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Date	Unit No.	Lecture No.	Name of Faculty	Subject Name & Code	Main Topics:-	Page no.:
28/9					Introduction of RDBMS	

Relational Database Management System

- * CBSE - Component Based Software Engineering
- * WBS - Work Breakdown Structure
- * BPO - Business process outsourcing (3rd Party)

Database

:- Collection of Alphabat, Number & special character

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Features of DBMS

- user friendly
- Query support
- Search easily
- Search +
- updation / Deletion
- Security → from views / unauthorized Access
- Backup / Restore
- Centralized DR

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01/8	I	2 nd	Dr. Vishnu Sir	RDBMS		

* ~~ERP~~ → Enterprise Resource Planning

* Concurrency Control

- Locking
- Time Stamping
- Granularity → (describe the level of locking)

Advantages of DBMS

- 1 * Easy storage and retrieval
- 2 * Huge data storage
- 3 * Easy updation & deletion
- 4 * Control data redundancy / repetition
- 5 * Data sharing - authorized of the organization may access the data
- 6 * Easy maintenance - database tuning
- 7 * Reduce time - Reduces development and maintain database
- 8 * Backup/Restore - Automatic backups are planned
- 9 * multiple-user Interfaces
- 10 * Concurrency Control - DBMS ensure that concurrent transactions

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are performed in such a way so that data remains durable DBMS follows ACID properties

A - Atomicity

C - Consistency

I - Isolation

D - Durability

* [Precedence Graph] *

Main Ideas, Questions & Summary:-

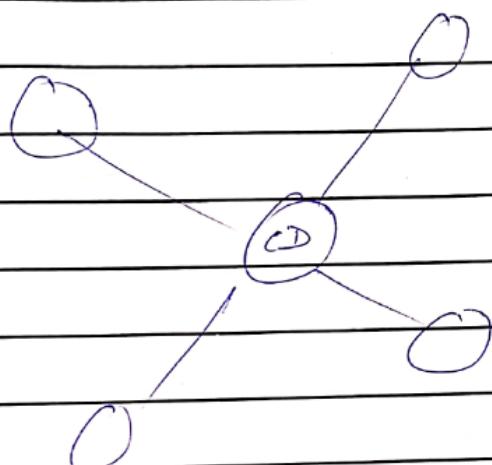
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02/08		2	Dr. V.S.		DBMS Case Study	

Case Study of Database

of Poornima University



ACID Properties

A - Atomicity → fast complete or Rollback
 [Partial Transaction Prohibited]

C - Consistency → Data should be always consistent

I - Isolation → Concurrent tasks behave such that transactions are performed by isolation.

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D - Durability → Reliable → After correct
transaction data should be written
permanently.

Main Ideas, Questions & Summary:-

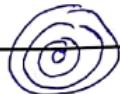
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03/08		<u>2</u>	<u>Dr. V.S</u>	RDBMS BCA1CA3101	3 - level Architecture	

conceptual / logical layer

1. Physical layer →



2. Conceptual / Logical layer
Relation Table



Table structure

3. View Level

// person view

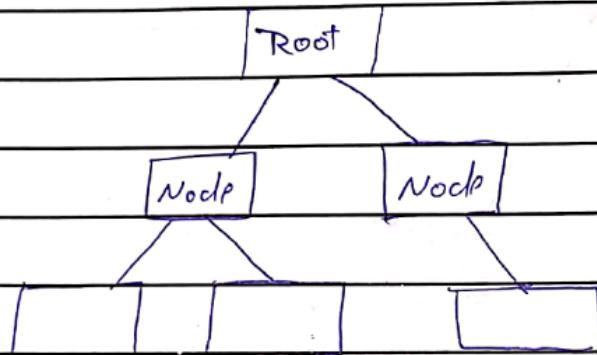
Every person / department have different
different views.

