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Difference between file system and dbms(DBMS vs file system)

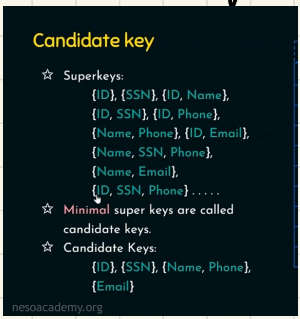
File system	DBMS
File system is a collection of data. Any management with the file system, user has to write the procedures.	DBMS is a collection of data and user is not required to write the procedures for managing the database.
File system gives the details of the data representation and Storage of data.	DBMS provides an abstract view of data that hides the details.
In File system storing and retrieving of data cannot be done efficiently.	DBMS is efficient to use since there are wide varieties of sophisticated techniques to store and retrieve the data.
Concurrent access to the data in the file system has many problems like : Reading the file while other form of locking. deleting some information, updating some information	DBMS takes care of Concurrent access using some form of locking.
File system doesn't provide crash recovery mechanism. Eg. While we are entering some data into the file if System crashes then content of the file is lost	DBMS has crash recovery mechanism, DBMS protects user from the effects of system failures.
Protecting a file under file system is very difficult.	DBMS has a good protection mechanism.

Super key → we derive other key.

Super key → Uniquely Identify

Super key → Can combine with other attribute

Candidate key: Minimal chosen Super key is the Candidate key.



No repetation

19. Neso Academy.

Primary key: Unique but no null value

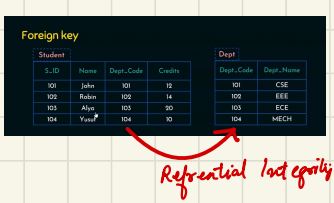
Chosen by DPA

Alternate key: Keys which are not primary key

Unique key: Can also unique but also have null value

Composite key: key with more than one attribute.

Foreign key:



Referential Integrity

SQL Commands

53 Q Smiths.

DDL - Data Definition Language

- Create
- Alter
- Drop
- Truncate
- Rename

Structure delete
|| Data removal

```
Create table <table-name>
(
Column 1 name  datatype,
Column 2 name  datatype,
Column 3 name  datatype(7) no comma
);
desc table-name
```

```
Create table emp_detail
(
id int,
name varchar2(10)
Salary number(10)
);
desc emp;
```

TABLE EMP

Column	Null?	Type
ID	-	NUMBER
NAME	-	VARCHAR2(10)
SALARY	-	NUMBER(10,0)

Download CSV
3 rows selected.

Autocommit Display 10

```
create table employee
(
id int,
name varchar(10)
);
alter table employee add address varchar(10);
desc emp11
alter table employee drop column address;
alter table employee modify id varchar(30);
alter table employee rename column id to roll_no;
alter table employee rename to emp11;
alter table emp11 add primary key (roll_no)
```

Results Explain Describe Saved SQL History

Object Type TABLE Object EMP11

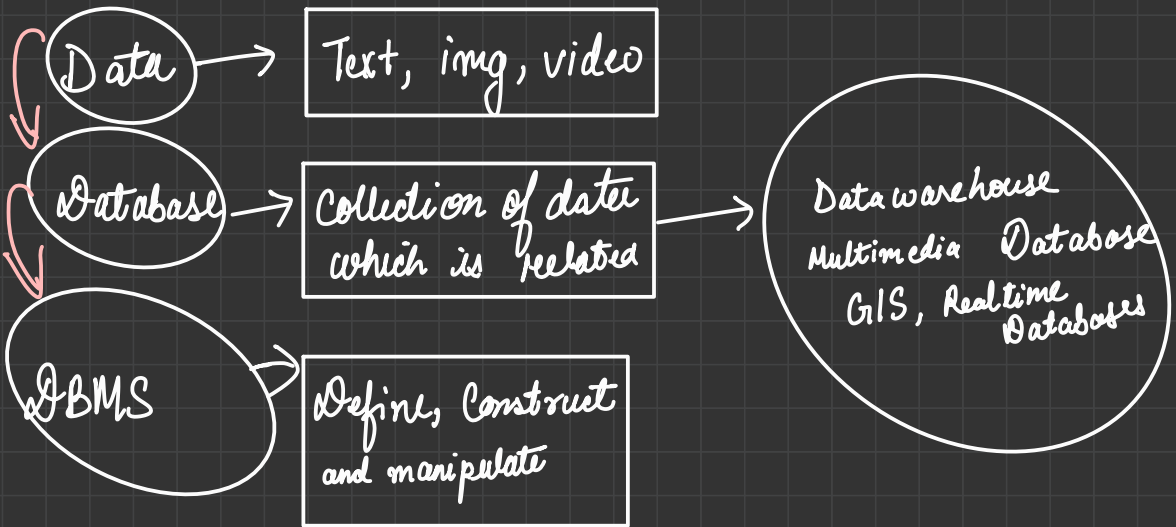
Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
EMP11	ROLL_NO	Varchar2	30	-	-	1	-	-	-
	NAME	Varchar2	10	-	-	-	✓	-	-

