1/30 7:18:39 ***

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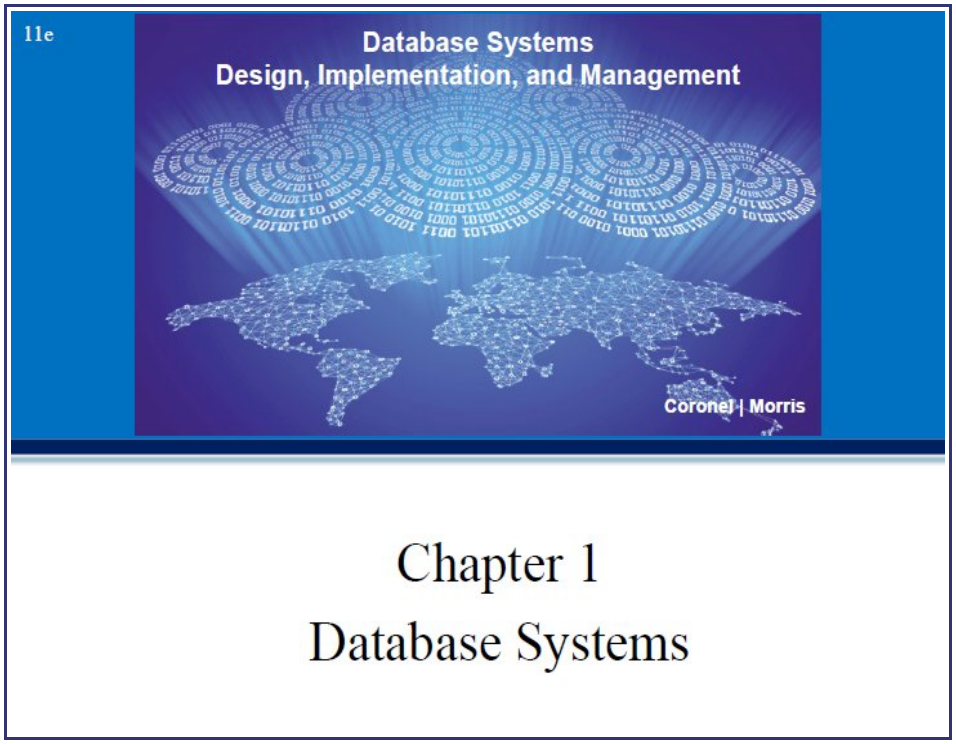
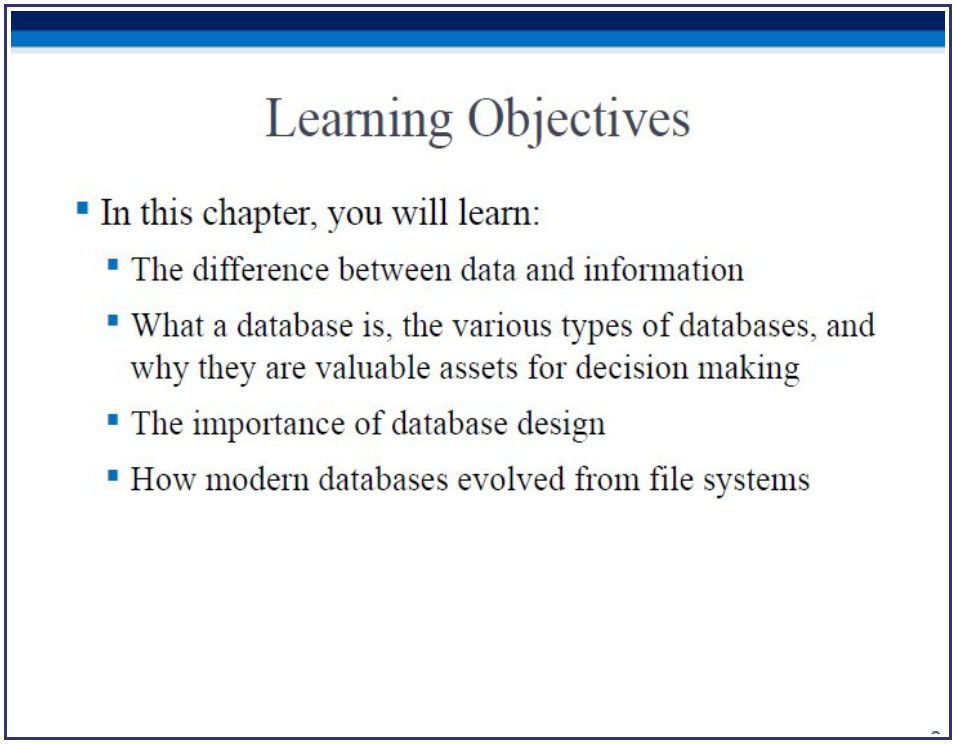
Database systems



What you will learn:



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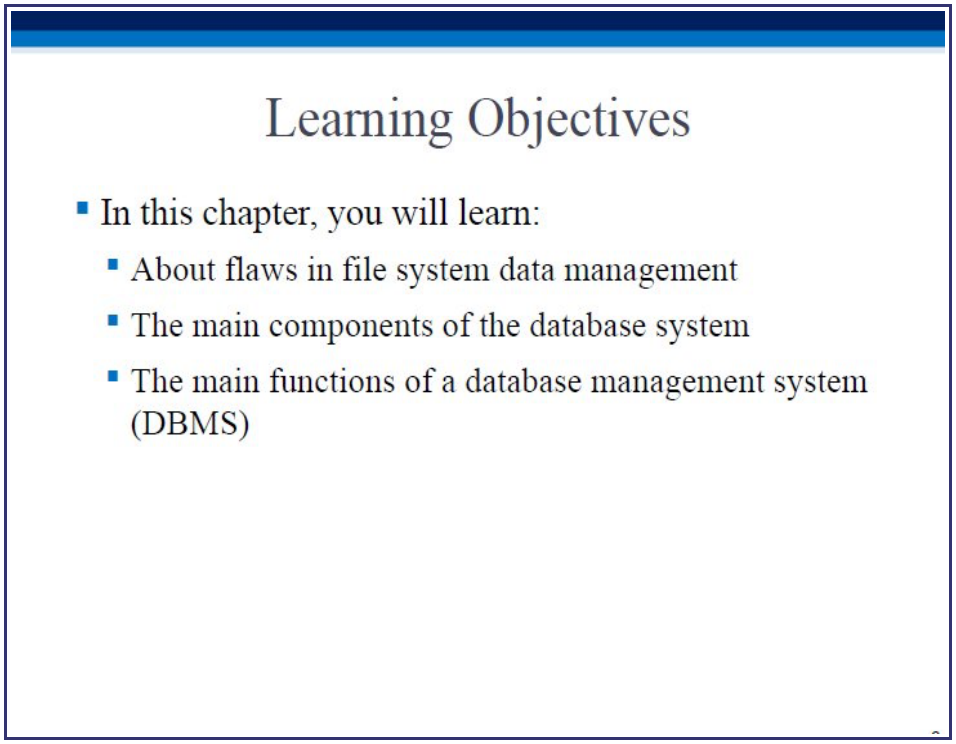
What else you will learn:



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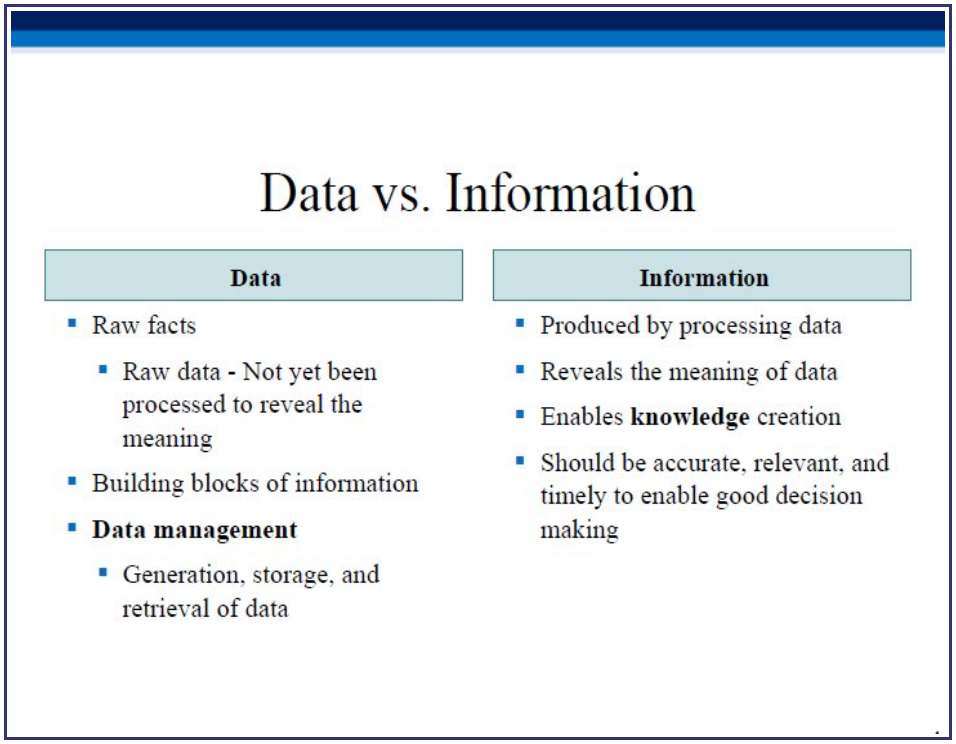
Data != information!



