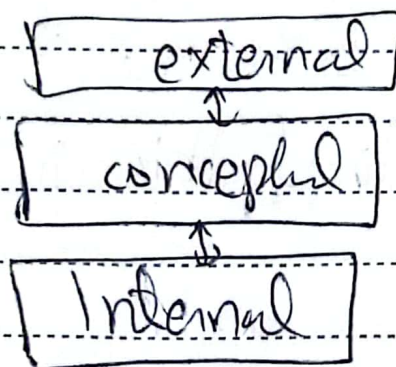


# Indexing

## Limitation of file system

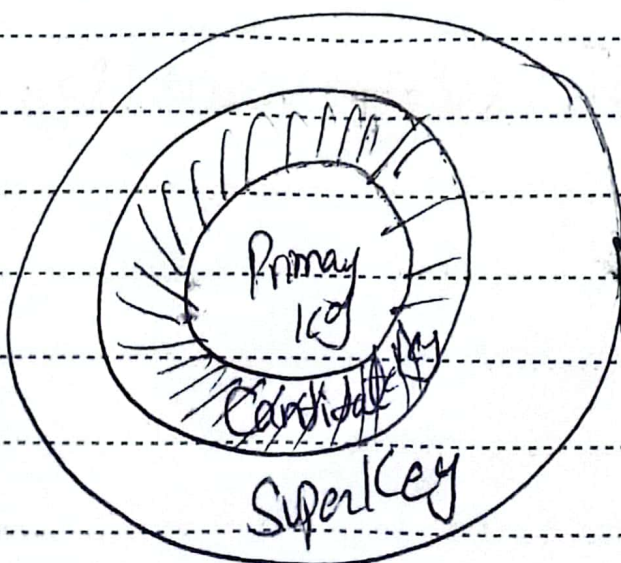


- \* Separation & isolation of data
- \* Duplication of data
- \* Atomic updates
- \* Data Dependence
- \* Incompatible file format
- \* Integrity problem



DB { Implementer  
developer  
administrators

DBMS architd { central  
distributed  
cloud



\* composite key = 2+ column  
to uniquely identify  
record.

\* candidate key = can uniquely identify  
tuple

\* surrogate = artificial key meant



# Constraints

Date: \_\_\_\_\_

- \* Domain
- \* Entity Integrity
- \* Refer Integrity
- \* Key constraint

Not null

Primary key not null, proper PK value

Foreign key

tuple not repeat.

Composite identifier also possible

one

many

only one

zero or 1

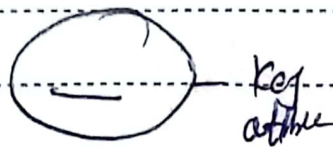
1 or many

mandatory

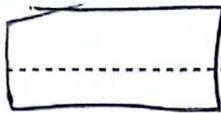
0 or many

## ERD

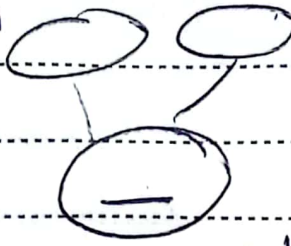
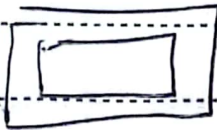
- 1) Entity find
- 2) Attributes
- 3) Cardinality



Strong

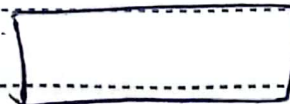
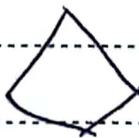


Weak



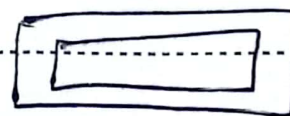
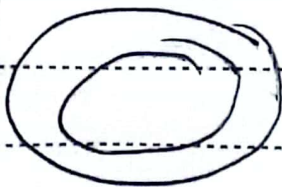
composite primary key

Relationship



Entity

Multivalued attribute



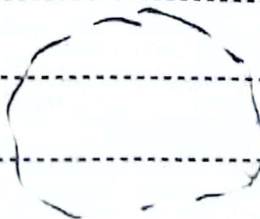
Weak entity

Attribute



Attribute

Derived attribute

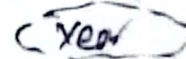


\* Simple vs composite

\* single vs multivalued

\* stored vs derived attribute

\* Identifier attribute

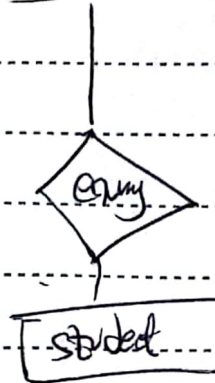
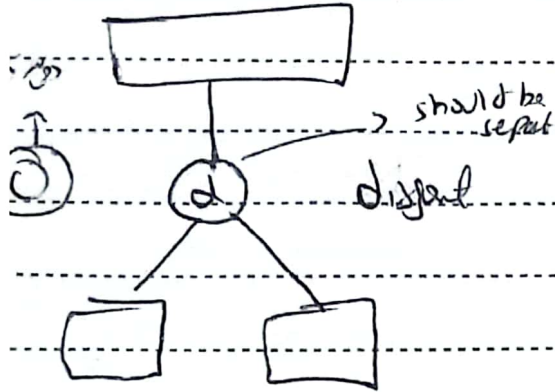


aggregation

college

offer

Case



|| sets complete

complete vs partial  
Overlap vs disjoint

Employ

Manager Developer

↓  
When computer  
every employ either  
manager or developer  
complete

Employ

Manager Developer

~ some employ ma  
not manager or  
developer

partial.