

University of Central Florida

CGS 2545

Database Concepts

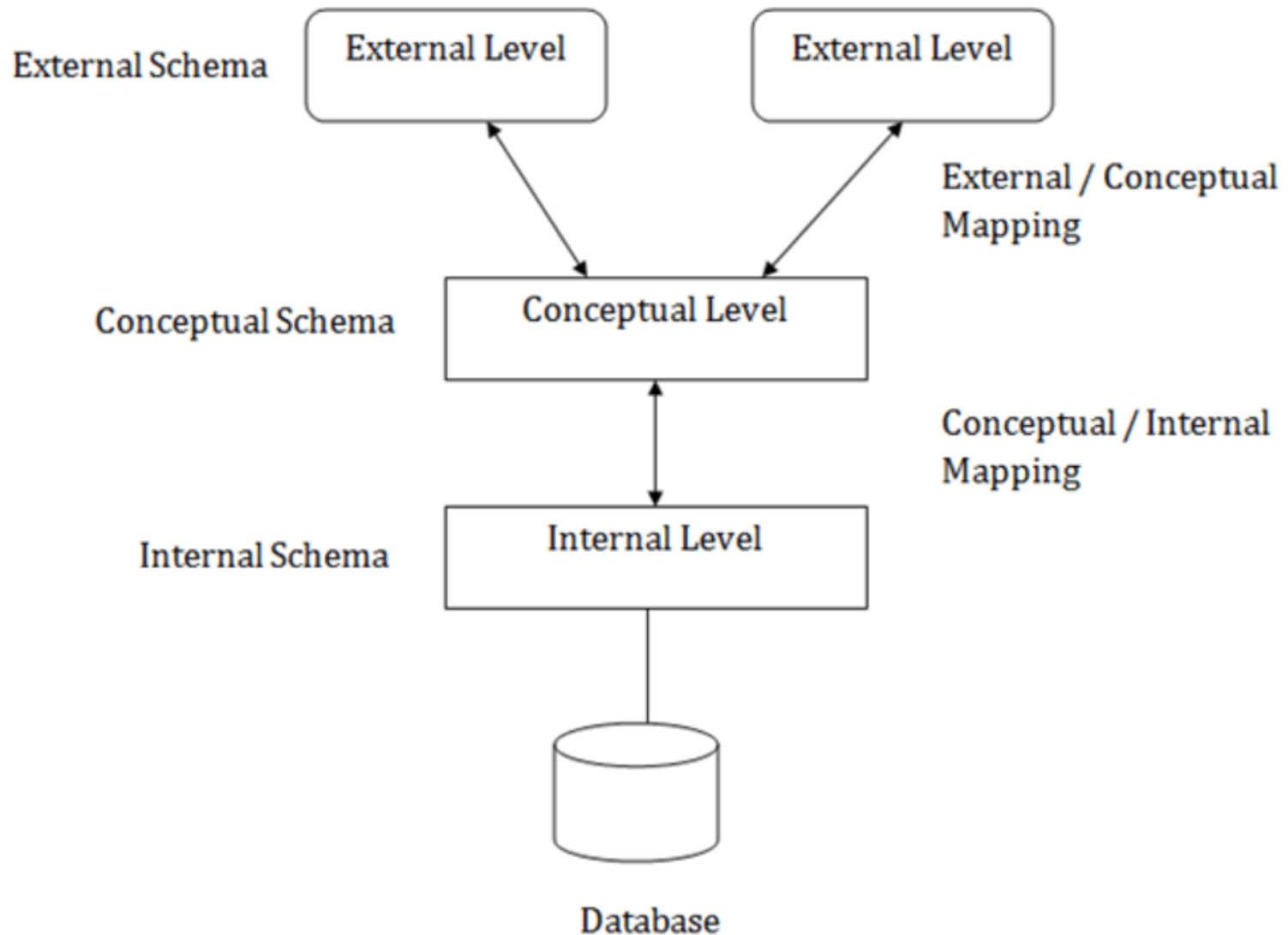
DEPARTMENT OF ELECTRICAL ENGINEERING & COMPUTER SCIENCE
COMPUTER SCIENCE DIVISION

Three Schema Architecture

Three Schema Architecture

- The three schema architecture is also called ANSI/SPARC architecture or three-level architecture
- This framework is used to describe the structure of a specific database system
- The three schema architecture is used to separate the user applications and physical database
- The three schema architecture contains three-levels
- It breaks the database down into three different categories

Three Schema Architecture



Three Schema Architecture

- In the diagram
 - Mapping is used to transform the request and response between various database levels of architecture
 - Mapping is not good for small DBMS because it takes more time
 - In External / Conceptual mapping, it is necessary to transform the request from external level to conceptual schema
 - In Conceptual / Internal mapping, DBMS transform the request from the conceptual to internal level

Three Schema Architecture

- **Internal Level**
 - The internal level has an internal schema which describes the physical storage structure of the database
 - The internal schema is also known as a physical schema
 - It uses the physical data model
 - It is used to define that how the data will be stored in a block
 - The physical level is used to describe complex low-level data structures in detail

Three Schema Architecture

- **Conceptual Level**
 - The conceptual schema describes the design of a database at the conceptual level
 - Conceptual level is also known as logical level
 - The conceptual schema describes the structure of the whole database
 - The conceptual level describes what data are to be stored in the database and also describes what relationship exists among those data
 - In the conceptual level, internal details such as an implementation of the data structure are hidden
 - Programmers and database administrators work at this level

Three Schema Architecture

- **External Level**
 - At the external level, a database contains several schemas that sometimes called as subschema
 - The subschema is used to describe the different view of the database
 - An external schema is also known as view schema
 - Each view schema describes the database part that a particular user group is interested and hides the remaining database from that user group
 - The view schema describes the end user interaction with database systems