

Advantages of NoSQL:

- **Horizontal Scaling (scaling out):** Databases have been scaling out for years and DBAs had been dependent on scaling up relational databases so that they could increase the efficiency. Scaling up means stacking up larger servers like the load raises or increasing the head count of hardware assets for the existing machine to overcome its limitations.
But a point will arrive when more scaling up will not be possible as a machine can handle a particular amount of hardware assets and scaling out is not possible with relational databases because of its technical restrictions. Scaling out means distributing the database throughout multiple computers when the load increases. Therefore, it can handle more traffic simply by adding more servers to the database.
They have the ability to become larger and much more powerful, also it is quite cost effective. Hence, making them the preferred choice for large or constantly evolving data sets.
- **High Availability:** NoSQL databases are highly available due to its auto replication feature i.e. whenever any kind of failure happens data replicates itself to the preceding consistent state.
Not only this, but whenever a server fails, we can access that data from another server as well, as in nosql database data is stored at multiple servers.
- **Flexible Schema:** Relational databases are used to have a defined schema, which is quite an issue because in case you need to make any modification or addition to the database we need to change the schema as well every time. Whereas in NoSQL databases, we could start working with the data without schema.
- **Sharding:** It is a database partitioning technique used by blockchain companies with the purpose of scalability. In case of NoSQL it is an automated process that is the database is partitioned among a random number of the servers on its own, with no requirement for application to be aware of it.
- **Integrated Caching:** It's a technique of keeping frequently used data in the system memory for its instant use which removes the need for a separate

caching layer. NoSQL is equipped with such intelligent integrated caching capability.

- **Less Management:** NoSQL databases require minimum to zero management, they are equipped to auto-repair data distribution and due to it having flexible data models that results in reducing administration and performance difficulties.

Note: NoSQL also has certain other benefits like more compatible for cloud, helps raise funding for business as it is one reliable source for data storage and performing analytics as well.

Disadvantage of NoSQL:

- When compared to SQL or relational databases, NoSQL database is designed for storing data of many types but it lacks functionality like it doesn't support Transaction properties like ACID.
- The process of managing big data on NoSQL is quite complex as compared to RDBMS.
- It is also not compatible with SQL, although few NoSQL databases do use SQL but many don't. Hence, will require manual query language which is quite slow and highly complex.

- It doesn't support data entry with constraints like RDBMS.

For eg: There's an on-campus placement going on for a company in multiple colleges. Now, they maintain a database of all students applied for the Job role. Now we need to enter only those whose CGPA is above 7.5.

Here, NoSQL wouldn't be able to get the job done, whereas RDBMS will get the job done.

- Other concerns for NoSQL are standardization, Interfaces and Interoperability and also less community support(due to it being new in the industry).