

CLASS 1 – INTRODUCTION – SESSION 2

19CSE202 – DATABASE MANAGEMENT SYSTEMS

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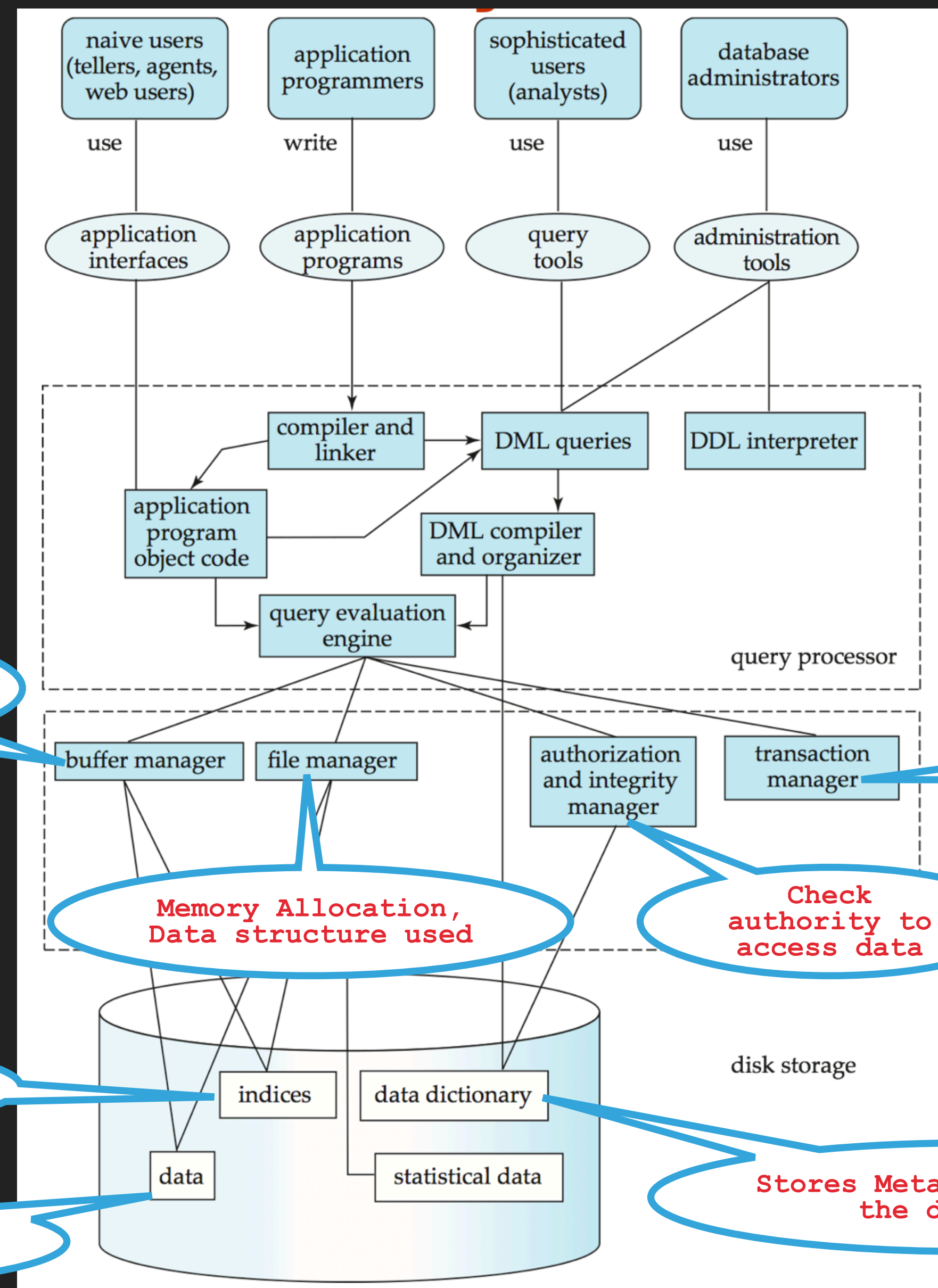
DATABASE DESIGN

- ▶ Database design mainly involves the design of the **database schema**.
- ▶ **Initial Phase** - To characterize fully the data needs of the prospective database users.
- ▶ **Data Model Selection**- Translates the requirements into a conceptual schema of the database.
- ▶ **Functional Requirements**- users describe the kinds of operations (or transactions) that will be performed on the data
 - ▶ At this stage of conceptual design, the designer can review the schema to ensure it meets functional requirements.

