What is SQL?

- Structured Query language (SQL) is the standard language for dealing with Relational Databases.
- A relational database defines relationships in the form of tables.
- SQL programming can be effectively used to insert, search, update, delete database records.
- Relational databases like MySQL Database, Oracle, Ms SQL Server, Sybase, etc. use SQL.

user_id	first_name	last_name	age
1	Joe	Doe	29
2	Jane	Dan	31
3	Potter	Paul	39
4	Pil	Passot	41

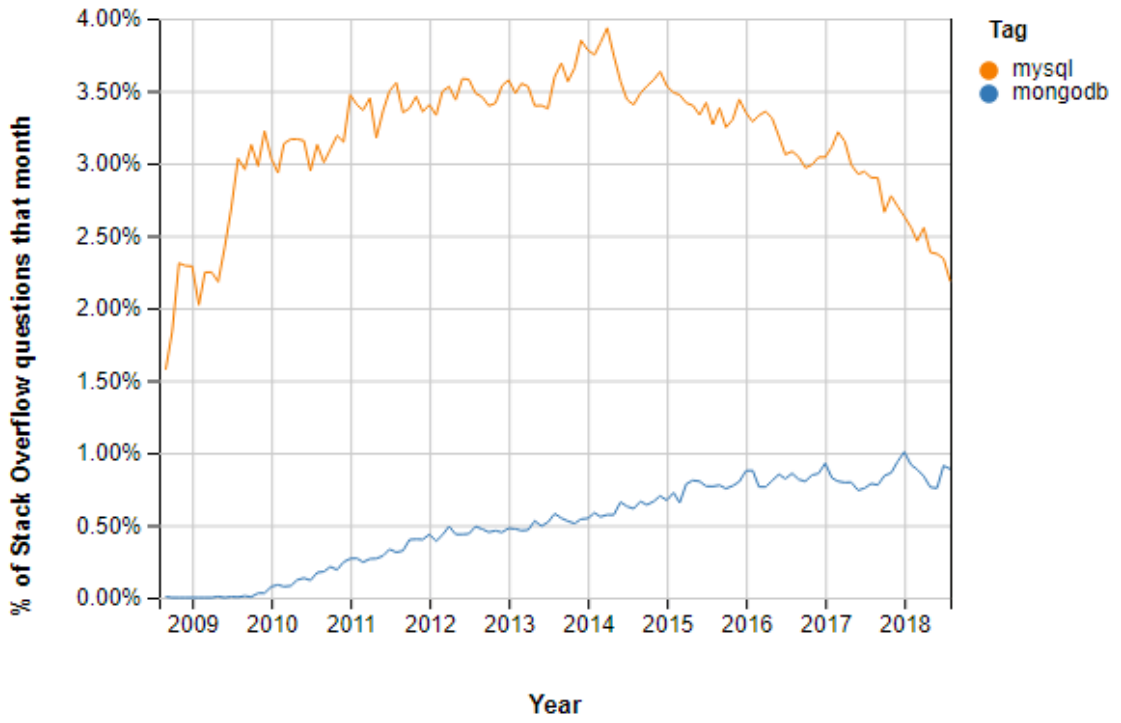
Table: Users

order_id	name	price	user_id
1	Wristwatch	$10	4
2	Keyboard	$42	2
3	Chair	$120	4
4	Phone	$310	1

Table: Orders

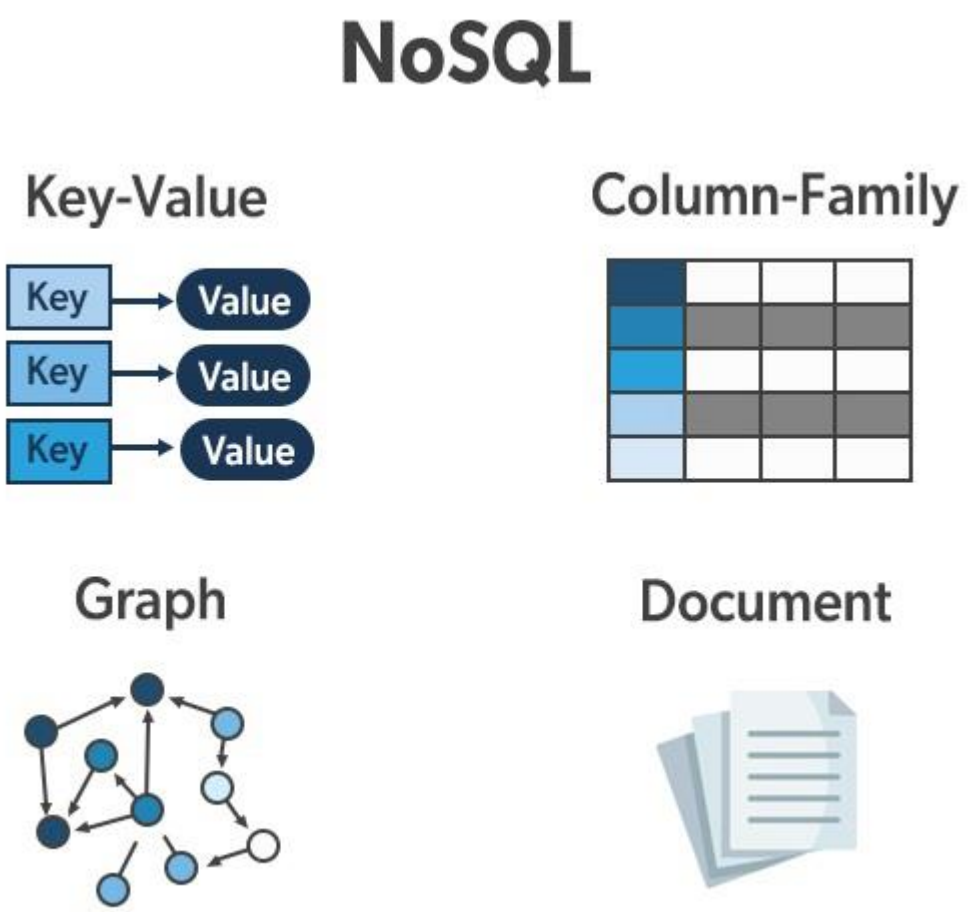
When use SQL?

- SQL is the easiest language used to communicate with the RDBMS
- Analyzing behavioral related and customized sessions
- Building custom dashboards
- It allows you to store and gets data from the database quickly
- Preferred when you want to use joins and execute complex queries



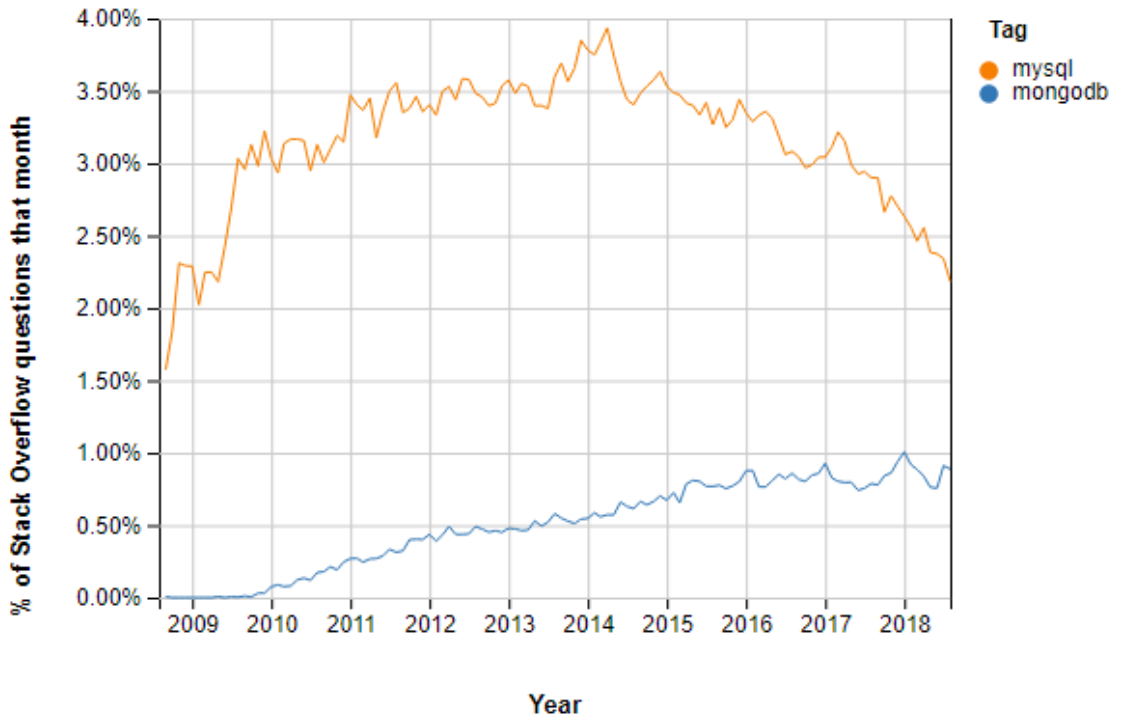
What is NoSQL?

