Database Systems
Lecture 1

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بسم الله الرحمن الرحيم

Lecture 1

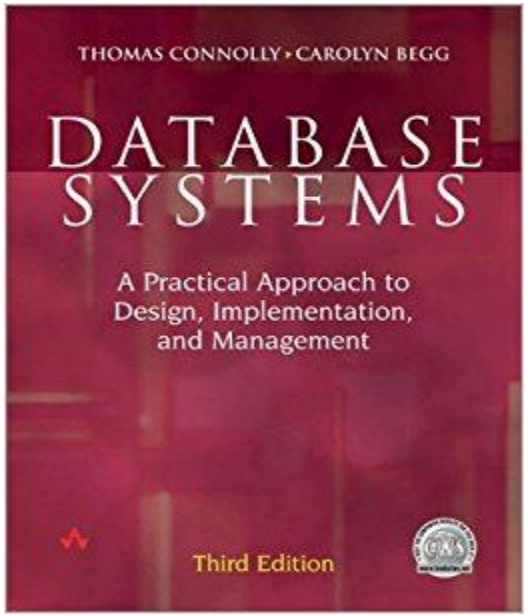
Introduction to Database, DBMS, Data and Information

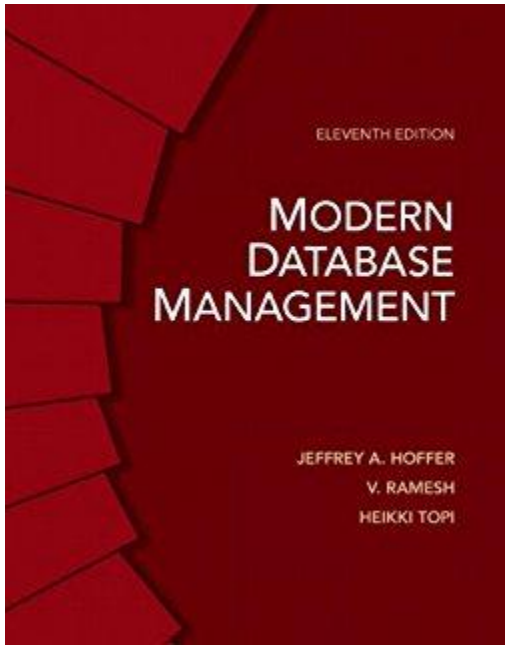
Course Objectives

- The overall aim of this course is to develop students' knowledge about
  - Databases Modeling and Development
  - SQL and Database implementation in MS SQL Server

Course Material

- Modern Database Management (11th Edition) 11th Edition by by Jeffrey A. Hoffer, Ramesh Venkataraman , Heikki Topi
- Database Systems: A Practical Approach to Design, Implementation and Management (4th Edition) by Thomas M. Connolly, Carolyn E. Begg



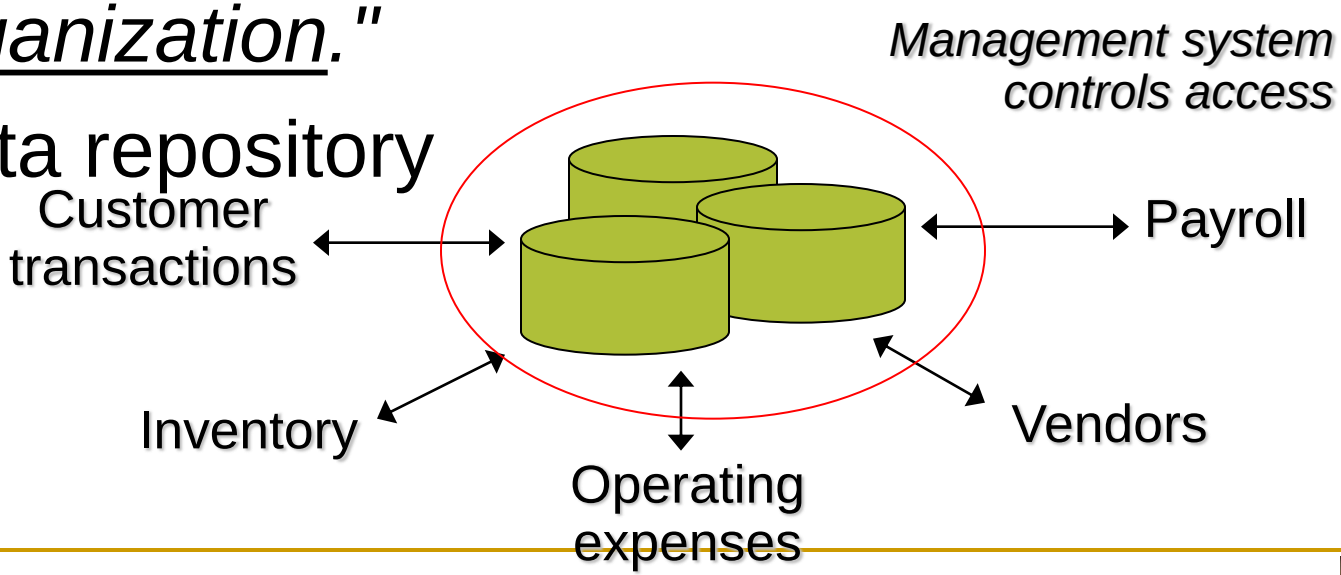


Grading Scheme

- Yet to be decided

What is Database?