DATABASE DESIGN

- ▶ **Logical - design phase** - the designer maps the high-level conceptual schema onto the implementation data model of the database system.
- ▶ **Physical - design phase** - the physical features of the database are specified.
(includes form of file organization and the internal storage structures)
- ▶ Eg:- Database Design for a University Organization.

SYSTEM STRUCTURE - STORAGE MANAGER



Decides what data to be retained in cache memory

Memory Allocation, Data structure used

Fast access to data item

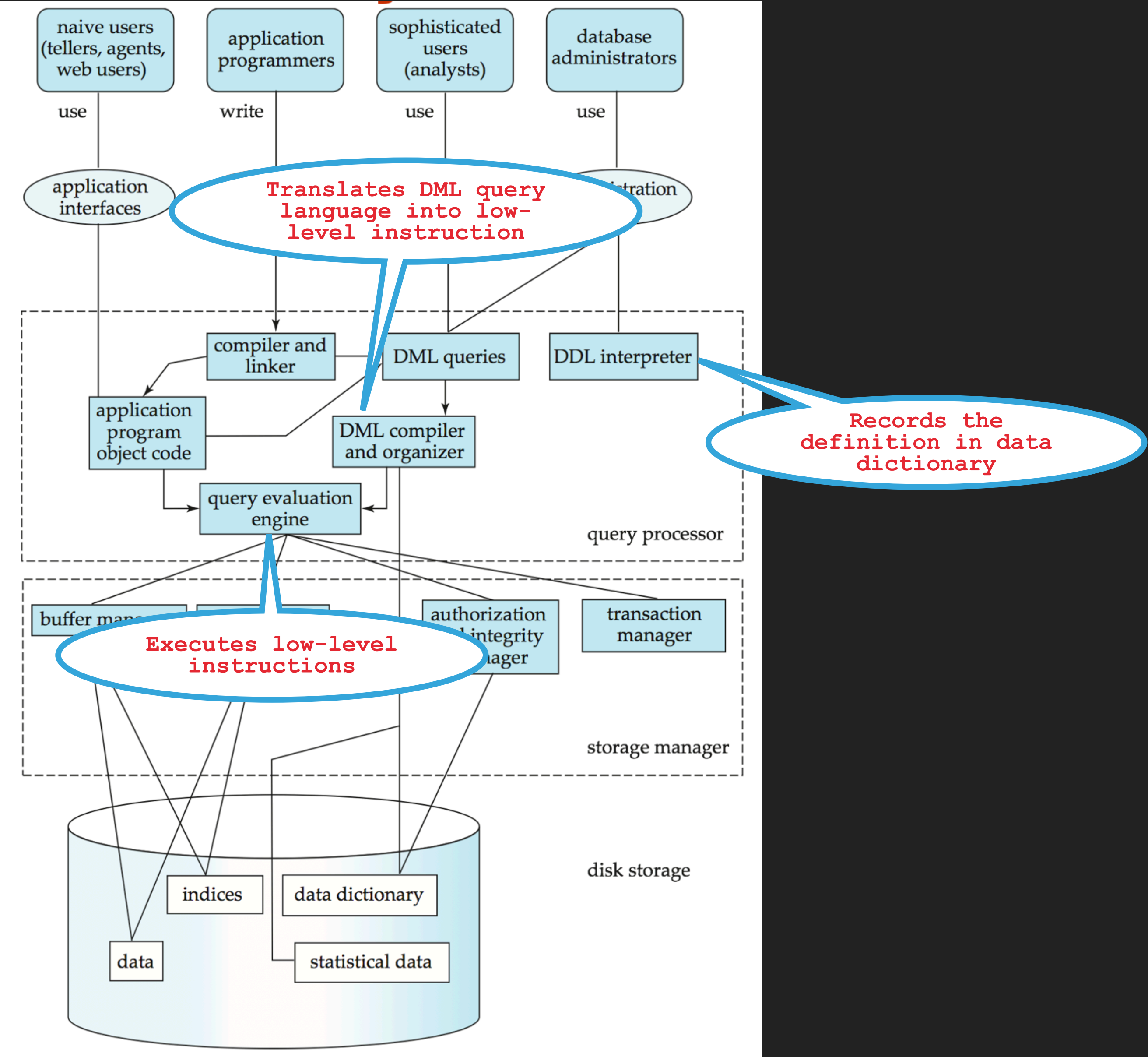
Stores the database

Ensures consistency in the state of database

Check authority to access data

Stores Metadata (schema of the database)

