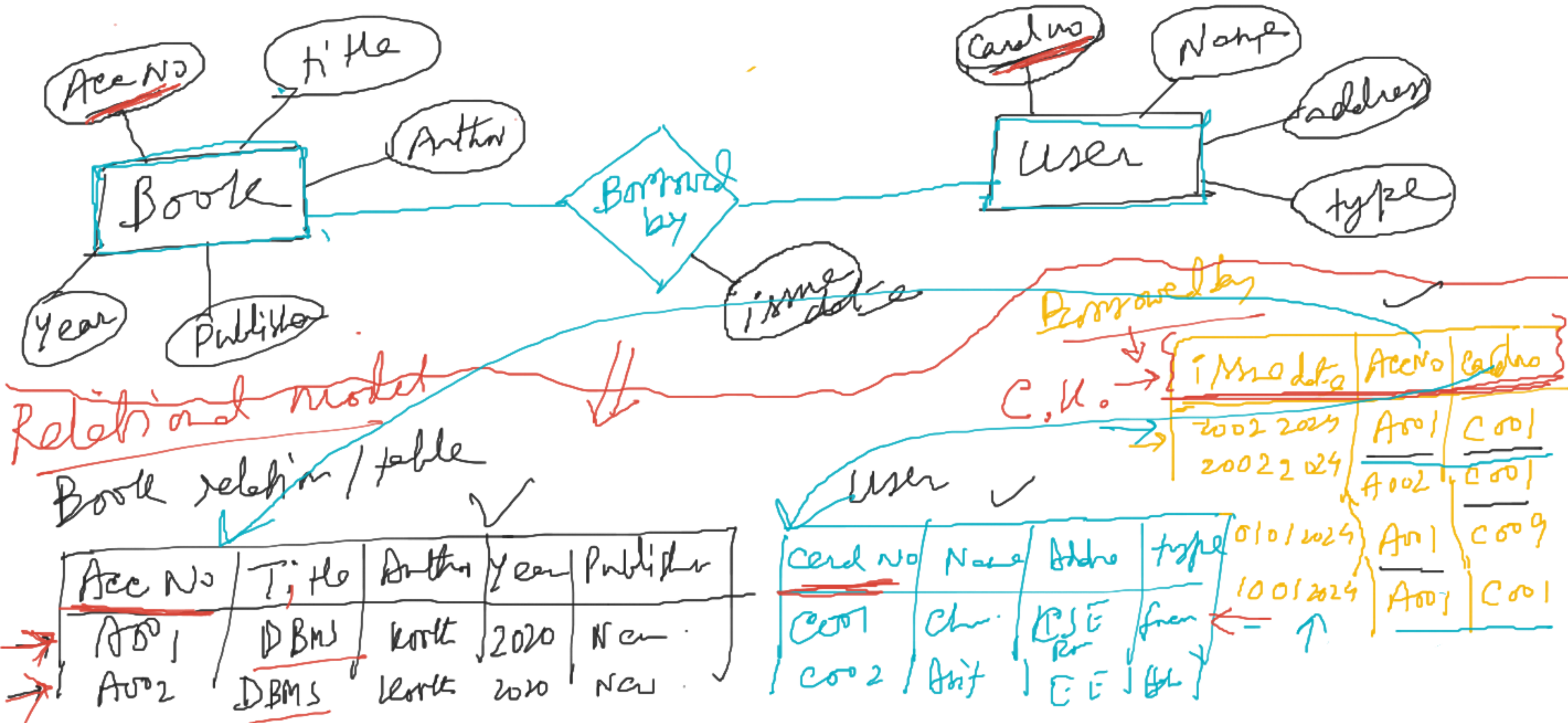
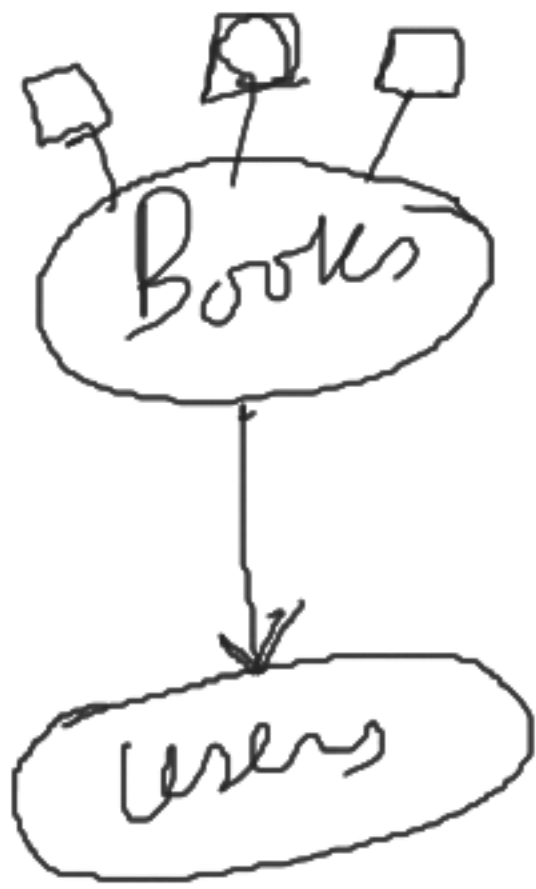


