SQL Notes

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1 Overview

SQL is not a process-based language and cannot build entire applications. Its main purpose is to make queries and structure the data. DBM would work to structure the data, whereas data scientists would focus more on the query side of things.

2 Data Models

There are a few SQL data models, such as:

- Relational
- Semantic
- Object Oriented
- Extended Relational

2.1 Relational vs Transactional

Relational - shows the relationships between tables within the database

Transactional -

Entities - Person, place, thing, events (distinguishable) Attributes - The characteristics of the entities Relationships - Associations among the entities

one-to-one - CEO to company one-to-many - manager to employees many-to-many - students to courses

2.2 Keys

Keys are able to identify the relationships among different tables within a database.
Primary Keys (column or set of columns):

- Uniquely identifies each row of the table

- No null values

Foreign Keys:

- Links two columns of one table with another
- Column of a table that is primary key of another
- Can have multiple foreign keys in a table

2.3 ER Diagrams

Visual formats that show the relationships between tables
Common Notations

- Chen Notation
  - 1 - M : One to many
  - M - N : Many to many
  - 1 - 1 : One to one
- Crow's Floot
  - Paints : One to many
  - Learn : Many to many
  - Manages : One to one
- UML Class
  - 1.1, 1.* : One to many
  - 1.*, 1.* : Many to many
  - 1.1, 1.1 : One to one