1 - 2

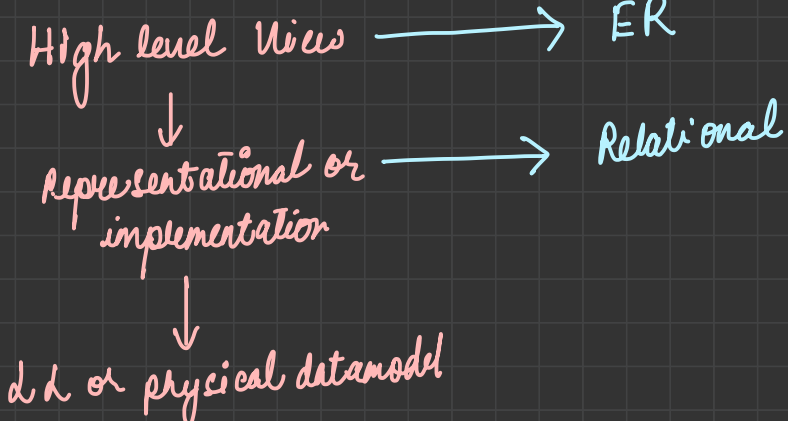
55

Data Vs Database

RBR-1



RBR-2



ER Model (Entity Relation Model)

RBR3

Entity → Thing → Person

Attributes → Properties → name, age

Relationship → association → works for

PERSON (Age, Name, add) → (26, Raj's, ...)

Entity type — Entity

State of Database

Rbr-4

Attributes:

Composite vs Simple attribute

(collection of simple attr.)

Name → FN, MN, LN

Single valued vs Multi valued.

Age

Ph-no.