Data Model

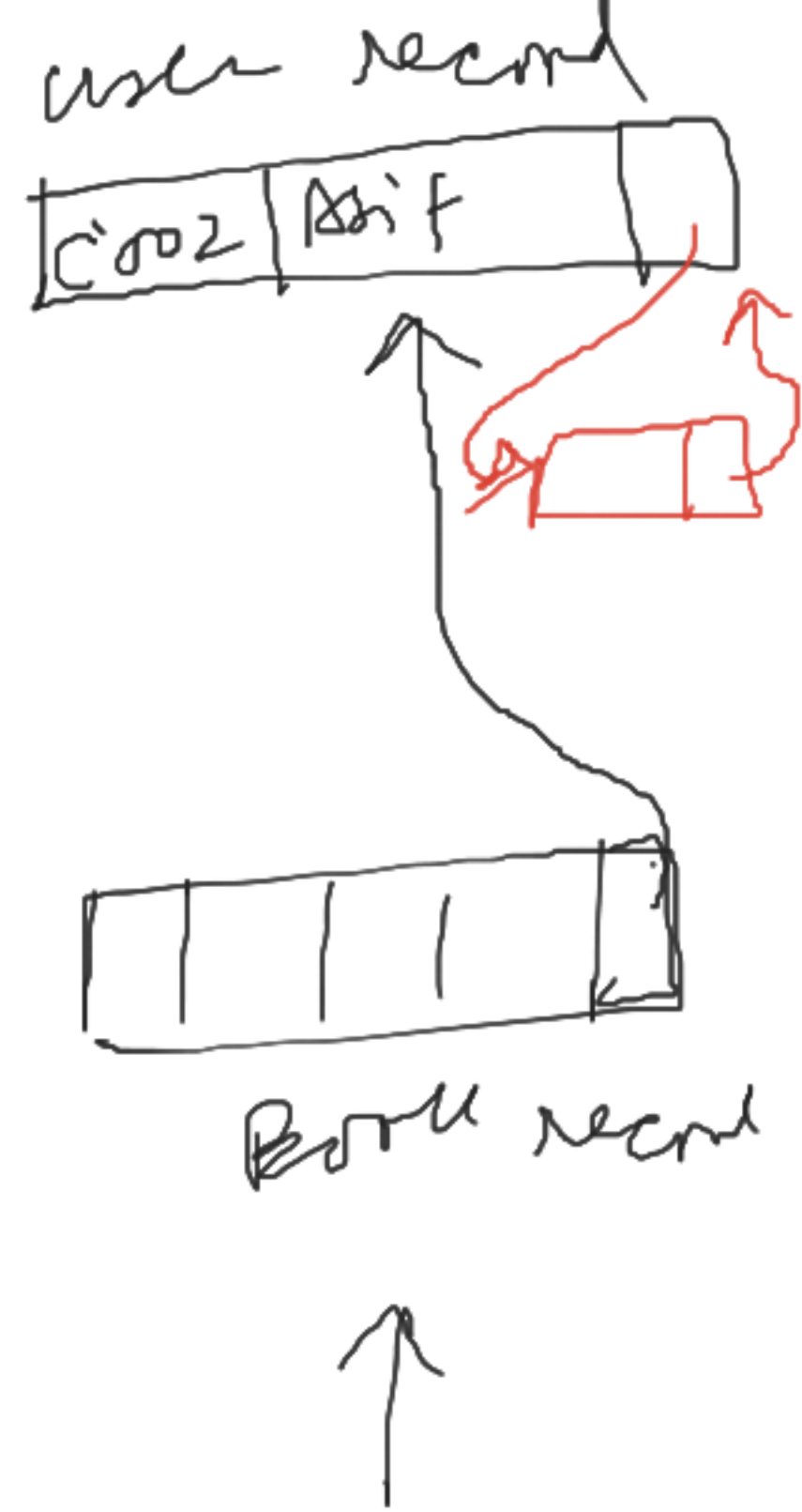