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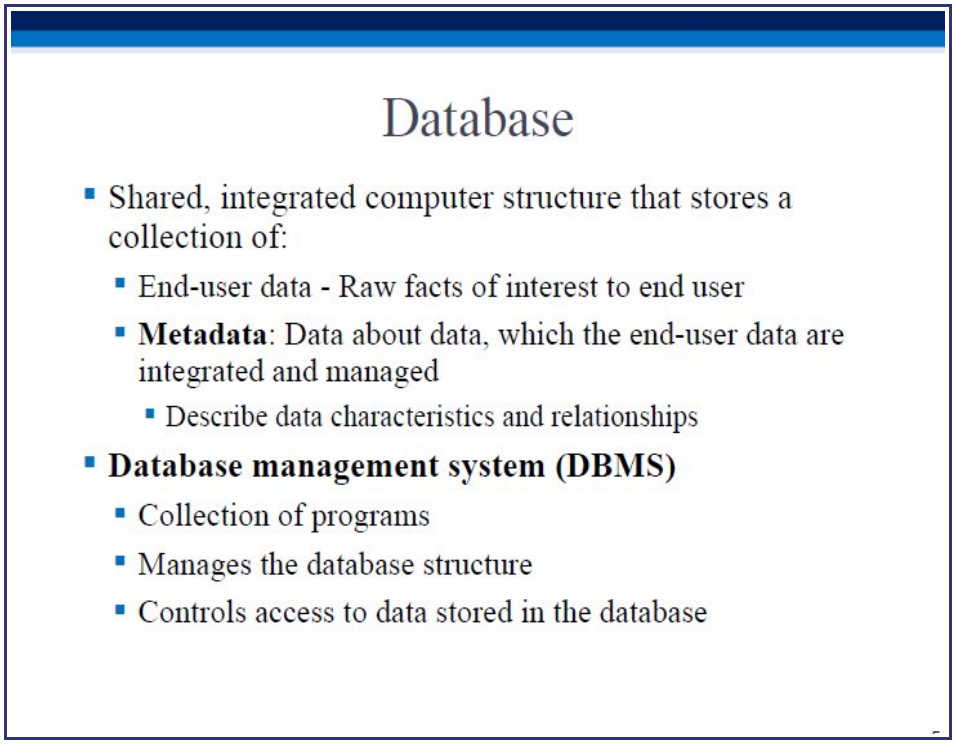
DB, DBMS



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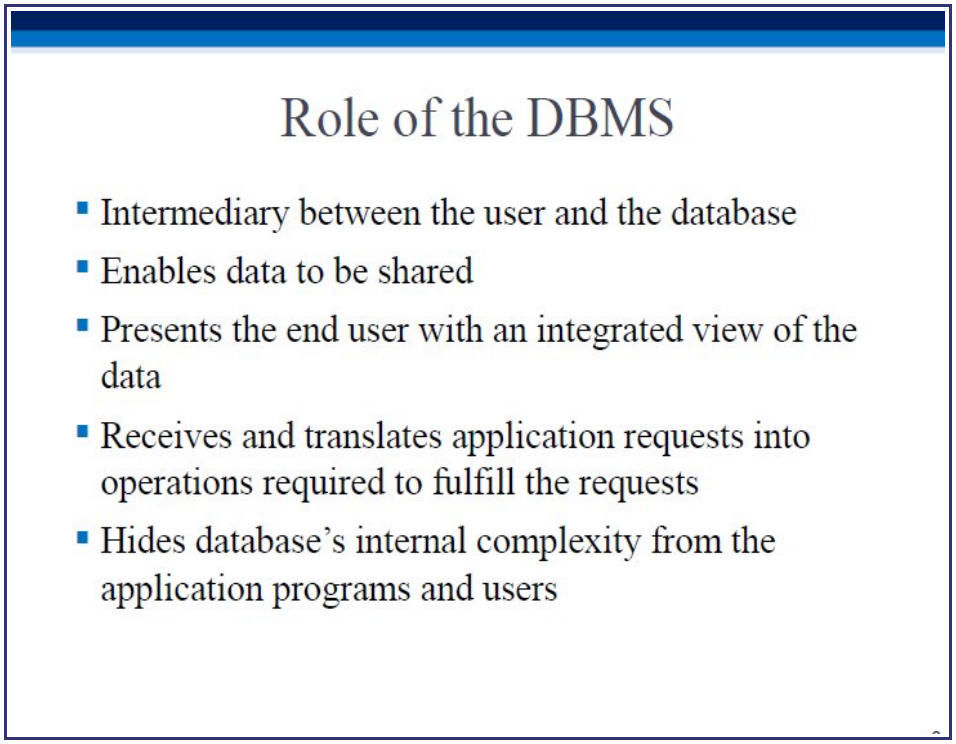
Why DBMS?



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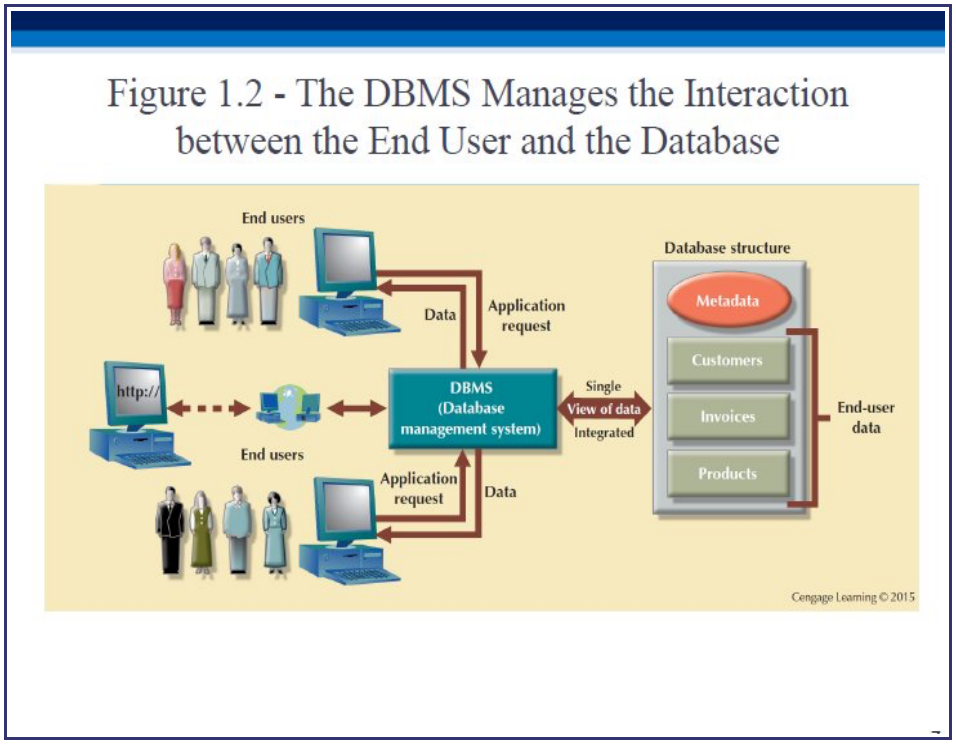
DBMS is a go-between