Address

Stored vs derived attribute

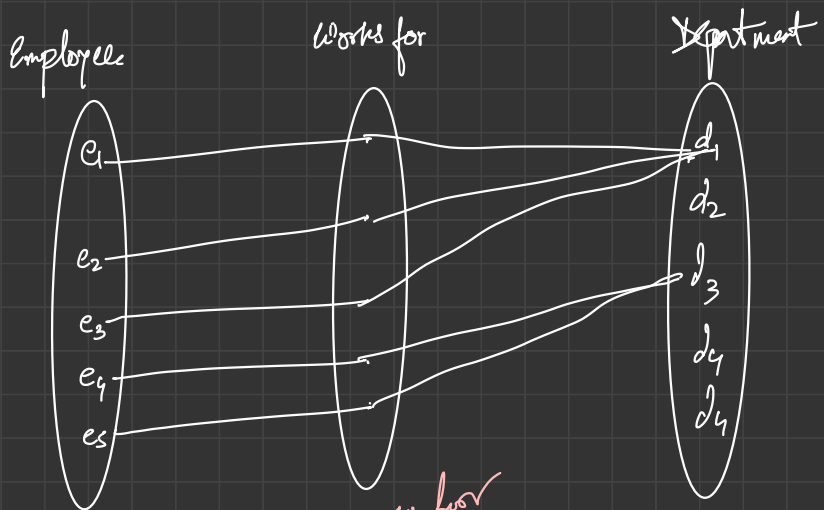
DOB

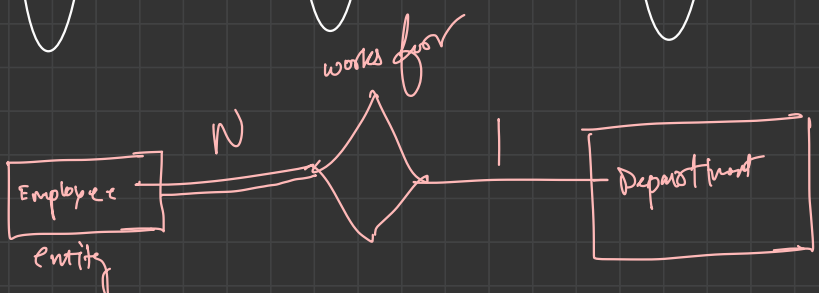
Age — can be derived from DOB

Complex attribute.

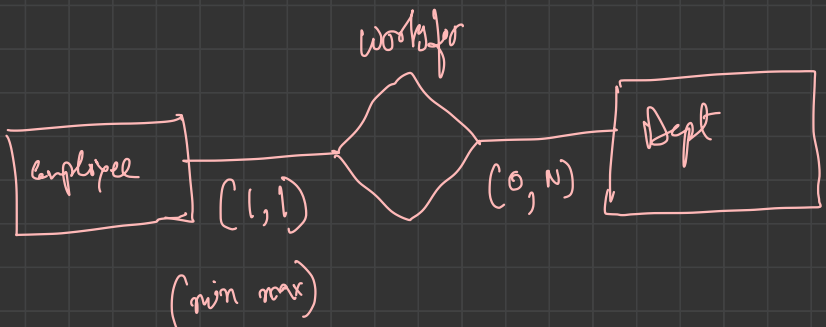
composite + multivalued.

Rbr-s



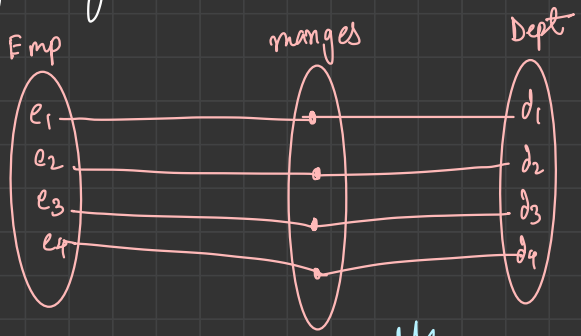


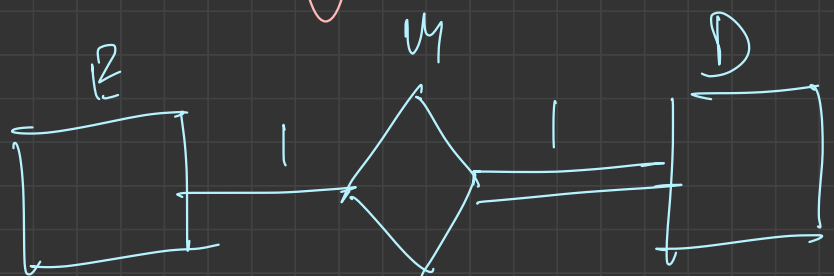
or

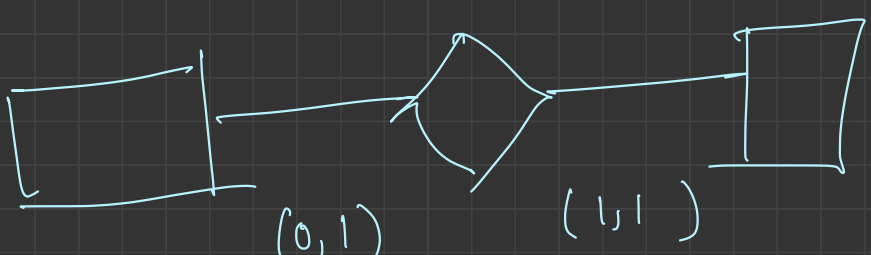


Every dept should have a manager and only one employee manages a dept and an employee can manage only one dept.

Rbr-6







There is no hard & fast rule that every employee should manage a dept.