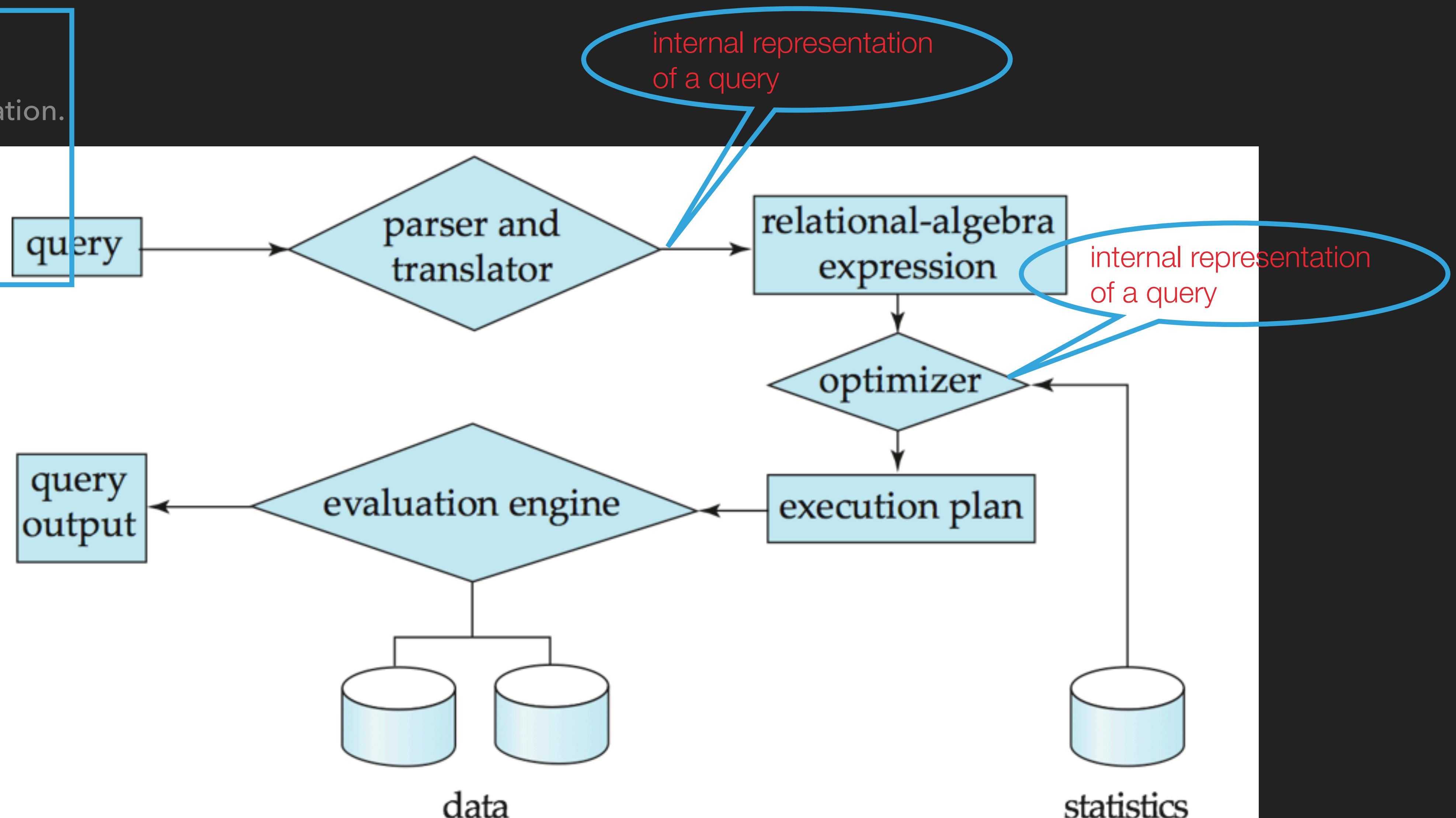
SYSTEM STRUCTURE - QUERY PROCESSOR



