



Channabasaveshwara Institute of Technology

(Affiliated to VTU, Belgaum & Approved by AICTE, New Delhi)

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NH 206 (B.H. Road), Gubbi, Tumkur – 572 216. Karnataka.



DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

INTERNAL ASSESSMENT BOOKLET

USN:	1CG18CS08G		Student Name:	SUBHASH G. KASHYAP	
Subject Name:	Database Management System.		Subject Code:	18CS53	
Semester:	V	Date:	10-11-2020	Total No. of Sheets Enclosed	03
IA Test No:	01	Student Signature			<i>Subhash G. Kashyap.</i>

Question Number	EVALUATION REPORT				Evaluator	Moderator
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- ② Database management system is a computerized system that enables users to create and maintain a database.

Advantages of DBMS over traditional file system:

(i) Controlling redundancy:

Redundancy in storing the same data multiple times leads to several problems like storage space wastage, inconsistency etc.

(2) Restricting unauthorized access:

A DBMS should provide security and authorization subsystem, which the DBA uses to create accounts and specify account restrictions.

(3) Providing persistent storage for program objects:

Databases can be used to provide persistent storage for program objects and data structures.

(4) Providing storage structures and search techniques for efficient query processing:

The query processing and optimization module of the DBMS is responsible for choosing an efficient query execution plan for each query based on the existing storage structures.

(5) Providing backup and recovery:

The backup and recovery system of DBMS is responsible for recovery of data.

(6) Providing multiple user interfaces:

Many types of users with varying levels of technical knowledge must be provided variety of user interfaces by DBMS.

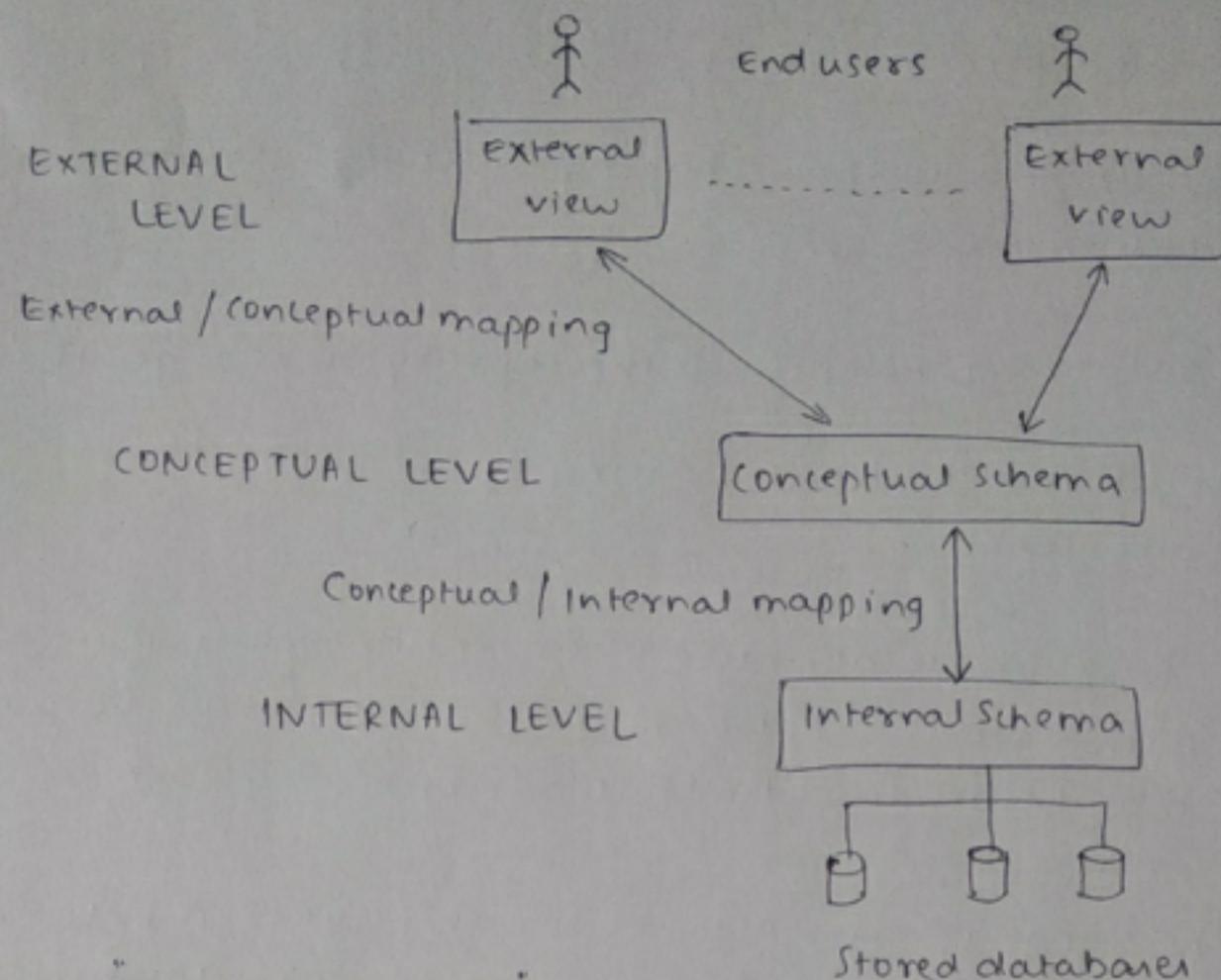
(7) Representing complex relationships among data:

A DBMS must have the capability to represent a variety of complex relationships among data, to define and to relate and to retrieve and update related data easily and efficiently.

(8) Enforcing integrity constraints:

A DBMS should provide capabilities for defining and enforcing the integrity constraints.

③ The three-schema architecture :



- (1) The "INTERNAL LEVEL" has an internal schema, which describes physical storage structure of a database. The internal schema uses physical data model and describes the complete details of data storage and access paths for the database.
- (2) The "CONCEPTUAL LEVEL" has a conceptual schema, which describes the structure of whole database for a community of users. The conceptual schema hides the details of physical storage structures and concentrates on describing entities, datatypes and constraints.
- (3) The "EXTERNAL LEVEL" includes a number of external schemas. Each external schema describes the part of database that a particular user group is interested in and hides the rest of database from the user group.

Difference between logical and physical data independence:

- * "Logical data independence" is the capacity to change the conceptual schema without having to change external schemas or application programs.
- * "Physical data independence" is the capacity to change the internal schema without having to change the conceptual schema.

⑤ (i) Value set: Each simple attribute of an entity type is associated with a value set, which specifies the set of values that may be assigned to that attribute for each individual entity.

Ex: If the range of ages allowed for employees is between 21 and 60, we can specify value set of age attribute of employee table to be the set of integer numbers between 21 and 60.

(ii) Datamodel: A datamodel hides storage and implementation details that are not of interest to most database users.

Ex: In student record, the user is not concerned with location of each data or its length; rather the user is concerned that when a reference is made to Name, the correct value is returned.

(iii) Schemas:

A datamodel is a collection of concepts that can be used to describe the structure of database - provides necessary means to achieve data abstraction

(iii) Schema: The description of a database is called database schema, which is specified during database design and is not expected to change frequently.

Ex: A table of a database.
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(iv) Metadata: The description of a ~~table~~ DBMS catalog is called metadata.

Ex: Datatypes of a particular attribute.
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(v) Degree of relationship: It is the number of participating entity types.

Ex: Consider a relation WORKS_FOR has the entities employee and department. Hence the WORKS_FOR relationship is of degree two.

- ⑩. (i) select Fname, Lname, Address
from EMPLOYEE, DEPARTMENT
where Dname = "Research" and Dnumber = Dno;
- (ii) select Pnumber, Dnumber, Lname, Address, Bdate
from PROJECT, DEPARTMENT, EMPLOYEE
where ~~Pno~~ Dnum = Dnumber and Mgr_ssn = SSN and Plocation = "Stafford";
- (iii) select E.Fname, E.Lname from EMPLOYEE as E where
E.SSN in (select Essn from DEPENDENT where E.Fname = Dependent_
Name and E.Sex = Sex);
- (iv) select Fname, Lname from EMPLOYEE where exists (select *
from DEPENDENT where SSN = Essn) and exists (select * from
DEPARTMENT where SSN = Mgr_ssn);
- (v) select SSN, Dname from EMPLOYEE, DEPARTMENT;

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