

Made by

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 Serverteknologi Database

Relation Database

A relational database is a set of formally described tables from which data can be accessed or reassembled in many different ways without having to reorganize the database tables. The standard user and application programming interface (API) of a relational database is the Structured Query Language (SQL). SQL statements are used both for interactive queries for information from a relational database and for gathering data for reports.

Reference: https://en.wikipedia.org/wiki/Microsoft_SQL_Server

MS SQL Architecture

External Protocols	Shared memory - Named pipes - TCP/IP - Virtual Interface Adapter (VIA)
Database Engine	Database Tables/Indexes - Type System Transactions - Events/Exception Triggers - TSQL - Stored Procedure - SQLCLR
Storage Engine	Transaction Services & File Manager (Utilities) – Buffer Manager & Lock Manager (Access Methods)
Query Processor	Parser - Optimizer - SQL Manager - Database Manager - Query Executer
SQL OS API	Lock Manager – Synchronization Services – Thread Scheduler – Buffer Pool – Memory Manger – I/O Manager

Reference: <http://udayarumilli.com/sql-server-architecture-qa-3/>

Database Design and Resource use

Database planning Planning the database is very important in terms of creating a resourceful and working database. Even though it seems obvious – It can be one of the most demanding tasks, when creating a relational database.

Documentation The importance of documentation of a database, will make it easier for maintaining and altering changes further ahead in the database.

Naming conventions Even if you consider naming your tables, columns etc. to be easy – It is very important to use clear and understandable name giving for your database – So it can be understood by everyone who need to work on the database.

Normalize It very important to know the rules of normalization in terms of relational database structure. If the principles of normalization are done right. Your database will be efficient and logical to everyone. It is very important that your normalization is done right up to the Third Normalization.

Data types Giving your design the right data types is crucial for a working database. Therefore is very important to give your columns in your database the most appropriate data type for each and give you better understanding of the data.

Database Design and Resource use (cont)

Primary keys It is very important in terms of relational database, that your primary and natural key is set correctly. Be sure that you define a primary key and natural key for your tables – It can be very important when you start to break up your tables when you start to normalize.

Data Integrity Data integrity is very important when you work with RDBMS and it is one of the core functions to uphold the data integrity in your database.

Indexing A proper indexing is a key to a successful database. It can be very complexed to index your database and deserves quite focus when creating your database.

Testing Testing your relational database is very important and can be crucial to avoid system failures. Quality assurance is there for key in database creating.

Reference: <https://www.quora.com/What-are-good-resources-to-learn-Database-design-best-practices>

Install SQL Server

Hardware Minimum Requirements

SQL Server requires a minimum of 6 GB of available hard-disk space.

SQL Server requires Super-VGA (800x600) or higher resolution monitor.

Memory: Express Edition 512 MB, All other Editions 1 GB

Processor Speed: x64 Processor: 1.4 GHz

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Setup Replication (cont)

SSMS > "Publisher Server" > Replication > Right click Local Publications > New publications > Use following server > Add > Select Distributor > Select Database > Snapshot Publication > Choose Tables > Create Snapshot Immediately

3. Create Subscription

SSMS > "Publisher server" > Replication > Local Publications > Right click the new replication > New Subscription > Add Subscription > Run all Agents at Distribution > Add SQL Server Subscription > Choose a Path > Add New Database > Agent Schedule > Run Continuously > Initialize > Immediately

Snapshot Agent

The Snapshot agent stores an executable file which stores schema and data of published tables and db objects. It's updated when synchronization jobs are recorded.

Distribution Agent

Works with Snapshot to distribute to subscribers. Moves transactions held at the distribution db out to the subscribers.

Merge Agent

It applies the initial snapshot to the Subscriber and moves incremental data changes that occur.

Queue Reader Agent

It runs at the Distributor and moves changes made at the Subscriber back to the Publisher.

<https://www.codeproject.com/Articles/715550/SQL-Server-Replication-Step-by-Step>

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