- Definition:
  "*A shared collection of logically related data, and a description of this data, designed to meet the information needs of the organization.*"
- Data repository



What is a database and DBMS?

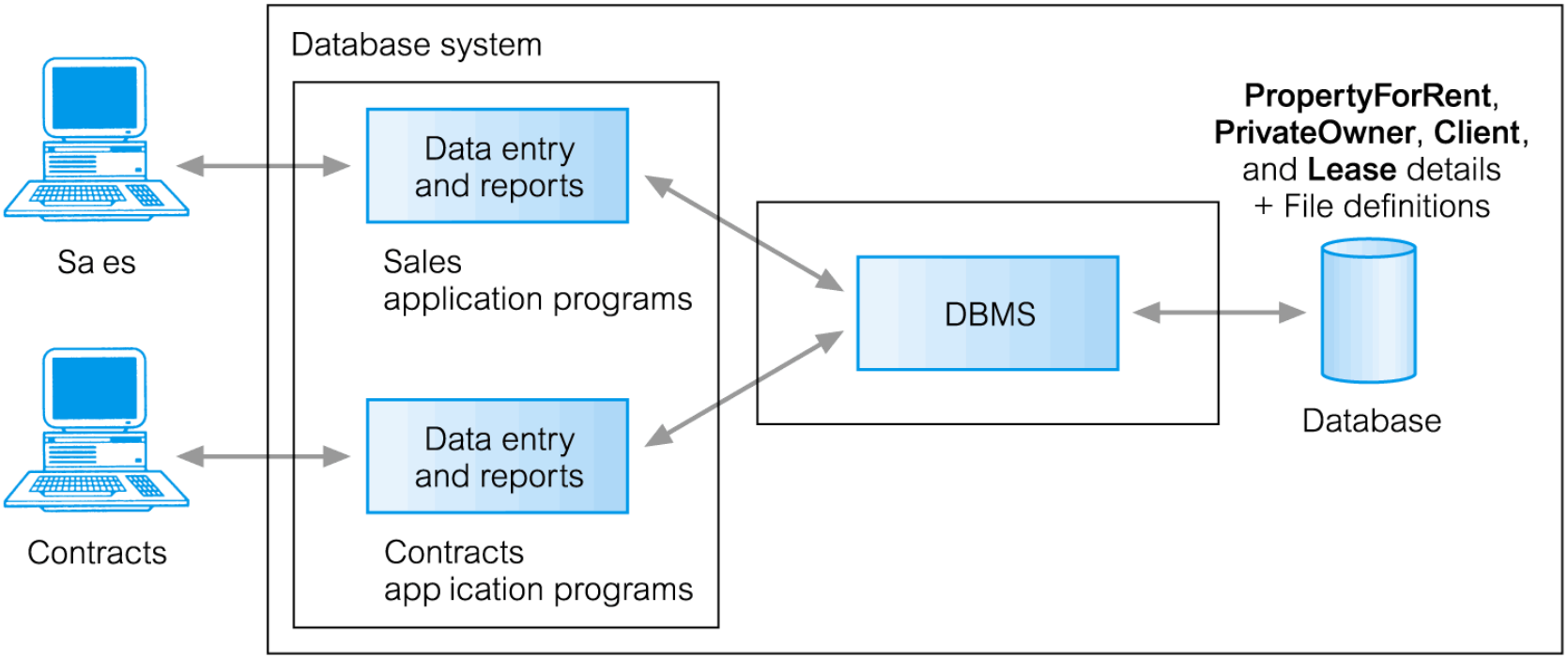
Database

- Shared collection of logically related data (and a description of this data), designed to meet the information needs of an organization.
- System catalog (metadata) provides description of data to enable program–data independence.
- Logically related data comprises entities, attributes, and relationships of an organization's information.

Database Management System (DBMS)

- A software system that enables users to define, create, maintain, and control access to the database.

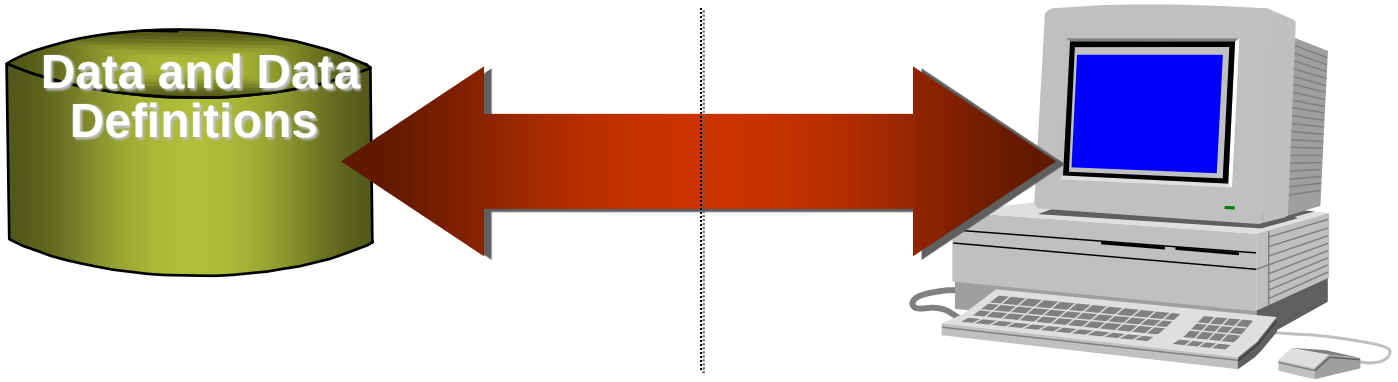
Example DBMS



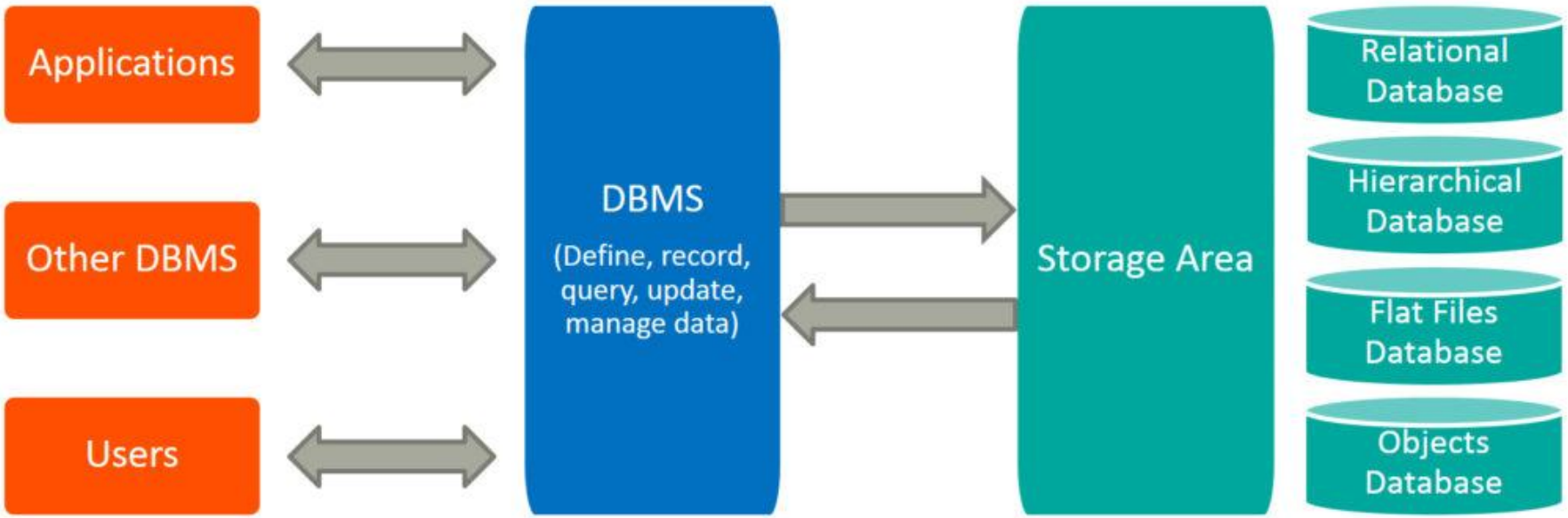
PropertyForRent (propertyNo, street, city, postcode, type, rooms, rent, ownerNo)
PrivateOwner (ownerNo, fName, lName, address, telNo)
Client (clientNo, fName, lName, address, telNo, prefType, maxRent)
Lease (leaseNo, propertyNo, clientNo, paymentMethod, deposit, paid, rentStart, rentF nish)

Database

- “A shared collection of logically related data (and a description of this data), designed to meet the information needs of an organization.”



Components of DBMS

- *Data definition language (DDL) - Permits specification of data types, structures and any data constraints.*
- *Data manipulation language (DML) - General enquiry facility (query language) of the data.*
- *Controlled access to database may include:*
  - *a security system*
  - *an integrity system*
  - *a concurrency control system*
  - *a recovery control system*

Database Management System