1. Primary Key

fd1: empid -> name, address, bdate, sex, salary, dno
fd2: dno -> dname, mgr_id
fd3: pno -> pname, pdno.
fd4: empid, pno -> hrs

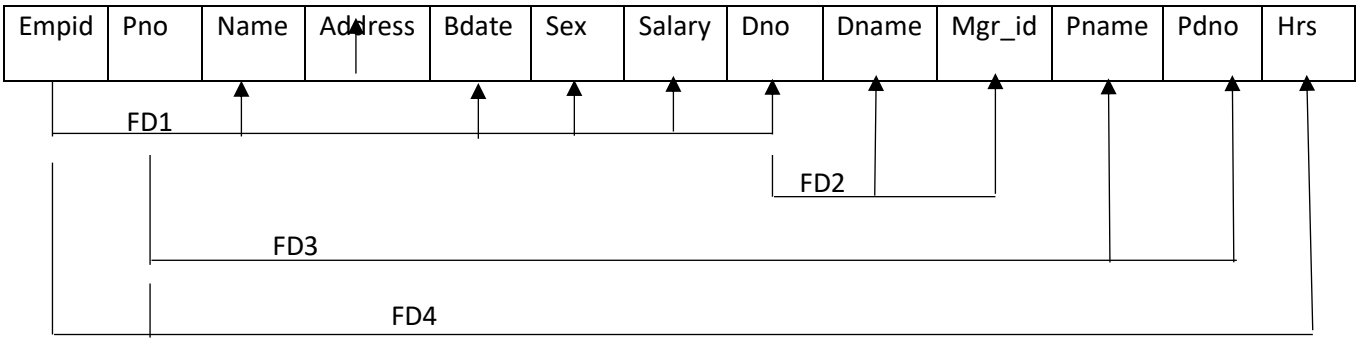
{empid,pno}+ -> R

Therefore {empid,pno} is the primary key.