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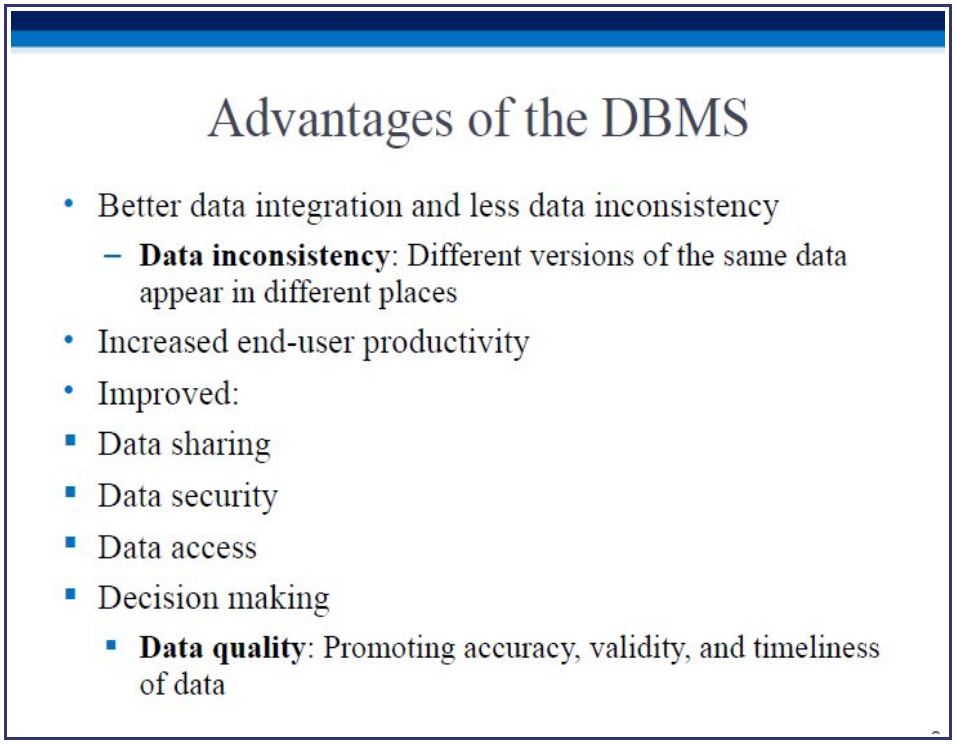
DBMS: advantages



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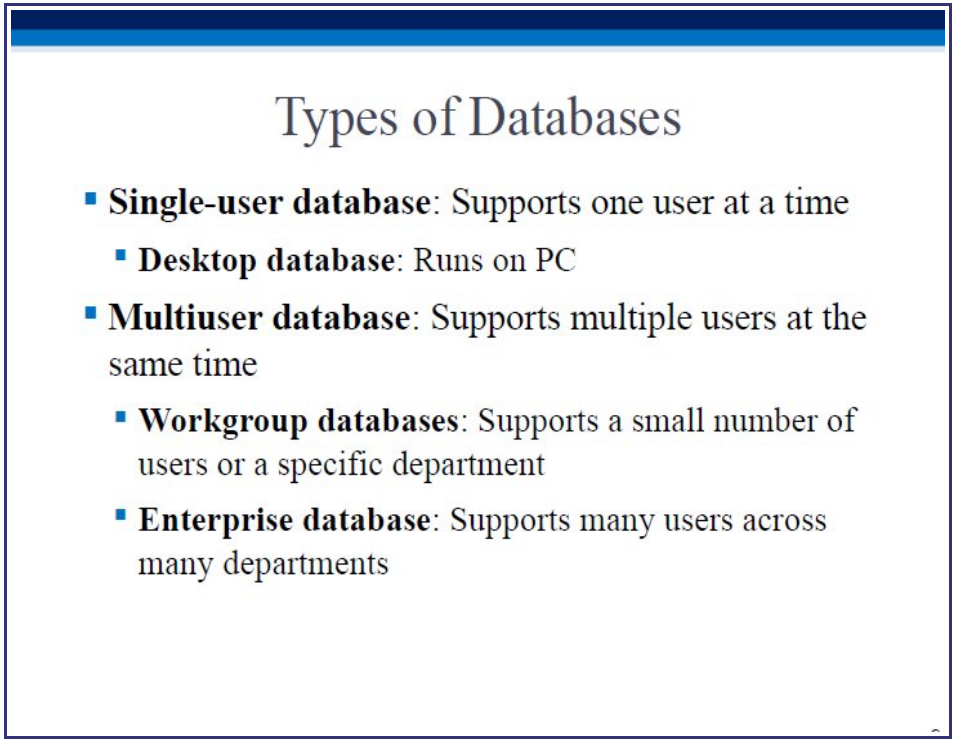
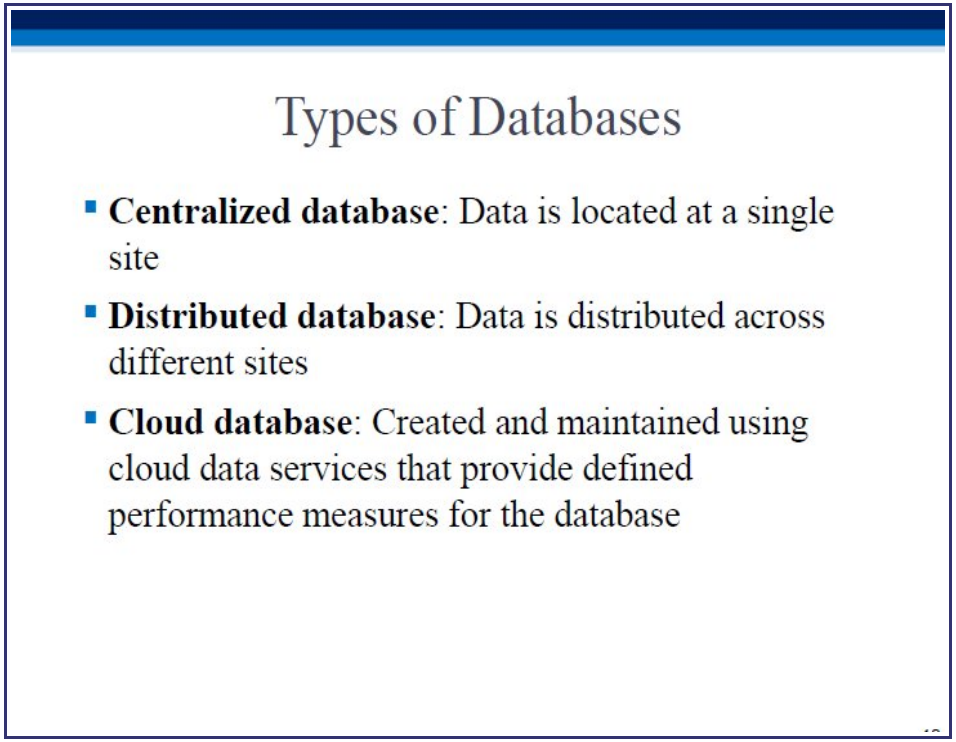
Types of DBs: based on user count



Types of DBs: based on location



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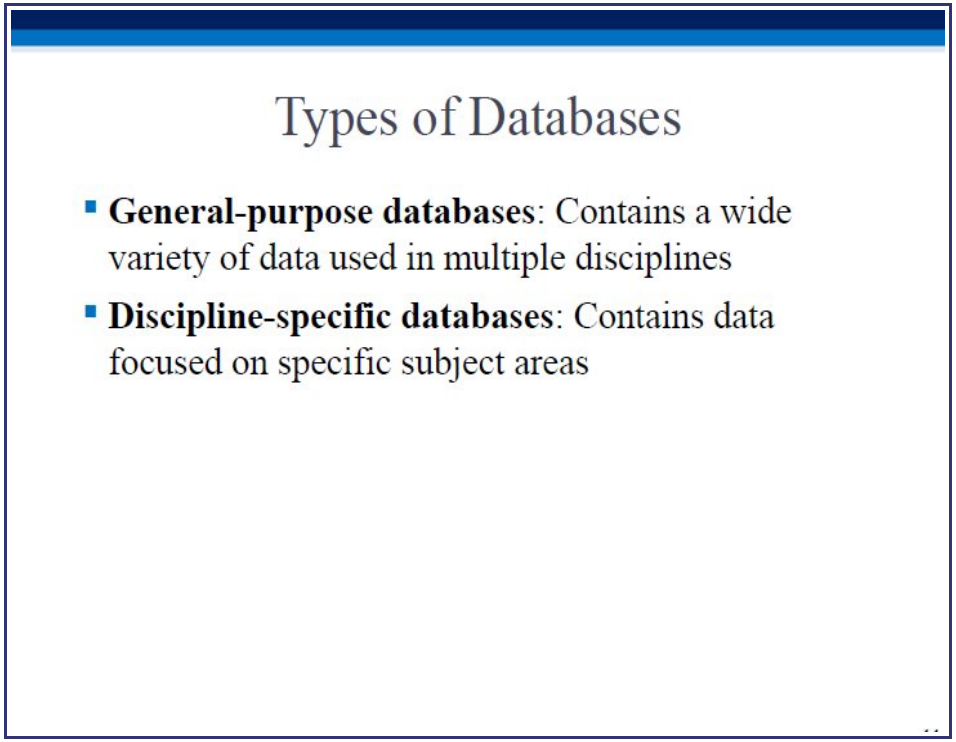
Types of DBs: based on content



