

Data Models, Queries, Evaluation (Chapter 1)

Peter Revesz

CSCE 413/813

Computer Science and Engineering
University of Nebraska – Lincoln

What are Database Systems?

Database systems are software that provide

- abstract **data models**,
- easy-to-use **queries**
- good query **evaluation** performance.

Example Database System

- MySQL
- Oracle
- MLPQ

Data Abstraction

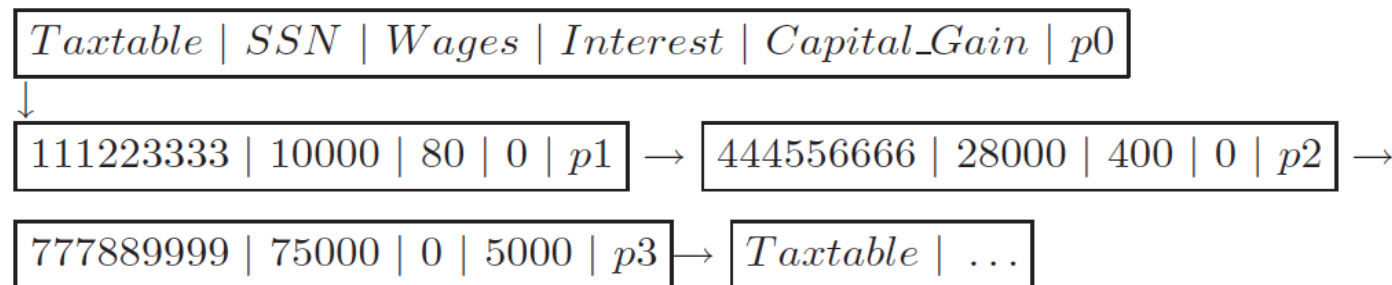
Data Abstraction Features:

- Hides some parts of the data that are unimportant.
- Makes queries easier.

Data Abstraction Increases over Time

- 1960s – **Hierarchical Databases** and **Network Databases**

Tables represented as linked lists, queries used pointers to search for data.



- 1970 – **Relational Databases** introduced by Edgar F. Codd at IBM research
IBM, which already marketed **Hierarchical Databases**, did not embrace the idea. Many experts thought that **Relational Databases** will never be practical because they require more computer memory than other databases. Larry Ellison, founder of Oracle, saw an opportunity to develop commercial **Relational Databases**.
- 1980s – Oracle first to market **Relational Databases**
- 2000s – practical **Geographic Information Systems**

Data Models

Some examples of different types of data:

- Tax records
- Maps
- Photos
- Music
- Genomes

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- B) Maps
- C) Photos
- D) Music
- E) Genomes

Out of the above, what type of data can relational databases handle? _____

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