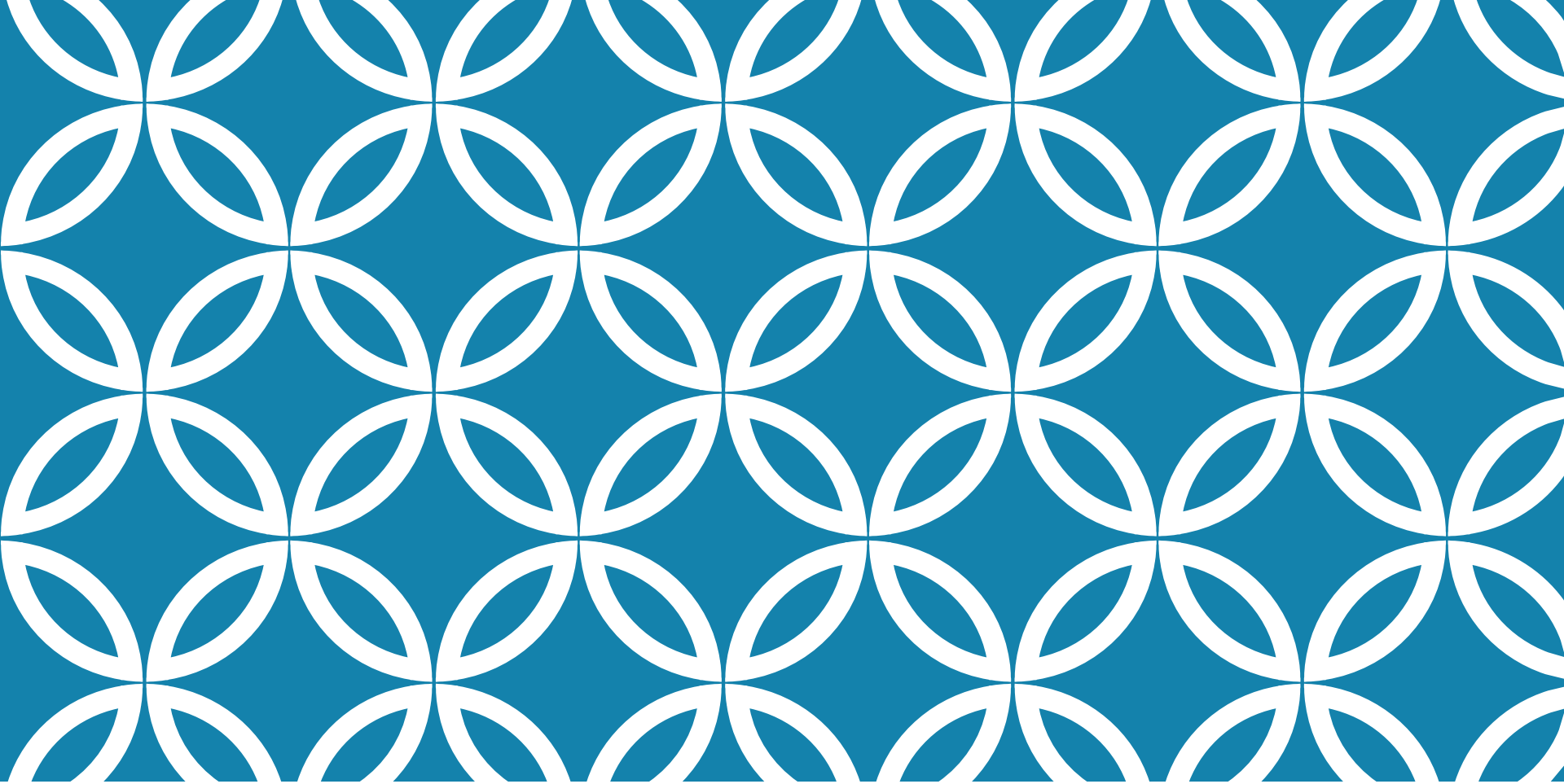


CLASSROOM LOG-5

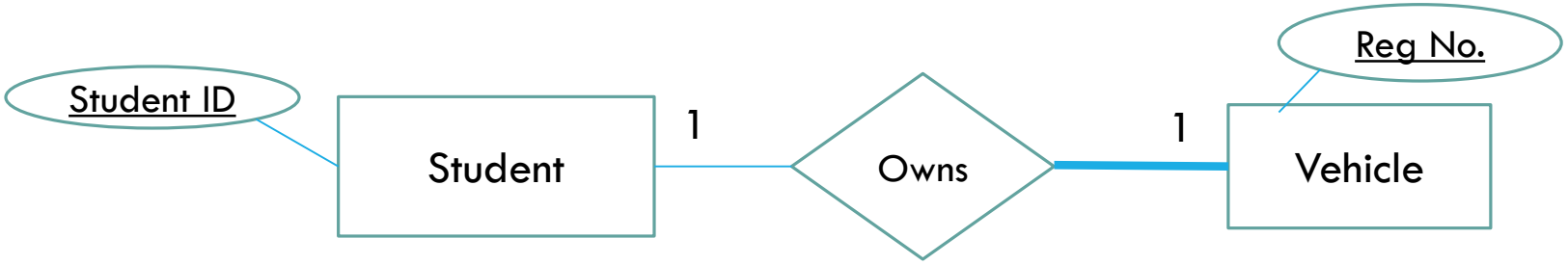
G. Neha
IMT2014018

TOPICS COVERED

- Mapping 1:1 Relationships
- Mapping 1:N Relationships
- Mapping N:M Relationships
- Mapping entities with multivalued attributes

MAPPING 1:1 RELATIONSHIP

- When only one entity has total participation
- Choose the entity with total participation as the base relation and include the primary key of the other relation as foreign key in the base relation
- Ex: Student owns vehicle