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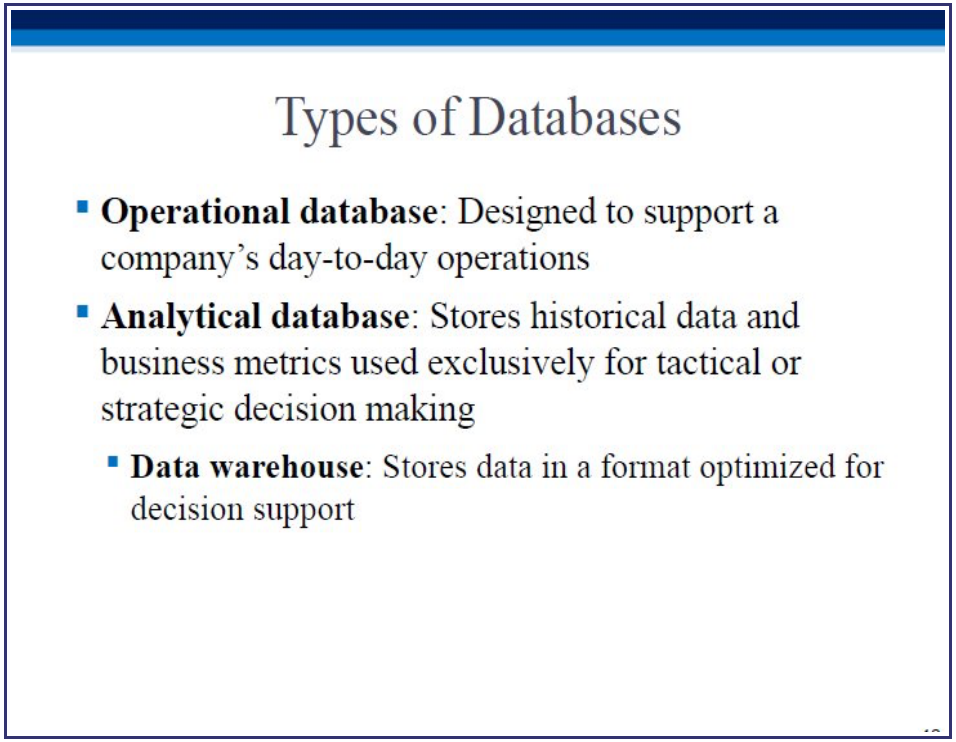
Types of DBs: based on data currency



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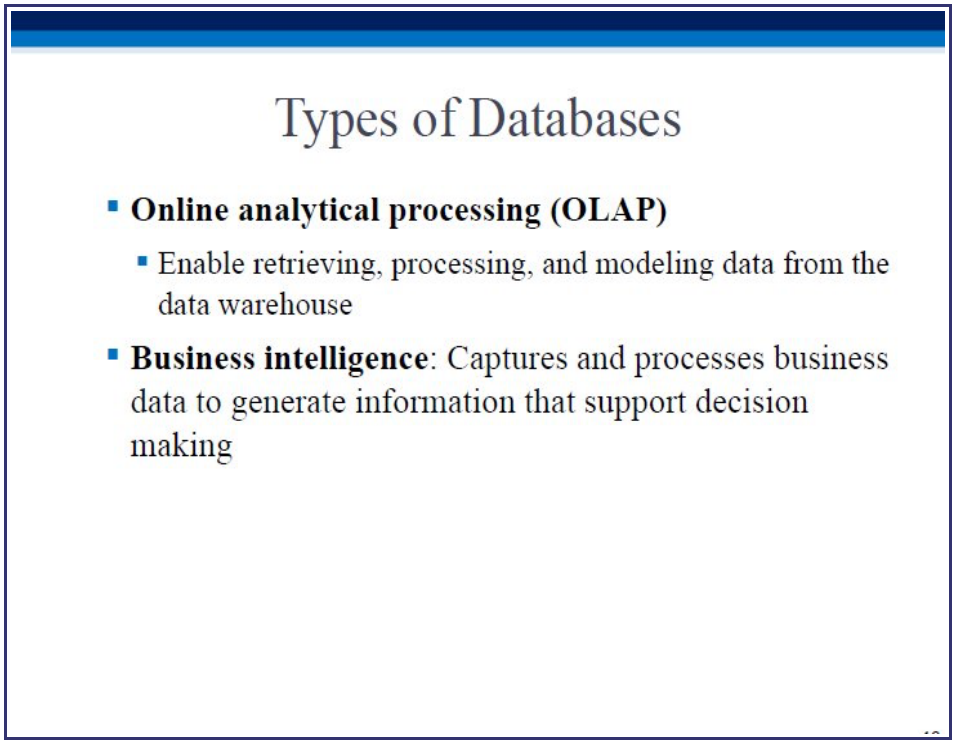
Types of DBs [cont'd]



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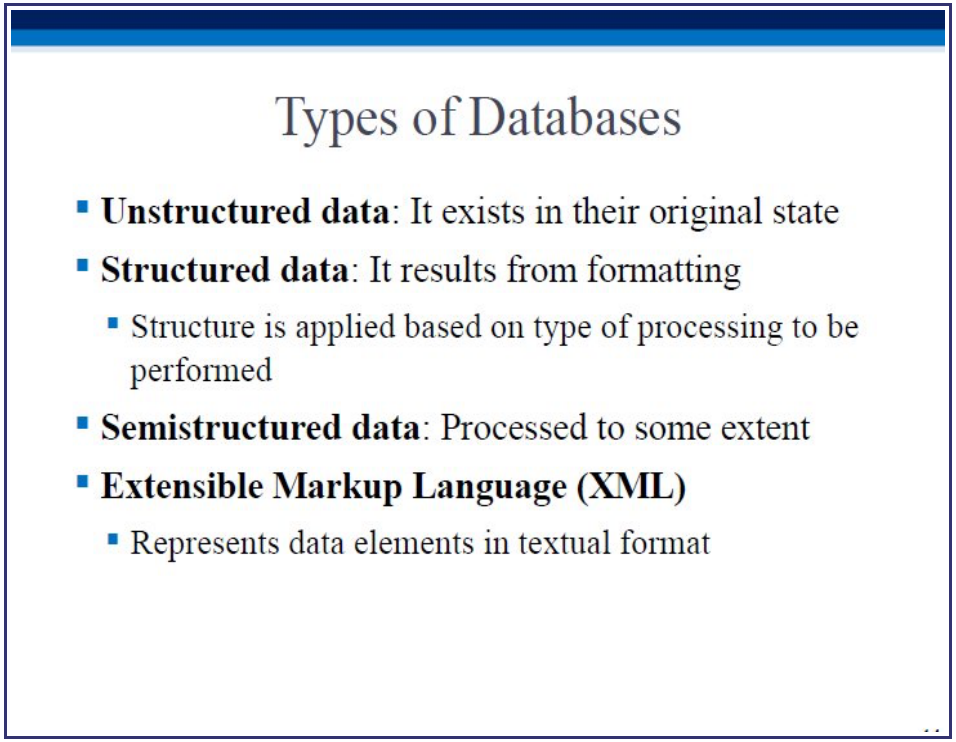
Types of DBs: based on the structure of contained data



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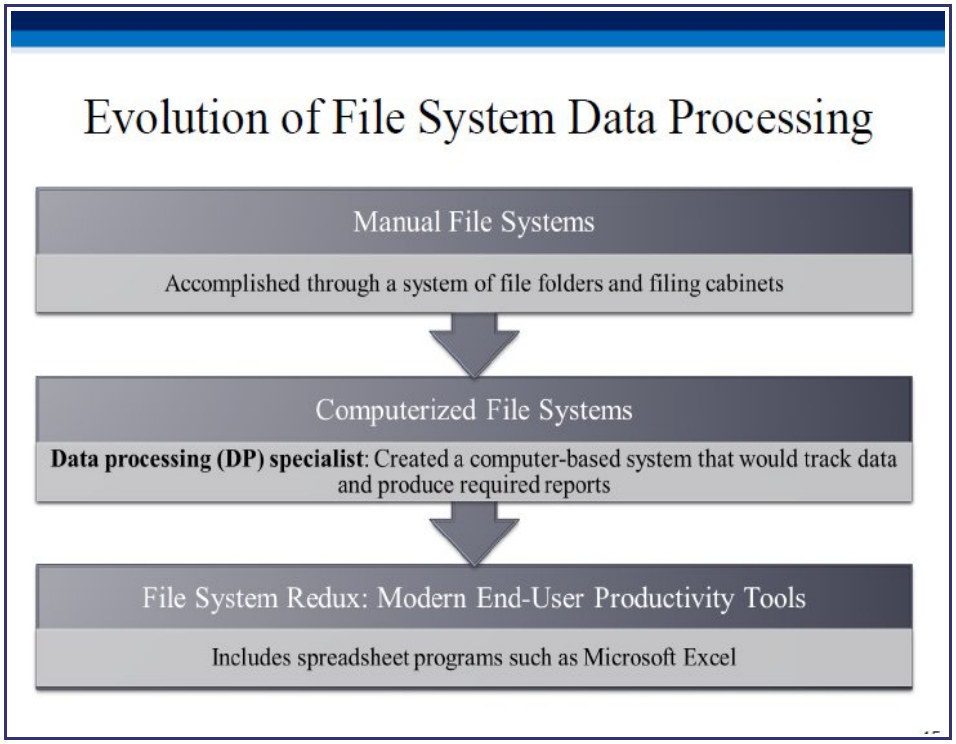
Early DBs: file systems