- NoSQL is a non-relational DMS, that does not require a fixed schema, avoids joins, and is easy to scale.
- NoSQL database is used for distributed data stores with humongous data storage needs.
- NoSQL is used for Big data and real-time web apps. For example companies like Twitter, Facebook, Google that collect terabytes of user data every single day.
- Traditional RDBMS uses SQL syntax to store and retrieve data for further insights. Instead, a NoSQL database system encompasses a wide range of database technologies that can store structured, semi-structured, unstructured and polymorphic data.



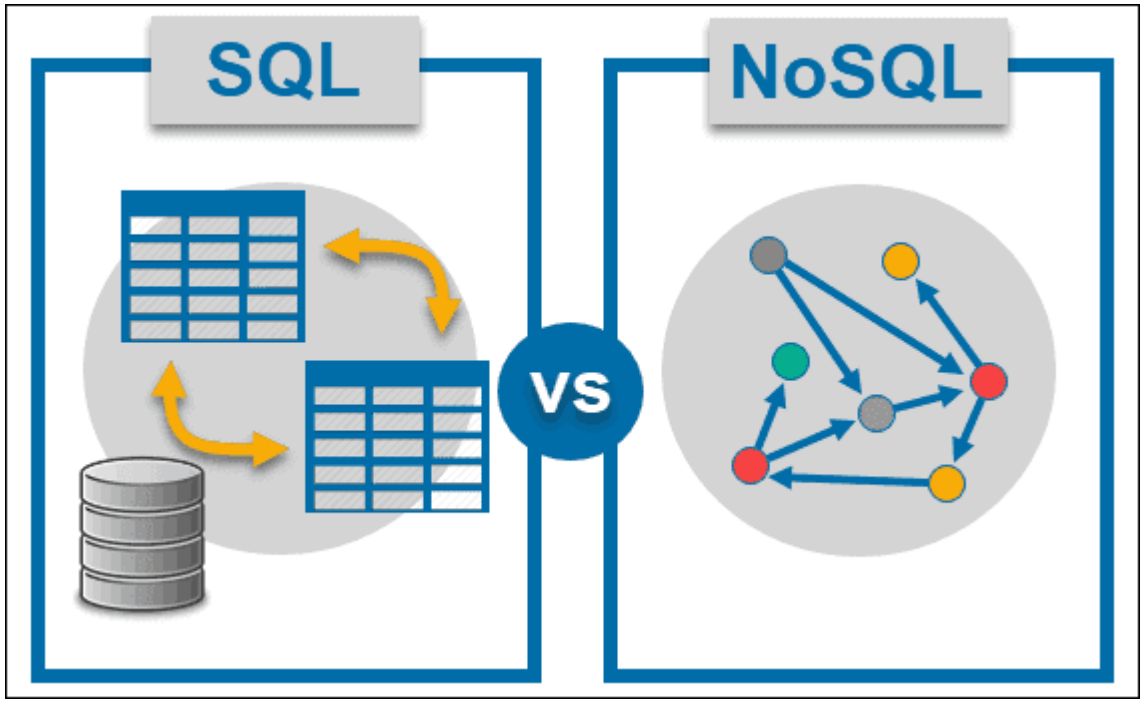
When use NoSQL?

