Date :
No:

session 3 → schema

* Store Data → File Base system
→ Database "
Collection of data, Is orgnized Data

* xml → <employees>
File <employee> <id> 1 </id>
</employee>
</employees>

DB
** Life cycle:..

① Analysis → document SRS
② ERD → DB Design
③ DB Mapping → DB schema
(Phiscal DB)
④ DB implementation
⑤ App ⑥ Client (end user)

note: → one SRS Can Match more than one ERD based on understanding & but one ERD have only one schema

Some depinations:..

* DB: → Collection of Tables & each Table have relationships between other Tables

* Table/entity/relation → Collection of records
ex/ record
name: Ahmed, Id: 20301
SSN: ___

③ attribute / Column / Field

يمثل الصفة بتاعت ال entity

④ row / record // Tuple: specific charcter of one entity.

ERD $\xrightarrow{Map}$ Schema

Map

First step: → 1to1 → total from tow sides

① Map → strong entity

② Map → weak "

③ Binary relation → 1 to 1

First step → total tow sides

third → parital " "

second → one Total side to one side

Map

④ 1 → M

↳ check M if

many → mandator

many → optional

⑤ → Map M to M

⑥ Map ternary

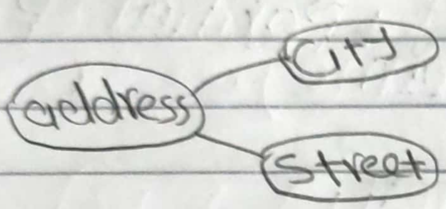
⑦ Map n-ary

Date :

① strong entity :-
If you have entity strong
Check attributes
① If simple attribute
Take one Column

ID	name

② If Composite attribute



skip address Take
Values of address

City	street

in same Table

③ If MultiValues attribute
Make another Tables & Take
Primary Key of Table with MultiValue

employee skills

EID	skills

forgine key
Composite as Primary

④ If Derived attributes
not sorted in DB

⑤ If Complex attribut
لازم forgin key مع value يكونوا مع بعض
محققين الـ unique, not null لو محققوش بزود Column
لو ما يتحقق بس لو وصلت إن كل الـ columns
بتعبرلي عن الـ primery ده هتاخد عندي ممكن في الحالة
دي اعمل أنا column اعتبرو الـ primary للـ Table

→ Create Table for each entity Type

If There is no 1 to 1 relationship ~~[illegible]~~ Mandatory From 2 sides

Choose one Key attributes to be Primary Key.

② Weak entity

Create Table for each weak entity

↳ have Primary Key as Composite Key:- (Primary of strong + Paritial of weak)

Dependent

<u>name</u>	<u>ID</u>	Date

③ 1 to 1 relationship

Case

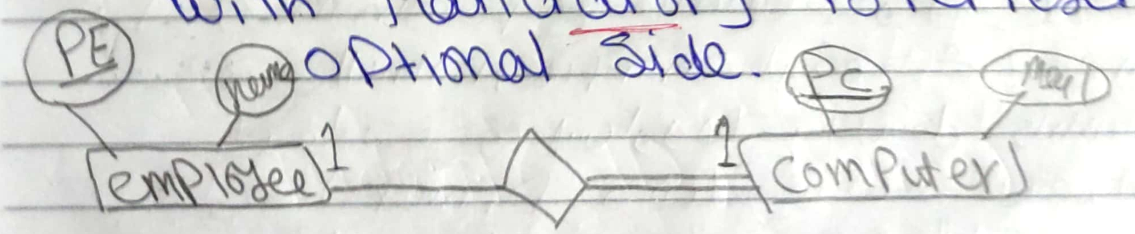
→ Merge Two Tables if both side are Mandatory.

PK = ~~PKy~~ PK_x $\boxed{\text{or}}$ PK_y

Case

→ Side optional, Side Mandatory

: add FK (Forgine Key) into Table with Mandatory to represent optional Side.



EPloyee (<u>PE</u> , name)

ComPuter (<u>Pc</u> , mail, PE)

Date :

* Primary Key + Forgine Key → Composite Key

Case → Create Third table If both sides are optional.

tb1(PK_x, ---), tb2(PK_y, ---)

tb12(PK_xy, FK_xy) PK_xy = PK_x or PK_y

employee(EID, name), car(CID, Type)

Emp_Car(EID, CID_FK)