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File systems

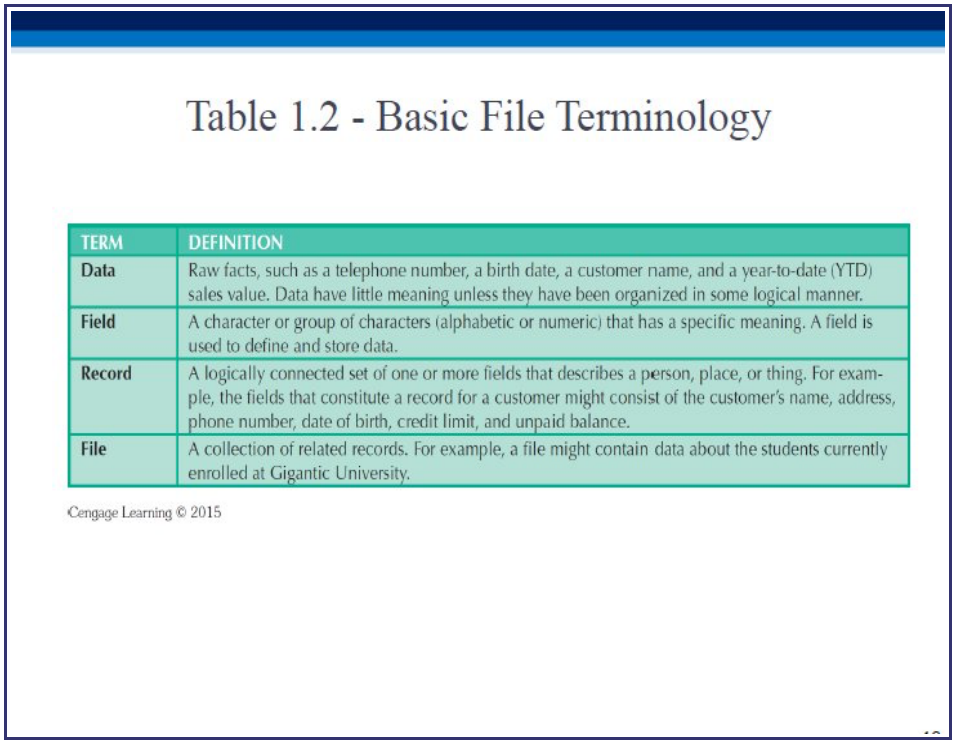

Table 1.2 - Basic File Terminology

TERM	DEFINITION
Data	Raw facts, such as a telephone number, a birth date, a customer name, and a year-to-date (YTD) sales value. Data have little meaning unless they have been organized in some logical manner.
Field	A character or group of characters (alphabetic or numeric) that has a specific meaning. A field is used to define and store data.
Record	A logically connected set of one or more fields that describes a person, place, or thing. For example, the fields that constitute a record for a customer might consist of the customer's name, address, phone number, date of birth, credit limit, and unpaid balance.
File	A collection of related records. For example, a file might contain data about the students currently enrolled at Gigantic University.

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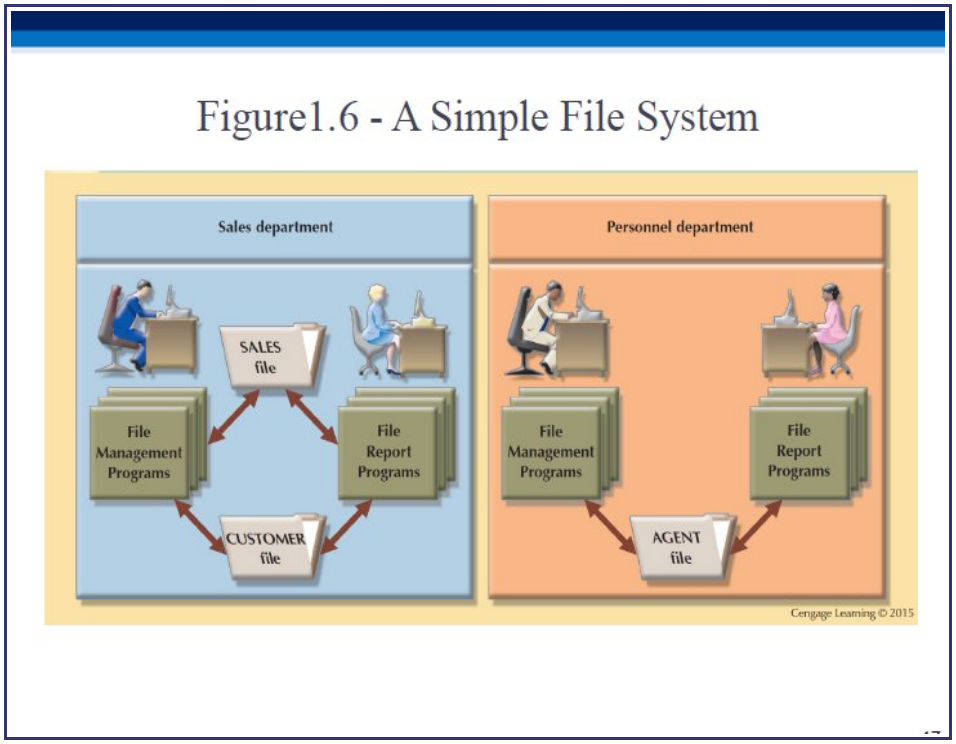
File system



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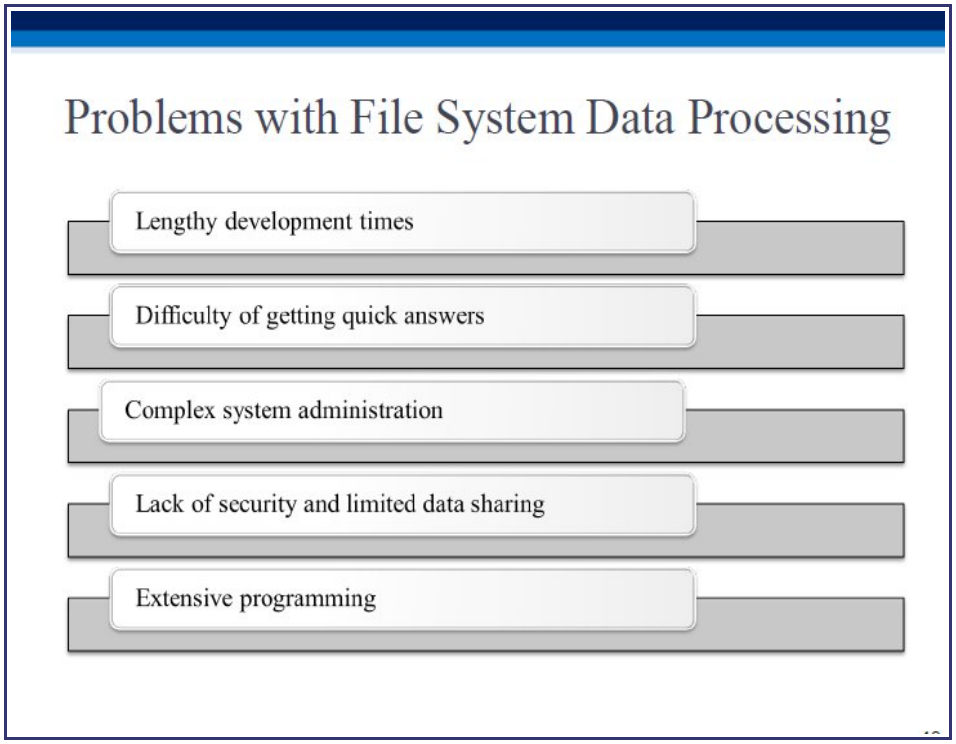
File systems: problems