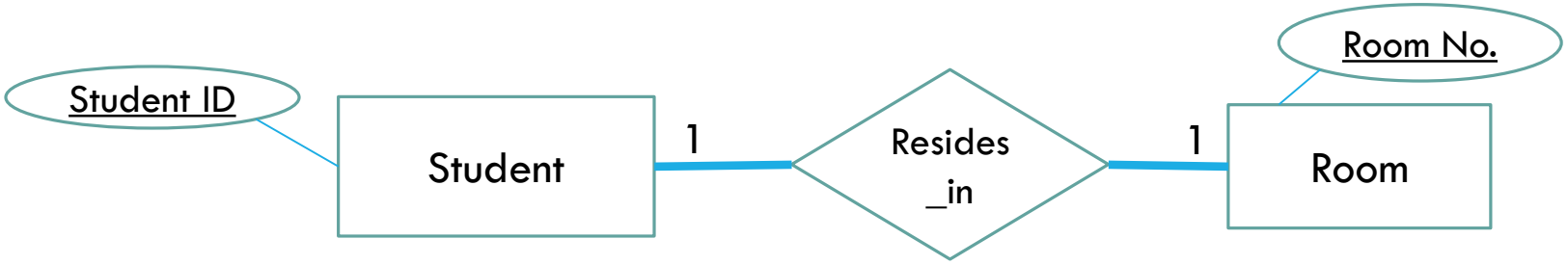
Vehicle(Reg No., Student Id, …)

Student(Student Id, …)

MAPPING 1:1 RELATIONSHIP

- Both the entities have total participation
- In this case, *merge* both entity types and relationship attributes into one relation

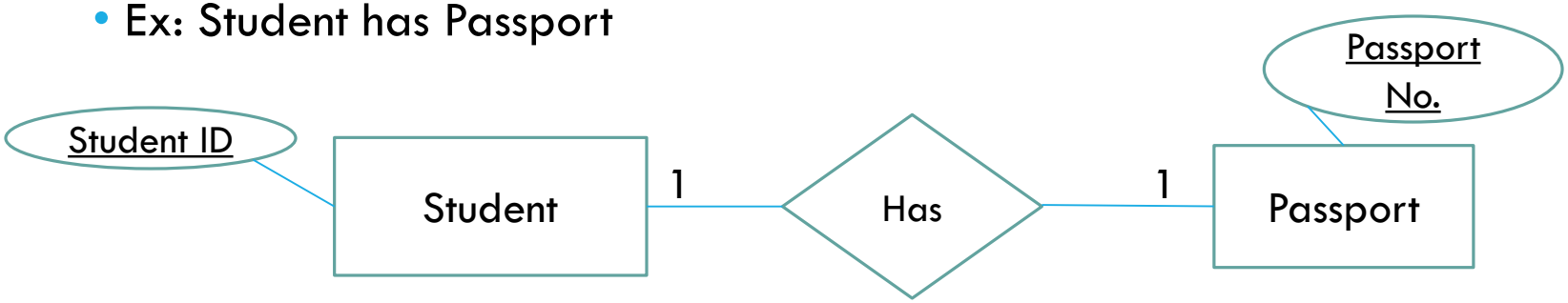
Ex: Student resides in room



Resides_in(Student ID, Room No., …)

MAPPING 1:1 RELATIONSHIP

- When both the entities have partial participation
- Choose one of the entities as base relation and include primary key of the other relation as foreign key
- Ex: Student has Passport



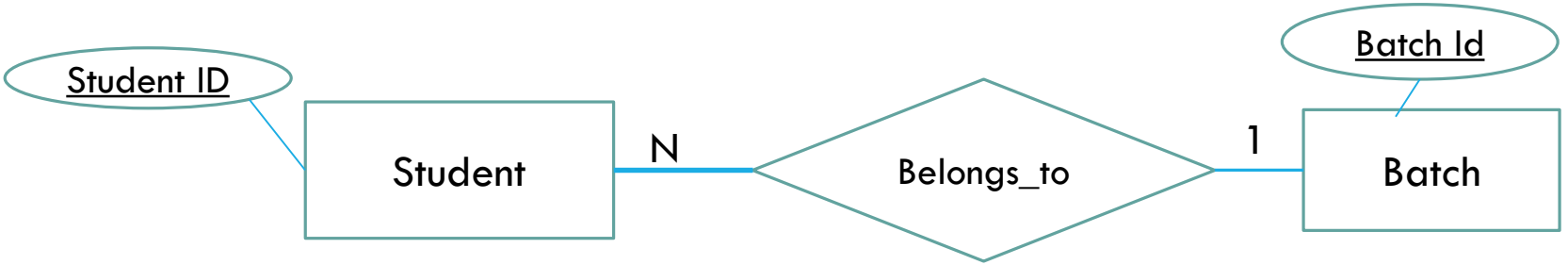
Student(Student ID, Passport No., …) Passport(Passport No., …)

Or

Passport (Passport No., Student ID, …) Student(Student ID, …)

MAPPING 1:N RELATIONSHIPS

- Take N-sided entity as base relation
- Primary key of 1-sided entity becomes foreign key of base relation



- Student(Student ID, Batch ID, …)

MAPPING N:M RELATIONSHIP

- For each regular binary M:N relationship type R, create a new relation S to represent R
- Include primary keys of the participating entity types as foreign key attributes in S; their combination will form the primary key of S
- Also include any relationship attributes in S
- Both 1:1 and 1:N relationships can be mapped in a way similar to mapping M:N relationships (only in the case of partial participation)

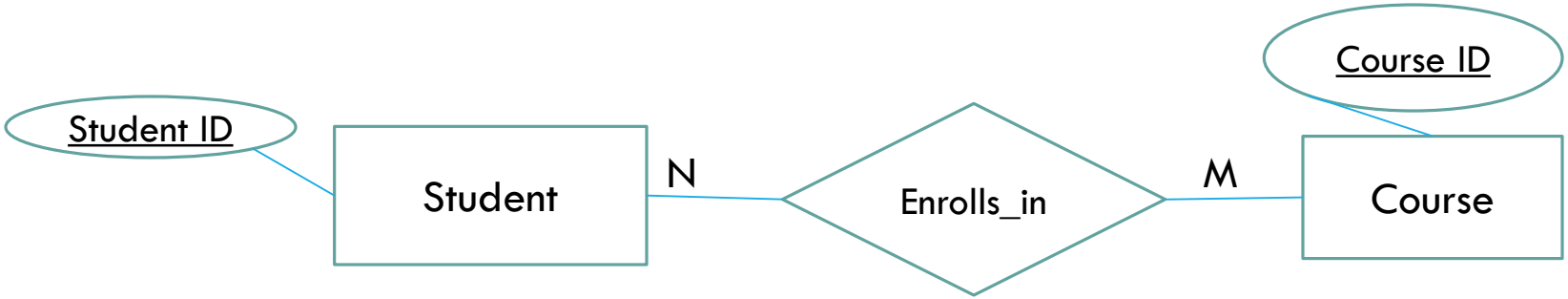
MAPPING N:M RELATIONSHIP

Ex:

