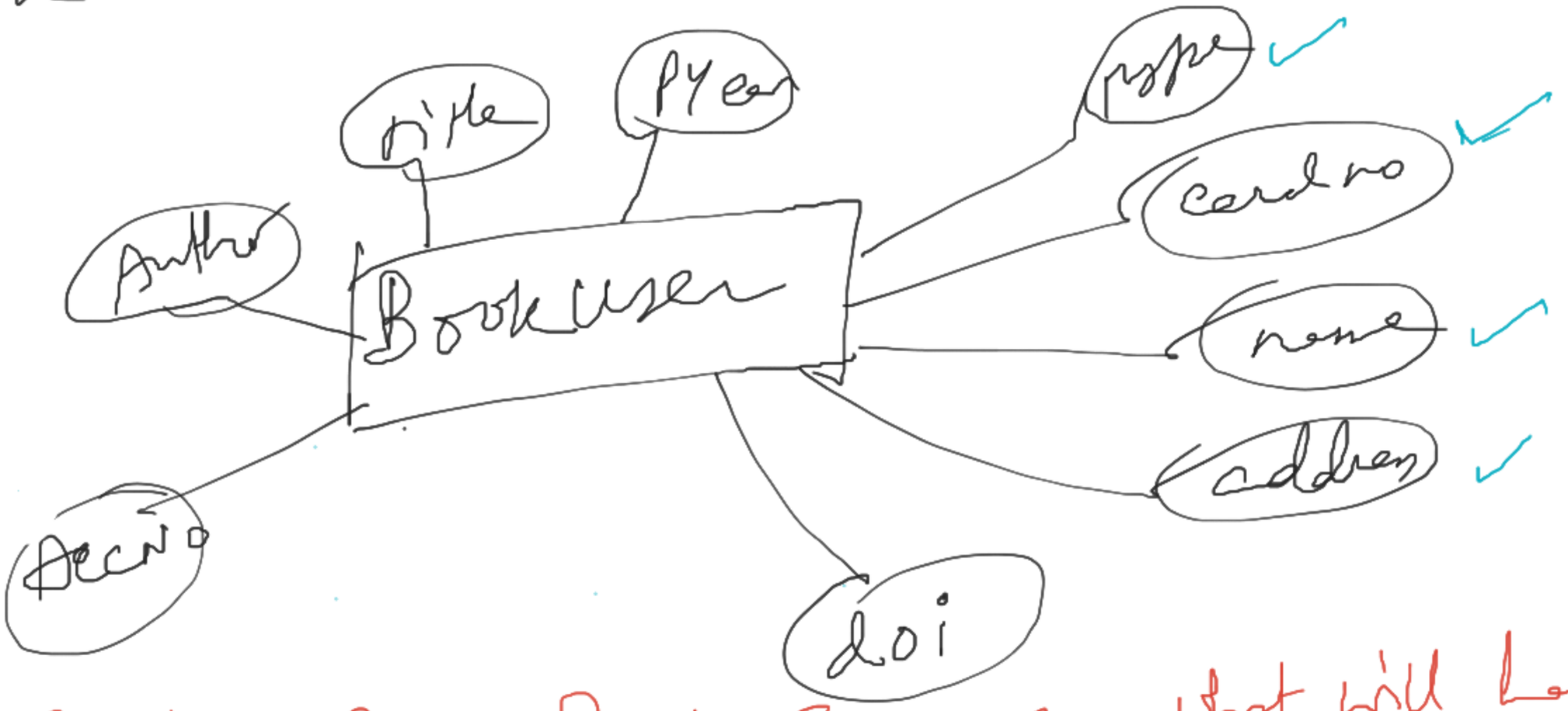