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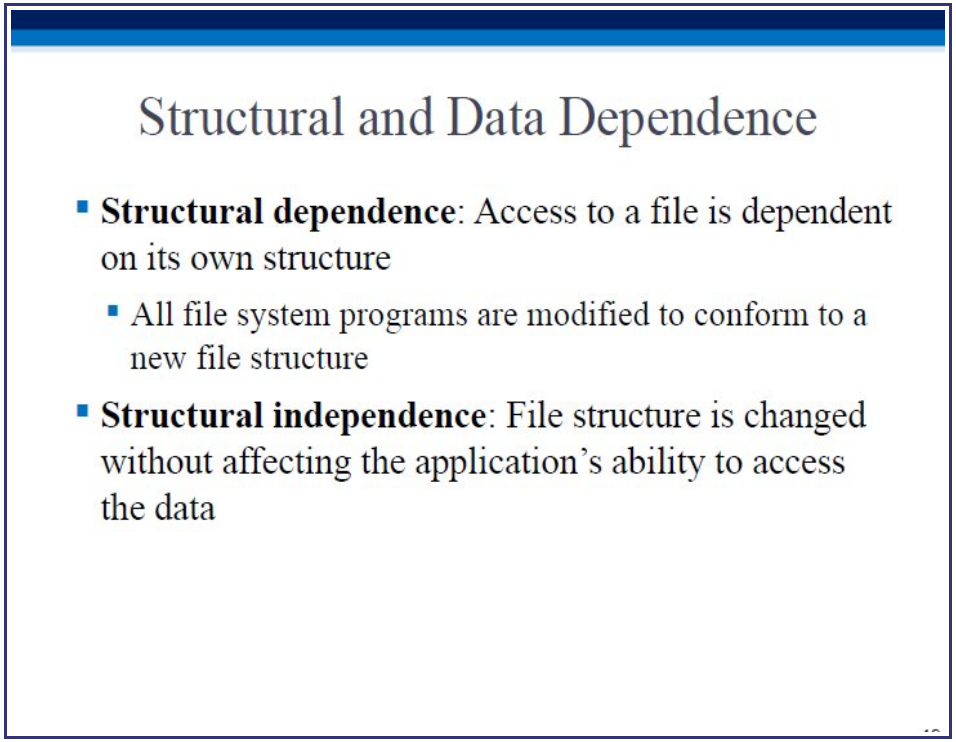
'Structural' dependence (not a good thing!)



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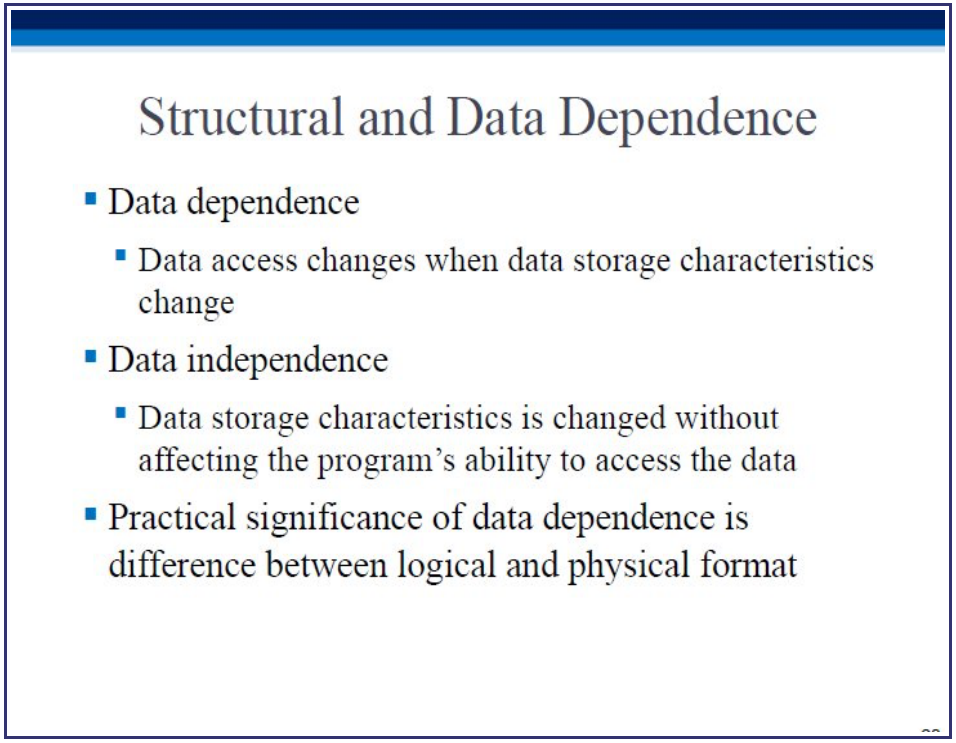
Structural dependence [cont'd]



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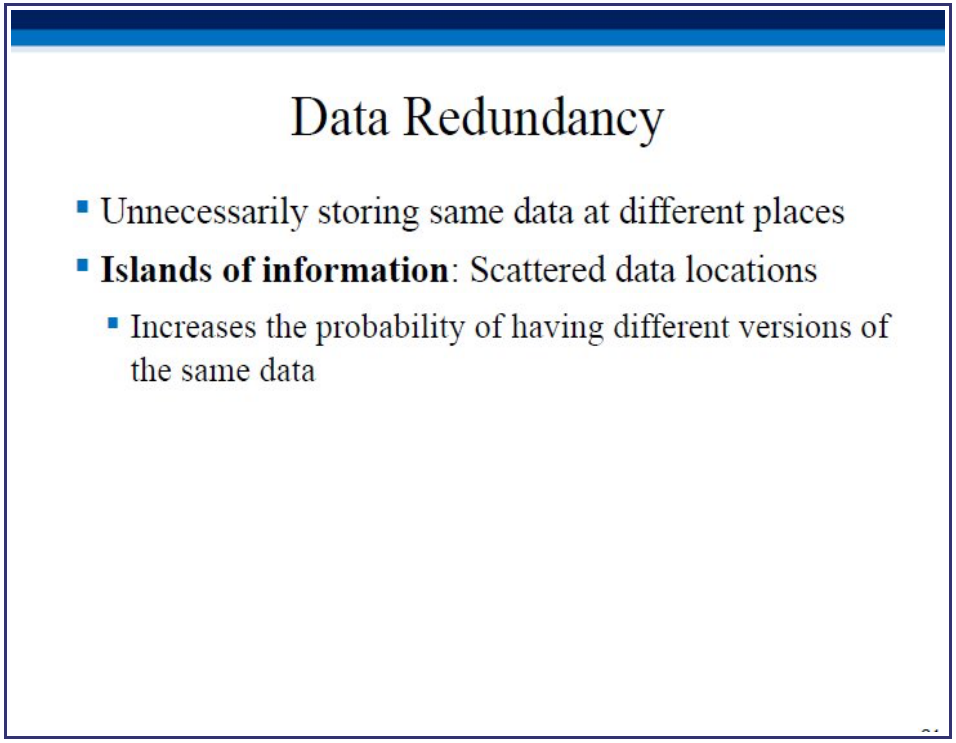
Redundancy of data (again, not a good thing!)



