1. **What is and Why NoSQL**

NoSQL databases (aka "not only SQL") are non tabular, and store data differently than relational tables. NoSQL databases come in a variety of types based on their data model. The main types are document, key-value, wide-column, and graph. They provide flexible schemas and scale easily with large amounts of data and high user loads.  **Why ?**

To make the most of cloud computing and storage.

To store large volumes of data that might have little to no structure.

To speed development.

To boost horizontal scalability.

1. **NoSQL characteristics**

They have higher scalability.

They use distributed computing.

They are **cost** effective.

They support flexible schema.

They're able to process both unstructured and semi-structured data.

There are no complex relationships, such as the ones between tables in an RDBMS.

1. **NoSQL databases types**

Key-value databases

Document databases

Wide-column stores

Graph databases

1. **What is ACID  theorem**

In computer science, **ACID** (atomicity, consistency, isolation, durability) is a set of properties of database transactions intended to guarantee data validity despite errors, power failures, and other mishaps.

1. **What is CAP theorem**

In theoretical computer science, the CAP theorem, also named Brewer's theorem after computer scientist Eric Brewer, states that it is impossible for a distributed data store to simultaneously provide more than two out of the following three guarantees

Consistency

Availability

Partition tolerance

1. **NoSQL advantages**

* Handle large volumes of data at high speed with a scale-out architecture.
* Store unstuctured, semi-structured, or structured data.
* Enable easy updates to schemas and fields.
* Be developer-friendly.
* Take full **advantage** of the cloud to deliver zero downtime.