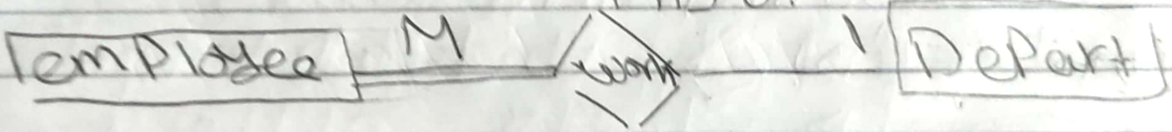
④ Mapping 1 to M

Case → M is Mandatory

: add FK(Forign key) to M side Table

باخد Permary ال side 1 واضيفها ف Table of M

FKS كـ



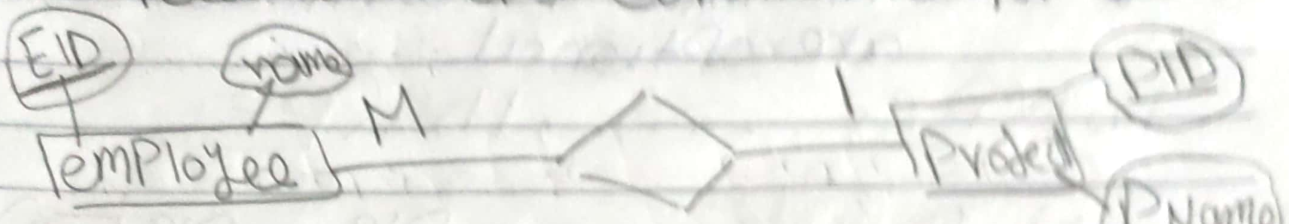
Depart(DID, name)

employee(EID, Ename, DID)

~~PK =~~ FK_Mand = PK_optional

Case → M is optional

add any simple attributes of relation as column to M side



Project (PID, Pname)

employee (EID, name)

Proj_Emp(EID , PID_FK)

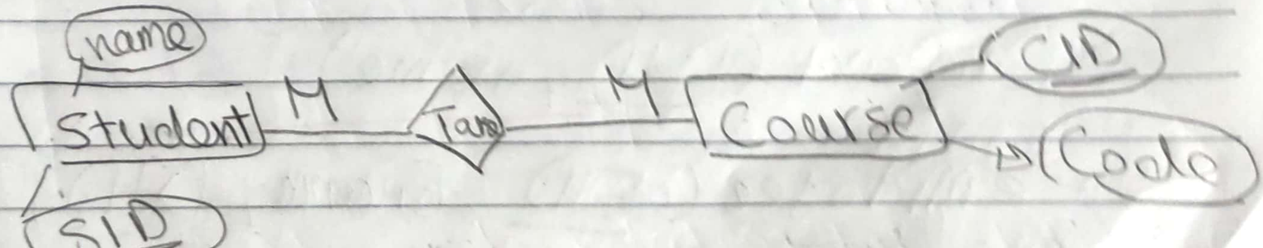
PK = PK of M ⊲ ↳ Forgin Key from optional

⑤ M to M Mapping

→ Create new third table

→ Add FKs to new table for both parent Tables

لو فيه attribute(s) على ال ◇ بحطه في الجدول الجديد



Student(SID , name)

Course (CID , Code)

Stud_Course (SID, CID) ⊳ FK Composite PK

⇒ $PK_{xy} = PK_x \oplus PK_y$

6 Mapping of N-ary Relation Types

If N > 2 then

# of Tables = # of entities + 1

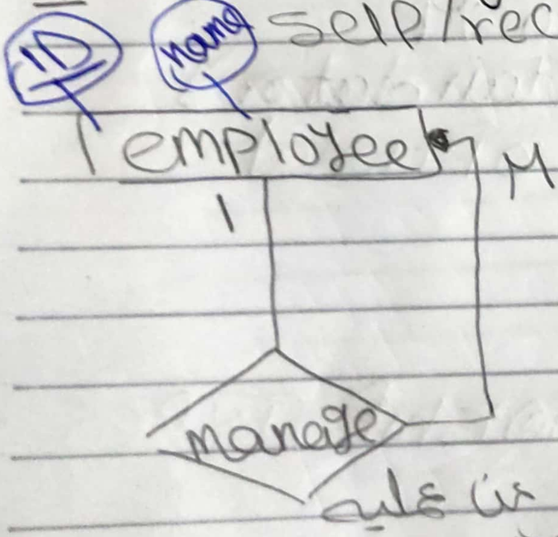
↳ Create Table for each entity then create new Table

↳ Add FKs to new Table for all Parent

بعدد الcompositell على pk+ الى هيحققولى الشرط
اقل Keys ممكن تحققـــه +notnull unique

7 Mapping unary Relationship

self/recursive relation ship



employee
(ID, name, Manager_ID)

Forgine Key

لما FK بيشاور ليه علاقة
بال relation لانه بيعبر عن عليه
recursive وبيبقى عائد على Primary Key

بعمل عمود راجع على الـ Primary ان او قع أن العلاقة بين نفس Table

Date :

No:

Case Study

Notes :- references F.K منساش أقول كل
table لا نفس PK فى التانيه

① relation 1 to 1 total [=] From
Two Sides

② Strong entity & specific PK → (check attributes)

③ weak entity
PK = Partial key + FK

Binary

④ Relations 1 to 1
→ optional, total
→ optional from Two Sides

⑤ Relational 1 to M
→ M is Mandatory
→ M is optional

⑥ M to M

⑦ N_ary relationship Types

⑧ Self relation