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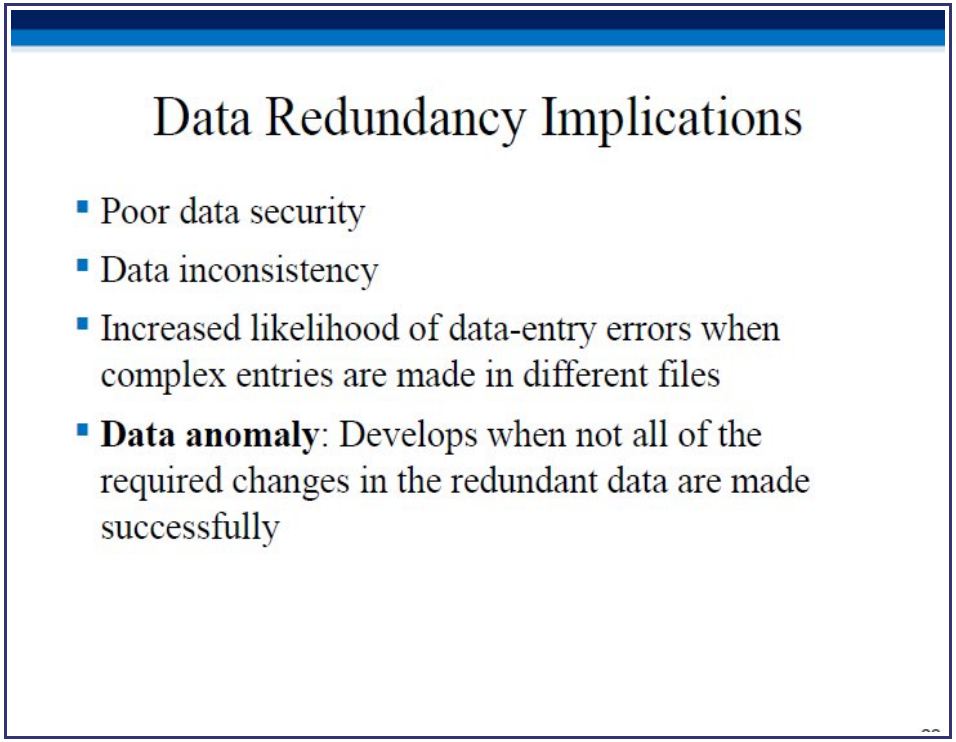
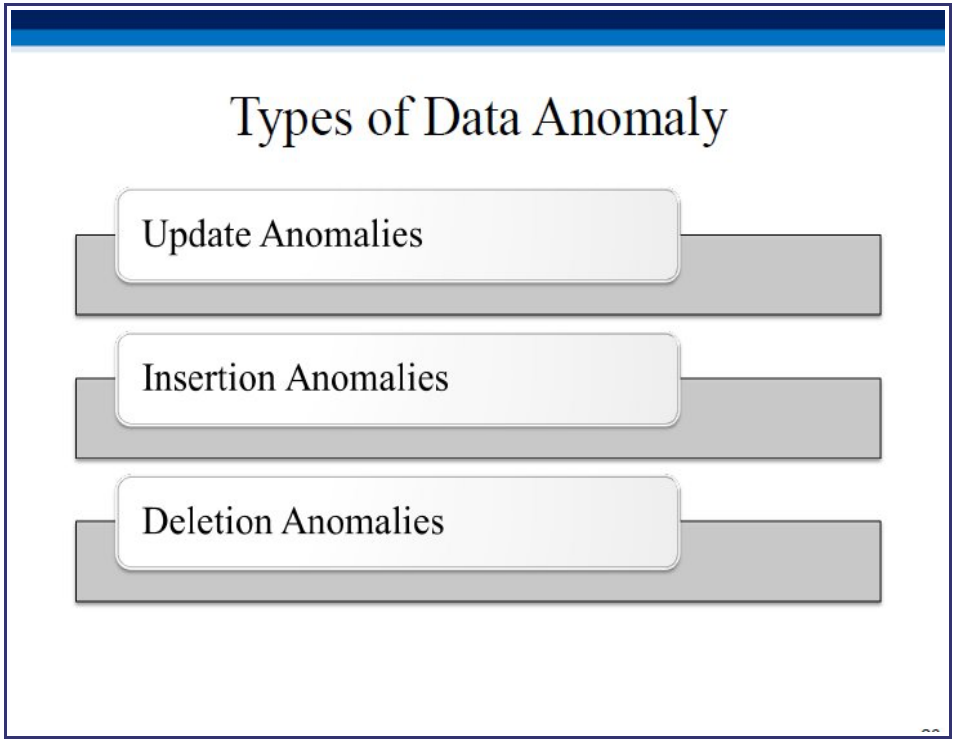
Why is redundancy not a good thing?



The three types of data anomalies



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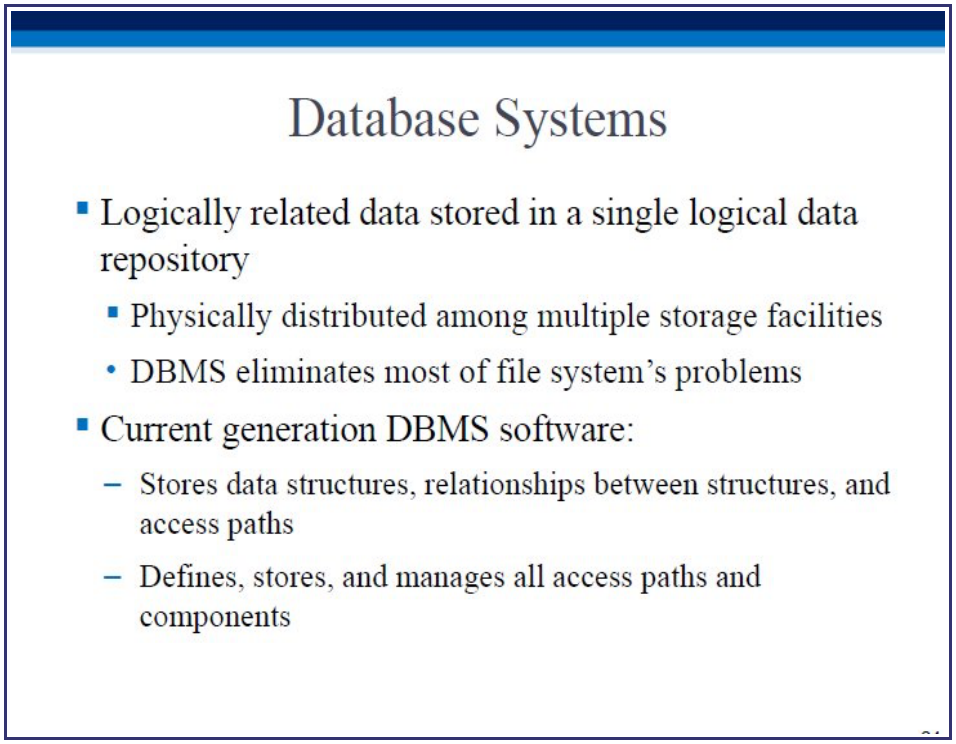
DB systems



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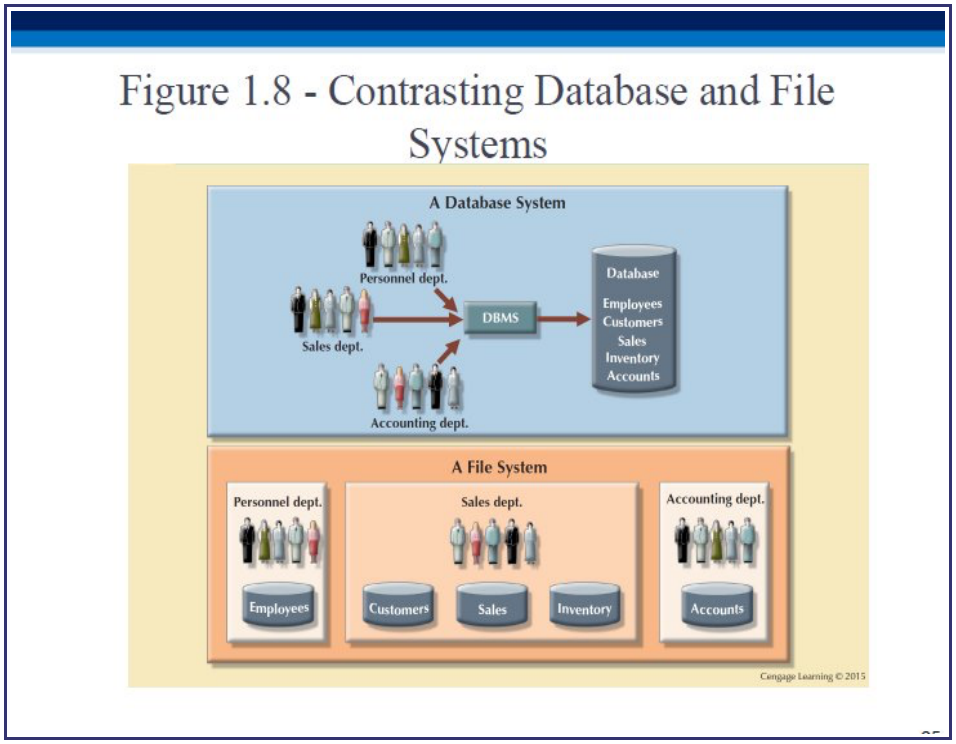
DB vs file system



