

Q2. Faculty (FID, Fname, salary)

course_section (course no, Course name, section ID, FID, Fname)

(Student ID, Student name, GRADE)

Ans

course_section

section ID	FID	Fname	sid ID	Sname	Grade	cno	cname
01	1	Deepthi	01	Harshil	A	01	IT
02	1	Deepthi	02	Darsh	B	01	IT
03	2	yashvi	03	Mahi	A	02	BBA

Faculty

FID	Fname	salary
1	Deepthi	90,000
2	yashvi	80,000

1) 1NF = NO repeating group

• Faculty is in 1NF because there is no repeating group

- course_section is not in 2NF becz there is the repeating group grade sname.

change course_section into

course_section 1 (section ID, FID, Fname, SID, Sname, grade, CNO, Cname)

Design in 2NF is course_section, faculty.

2) 2NF - Total dependent on PK

- course_section2 is not in 2NF because there is partial dependancy on PK (cname, tname).
- faculty is 2NF because there is dependency on single primary key.

change into 2NF.

course_section2 (sectionID, CNO, CName, FID, Fname)

Student2 (SID, Sname)

Student c (section-ID, SID, grade)

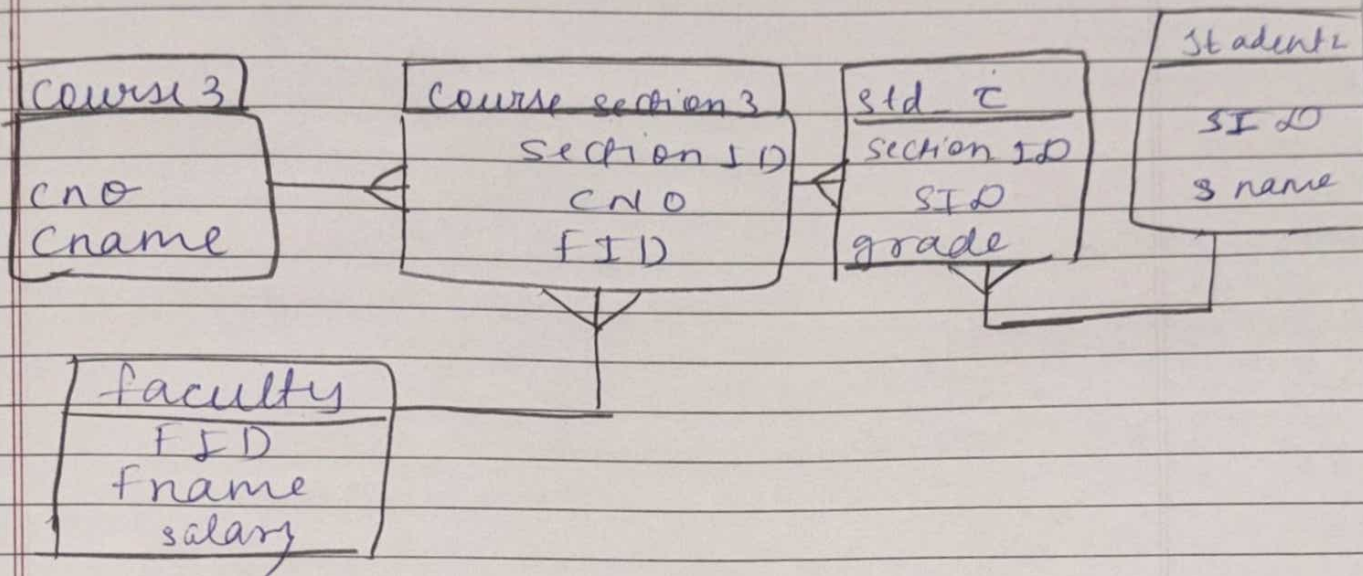
Design in 2NF :- Faculty, course_section2, Student2, Student c

3) 3NF - No non key dependent, no non key depends on another non key

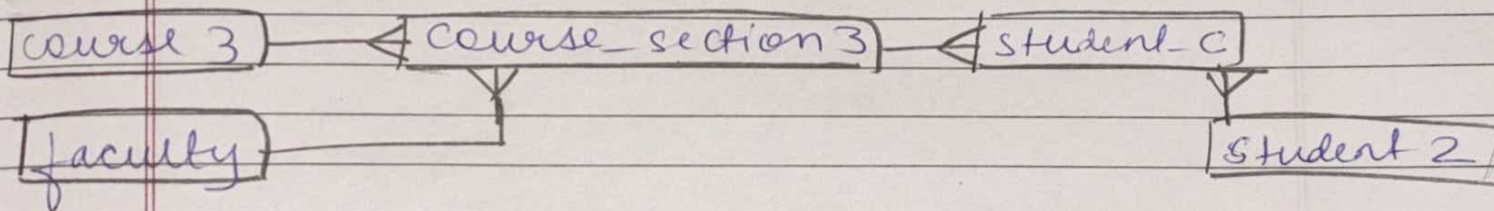
- Faculty, Student2, Student c are in 3NF because there is no non key depends on another non key.

- course_section2 is not in 3NF bcz Fname, Cname which is not a key depends on FID, CID)

→ Faculty 3 (FID, Fname) not needed *redundant*
 course 3 (CNO, cname)
 course-section 3 (section-ID, CNO, FID)
 the design in 3NF course-section 3
 course 3, faculty 3



→ ERD



course 3 PK : CNO

faculty PK : FID

course-section 3 PK : section ID

PK₁ : CNO

FK₂ : FID

student-c PK : section ID, SID (composite)

PK₁ = section ID

FK₂ = SID

student 2 PK = SID

Teacher's Signature: