Basic Relational DBMS Concepts

A **Relational Database management System**(RDBMS) is a database management system based on the relational model introduced by E.F Codd. In relational model, data is stored in **relations**(tables) and is represented in form of **tuples**(rows).

RDBMS is used to manage Relational database. **Relational database** is a collection of organized set of tables related to each other, and from which

data can be accessed easily. Relational Database is the most commonly used database these days.

RDBMS: What is Table ?

In Relational database model, a **table** is a collection of data elements organised in terms of rows and columns. A table is also considered as a convenient representation of **relations**. But a table can have duplicate row of data while a true **relation** cannot have duplicate data. Table is the most simplest form of data storage. Below is an example of an Employee table.

Index

ID	Name	Age	Salary
1	Adam	34	13000
2	Alex	28	15000
3	Stuart	20	18000

RDBMS: What is a Tuple?

A single entry in a table is called a **Tuple** or **Record** or **Row**. A **tuple** in a table represents a set of related data. For example, the above **Employee** table has 4 tuples/records/rows.

Following is an example of single record or tuple.

1	Adam	34	13000

RDBMS: What is an Attribute?

A table consists of several records(row), ea
Index
record can be broken down into several smaller parts of data known as **Attributes**. The above **Employee** table consist of four attributes, **ID**, **Name**, **Age** and **Salary**.

When an attribute is defined in a relation(table), it is defined to hold only a certain type of values, which is known as **Attribute Domain**.

Hence, the attribute **Name** will hold the name of employee for every tuple. If we save employee's address there, it will be violation of the Relational database model.

Name
Adam
Alex
Stuart - 9/
Ross

Index

What is a Relation Schema?

relation, with the name of the relation(name of table), its attributes and their names and type.

What is a Relation Key?

A relation key is an attribute which can uniquely identify a particular tuple(row) in a relation(table).

Relational Integrity Constraints

Every relation in a relational database model should abide by or follow a few constraints to be a valid relation, these constraints are called as **Relational Integrity Constraints**.

Index

The three main Integrity Constraints are:

1. Key Constraints
2. Domain Constraints

Key Constraints

We store data in tables, to later access it whenever required. In every table one or more than one attributes together are used to fetch data from tables. The **Key Constraint** specifies that there should be such an attribute(column) in a relation(table), which can be used to fetch data for any tuple(row).

The Key attribute should never be **NULL** or same for two different row of data.

For example, in the **Employee** table we can use the attribute `ID` to fetch data for each of the employee. No value of `ID` is null and it is u for every row, hence it can be our **Key attribute**.

Index

Domain Constraint

Domain constraints refers to the rules defined for the values that can be stored for a certain

Like we explained above, we cannot store **Address** of employee in the column for **Name**.

Similarly, a mobile number cannot exceed 10 digits.

Referential Integrity Constraint

We will study about this in detail later. For now remember this example, if I say **Supriya** is my girlfriend, then a girl with name Supriya should also exist for that relationship to be present.

If a table reference to some data from another table, then that table and that data should be present for referential integrity constraint true.

Index

← Prev

Next →