

IT 775

Database Technology

Data Stores

Terms and Concepts

Initial Terminology

- **Computer Data Storage** - a fundamental component and function of computers, it is computer components and recording media that are used to retain digital data.
- **Persistence** - refers to any characteristic or state of a system that outlives (persists more than) the process that created it. This is achieved by saving the characteristic or state as data in computer data storage (a Data Store).
- **Data Store** - a repository for persistently storing and managing collections of data which include not just databases, but also simpler store types such as directories, files, spreadsheets, emails etc.

Initial Terminology

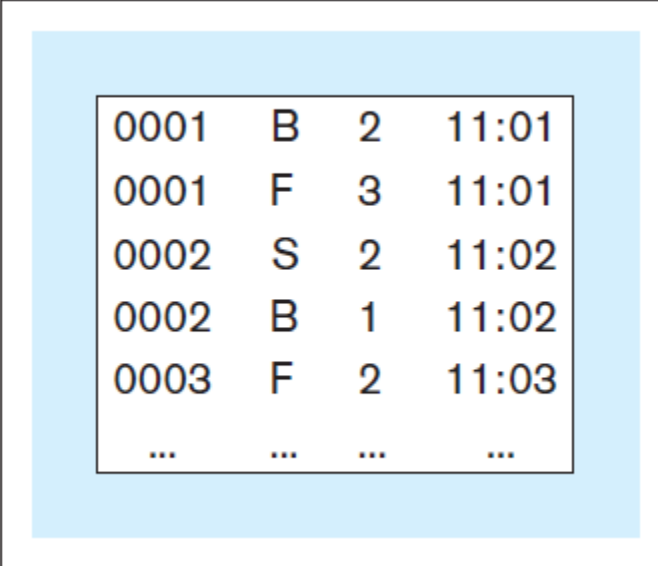
- **Data** - facts that are recorded and can be accessed
 - Data formats – text, numbers, figures, graphics, images, audio/video recordings and more
 - Data is recorded and kept because it is considered to be of use to an intended user
- **Information** - refers to the data that is accessed by a user for some particular purpose
 - Typically, getting the needed information from a collection of data requires performing an activity, such as searching through, processing, or manipulating the data in some form or fashion

Initial Terminology

- **Metadata** - data that describes the structure and the properties of the data
 - Metadata is essential for the proper understanding and use of the data

Initial Terminology

Data without metadata - example



0001	B	2	11:01
0001	F	3	11:01
0002	S	2	11:02
0002	B	1	11:02
0003	F	2	11:03
...

Initial Terminology

Data with metadata - example

METADATA	Burger Prince Store 101, Sales Data for Sept 1, 2013 (Product Codes: B – Burger, F – Fries, S – Soda)			
	PURCHASE TRANSACTIONS TABLE			
	TransactionId	Product	ItemsSold	Time
	0001	B	2	11:01
	0001	F	3	11:01
	0002	S	2	11:02
	0002	B	1	11:02
	0003	F	2	11:03