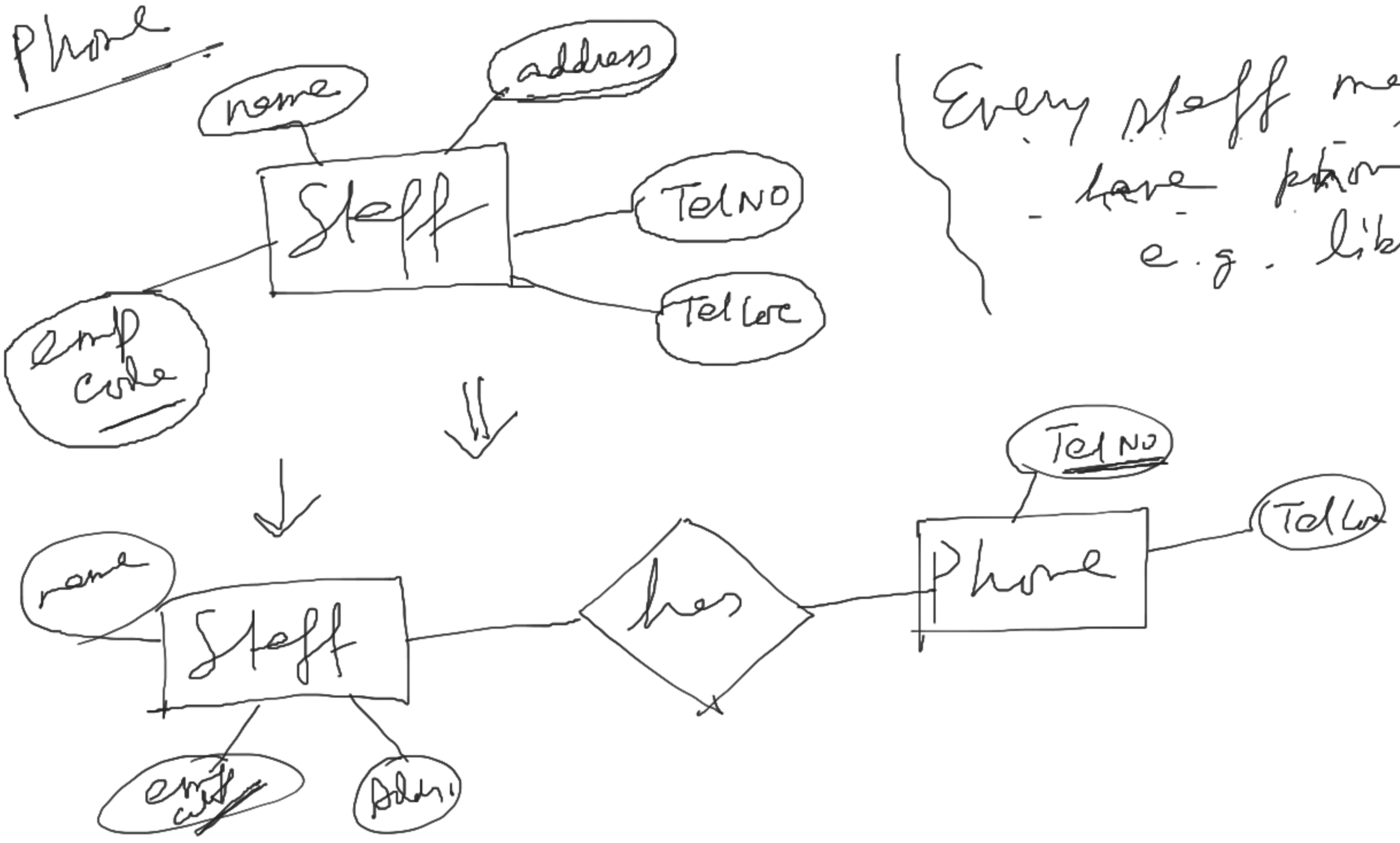
Book