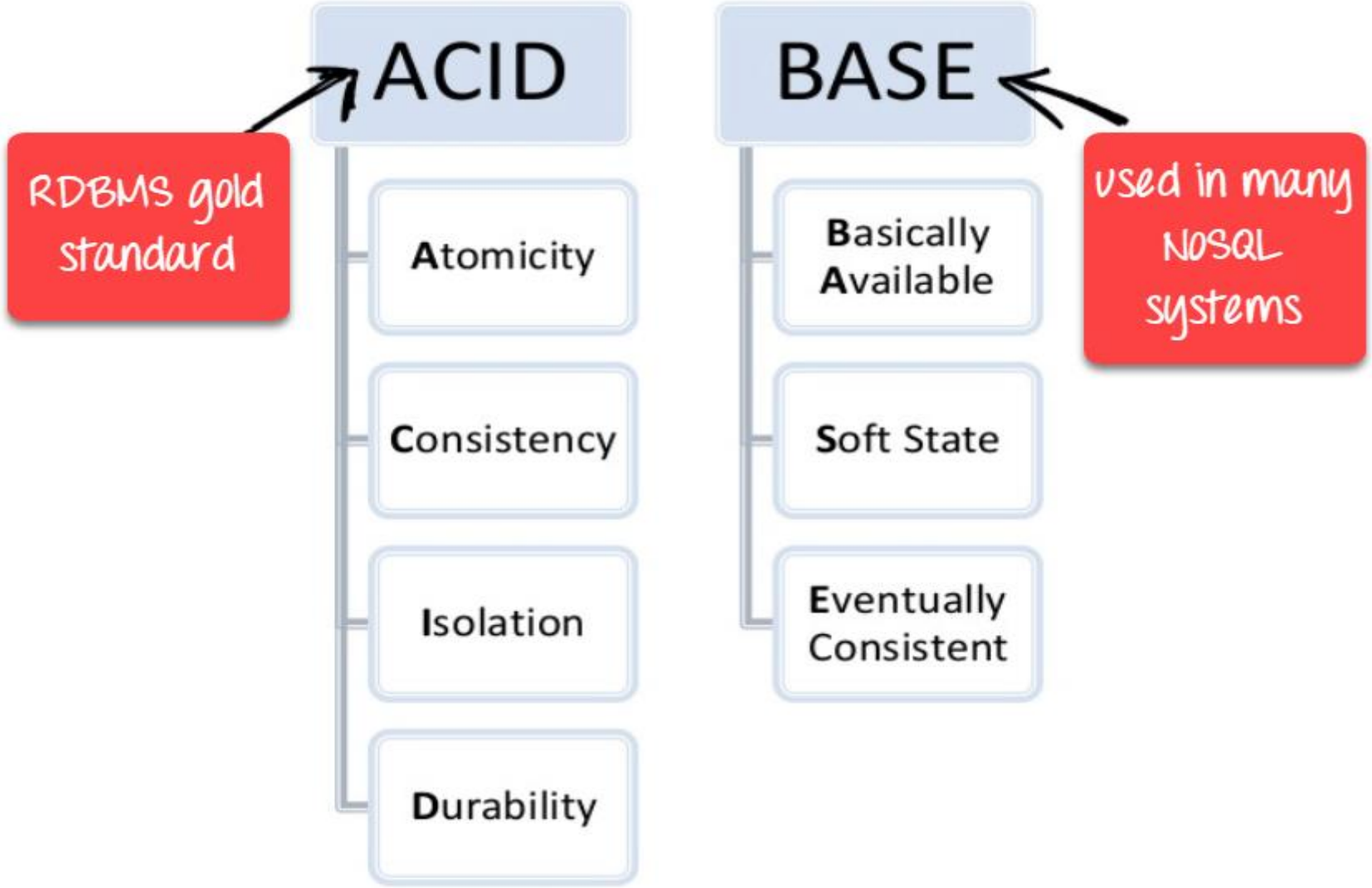
- When ACID support is not needed
- When Traditional RDBMS model is not enough
- Data which need a flexible schema
- Constraints and validations logic not required to be implemented in database
- Logging data from distributed sources
- It should be used to store temporary data like shopping carts, wish list and session data



Key Differences between SQL and NoSQL

- **SQL** is primarily called RDBMS or Relational Databases, whereas **NoSQL** is a Non-relational or Distributed Database.
- **SQL** databases are table-based databases, **NoSQL** databases can be document-based, key-value pairs, and graph databases.
- **SQL** databases are vertically scalable, while **NoSQL** databases are horizontally scalable.
- **SQL** databases have a predefined schema, whereas **NoSQL** databases use a dynamic schema for unstructured data.
- **SQL** requires specialized DB hardware for better performance, **NoSQL** uses commodity hardware.




ACID
RDBMS gold standard
Atomicity
Consistency
Isolation
Durability
BASE
used in many NOSQL systems
Basically Available
Soft State
Eventually Consistent