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Database Model

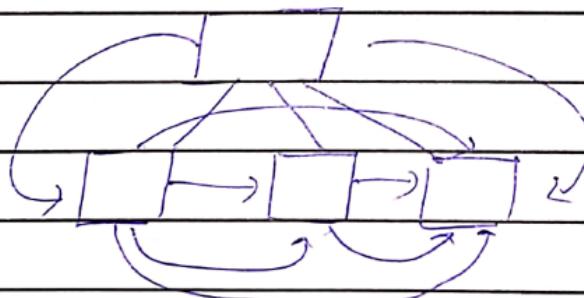
- 1) Hierarchical model
- 2) Network model
- 3) Relational model

1) Hierarchical model



- * It takes lots of time for retrieval data

2) Network model



- # complex structure

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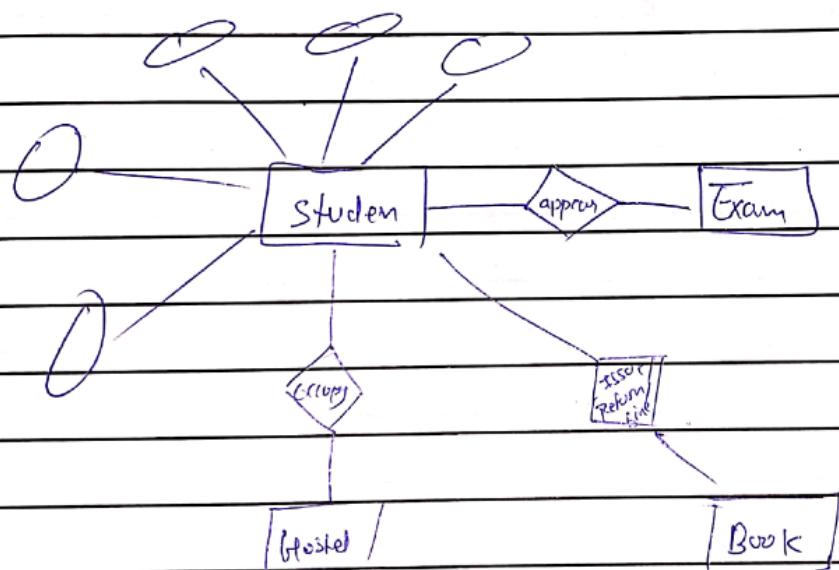
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③ Relational Data Model

Student Basic Info.

Exam Info.

+ Relation between both tables



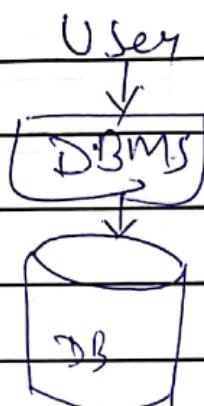
ERD

Entity Relationship Diagram

8 Aug

SQL

* Structured Query Language



- # SQL is a formal Query language with certain syntax used to query with the database
- * Function to be performed :-
- Create Table/ Relation
 - Data storage
 - Retrieval
 - Updation
 - Deletion
 - Create new users
 - Drop user

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- Creating & Revoking roles
- Creation of view
- Create new Database

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S.NO	Name of RDBMS	Inventor organization
1.	MySQL (ESS-que-EL)	MySQL AB / sun microsystem (2007)
2.	Oracle	Oracle Corporation
3.	ms MySQL server	microsoft
4.	PostgreSQL .SQL (written in C)	
5.	DB2	IBM
6.	MS Access	microsoft
7.	Firebird	
8.	SAP SQL A	
9.	Sybase	
10.	Poly hedron DBMS	
11.	Apache Derby	
12.	Amazon Aurora	
13.	SQLite (C language library)	
14.	maria Db	
15.	Informix	
16.	Oracle SQL	
17.	MySQL AB	(used by wikipedia & google)

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(0 Aug)

SQL

- SQL DB RDBMS
- Fixed / Static
- fields
- Vertically Scalable
 - > used to define & manipulate
 - > best suited for complex queries
- > Relational Data Model

Example → MySQL, Oracle,
MySQL server, SQLite,
DB2, MongoDB etc.