User



If we merge Book & User, what will happen

If some user doesn't issues a book, then corresponding attribute values will be NULL


Phone
name
address
Staff
TelNO
Tel Loc
emp code
Every staff may not have phone
e.g. library phone
name
Staff
has
Phone
TelNO
Tel Loc
emp code
Address

CARDINALITY

→ 1 staff has 1 phone | 1 | 1
→ 1 " " m phones | 1 | m
→ m " 1 " | m | 1

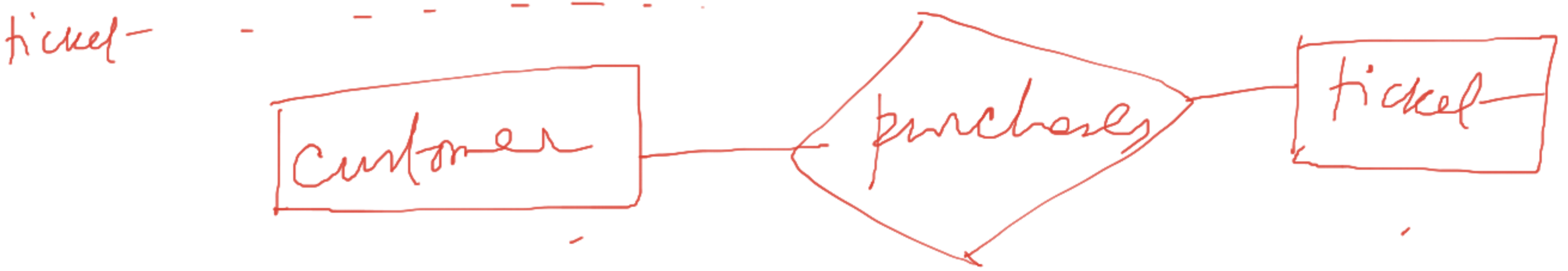
1 staff has no phone or 1 phone

1 " has multiple phones

1	0..1
1	0..m or 0..*

Existence Dependency

Account is existence dependent on customer

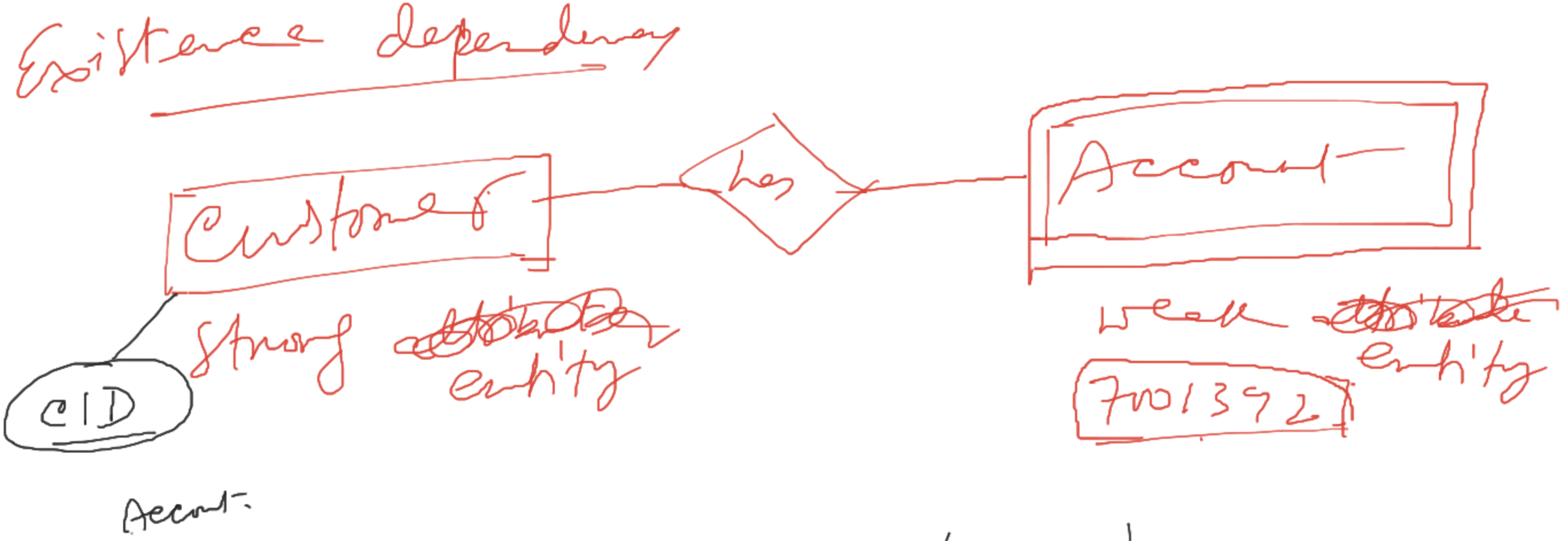


Key Attributes

Super Key (SK): A set of one or more attributes which taken collectively allows us to uniquely identify an entity in an entity set

Candidate Key (CK) is a super key for which no proper subset is also a super key. [Minimal super key]

