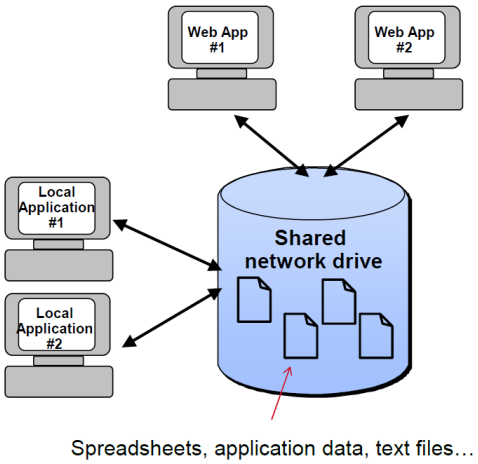
Part I

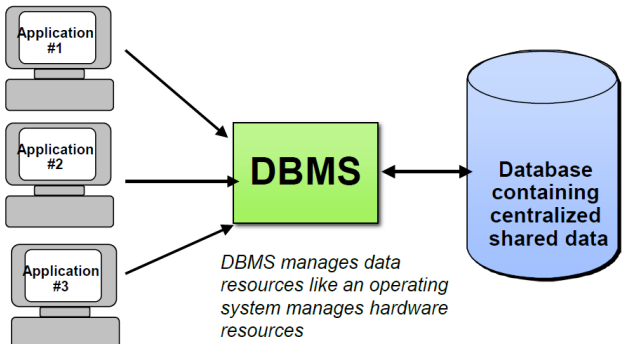
Databases

0.1 Definition

A database is a persistent collection of data, and is typically more than one single collection of data. Database Management Systems (**DBMS**)are a central repository of shared data, and data is accessed and transferred via a common language.

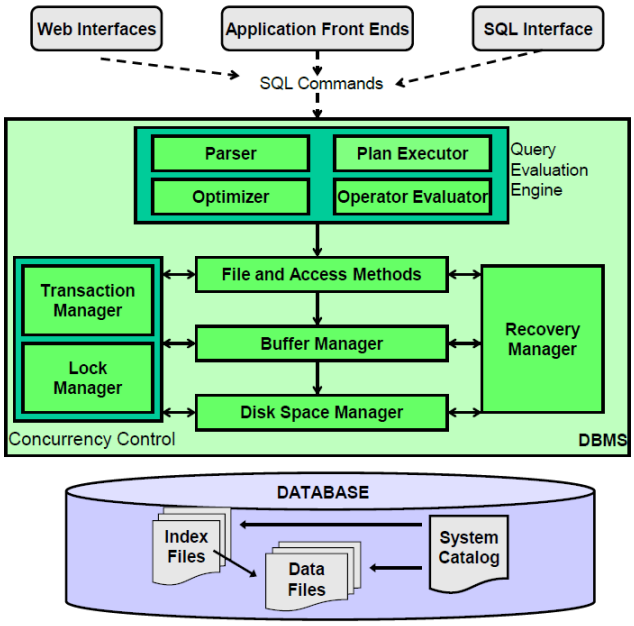


Database Figure 0.1.1: Shared Information Model
Source: Bryn Jefferies, USyd INFO2820



Database Figure 0.1.2: Relational Database Model
Source: Bryn Jefferies, USyd INFO2820

While the database transfers data through a common language, the set-up of the database varies from system to system. Below is an example of the structure of a DBMS:



Database Figure 0.1.3: DBMS Structure
Source: Bryn Jefferies, USyd INFO2820

The language that most systems communicate with DBMSs is **SQL**, which stands for **Structured Query Language**.

Part II

Relational Data Model

Part III

Relational Algebra

Part IV

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Complex SQL

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Part X

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Part XI

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Part XII

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ACID Transactions

Part XIV

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Part XV

Transaction Management

Part XVI

Indexing and Tuning