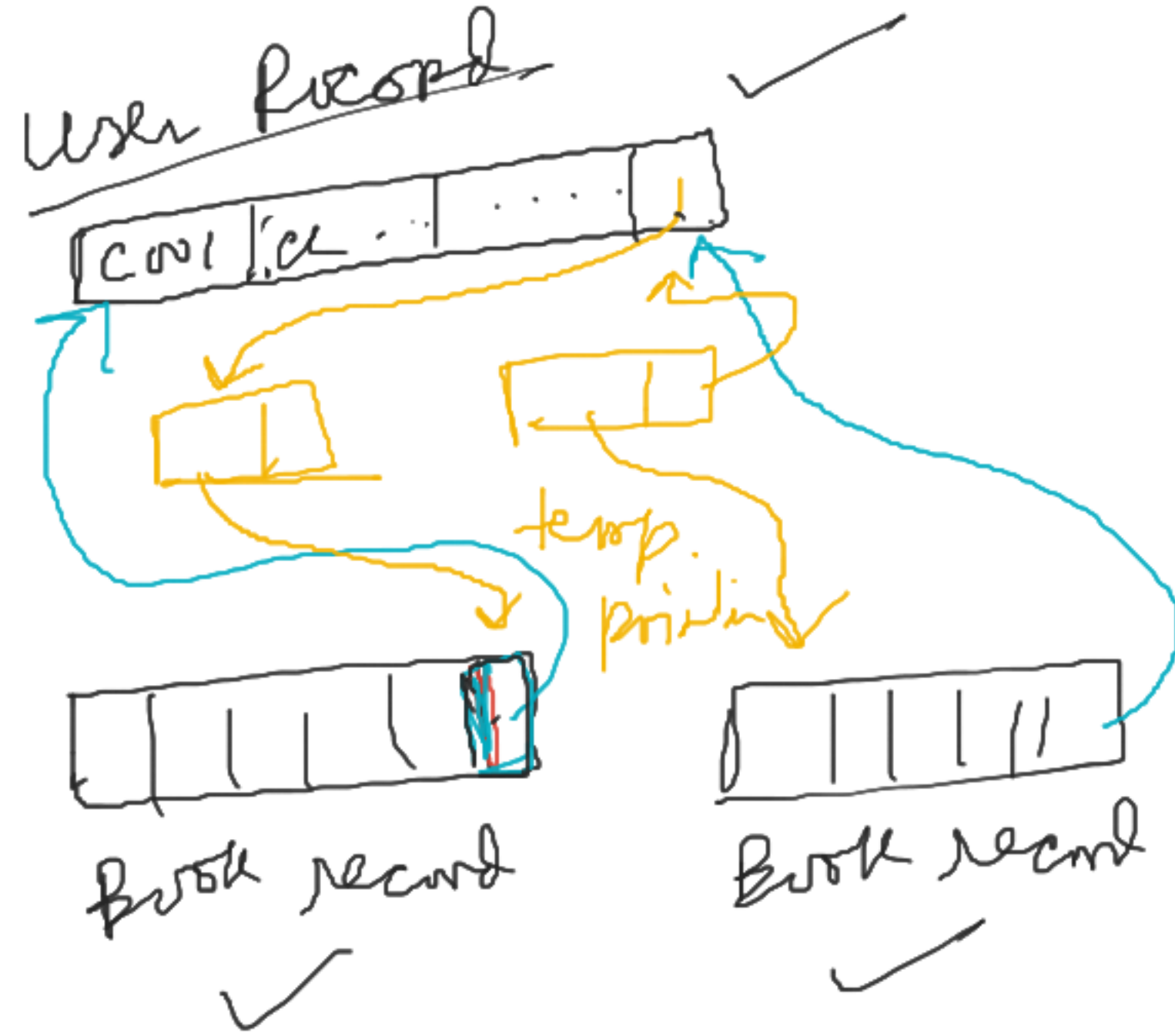
② E-R model
Entity-relationship