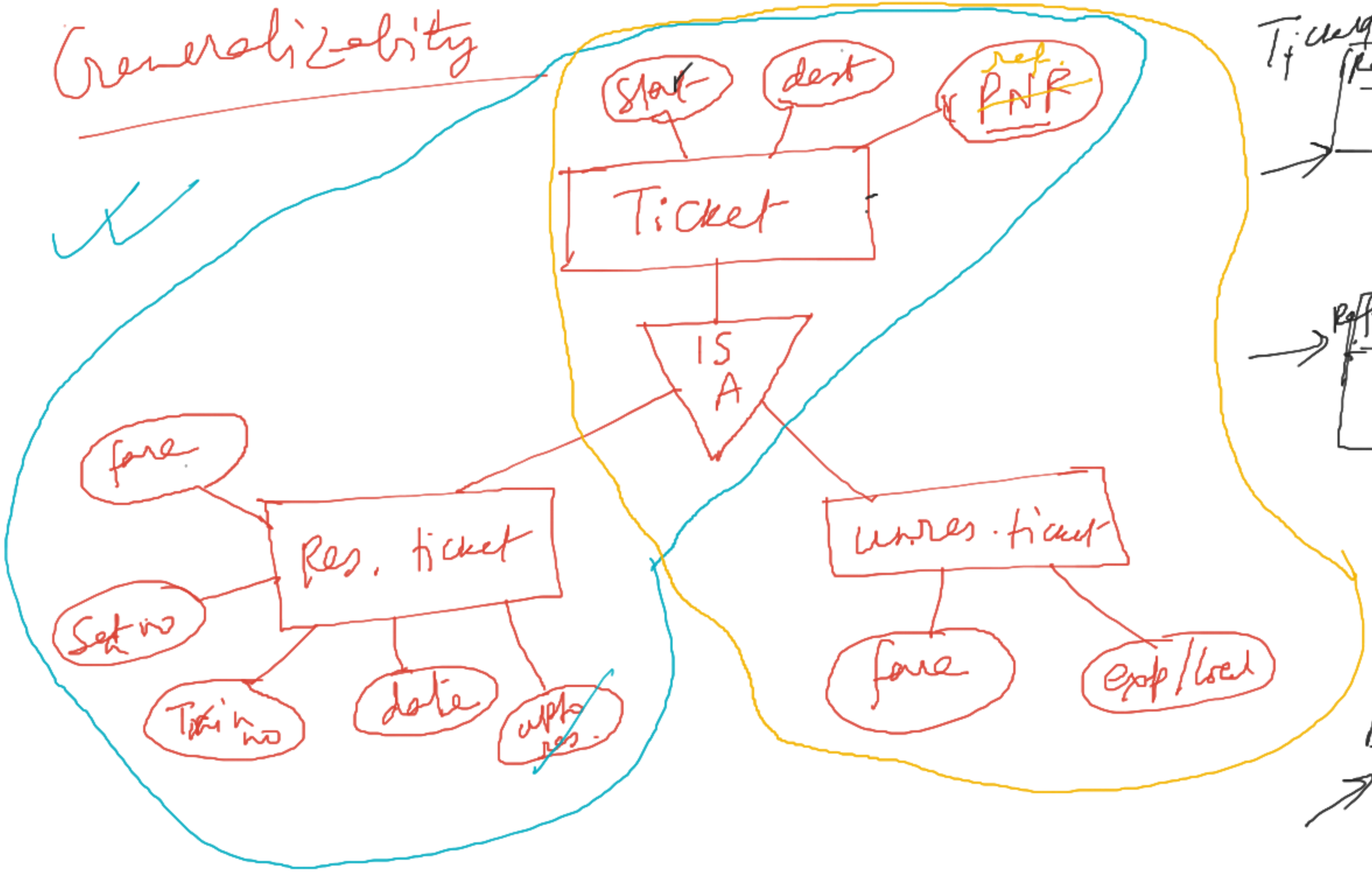
Primary key (PK) is a candidate ket chosen by the conceptual designer as the chief attribute set by which an entity is identified in an entity set.
P.K. is any one of CK, but it should not be NULL.



Weak entity is defined by a set of its own attributes, and primary key of the strong entity

C.K.

Generalizability



Ticket

Ref	start	dest

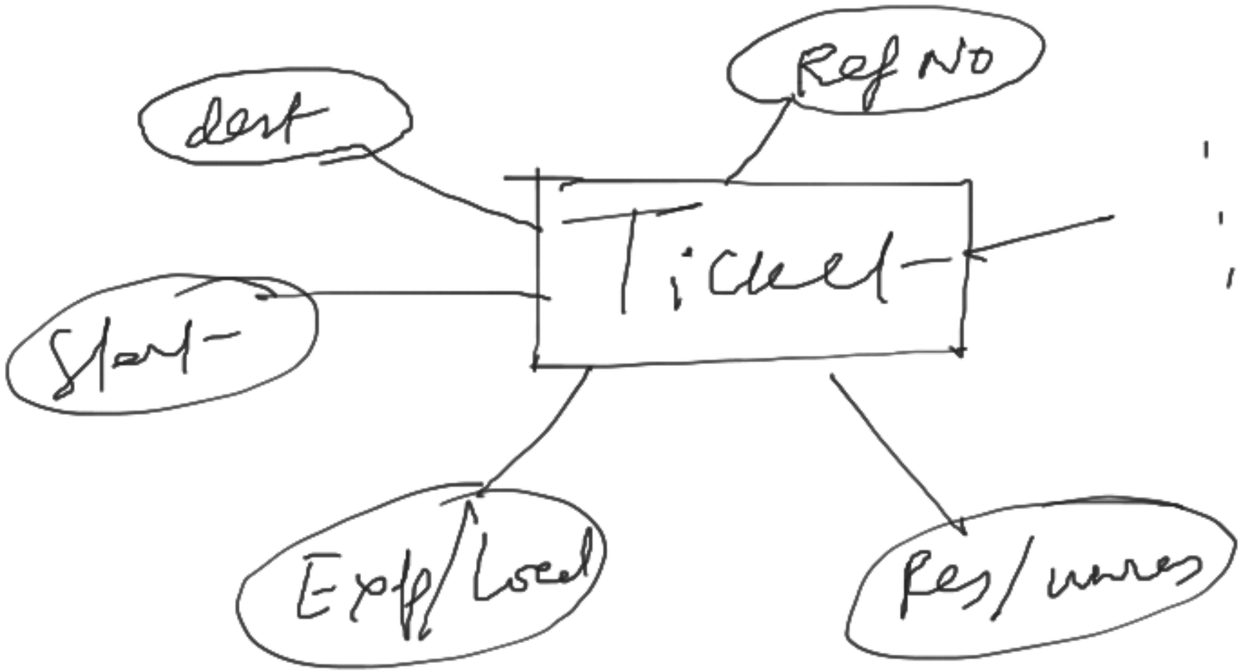
Res ticket

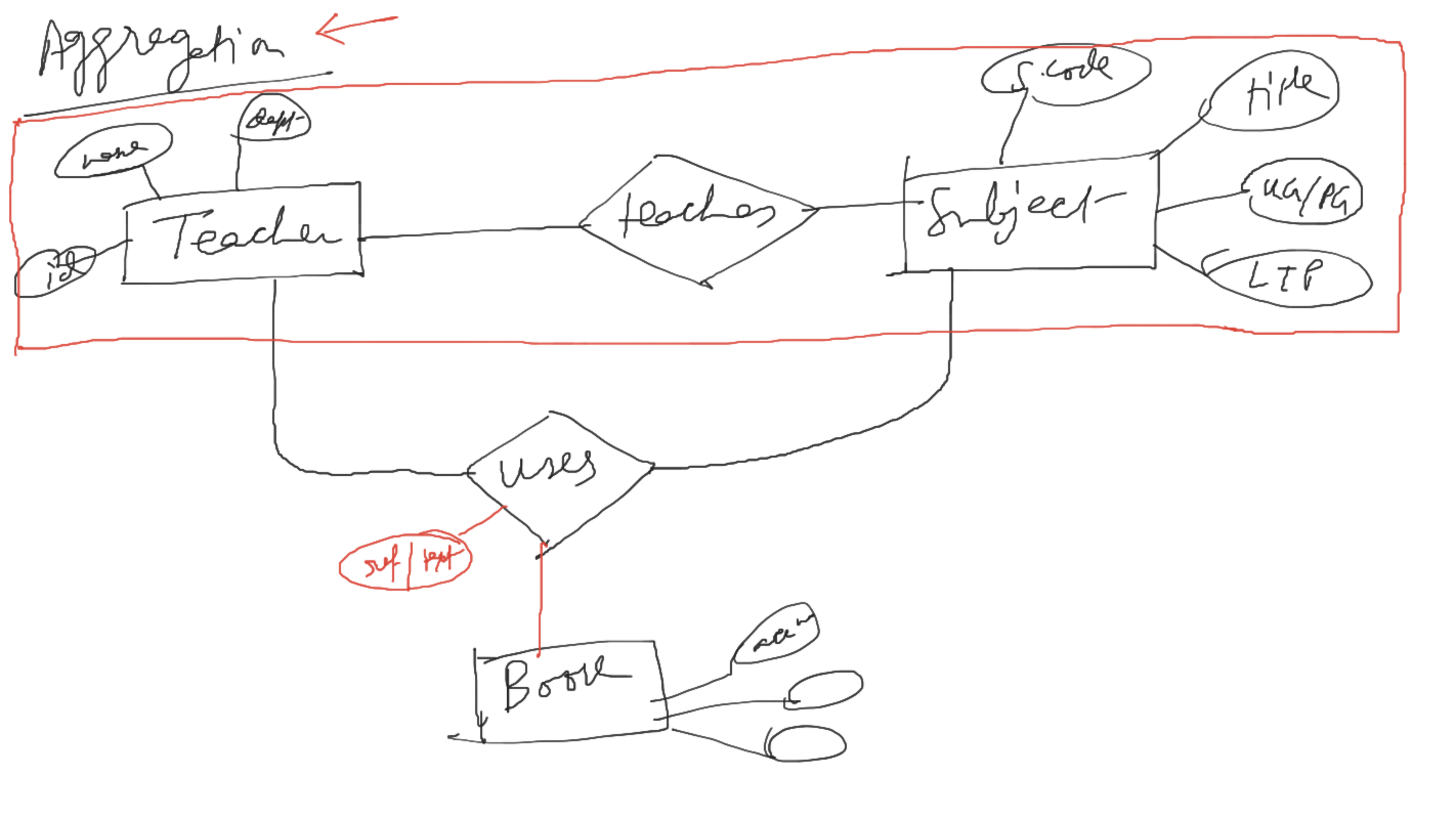
Ref	f	S	T	D

Unres.

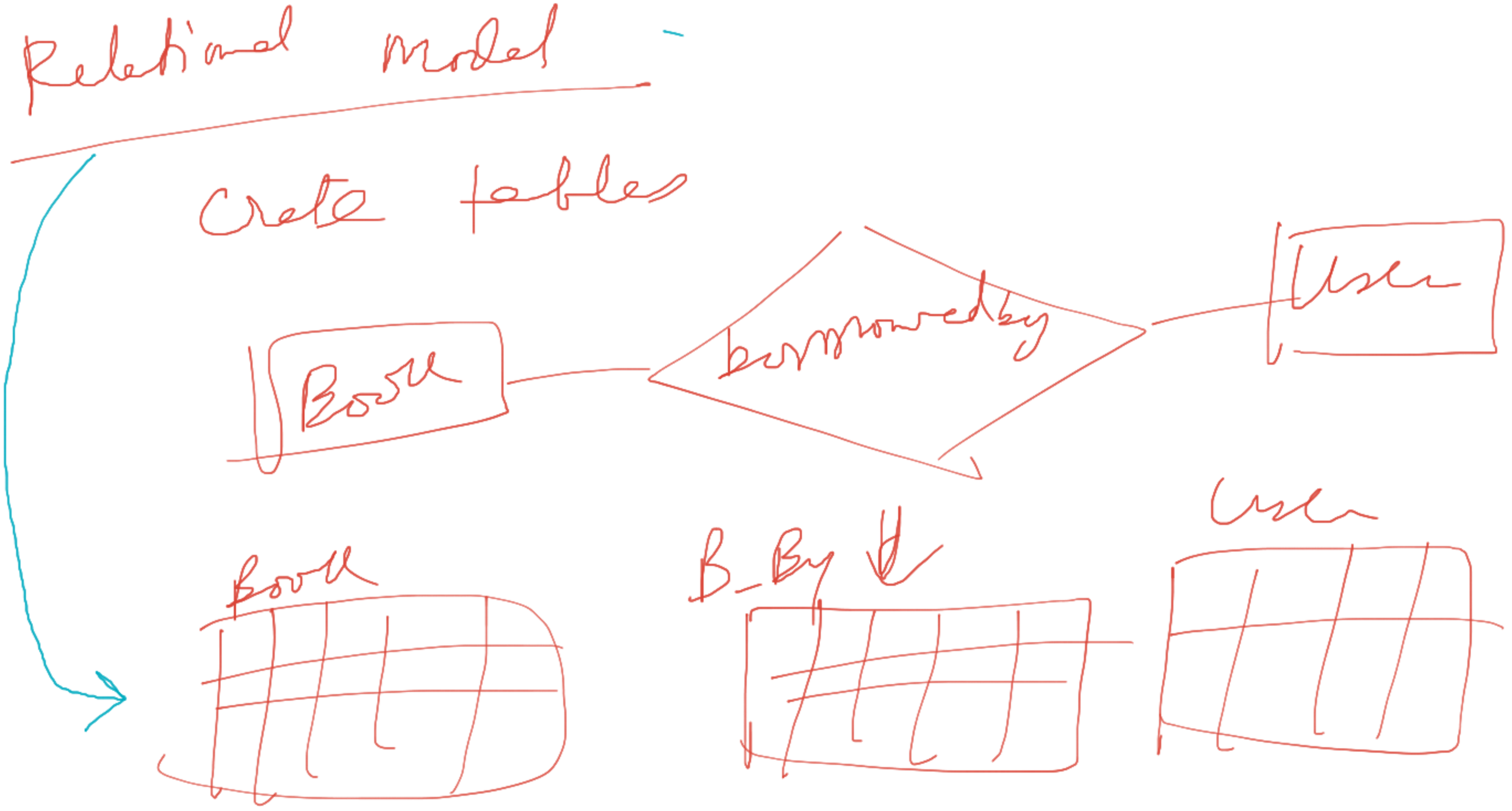
ref.	fare	type