No SQL

- No RDBMS
- Dynamic
- Key value pair
- Horizontally Scalable
 - collection of documents
 - not suitable for complex query
 - Hierarchical model
- Example MongoDB, Bigtable, RavenDB, Cassandra, Hbase, Neo4J

Main Ideas, Questions & Summary:-

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<u>DQL Command Types</u>						
↓	↓	↓				
DDL	DML	DCL		DTL	DQL	
i) <u>DDL</u> → Data Definition Language → Related to relation structure * 'create', 'alter', 'drop', 'Modify'						
ii) DML - Data manipulation Language						
iii) DCL - Data Control Language						
# * <u>DML</u> → Insert, update, delete						
* DML → Select						
* DCL → Grant Deny						
* DTL → Snapshot, commit, Rollback						

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SGA → System Controlled Area

ER Model

Entity Relationship model

* Entity → object which is having physical existence

* Every entity is related to each other forms a Entity relationship model

* Every Entity represents a solution / title having certain attributes

Entity relationship Diagram

[] → Entity

○ → Attribute

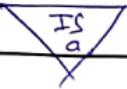
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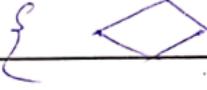
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 → Relationship
 — → Connector

 → Inheritance

* — 1	Many to one	}
1 — 1	one to one	
1 — *	one to many	
* — *	many to many	Cardinality
→ Primary key		

#ERD Rules / Guideline

- Determination of Entities ↗ Enlisting
- Represent in ERD Symbol
- Establishing relationship of Entities
- maintain Cardinality
- Attribute determination ↗ Representation
- Entities can not be connected without relationship {  }

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Railway ER Model

Enlisting

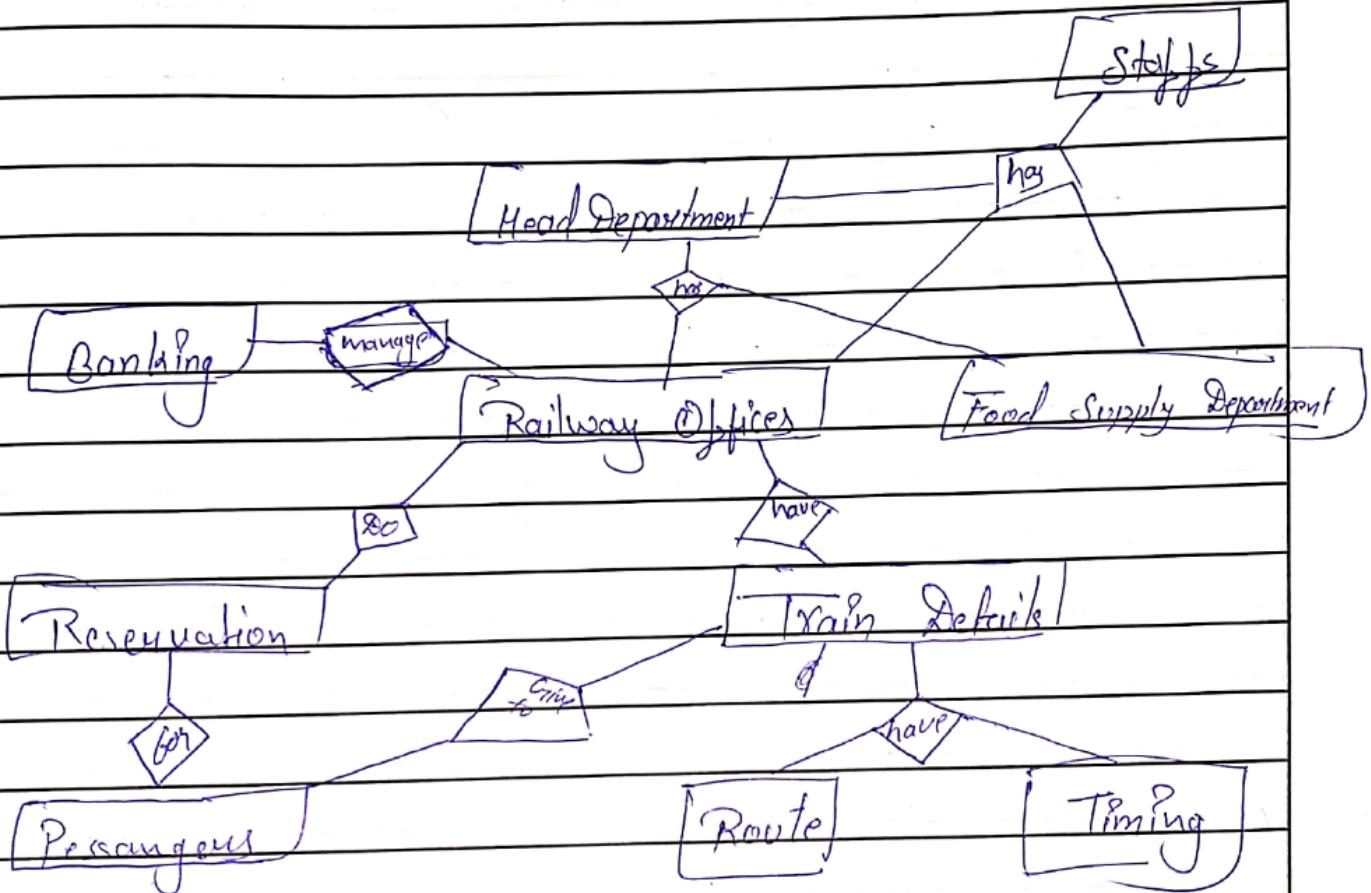
- * Staff
- * Rail Type / Train Details
- * Route
- * Timing
- * Food Supply Department
- * Reservation
- * Banking System
- * Passengers Info
- * Railway Department (head)
- * Railway Offices