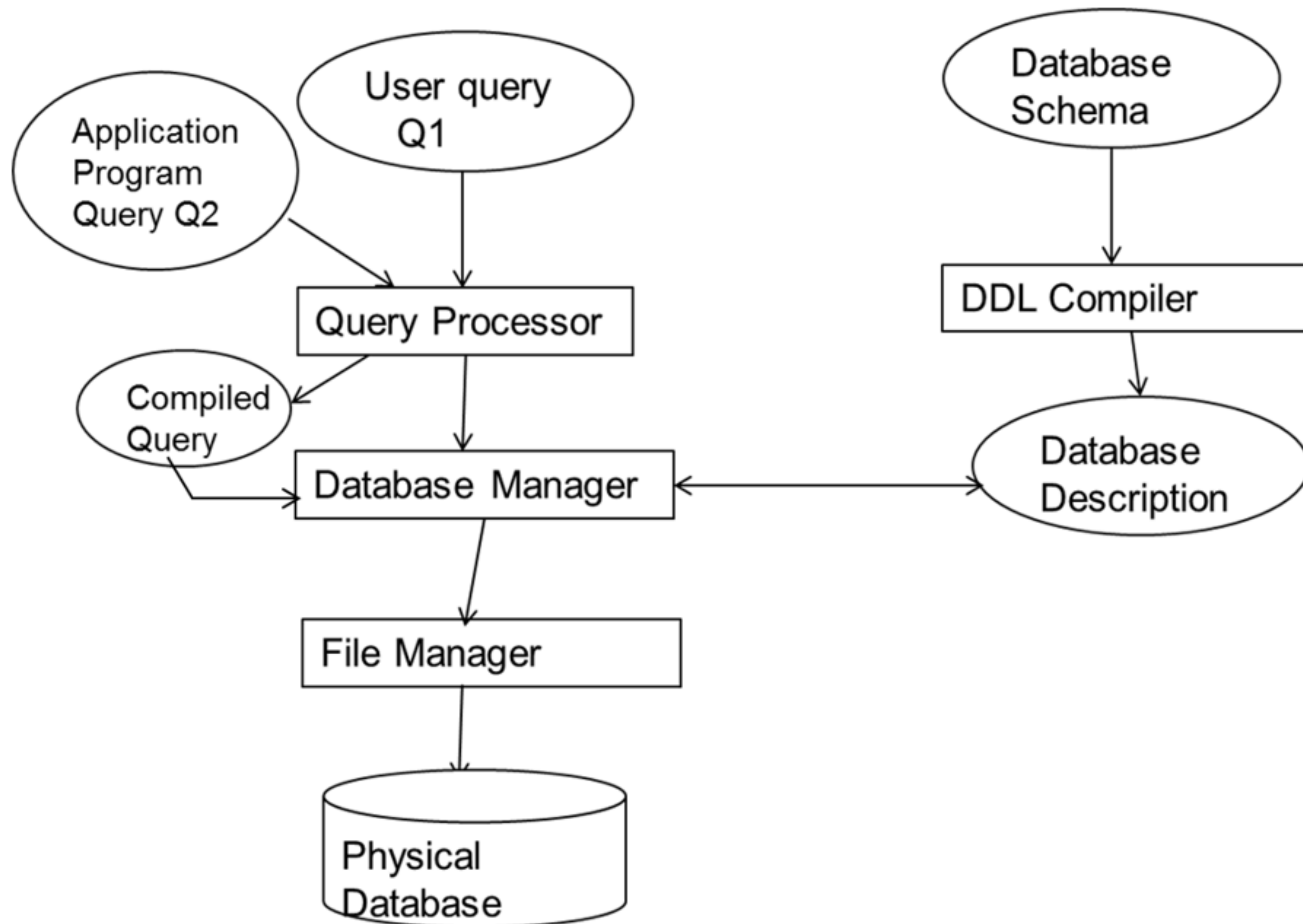
QUERY PROCESSING

The basic steps are:

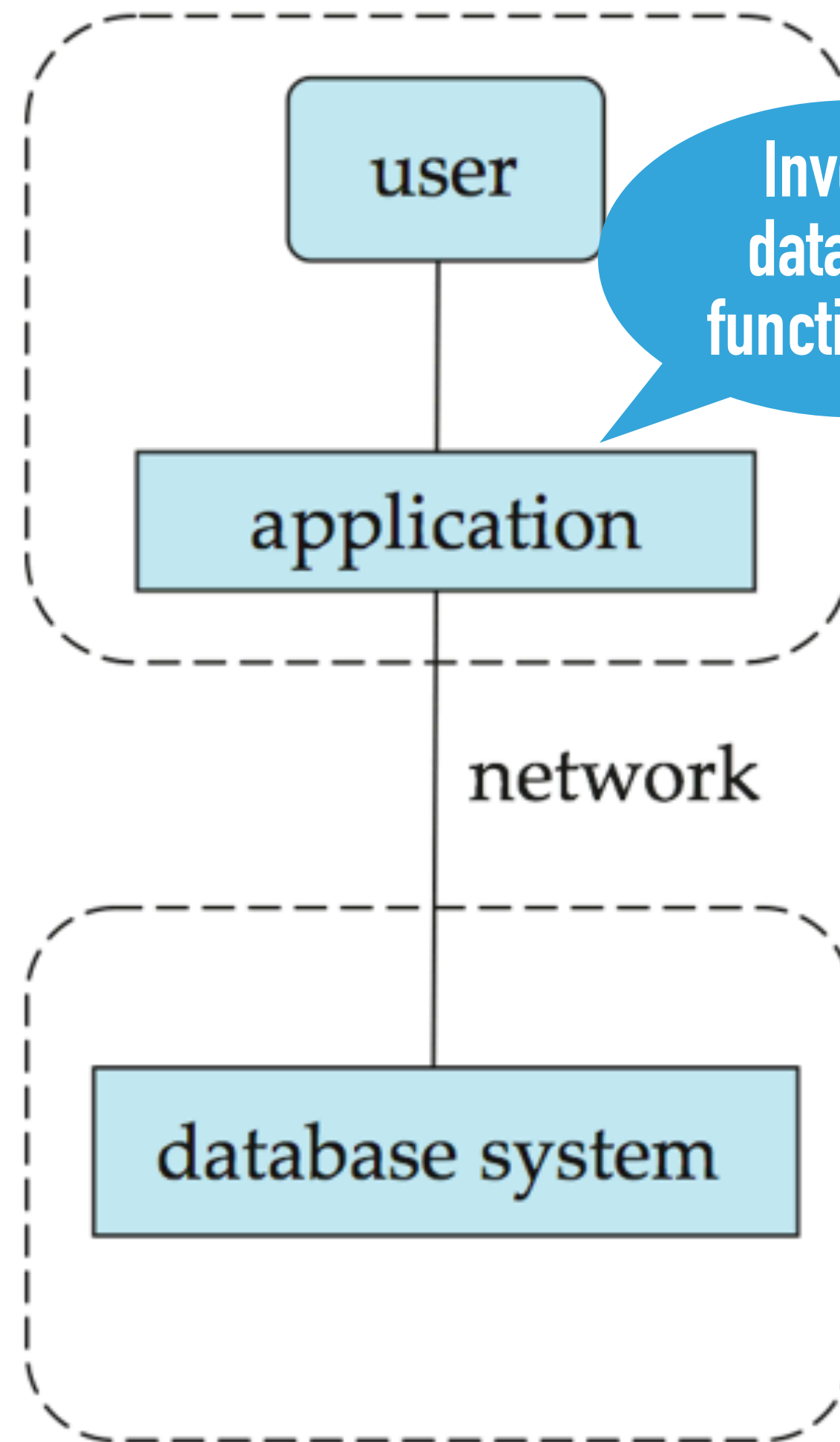
1. Parsing and translation.
2. Optimization.
3. Evaluation.