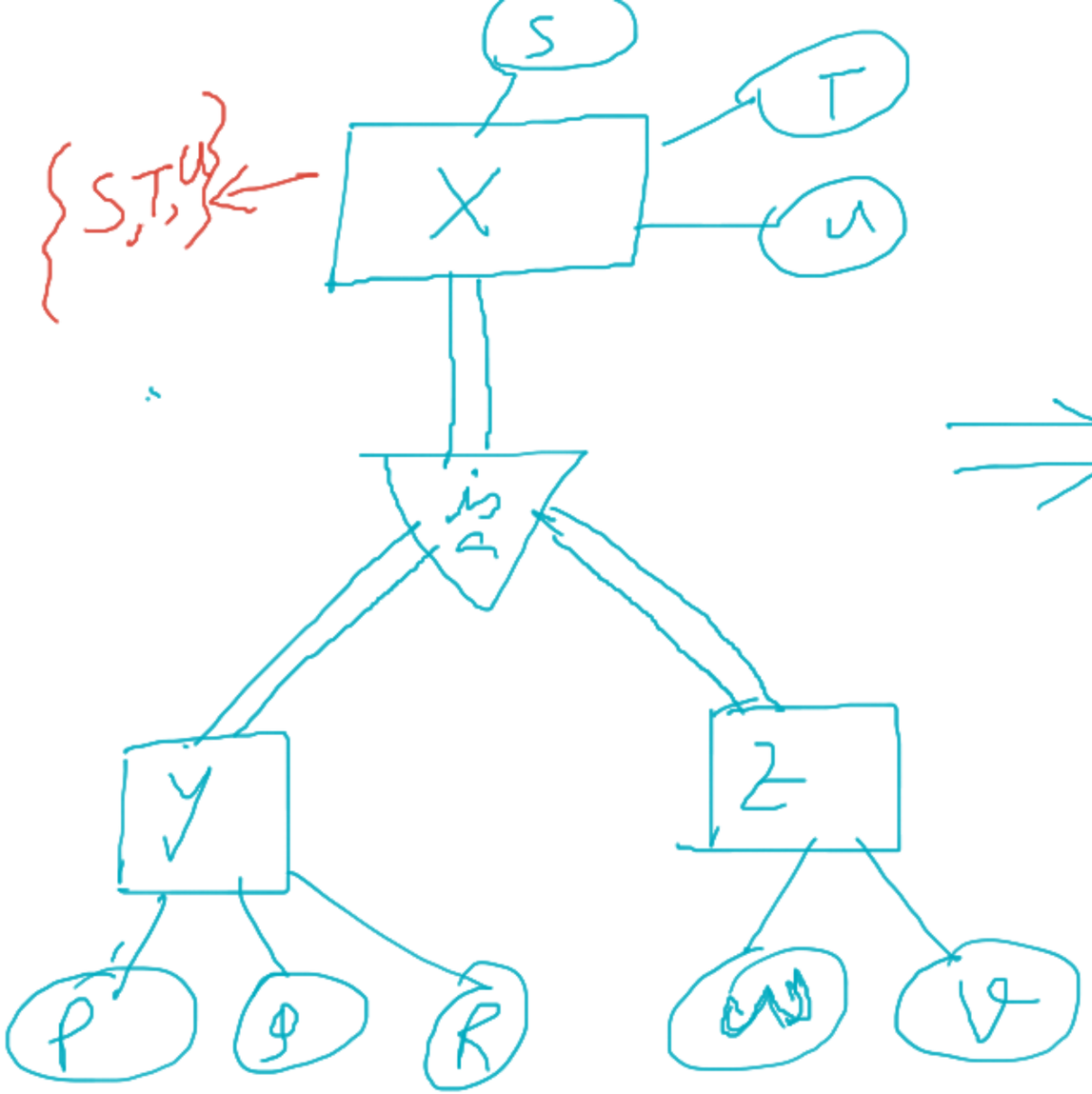
?