2. Normalise

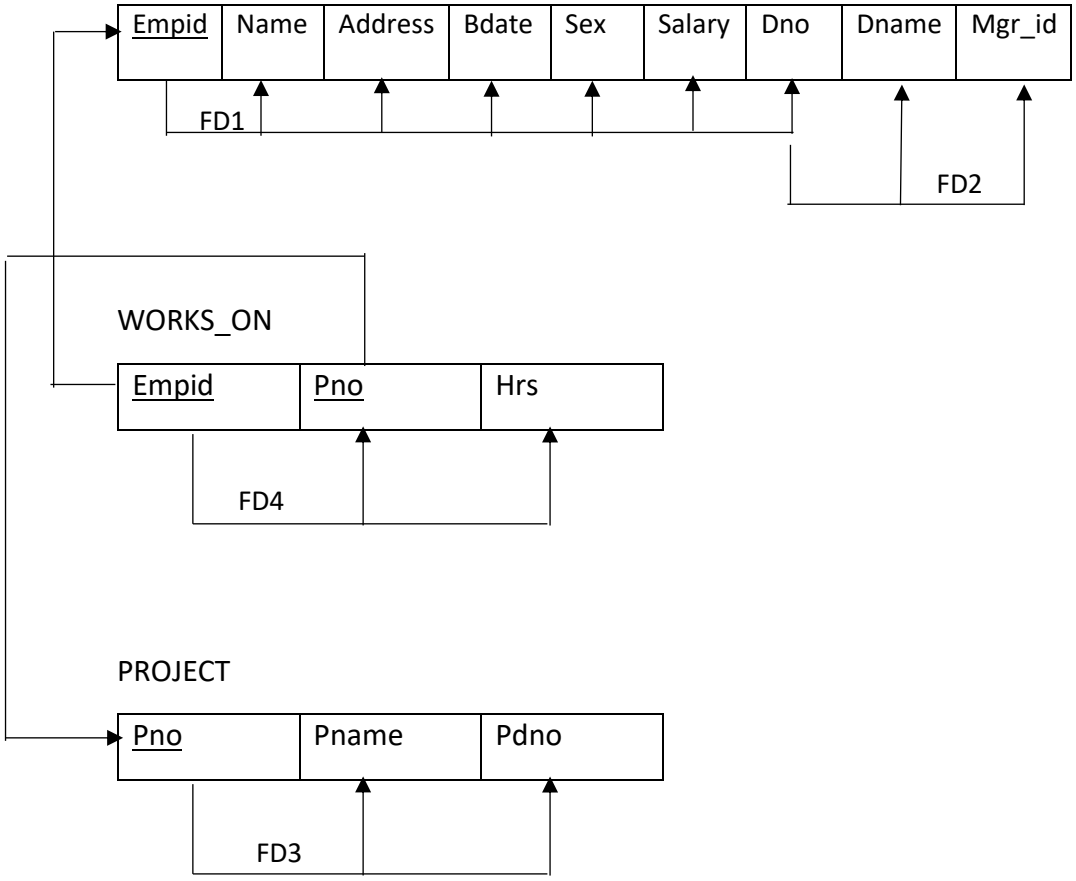
1NF

EMPLOYEE



2NF

EMPLOYEE

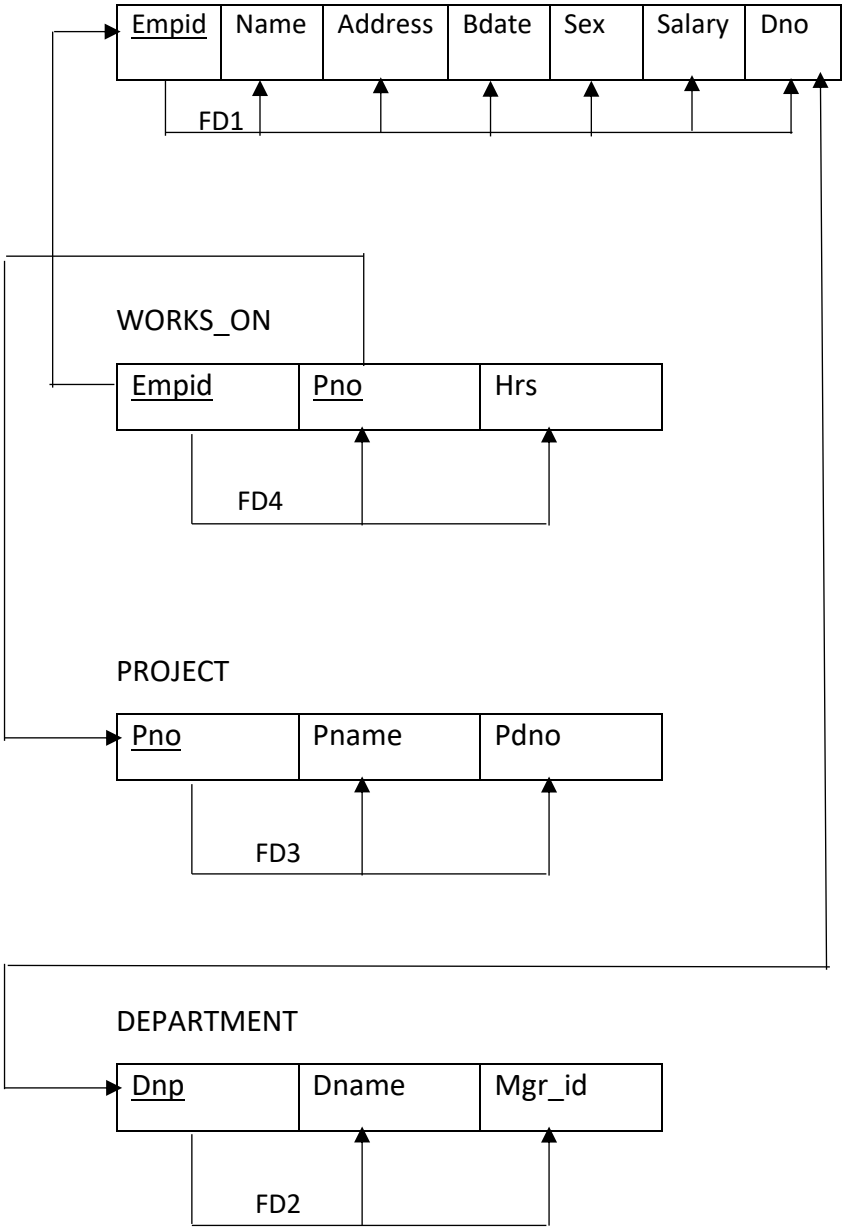


WORKS_ON

PROJECT

3NF

EMPLOYEE



3.Proof

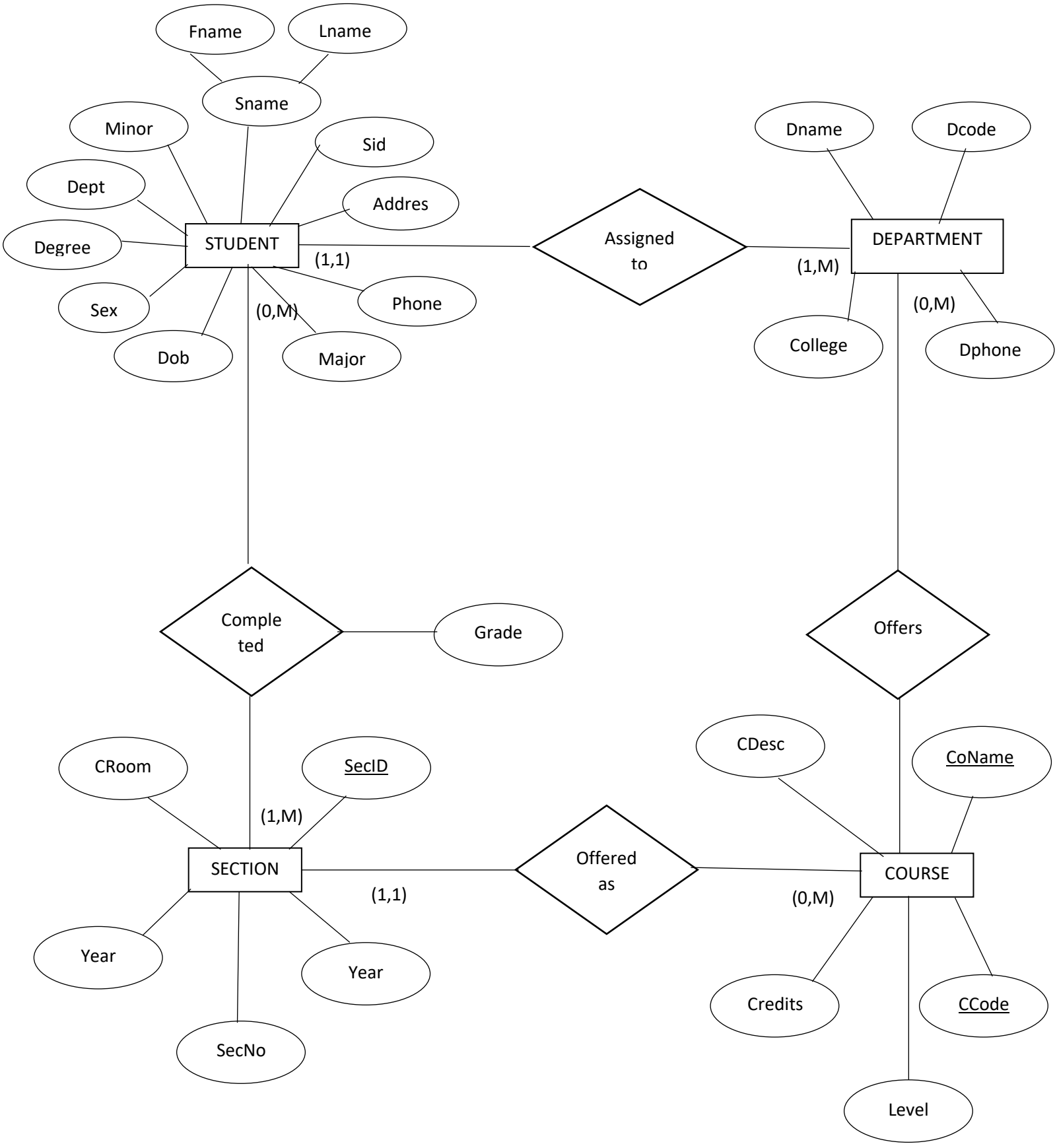
Spool file

Preservation of fd

fd1: empid -> name, address, bdate, sex, salary, dno
fd2: dno -> dname, mgr_id
fd3: pno -> pname, pdno.
fd4: empid, pno -> hrs

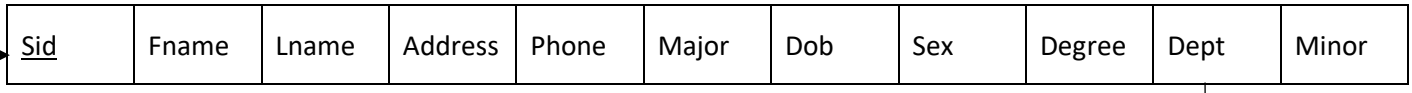
All fd remain intact

4.ER Diagram

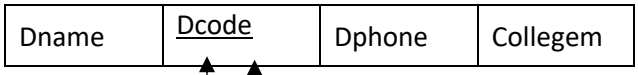

Fname
Lname
Sname
Minor
Sid
Dept
Addres
Degree
STUDENT
Sex
Phone
Dob
Major
(1,1)
(0,M)
Assigned to
Dname
Dcode
DEPARTMENT
(1,M)
(0,M)
College
Dphone
Comple ted
Grade
Offers
CRoom
SecID
(1,M)
SECTION
(1,1)
Offered as
CDesc
CoName
COURSE
(0,M)
Year
Year
SecNo
Credits
CCode
Level

5.ER – Relational Mapping

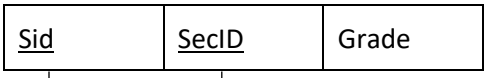
STUDENT



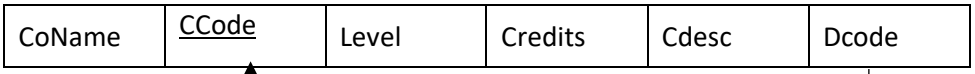
DEPARTMENT



COMPLETED



COURSE



SECTION