SUMMARY



DATABASE ARCHITECTURES



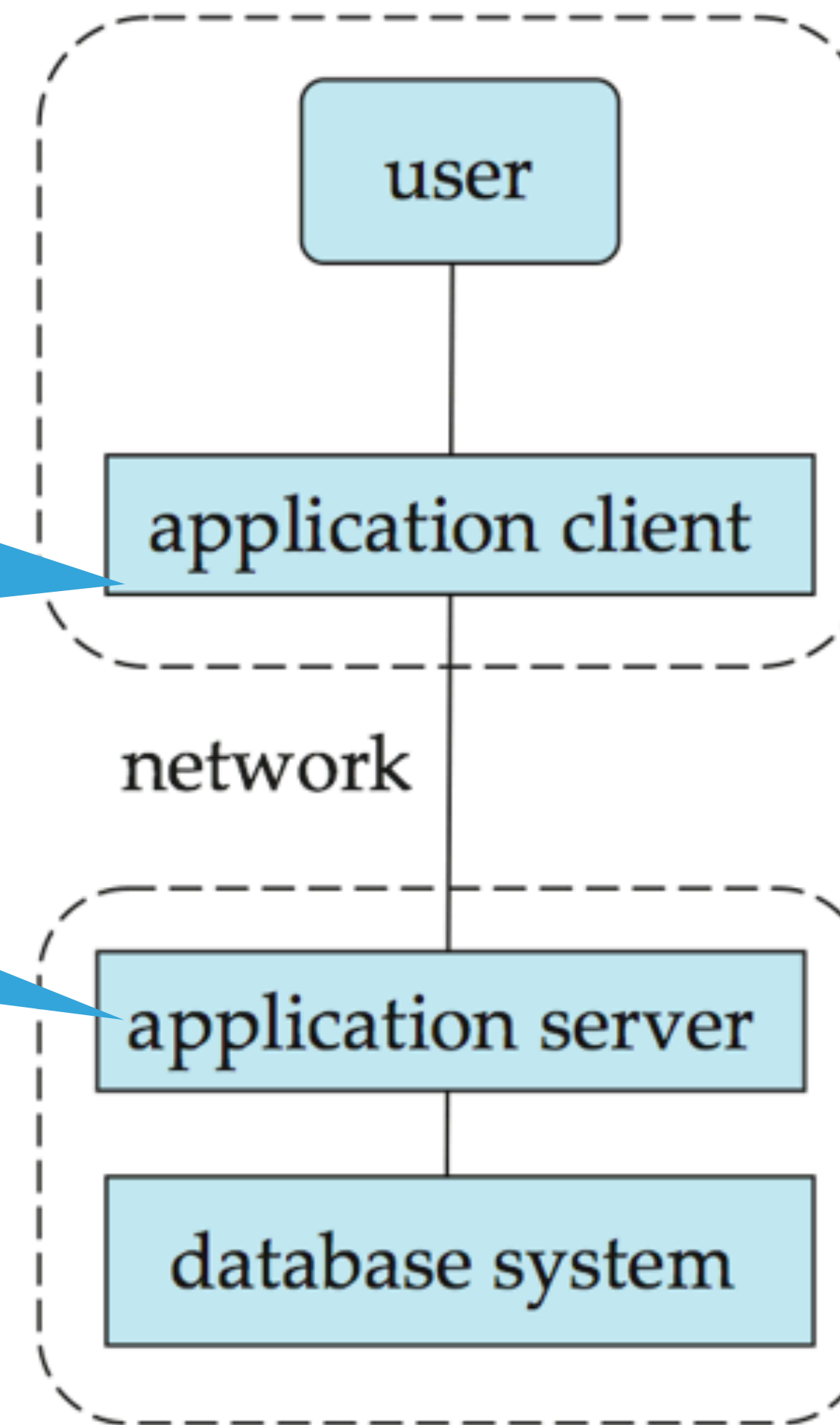
(a) Two-tier architecture

client

Acts as a front end (No direct db calls)

Invokes database functionality

server



(b) Three-tier architecture

DATABASE USERS AND ADMINISTRATORS

- ▶ Database Users and User Interfaces
 - ▶ Naive Users
 - ▶ Application Programmers
 - ▶ Sophisticated Users
 - ▶ Specialized Users

DATABASE USERS AND ADMINISTRATORS

- ▶ Database Administrator functions
 - ▶ Schema definition
 - ▶ Storage structure and access - method definition
 - ▶ Schema and physical-organisation modification
 - ▶ Granting of authorization for data access
 - ▶ Routine maintenance