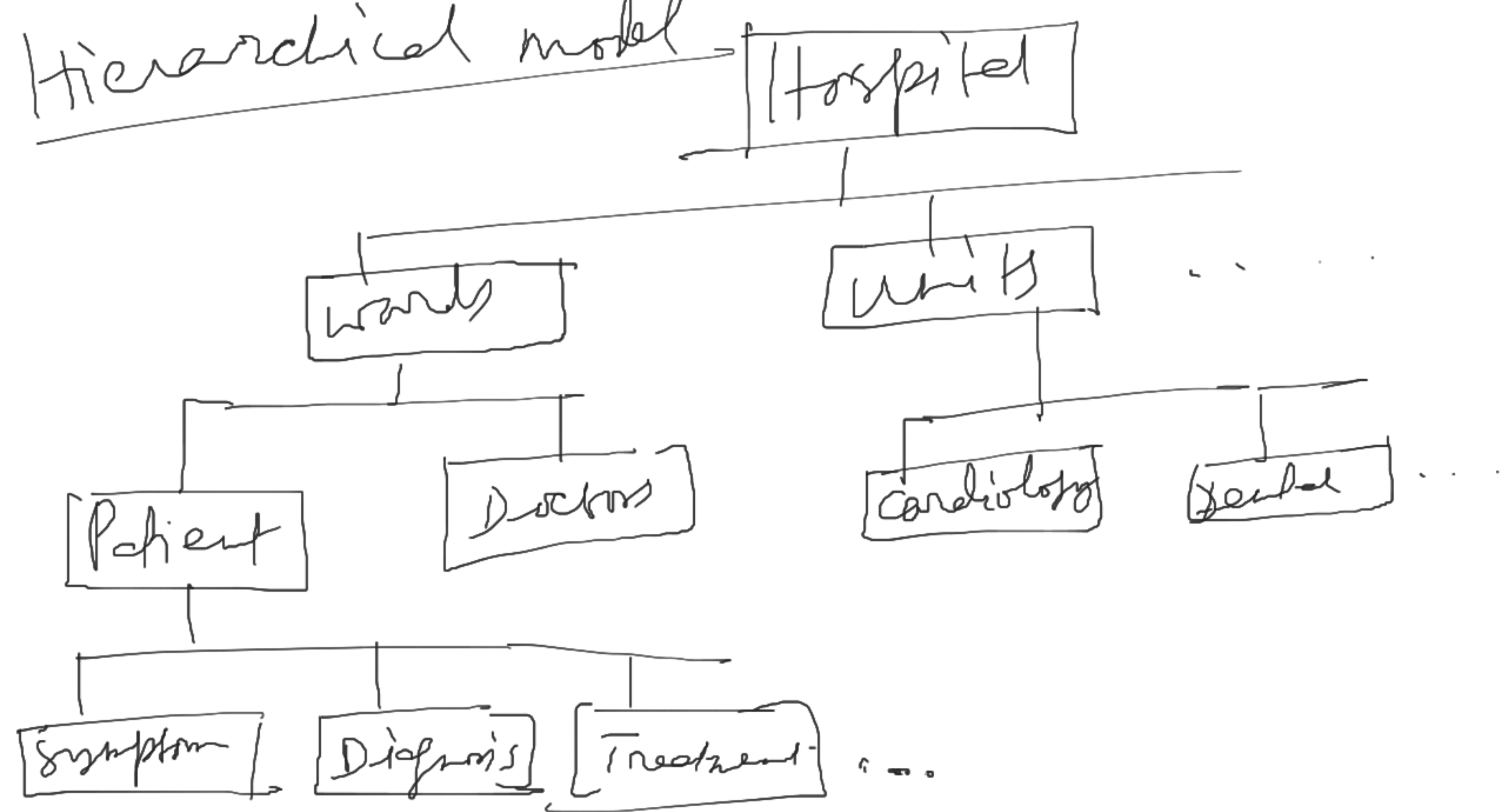
Network model



1 user issues multiple books



Hierarchical model



Entity Relationship Model (Conceptual Modeling)

Entity: A distinguishable object to a DB

E.g., in Library Info Sys.

Book \rightarrow Any particular book $\rightarrow \{DBMS, Korth, 2020, \underline{A001}\}$

User \rightarrow Any ^{particular} user $\rightarrow \{Chander, CSE/ITP, faculty, \underline{C001}\}$

Entity Set: collections of entities of same type

Attribute specifies part of an entity structure. It is a mapping from an Entity Set to a Domain of Values

Book

Domain of values

title	→	varchar(50)
author	→	varchar(50)
Year	→	integer(4)
Aceno	→	alphanumeric(4)

Bank Database

Entity

→ Account

→ Customer

→ Branches

Attributes

Acc no, type, balance

CID, Name, address, PAN, Aadhar

IFSC, Address



draw

E-R diagram

H.W.