Initial Terminology

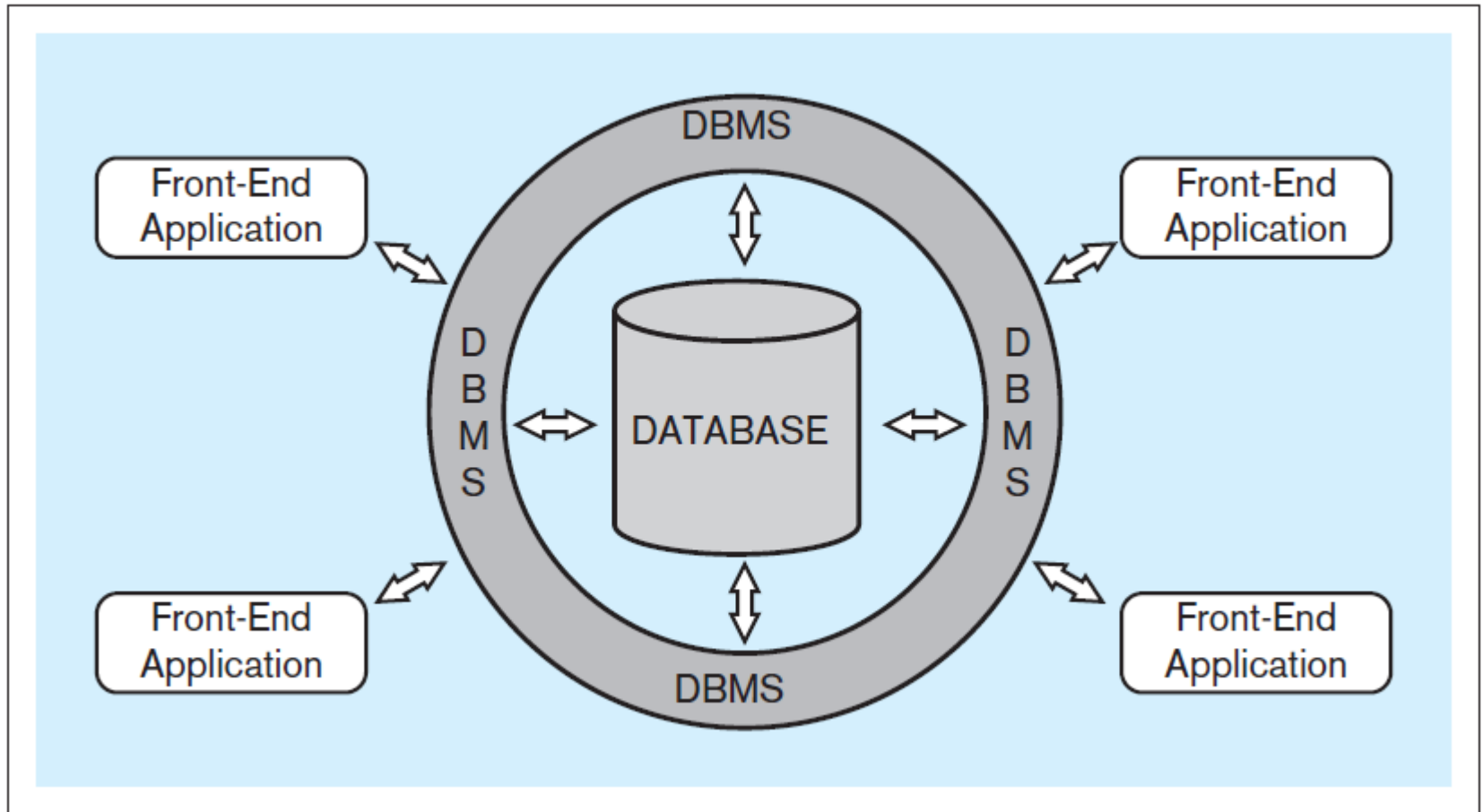
- **Database** - structured collection of related data stored on a computer medium
 - Organizes the data in a way that facilitates efficient access to the information captured in the data
- **Database metadata** – represents the structure of the database
 - Database content that is not the data itself (data about the data)
 - Contains:
 - Names of data structures
 - Data types
 - Data descriptions
 - Other information describing the characteristics of the data

Initial Terminology

- **Database management system (DBMS)** - software used for:
 - Creation of databases
 - Insertion, storage, retrieval, update, and deletion of the data in the database
 - Maintenance of databases
- **Database system** - computer-based system whose purpose is to enable an efficient interaction between the users and the information captured in a database

Initial Terminology

Typical database system architecture



Initial Terminology

- **Front-end applications** - provide a mechanism for easy interaction between the users and the DBMS
- **End-users (business-users)** - users using a database system to support their tasks and processes
- **Indirect interaction** - end-user communicating with the database through front-end applications
- **Direct interaction** - end-user communicating with the database directly through DBMS

Initial Terminology

Typical database system architecture

