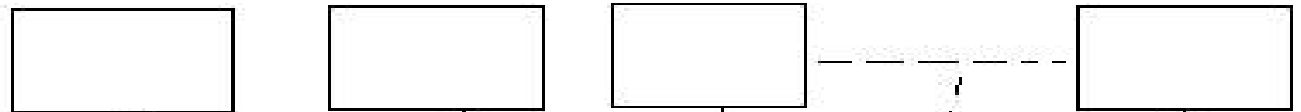

Chapter# 3

Database system architecture

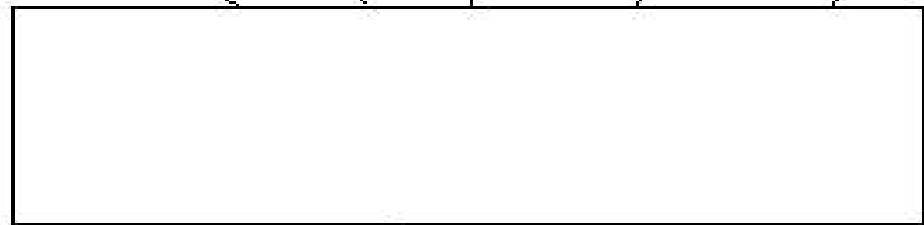
The Three levels of architecture:

- **The Internal level¹.**
- **The External level².**
- **The Conceptual level³.**

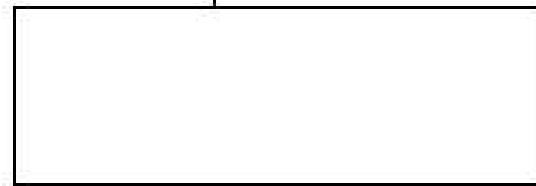
External level
(Individual user views)



Conceptual level
(community user view)



Internal level
(storage view)



An example of the three levels.

External (COBOL):

01 EMPC.

02 EMPNO PIC x(6).

02 DEPTNO PIC X(4).

Conceptual:

EMPLOYEE

EMPLOYEE_NUMBER CHARACTER (6)

DEPARTMENT_NUMBER CHARACTER (4).

Internal:

STORED_EMP BYTES = 20

PREFIX TYPE=BYTE(6),OFFSET=0

EMP# TYPE = BYTE(6),OFFSET=6,INDEX=EMPX

DEPT# TYPE =BYTE(4),OFFSET=12

Tasks of the Database Administrator(DA)

- Defining the conceptual schema.
- Defining the internal schema
- Liaising with users.
- Defining security and integrity constraints
- Defining dup and reload policies
- Monitoring performance and responding to changing requirements.

The functions of Database Management Systems(DBMS):

- Data definition.
- Data manipulation.
- DML requests.
 - Planned.
 - Unplanned.
- Optimization and execution.
- Data security and integrity.
- Data recovery and concurrency.
- Data dictionary.
- Performance.

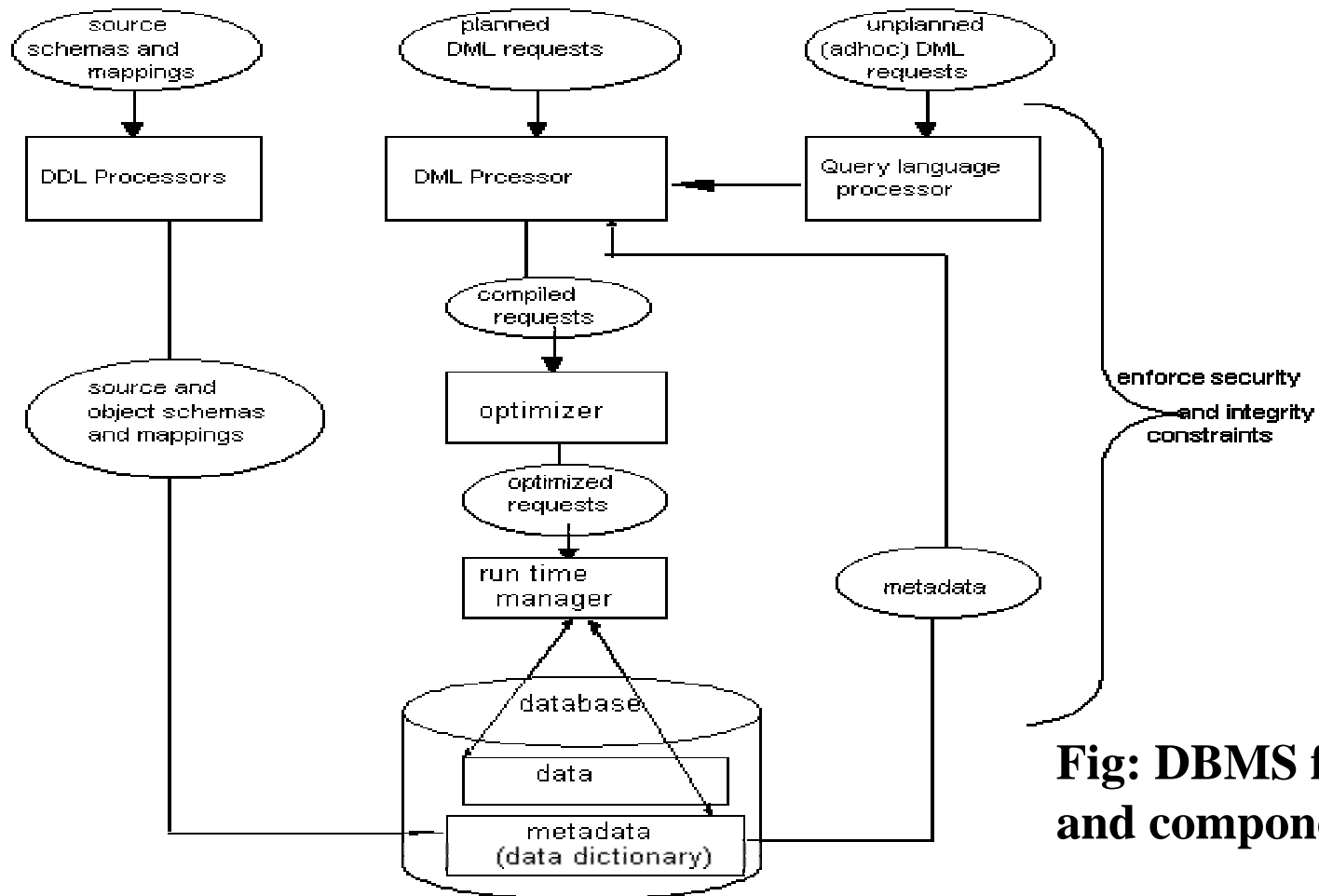


Fig: DBMS functions and components.