Student(Student ID, …)

Course(Course ID, …)

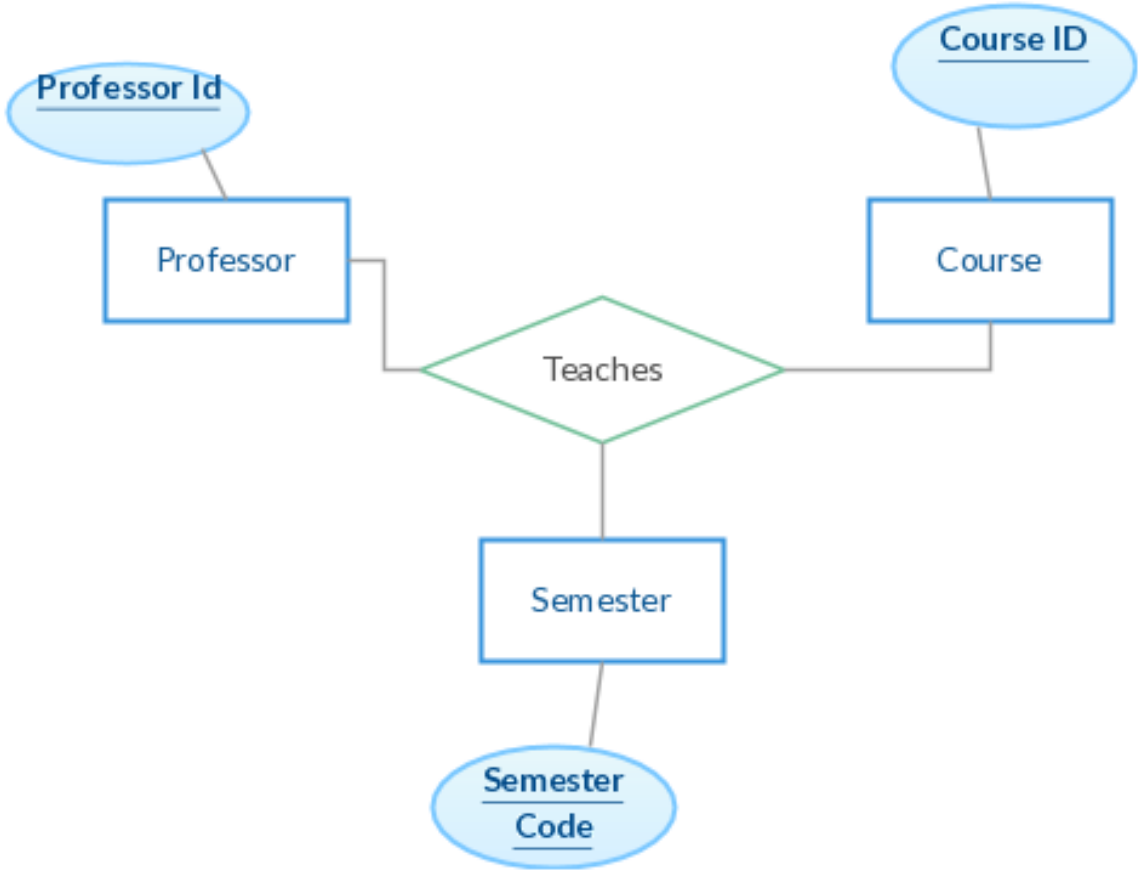
Enrolls_in(Student ID, Course ID,…)



MAPPING N-ARY RELATIONSHIP

- For each n-ary relationship type R, create a new relation S to represent R
- Primary keys of participating relations in R become foreign keys in S
- Combination of primary keys of participating relations is the primary key of S

Ex:



Professor(Professor Id, …)

Semester(Semester Code, …)

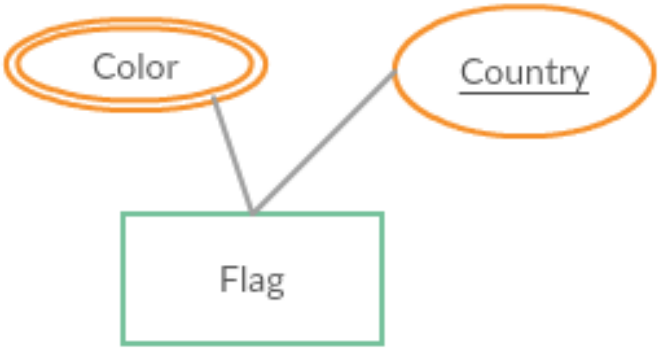
Course(Course ID, …)

Teaches(Professor Id, Semester Code, Course ID, …)

MAPPING MULTI-VALUED ATTRIBUTES

- Create a relation R for entity S without including multivalued attributes
- For each multi-valued attribute A of a given entity type S, create a new relation
- Include the primary key of R and a value of multivalued attribute A
- Combination of primary key of R and value of multivalued attribute is used as primary key

