases are not suitable for hierarchical data storage.	More suitable for the hierarchical data store as it supports key-value pair method.
Variations	One type with minor variations.	Many different types which include key-value stores, document databases, and graph databases.
Development Year	It was developed in the 1970s to deal with issues with flat file storage	Developed in the late 2000s to overcome issues and limitations of SQL databases.
Open-source	A mix of open-source like Postgres & MySQL, and commercial like Oracle Database.	Open-source
Consistency	It should be configured for strong consistency.	It depends on DBMS as some offers strong consistency like MongoDB, whereas others offer only offers eventual consistency, like Cassandra.
Best Used for	RDBMS database is the right option for solving ACID problems.	NoSQL is a best used for solving data availability problems
Importance	It should be used when data validity is super important	Use when it's more important to have fast data than correct data
Best option	When you need to support dynamic queries	Use when you need to scale based on changing requirements
Hardware	Specialized DB hardware (Oracle Exadata, etc.)	Commodity hardware
Network	Highly available network (Infiniband, Fabric Path, etc.)	Commodity network (Ethernet, etc.)
Storage Type	Highly Available Storage (SAN, RAID, etc.)	Commodity drives storage (standard HDDs, JBOD)
Best features	Cross-platform support, Secure and free	Easy to use, High performance, and Flexible tool.
Top Companies Using	Hootsuite, CircleCI, Gauges	Airbnb, Uber, Kickstarter
ACID vs. BASE Model	ACID( Atomicity, Consistency, Isolation, and Durability) is a standard for RDBMS	Base ( Basically Available, Soft state, Eventually Consistent) is a model of many NoSQL systems