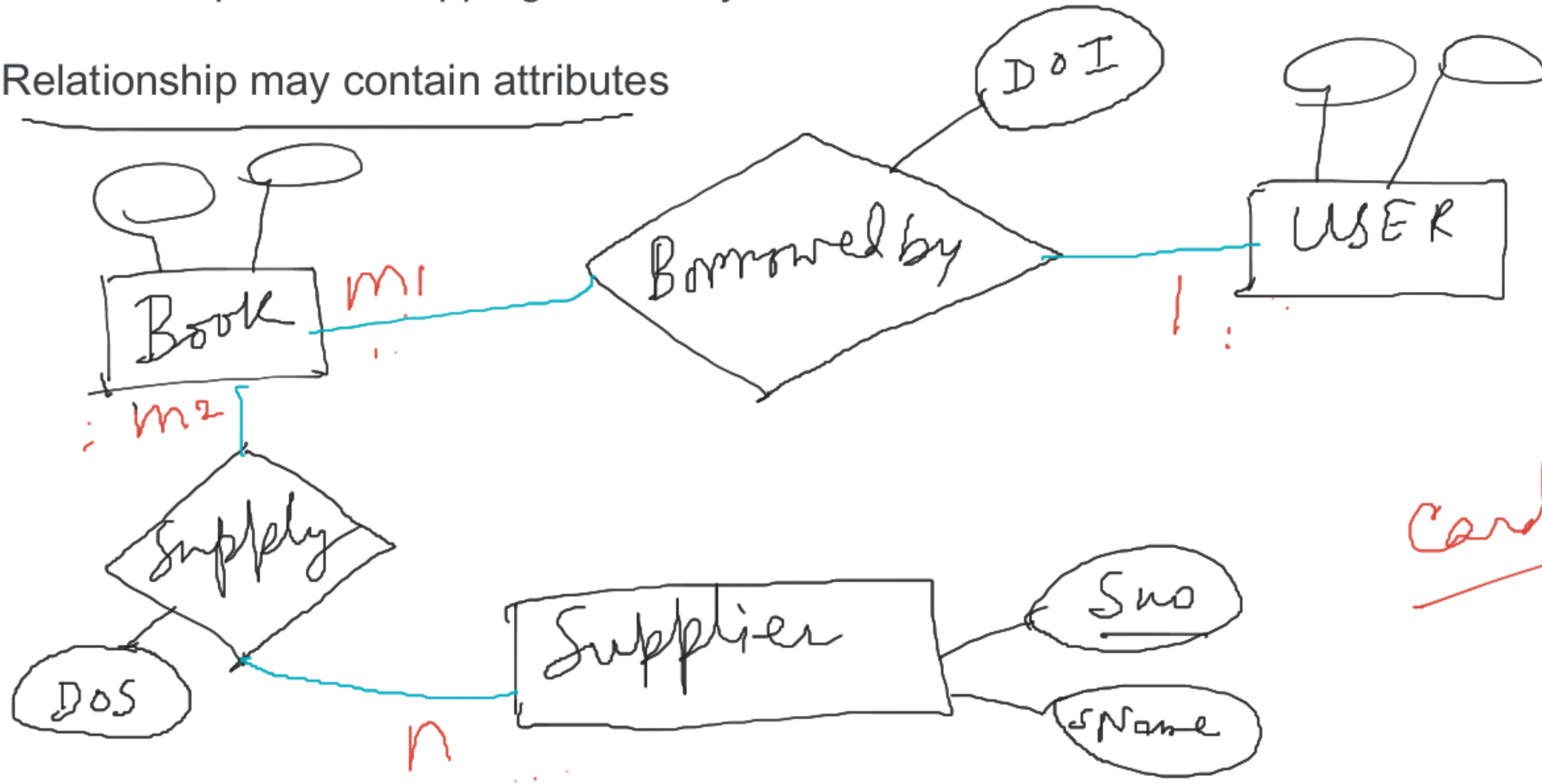
Academic database

Entity	Attributes
1) Students ✓	<u>Roll</u> , Name, Address, <u>Dept</u> , Year Adm, ..., Course No
2) Course ✓	Course No, CName, Dept., type
3) Subjects ✓	Sub-no, Sem, dept-..., type