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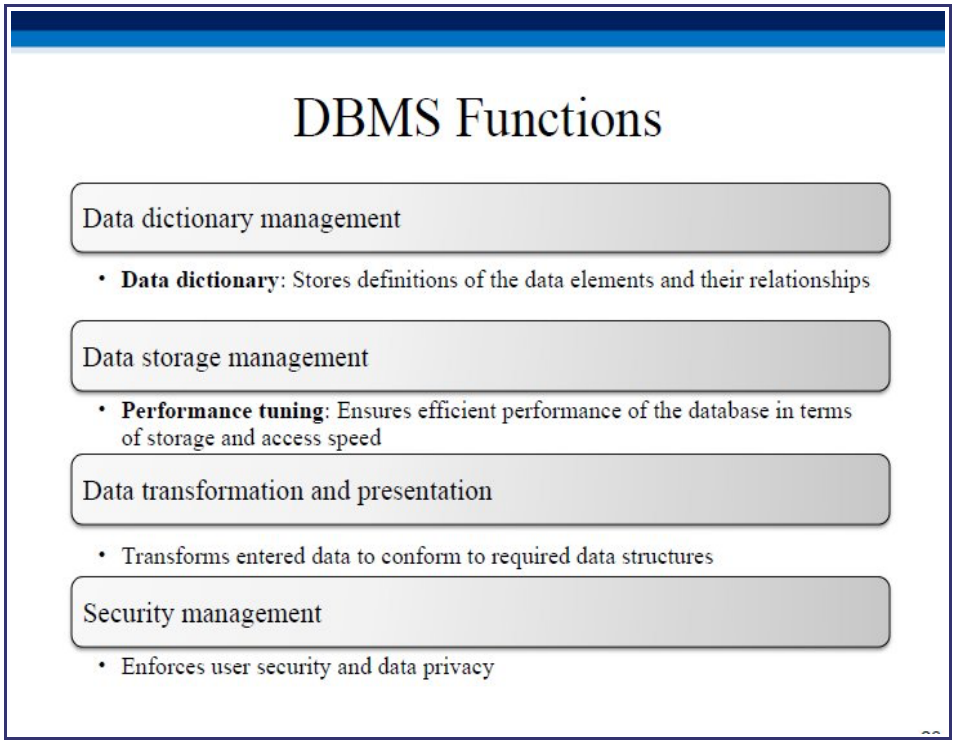
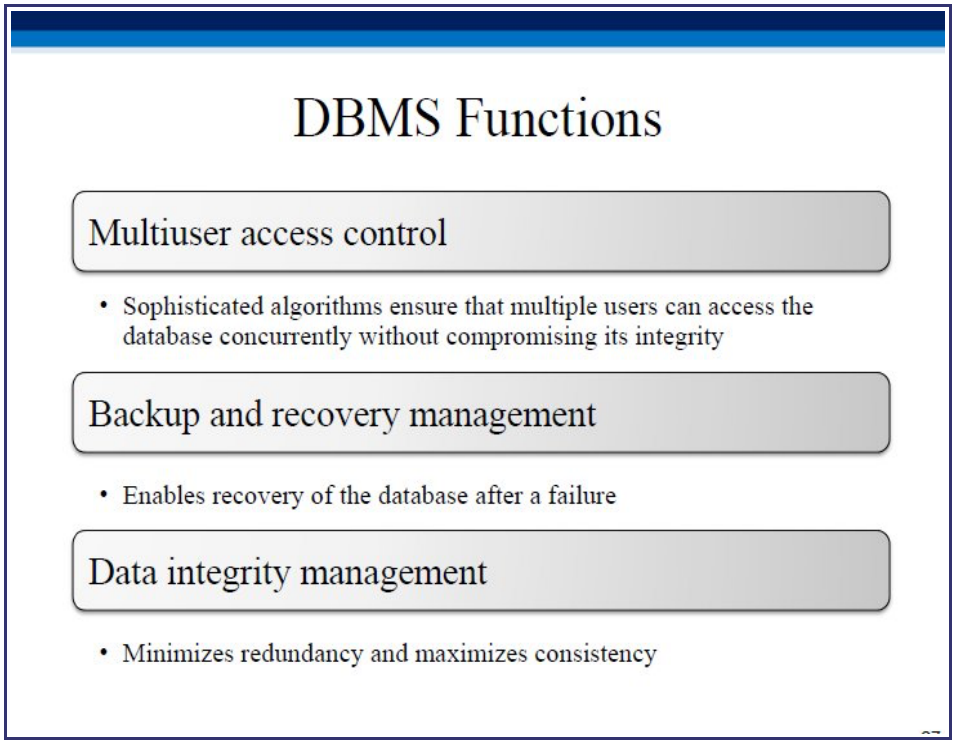
DBMS


DBMS Functions
Data dictionary management
• Data dictionary: Stores definitions of the data elements and their relationships
Data storage management
• Performance tuning: Ensures efficient performance of the database in terms of storage and access speed
Data transformation and presentation
• Transforms entered data to conform to required data structures
Security management
• Enforces user security and data privacy

DBMS [cont'd]



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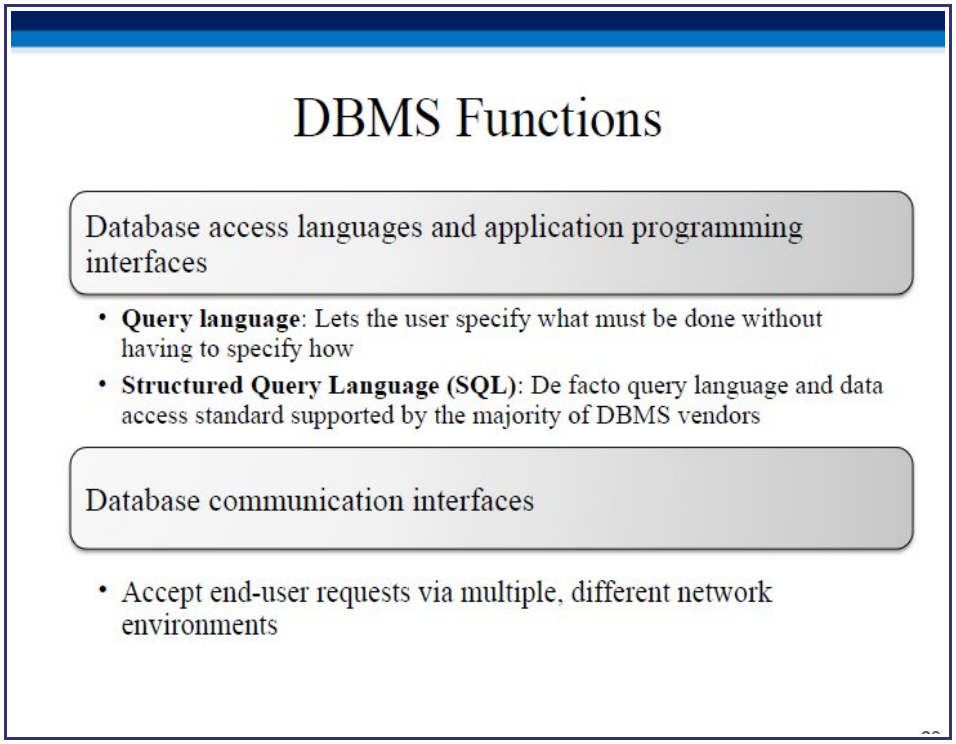
DBMS [cont'd]



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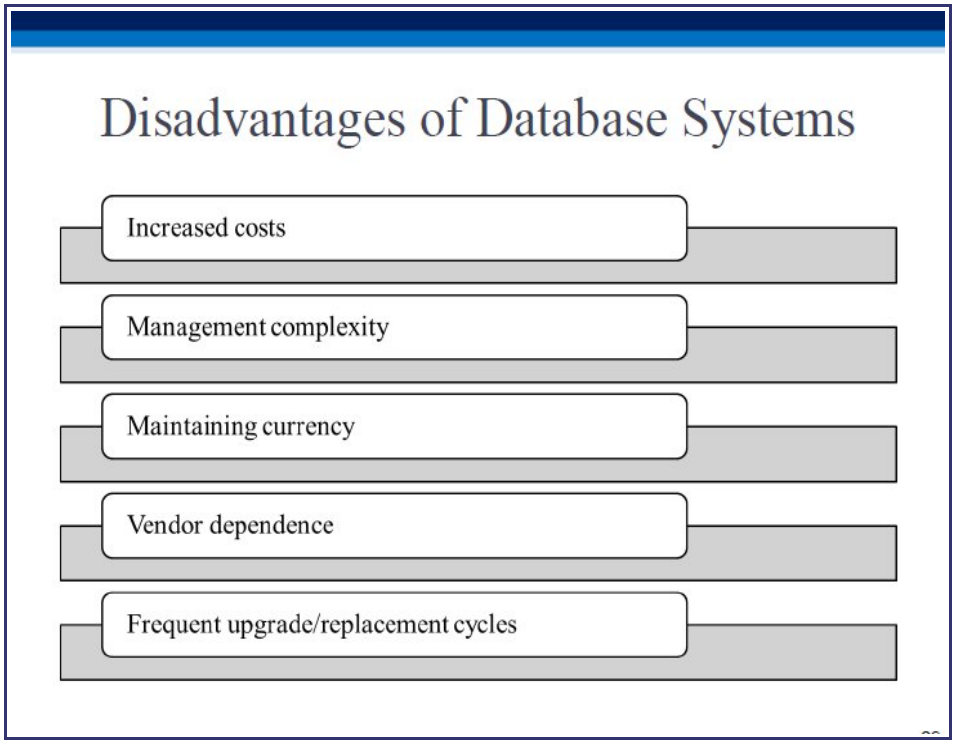
How DBs could be "bad"



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