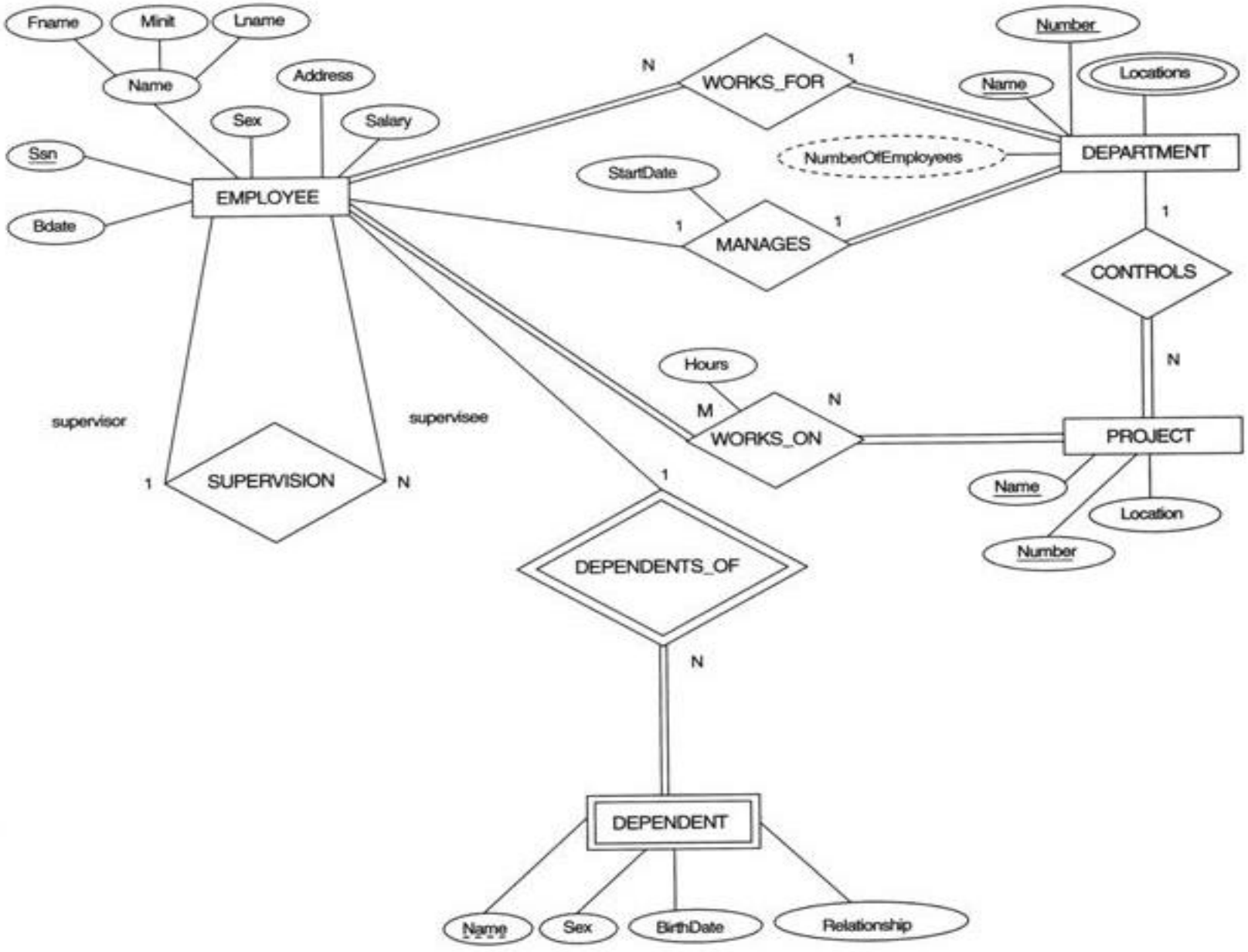
Ex:



Flag(Country,…)

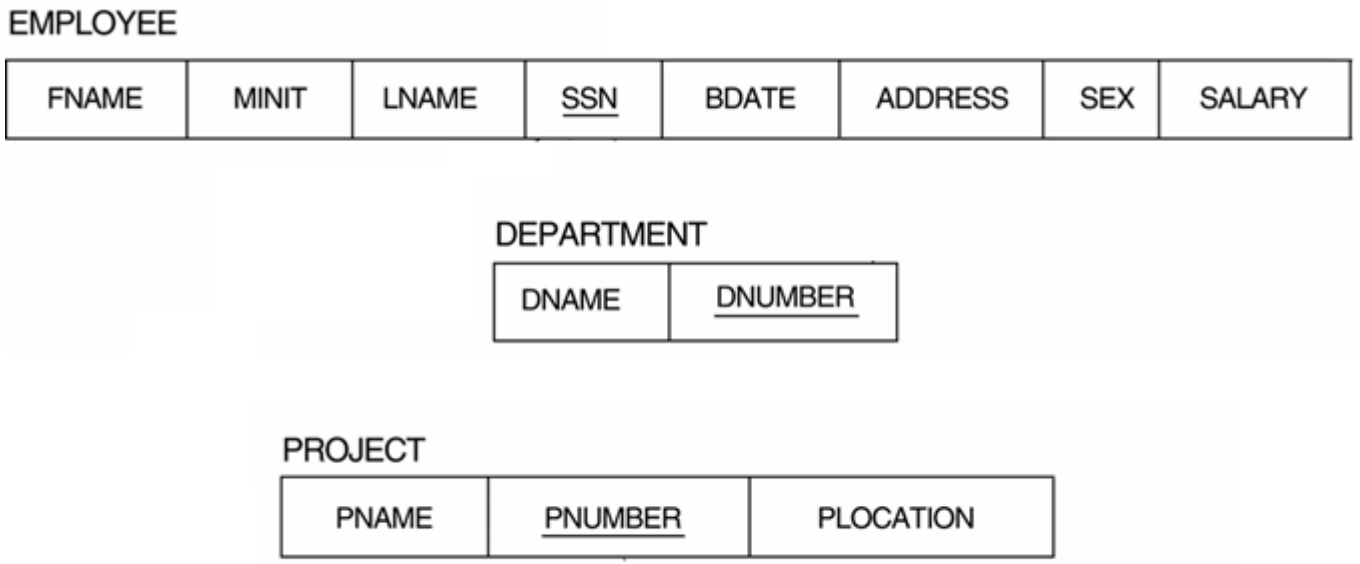
FlagColor(Country, Color)

