

Assignment 6

Structured Query Language (SQL) is a standardized programming language that is used to manage relational databases and perform various operations on the data in them.

NO-sql: When people use the term “NoSQL database,” they typically use it to refer to any non-relational database.

A relational database is a collection of data items with pre-defined relationships between them. These items are organized as a set of tables with columns and rows. Tables are used to hold information about the objects to be represented in the database.

A non-relational database is a database that does not use the tabular schema of rows and columns found in most traditional database systems. Instead, non-relational databases use a storage model that is

optimized for the specific requirements of the type of data being stored.

Static schema refers to that structure never changing. A dynamic schema is one that changes as you add data. In most cases, the textbook (correct) approach uses a static schema. Some cases work out well with a dynamic schema.

Scaling or vertical scaling is the process of moving more resources to a single server to accommodate the growth of your application. Cloud Vertical Scaling is the addition of an existing server or the replacement of a server with a more powerful server. Vertical scaling can have a few drawbacks, namely cost, and hardware failure.

Horizontal scaling simply adds more instances of machines without first implementing improvements to existing specifications. By scaling out, you share the processing power and load balancing across multiple machines.

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. In the context of databases, a sequence of database operations that satisfies the ACID properties (which can be perceived as a single logical operation on the data) is called a transaction. For example, a transfer of funds from one bank account to another, even involving multiple changes such as debiting one account and crediting another, is a single transaction.

In theoretical computer science, the CAP theorem, also named Brewer's theorem after computer scientist Eric Brewer, states that any distributed data store can only provide two of the following three guarantees

Consistency

Every read receives the most recent write or an error.

Availability

Every request receives a (non-error) response, without the guarantee that it contains the most recent write.

Partition tolerance

The system continues to operate despite an arbitrary number of messages being dropped (or delayed) by the network between nodes.