

Implementation of a Relational Database Query-Processing System

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Outline

Background

Relational Databases
Query Languages
Handling Queries

DeeBee

Architecture
Implementation

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What is a relational database?

- “The primary data model for commercial data-processing applications.” [?]
- *A relation* is a table of values [?, ?]
- A relation consists of:
 - a set of rows, or *tuples* [?, ?]
 - a set of columns, or *attributes* [?, ?]
- A database can consist of multiple relations [?, ?]
- So how does this relate to compilers?

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What is a query language?

- Users and client software interact with databases through *query languages* [?, ?]
- These are *domain-specific languages* for accessing and modifying the database
- Query languages are *declarative* rather than *imperative* programming languages
- Just like other programming languages, query languages must be parsed, analyzed, and compiled or interpreted.

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SQL

- SQL is the *Structured Query Language*.
- It is the query language used by most modern RDBMSs
- SQL consists of two components:
 - *Data definition language* (DDL): defines the structure of the database
 - creating and deleting tables
 - adding relationships between tables
 - et cetera
 - *Data manipulation language* (DML): accesses and modifies data stored in the database
 - selecting rows
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- SQL = DDL + DML

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Query Parsing

Query Processing

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Make Titles Informative.

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Summary

- The **first main message** of your talk in one or two lines.
- The **second main message** of your talk in one or two lines.
- Perhaps a **third message**, but not more than that.
- Outlook
 - Something you haven't solved.
 - Something else you haven't solved.

References I



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