EXAMPLE


Fname
Minit
Lname
Name
Address
Sex
Salary
Ssn
Bdate
EMPLOYEE
N
WORKS_FOR
1
Number
Name
Locations
DEPARTMENT
NumberOfEmployees
StartDate
1
MANAGES
1
1
CONTROLS
N
Hours
M
N
WORKS_ON
PROJECT
Name
Location
Number
supervisor
supervisee
1
SUPERVISION
N
1
DEPENDENTS_OF
N
DEPENDENT
Name
Sex
BirthDate
Relationship

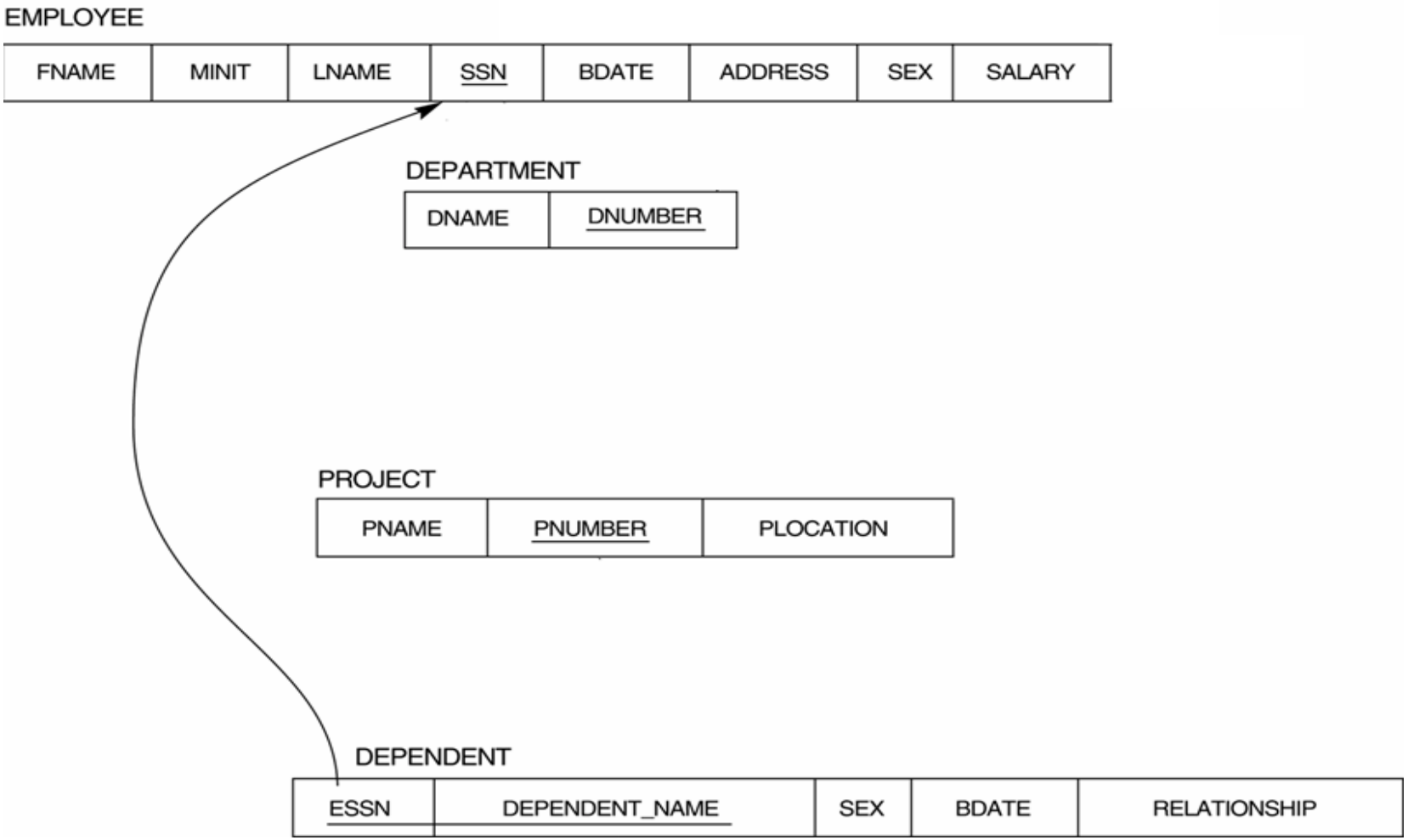
SOLUTION: STEP-1

Mapping of strong entity types



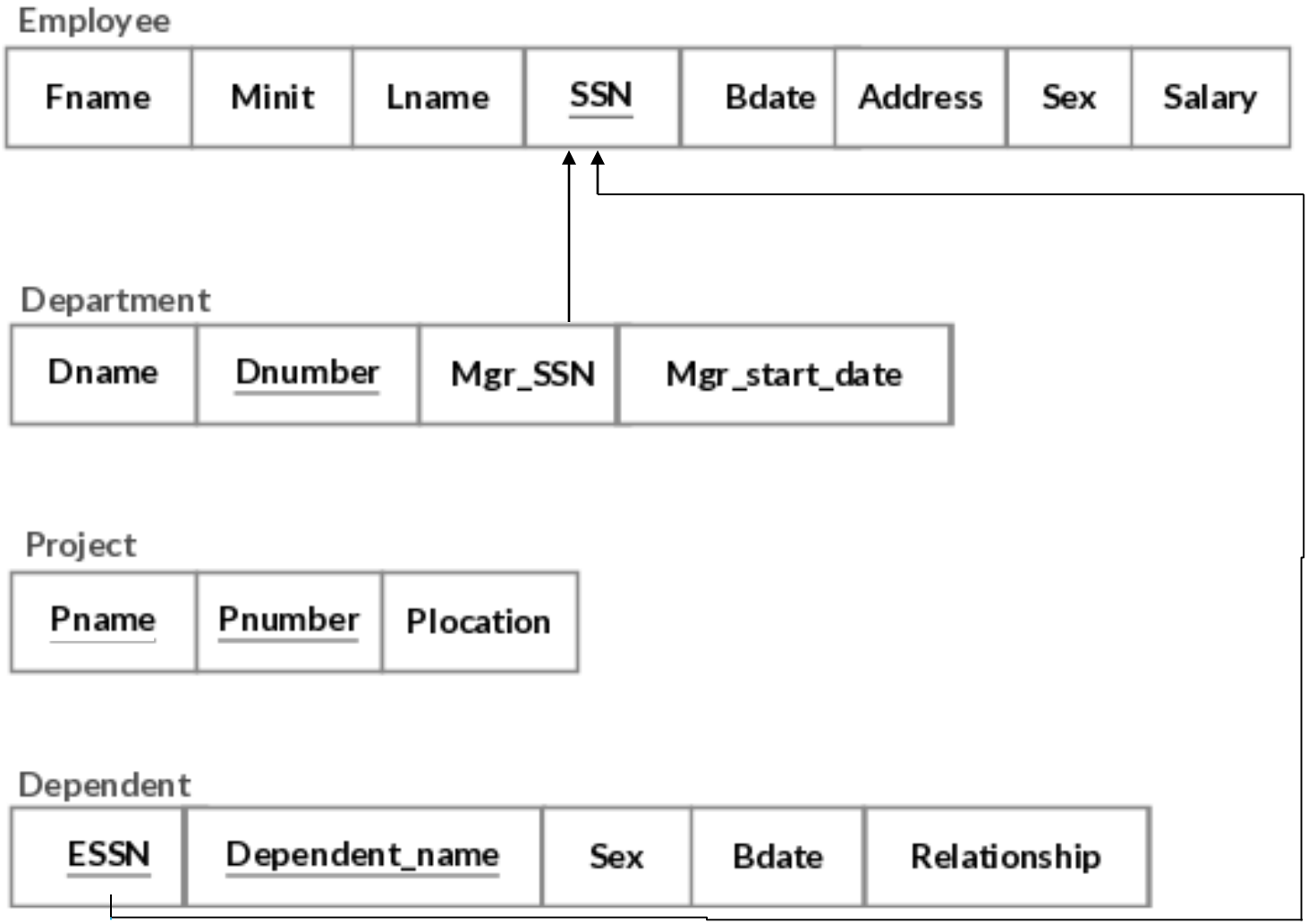
SOLUTION: STEP-2

Mapping of weak entity types



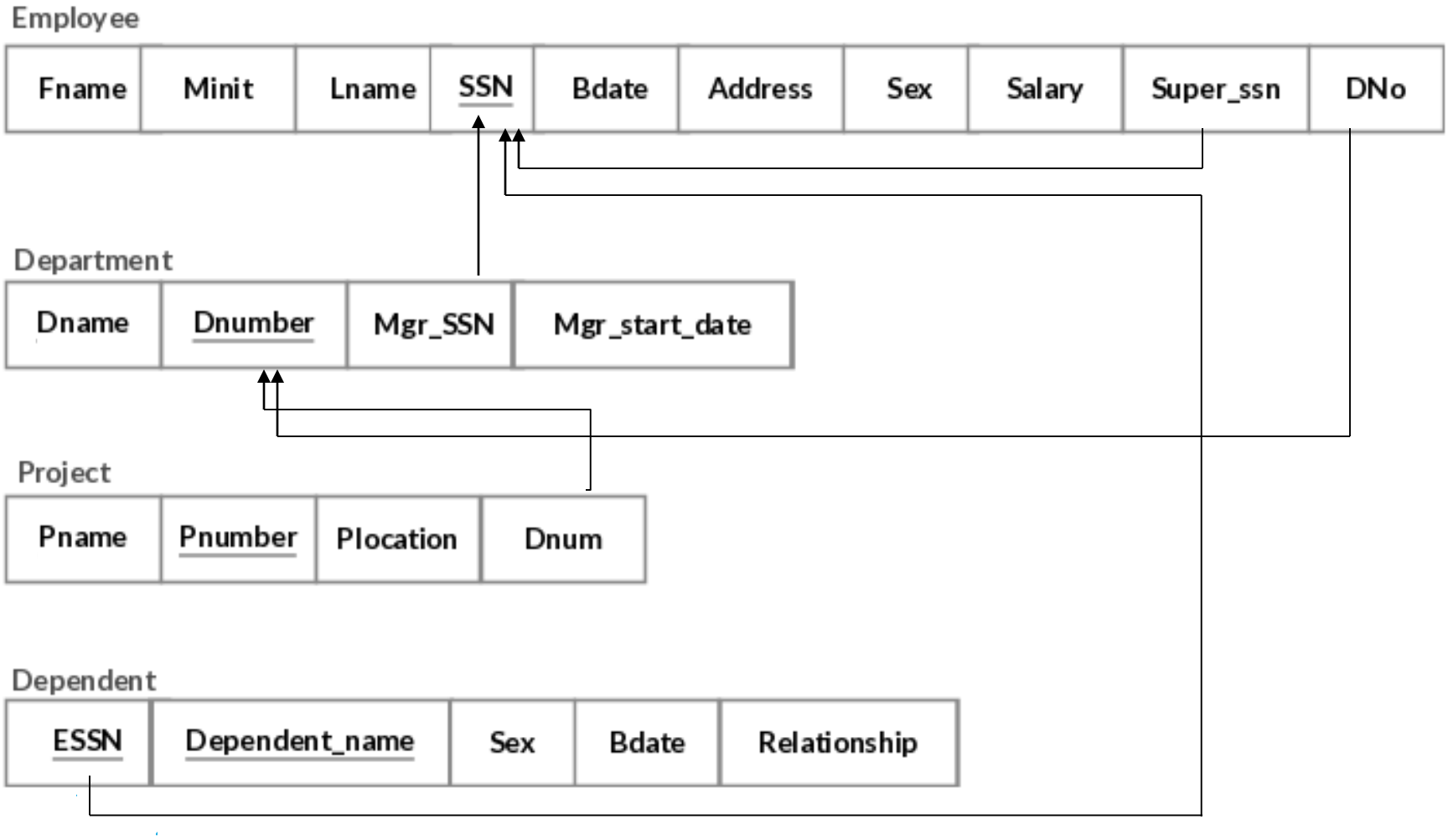
SOLUTION: STEP3