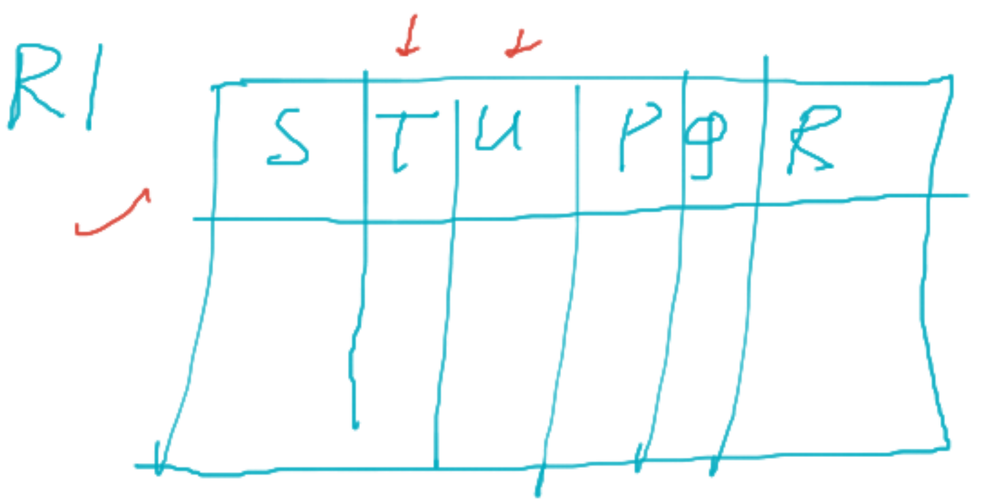

Ref NO
dest
Ticket
Start
Exp/Load
Res/ures

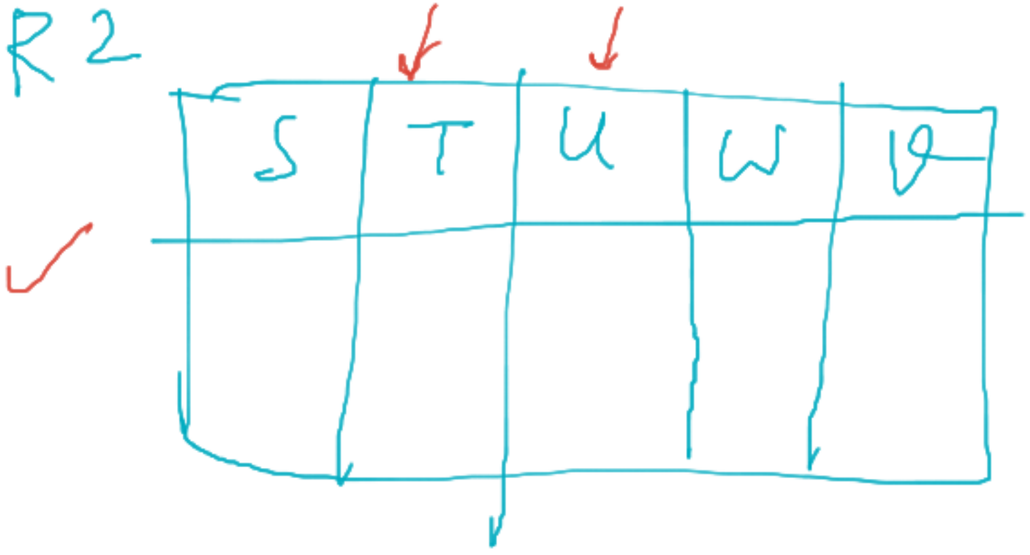

Aggregation
name
Dept
Teacher
ID
teaches
S.code
Title
Subject
UG/PG
LTP
uses
Book

Relational Model









E-R model ⟹ Relational model

Database Schema

1) Book (AccNO, Year, Title)
2) User (CardNO, Name, Address)
3) Supplier (SupNO, Sadd, Sname)
4) BorrowBy (AccNO, Cardno, dateofissue)
5) SupplyBy (AccNO, SupNO, Price, Date of supply)

(3)

SupNo	Sadd	Sname
S001	Lucu	XYZ
S002	Pathe	ABC

(5)

AccNo	SNO	Price	DOS
A001	S001	500	4/6/23
A002	S001	1000	5/2/24

H.W.