4) Rooms ✓	Room No, Dept, capacity
5) Periods ✓	Days, hour, start time
6) Staff ✓	Emp code, dept, Name, Address, Status.

Relationship: An association / mapping between entities

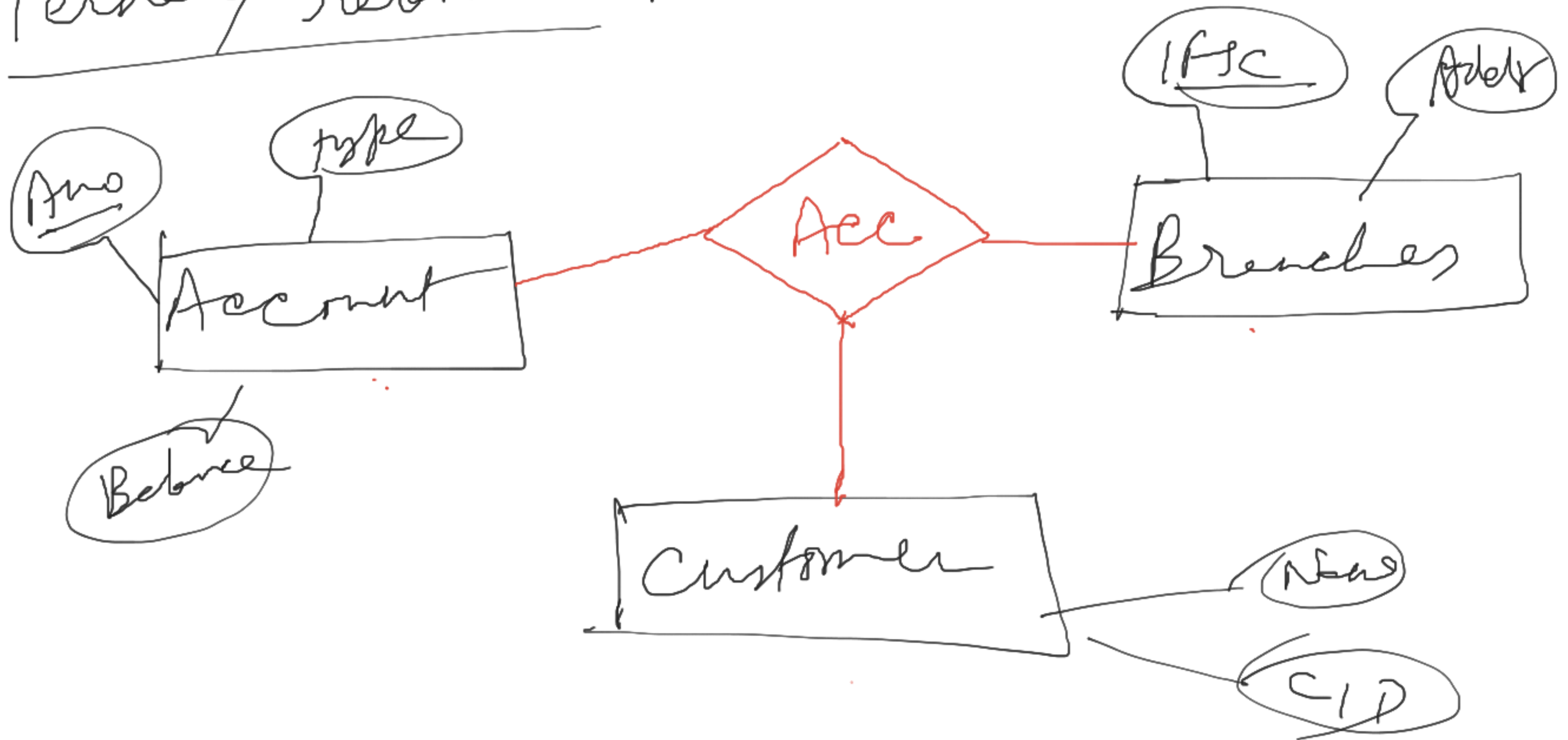
Relationship Set: A mapping n/w Entity Set