Mapping 1:1 relationship



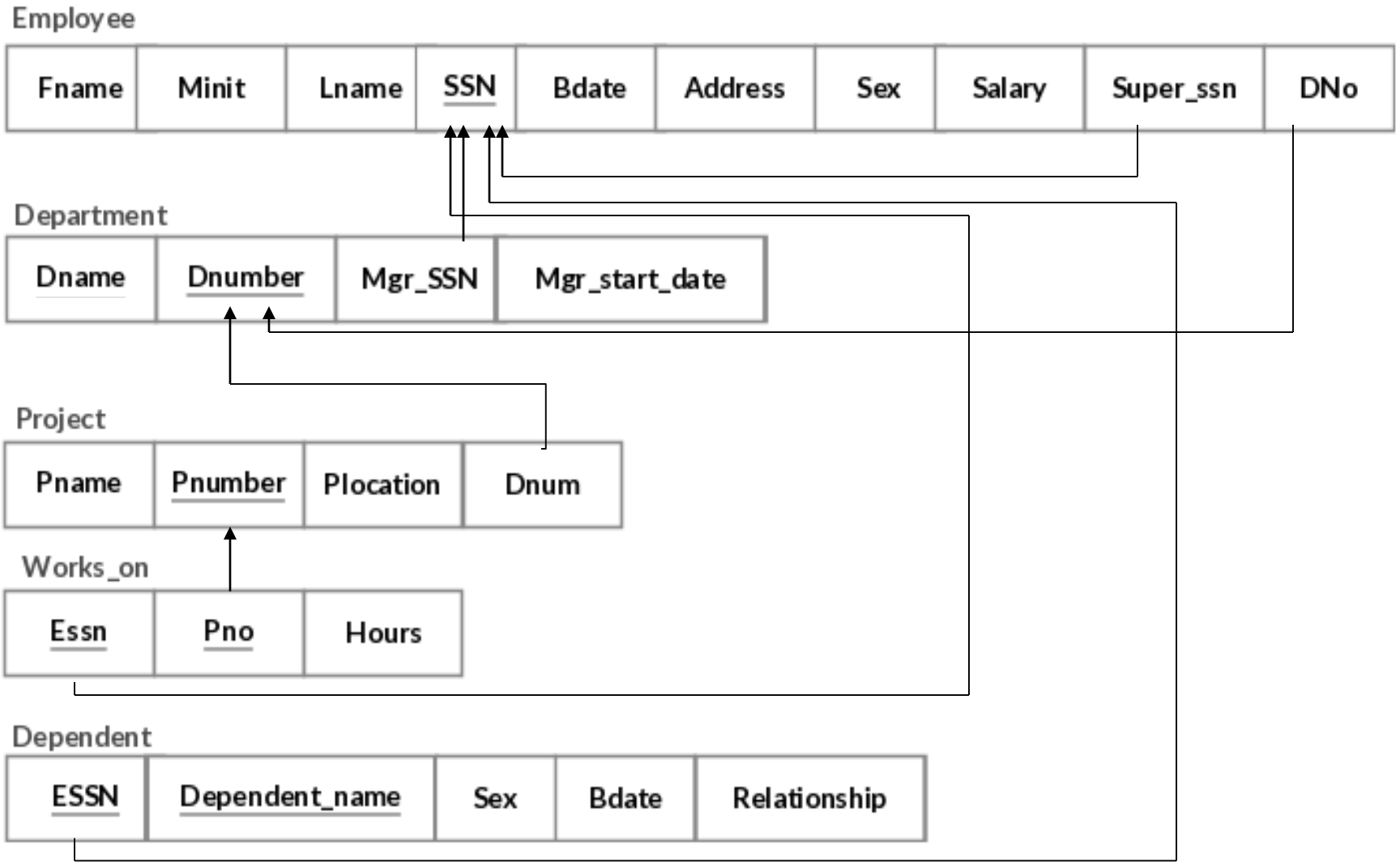
SOLUTION: STEP4

Mapping 1:N relationship



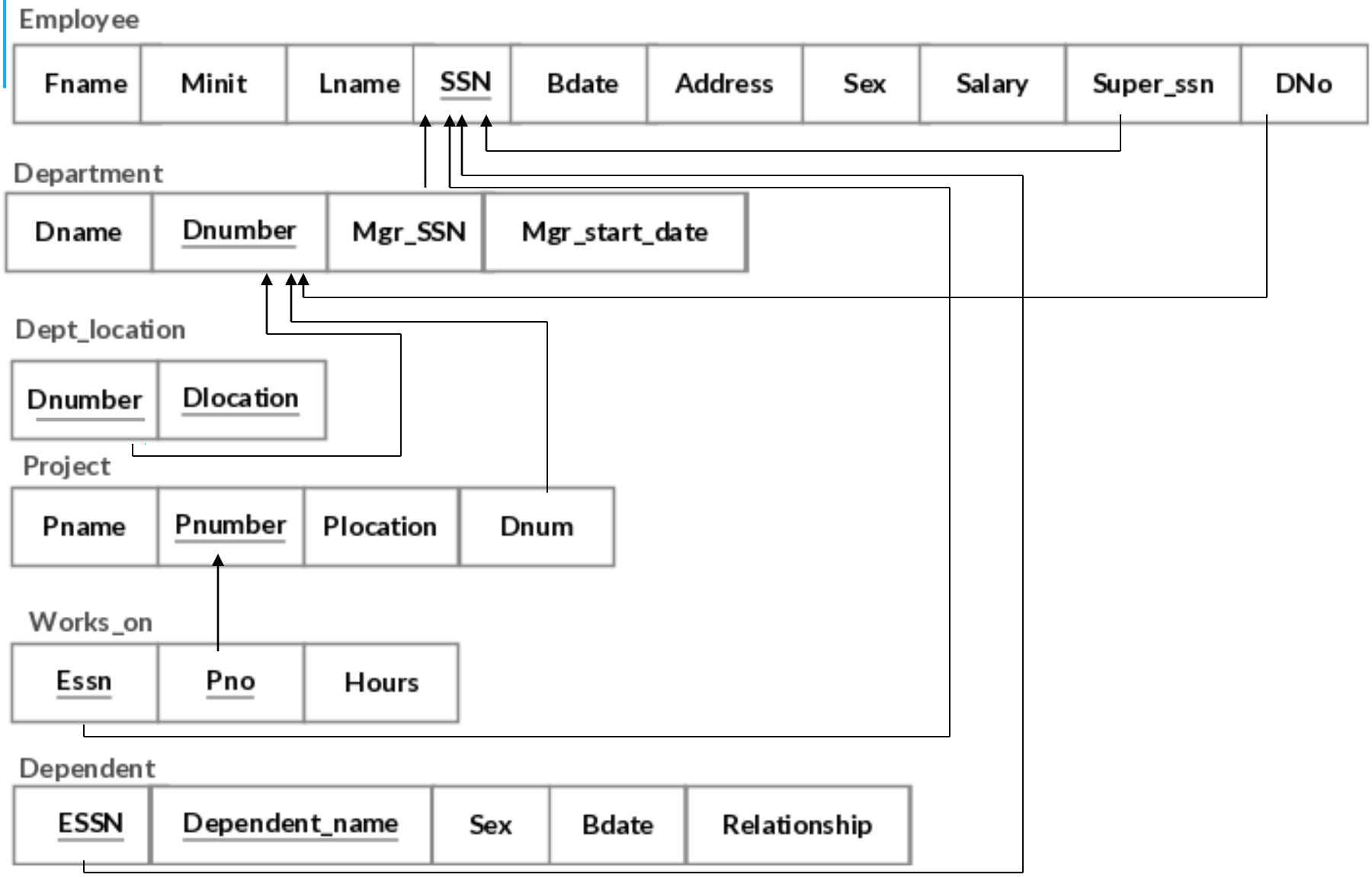
SOLUTION: STEP 5

Mapping N: M relationship

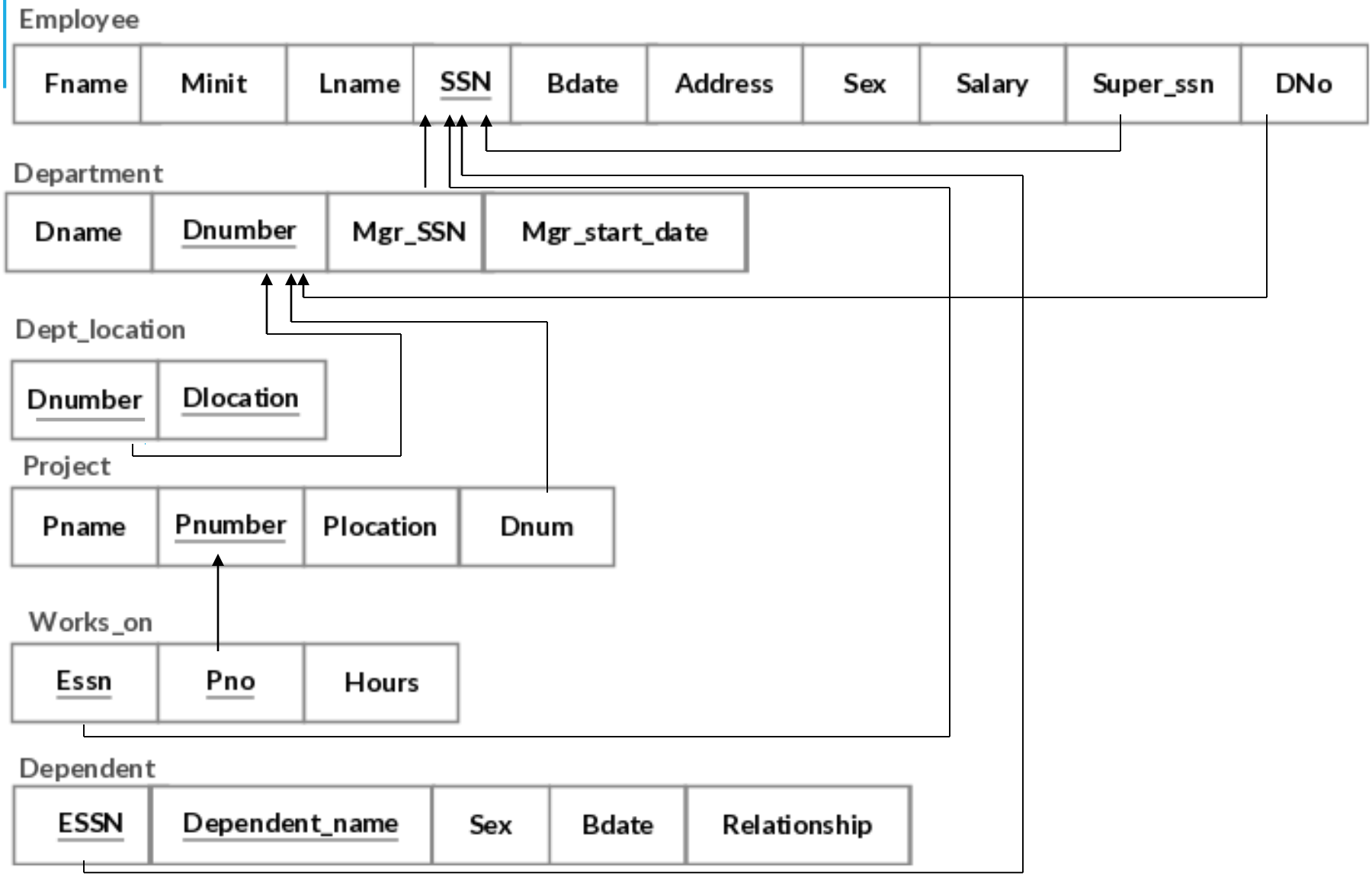


SOLUTION: STEP 6

Mapping multivalued attributes



SOLUTION


Employee
Fname
Minit
Lname
SSN
Bdate
Address
Sex
Salary
Super_ssn
DNo
Department
Dname
Dnumber
Mgr_SSN
Mgr_start_date
Dept_location
Dnumber
Dlocation
Project
Pname
Pnumber
Plocation
Dnum
Works_on
Essn
Pno
Hours
Dependent
ESSN
Dependent_name
Sex
Bdate
Relationship

THANK YOU