Employee supervises Employee (Supervisee)

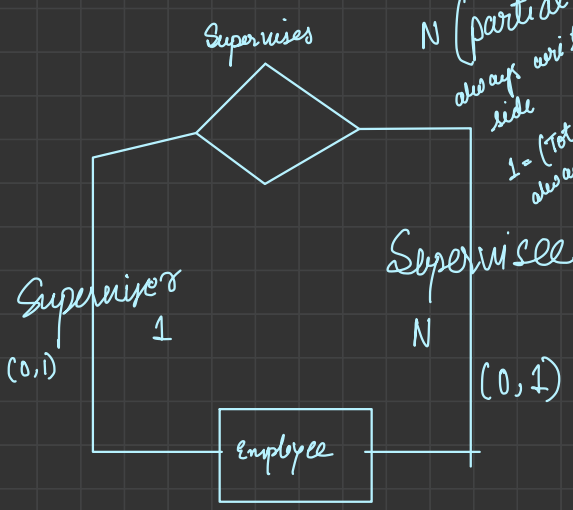
There can exist a employee who doesn't supervises anyone ← 0 N

1 Employee can be manged by max 1 boss so 1.

Degree of Relationship = 2

We can represent it 2 relationship which are actualy same (Recursive Relationship)

Cardinality Max^m parcipation = N

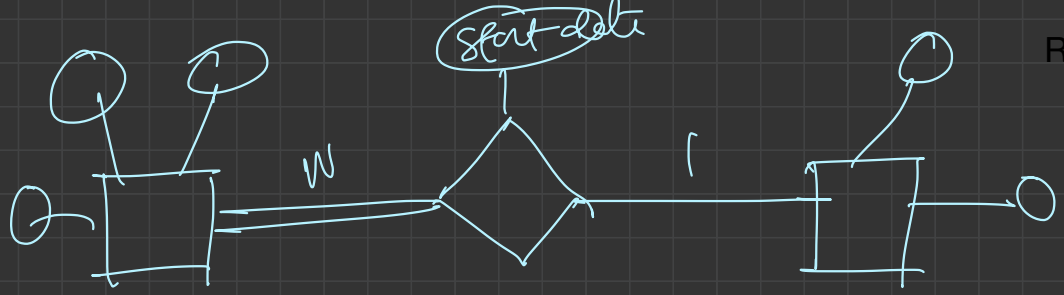


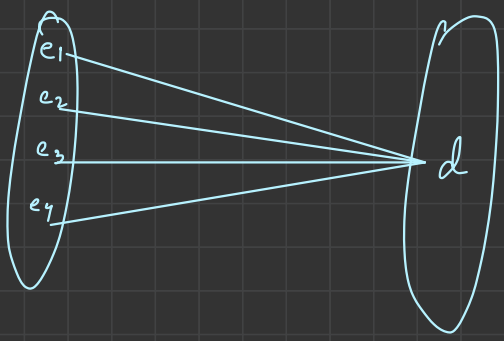
N (partial participation) always written in opposite side

1 = (Total participation) always opposite side

for Min – Max method

(Min, Max) (Min, Max)



