

.. QNo1 ..

What is relational database management system & what are the tools available in market?

Relational Database Management System (RDBMS)

W3 School: A relational database management system is a software system designed to store manage and retrieve structured data in a relational format. It organizes data into "table" (also called relations), which consist of "rows" (records) relation & "column" (attributes). The relational model ensures data integrity reduces redundancy, & allows for efficient querying and manipulation of data using ("Structured Query Language SQL")

(Key Features for) (RDBMS)

Table: Data is stored in tabular form with rows & columns.

Primary key :: A unique identifier for each record in a table.

Foreign key :: Establishes relationships b/w table by references the primary key of another table.

ACID Properties :: Ensure data integrity through atomicity, consistency, isolation & durability.

Normalization :: A process to eliminate redundancy and improve data organization.

SQL Support :: Standard language for querying and managing data.

Popular RDBMS Tools

IN MARKET

Most widely used RDBMS tools are.

Oracle Database ::

A powerful enterprise grade RDBMS known for its scalability.

Security & advanced features.

MySQL :

An open source (RDBMS)
popular for web application and
small to medium sized project.

Amazon RDS :

A cloud-based service that
supports multiple RDBMS engines
like MySQL, PostgreSQL, Oracle
& SQL Server.

Microsoft SQL Server

A robust RDBMS developed by
Microsoft offering strong integration
with other Microsoft products.

Google Cloud SQL :

A fully managed RDBMS
service on Google cloud platform
Supports MySQL, PostgreSQL,
& SQL Server.

.. Asterā Software ..

www.asterā.com

By Tehreen Naem:

What is database Management system?

A database management system is software designed to store, retrieve and manage data in a database. The most prevalent DBMS in an enterprise database system is the RDBMS. The complete form of RDBMS is relational database management system.

What is relational database?

A relational database is a type of database that organizes data into tables (also called relations) with rows & columns.

In a relational database each row represents an attribute (or field) of the data. Relational database uses Structured Query Language SQL to manage and retrieve data.

Code Institute

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Oct , 22 , 2024

The relational database management system RDBMS is a database that uses a relational model to store data in model to store in tables. The table comprises rows & columns with each column containing any entry for data for a given category. & each row including an instance for the data determined by the category.

Tech Target

www.techtarget.com

A relational database management system is a collection of program & capability that enable IT teams to create, update, administer & otherwise interact with a relational database.

A relational database is type of database that stored related data point.

RDBMs stored data in the form of tables with most commercial relational database management system using structured query language (SQL) to access the database. However since SQL was invented after the initial development of the relational model. it isn't necessary for RDBMS use.

:Oracle :

www.oracle.com

A relational database is a type of database that stores & provides access to data points that are related to one another relational database are based on the relational model and an intuitive, straight forward way of representing data in table.

In a relational database each row in the table is a record with a unique ID called the key the column of the table hold attributes of the data & each record usually have

a value for each attribute making it easy to establish the relationship among data points.

Relational database have been around since the 1970's.

To day the advantages of the relational model continues to make it the most widely accepted model for data base.

IBM

www.Ibm.com

A relational database is a type of database that organizes data into rows and columns which collectively form a table where the data points are related to each other.

Data is typically structured across multiple tables which can be joined together via a primary key or a foreign key. These

It is the underlying part of the interface layer that helps you to store & work with data.

A relational database is the most popular type of database that stores & provide access to data point that are related to one another.

The tools of Relational

Database Management:

Available in Market:

- MySQL
- PostgreSQL
- MariaDB
- Microsoft SQL Server.
- Oracle database
- IBM Db2
- SAP IQ.

Commercial RDBMS Tools

- Oracle Database
- Microsoft SQL Server
- IBM Db2

System DBMS plays a vital role in supporting data driven decision making operational efficiency.

The DBMS is a system that allows users to create modify & query databases while ensuring data integrity security & access. Unlike traditional file system, DBMS minimizing data redundancy prevents inconsistency & simplifies data management with features like concurrent access and backup mechanisms, it organizes data into tables views, schemas, & reports, providing a structured approach to data management.

Devorl

www.devorl.com

RDBMS Stands for Relational DataBase management system a software system that enables you to define, create, maintain & control access to relational

the different relationships which exist b/w tables and these relationships are usually illustrated through different type of data model. Analysts use SQL queries to combine different data points & summarize business performance allowing organization to gain insight optimize workflows & identify new opportunities.

Geeks For Geeks

www.geeksforgeeks.org

The database management system DBMS is a software solution designed to efficiently manage organize & retrieve data in a structured manner it serves as a critical components in modern computing enabling organization to store manipulate and secure their data effectively from small application to enterprise

Open Source RDBMS Tools

- MySQL
- PostgreSQL
- MariaDB
- SQLite

Cloud-Based RDBMS tools.

- Amazon RDS
- Amazon Aurora
- Google cloud platform.

.. Q No 2 ..

Differentiate b/w Relational &
non relational data base?

Relational Database

Relational database management system is a type of DBMS that stores data in a structured format using tables consisting of rows & columns. The relational model introduced by E.F Codd in 1970 is the foundation of RDBMS.

Key Features of RDBMS

- Table
- Primary key
- Foreign key
- Normalization
- ACID properties.

Popular RDBMS in Market

Non-Relational Database

Non-relational database management commonly referred to as NoSQL, databases are designed to handle large volumes of unstructured or semistructured data. They do not rely on the traditional table based R.M.

Types of NoSQL Database.

- Document stores
- key value stores
- Wide column stores
- Graph databases

Popular NoSQL Database

Oracle database

MongoDB

MySQL

Cassandra

Microsoft SQL

Redis

Server.

Neo4j

PostgreSQL

Advantages of RDBMS

Advantages of NoSQL

Data integrity

Scalability

Flexibility

Flexibility

Security

Performance

Scalability

Complexity

Difference b/w RDBMS & NoSQL

RDBMS

(SQL)

Table with
rows &
columns

Feature

Data

structure

NoSQL

(NoSQL)

Flexible schema -
less or semi-
structured.

Predefined

&

strict

Schema

Dynamic

&

schema

less

Features	RDBMs (SQL)	NoSQL (NoSQL)
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Data integrity	Strong consistency (ACID)	Prioritize availability & scalability (BASE)
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Scalability	Vertical scaling	Horizontal scaling
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Use Cases	Transactional Applications Financial Systems	Big data, social media, content management
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Relational Database Management Systems (RDBMs)

Relational database Management

System store data in tables

with - well - defined relations.

between them. They use

SQL to manage & query

data . characteristics of

RDBMs include:

Fined schema (Frame)

Support for transactions

& Concurrency

Use of SQL for

querying .

Examples:-

My SQL

Post gre SQL

Microsoft SQL server.

Reference:-

Micro soft (2022).

Relational data base
management system.

Non Relational Database

Management System.
(NoSQL)

It stores data in

variety of formats.

Such as key values pairs,

documents or graphs. They

often use flexible schema

Eg. Support horizontal scaling

characteristics of NoSQL

data base include.

Flexible or dynamic schema

Support for large amounts

of unstructured data.

Use of property query

languages of APIs.

Examples-

NoSQL in MongoDB

Cassandra.

Redis.

Reference-

Mongo DB (2022) (MySQL)

Database.