Relationship may contain attributes

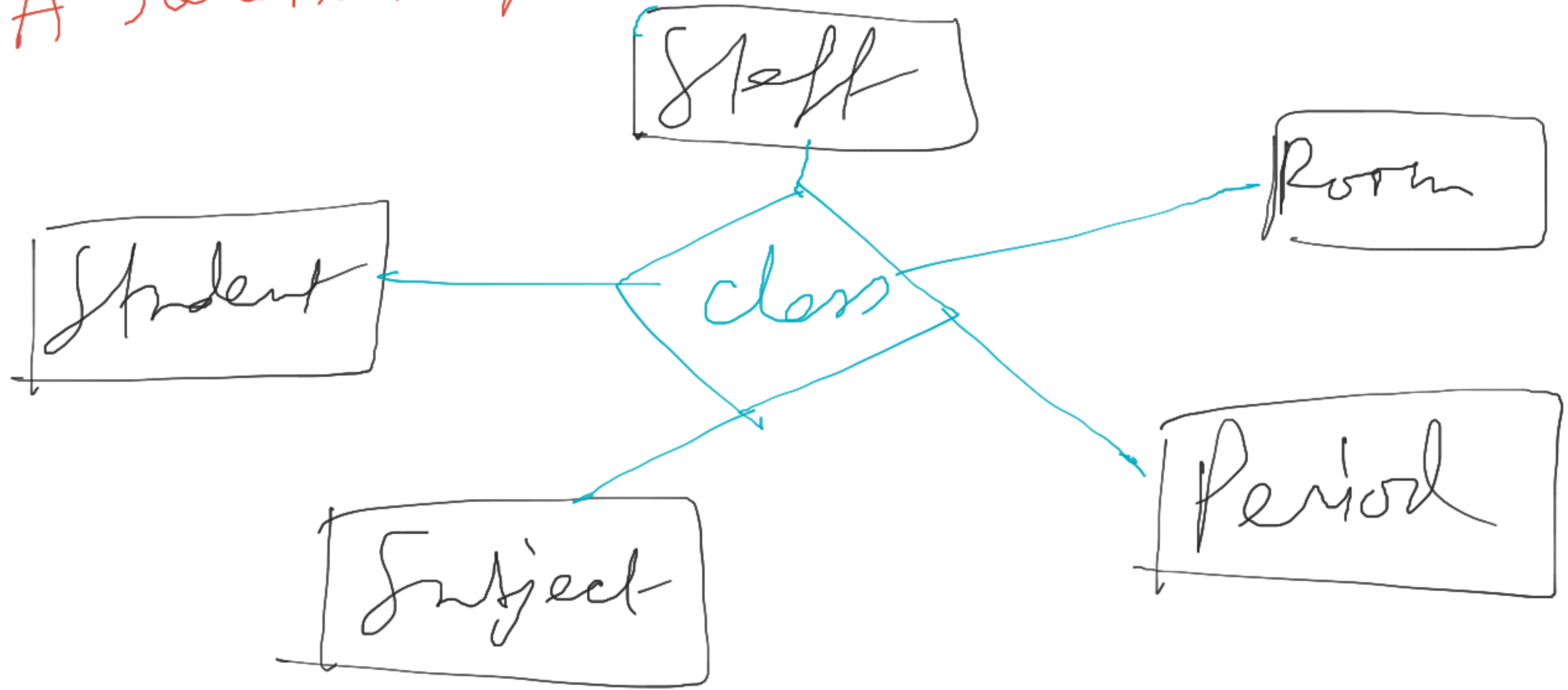


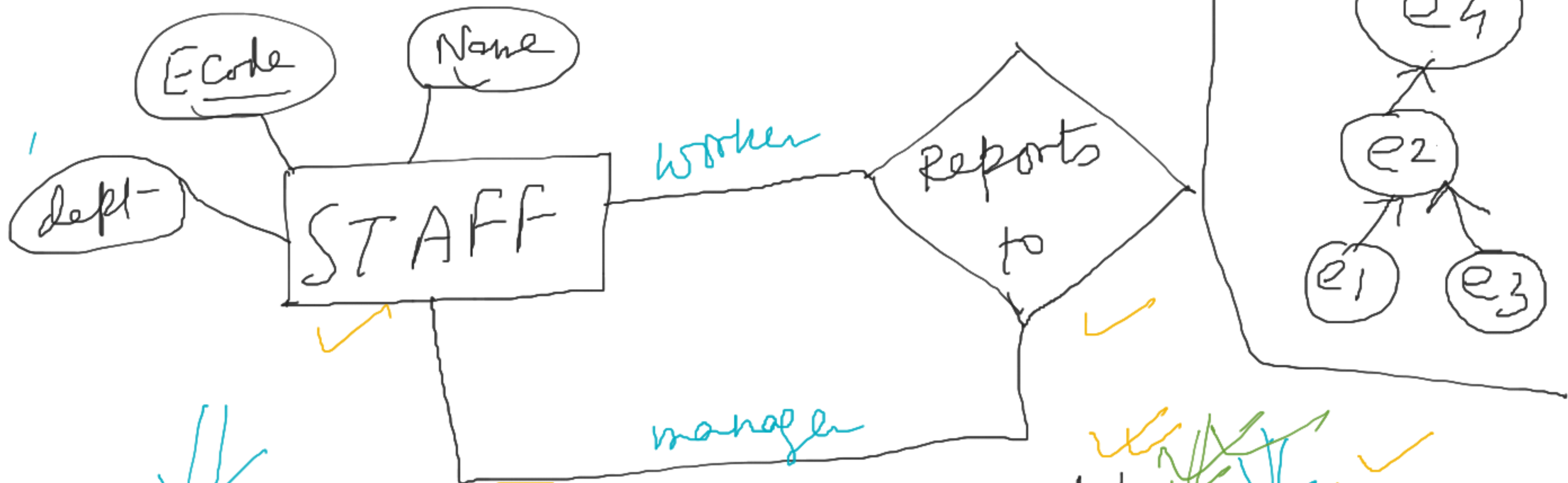
Cardinality

Ternary³ relationship



A relationship may have more than 3 entities





Staff

Ecode	Name	dept	mid
e1	Chandra	CSE	e2
e2	Asif	CSE	e4
e3	Saty	CSE	e2
e4	TNS	CE	NULL

Reports to

Ecode	Manager id
e1	e2
e3	e2
e2	e4