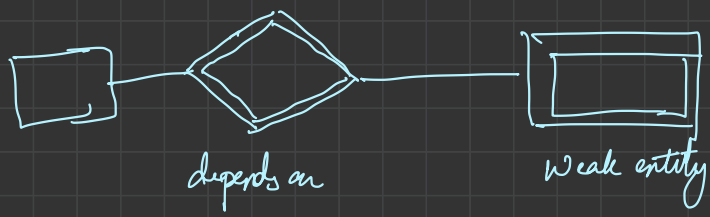


take pics

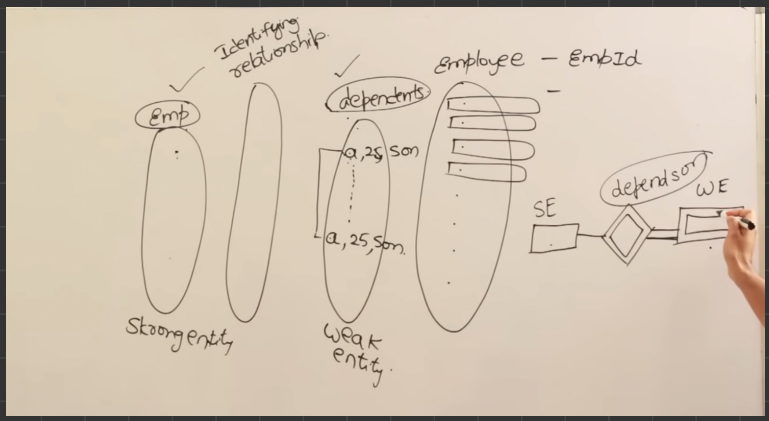
RBK-10

Weak entity → No key entity

It participation identifying relation is total

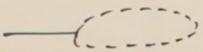


Composite attribute — 2 or more attribute used for uniquely identify when a single attribute can't uniquely identify

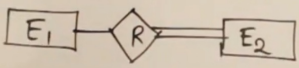


RBR-11

Derived attribute

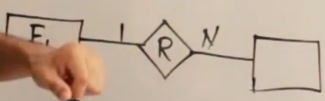


Total participation of E_2 in R

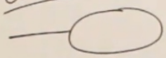


Cardinality ratio

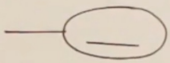
$E_1 : E_2 = 1 : N$



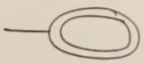
attribute



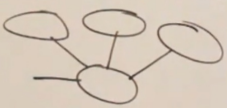
Key attribute



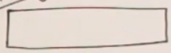
multivalued attribute



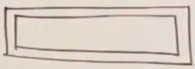
Composite attribute



Entity



weak entity



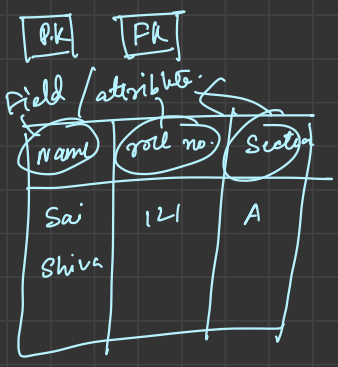
Relationship

identifying relationship

NS Lectures – Unit 2

Relational model → Tables with rows & column

Student → table



notes available

Advantage:

1. Simple (SQL)
2. Accuracy (well organised & no redundancy)
3. Security
4. Flexible

DDL – Only Create Structure

↙

No inserting data.

```
Create database database_name
Create database college
Show databases;
```

ALTER table Student add column age int;

describe Students;

Alter (modify) alter table student

Alter columns

Use college.

Create table Student (

name varchar (50),

↳ Text size.

Roll_no int;

Section varchar (10))

Show tables;

Student

describe Students;

/desc

Drop: for

drop table Student;

drop database college;

rename table Student to Std;

Truncate table

(Remove all data from table)

only structure remains.

DML →

int no. ✓ ✗ needed

* Select * from student

Select name, Roll no.

Update, Delete

Select command

Select * from student; (output entire table)

age > 12 and age < 21

TCL commit, Rollback.

DCL.

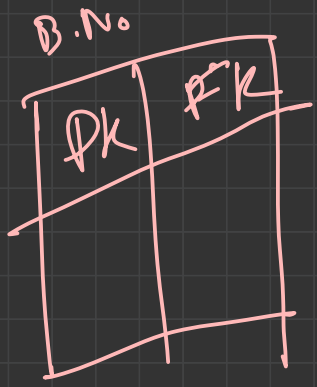
Foreign key, Null, Duplicate accepted

only condition should contain value only in Primary key.

View ⇒ Virtual table.

Name	Rollno	Section
Sai	1	A
Bai	2	B
Rai	3	A

Foreign key & Primary key Connection



Relational Algebra

Unary relation Operations

- Select (σ)
- Project (π)
- Rename (ρ)

Cartesian Product

- ($\times$)

Set Operations

- Union ($\cup$)
- Intersection ($\cap$)
- Set difference ($-$)

Joints

Inner Joints

- Natural (*)
- Theta (θ)
- Equi (=)

Outer joints

- Left Outer (⋈)
- Right (⋈)
- Full (⋈)

Section operator duplicate possible

Projection operator duplicate not possible