

What is a Database?

Lecture 1, Chapter 1

John Connor

The Semester in a Nutshell

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1. Define the relational algebra;
2. use this algebra to model problems about data storage and retrieval;
3. understand how our mathematical language corresponds to Structured Query Language (SQL);
4. apply this knowledge to build applications which use databases.

But First...

Why?

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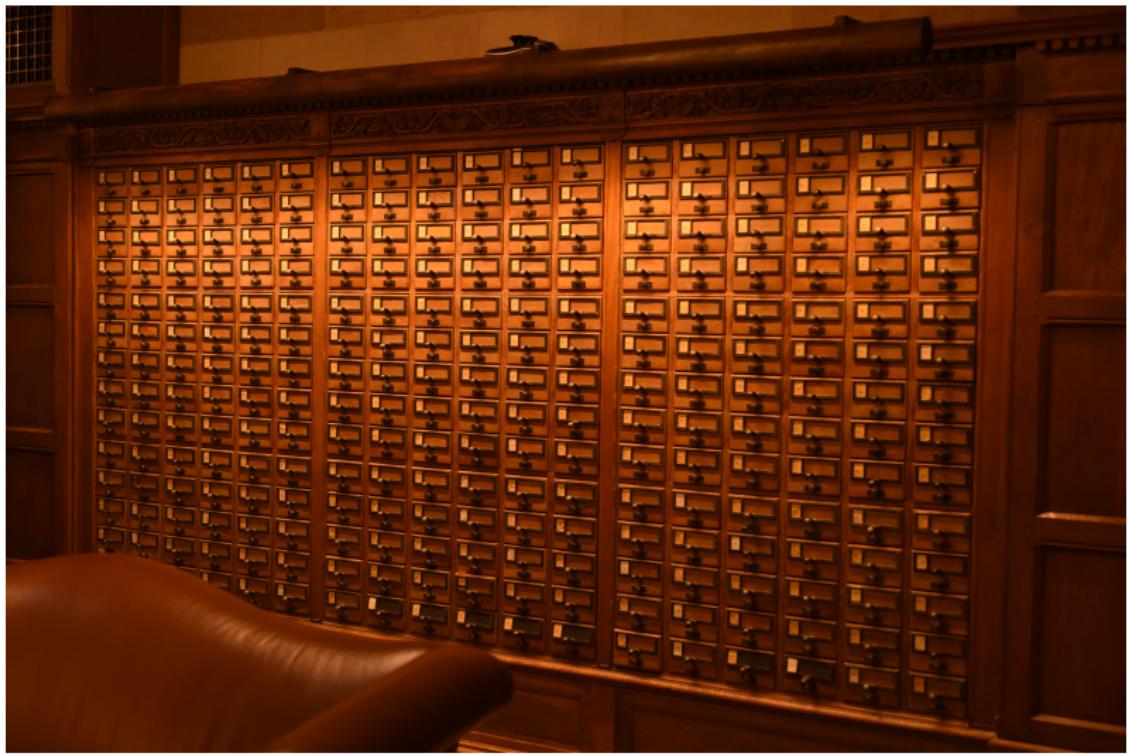
What is a database?

What problems does a database address?

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2. retrieval of data using a high-level *query* language;
3. *safe* modification of data;

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Sample Catalog Record

Author: Kesey, Ken.

Title: One flew over the cuckoo's nest, a novel.

Published: New York, Viking Press [1962]

LC Call No.: PZ4.K42On

Subjects: Psychiatric hospital patients--
United States--fiction

Control No.: 62008602

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5. ensures operations on the database are **atomic** and happen in **isolation**.

Definitions

We will tackle queries and schemas in the next lecture.

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You can think of these operations as not being built up of “smaller” operations. An operation made up of many sub-operations might have some sub-operations succeed while others failed.

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Two or more operations being concurrently executed on a database are said to be executing in isolation if each operation cannot observe the affects of the other operations.

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3. etc.

Bird's Eye View of a DBMS