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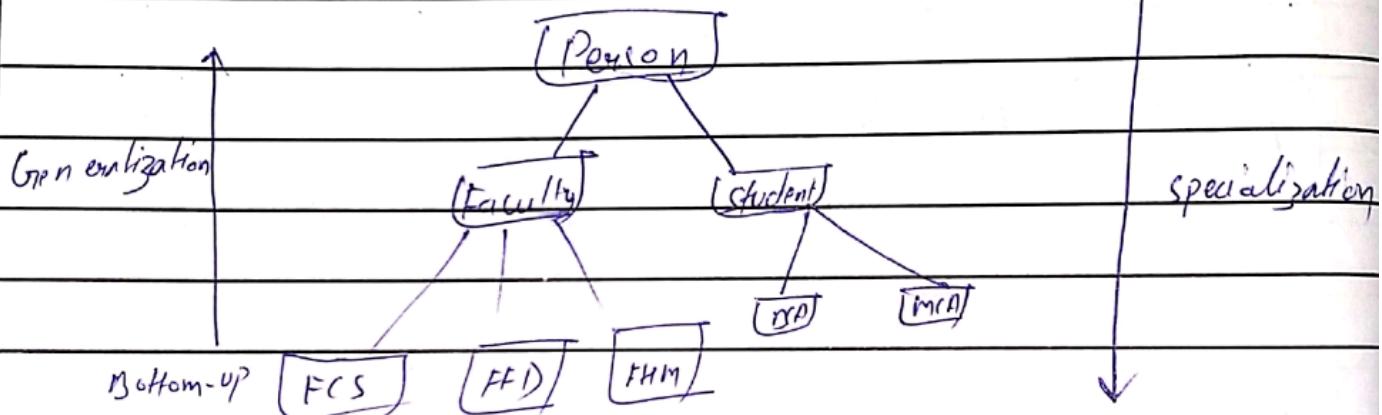
DBMS

ER Diagram

ER Model

Specialization P Generalization

Top- Down



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2/09	II		Dr. S.S	FDBMS BCA(CNA) B101		

Normalization

Summary

⇒ Insert → Insertion of a record is a critical task

⇒ updation → In some places data is updated & rest - unchanged

⇒ Deletion → Important Info gets miss with deletion of record

PRIMARY Key → Unique & NOT NULL