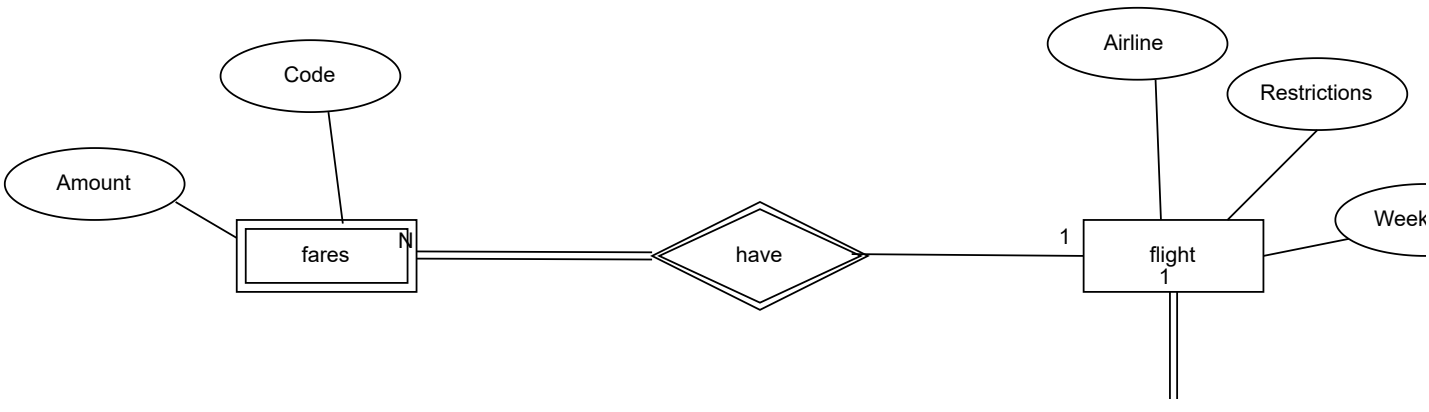
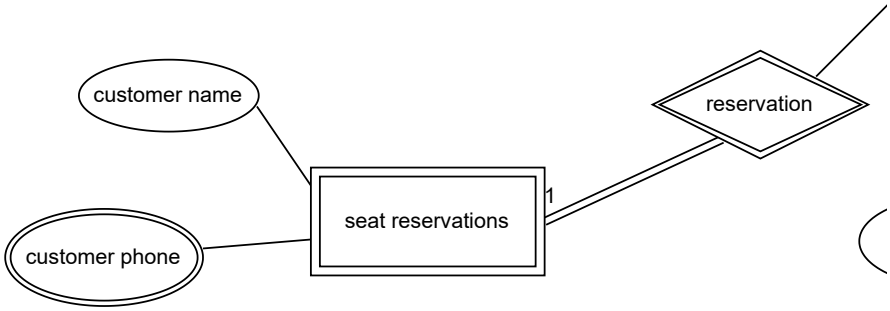
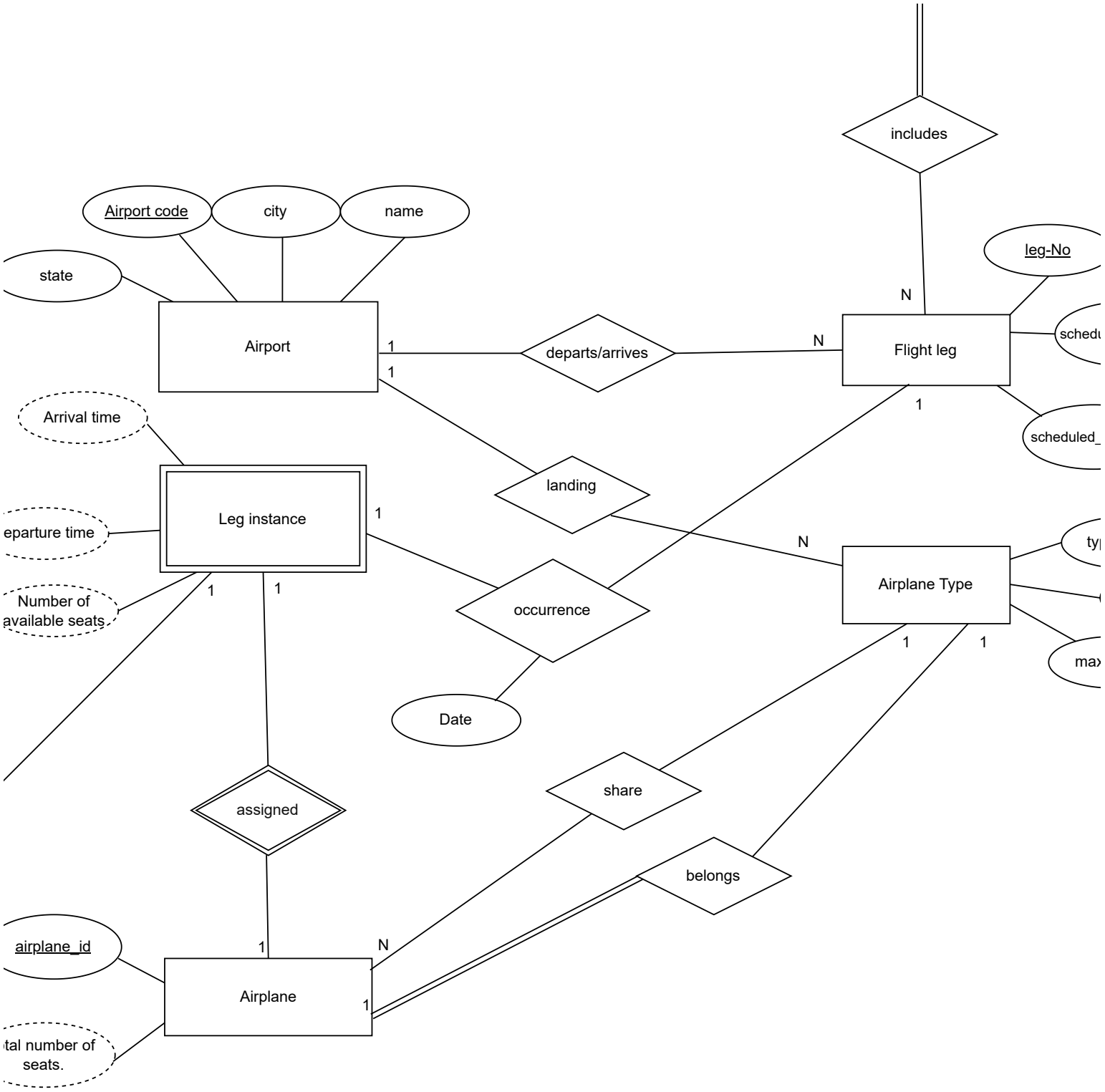
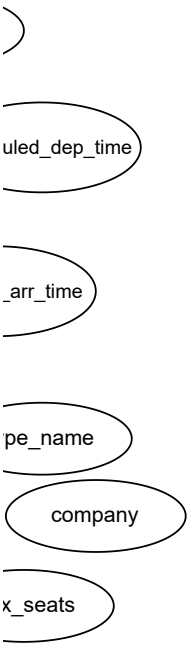
Airline Information System



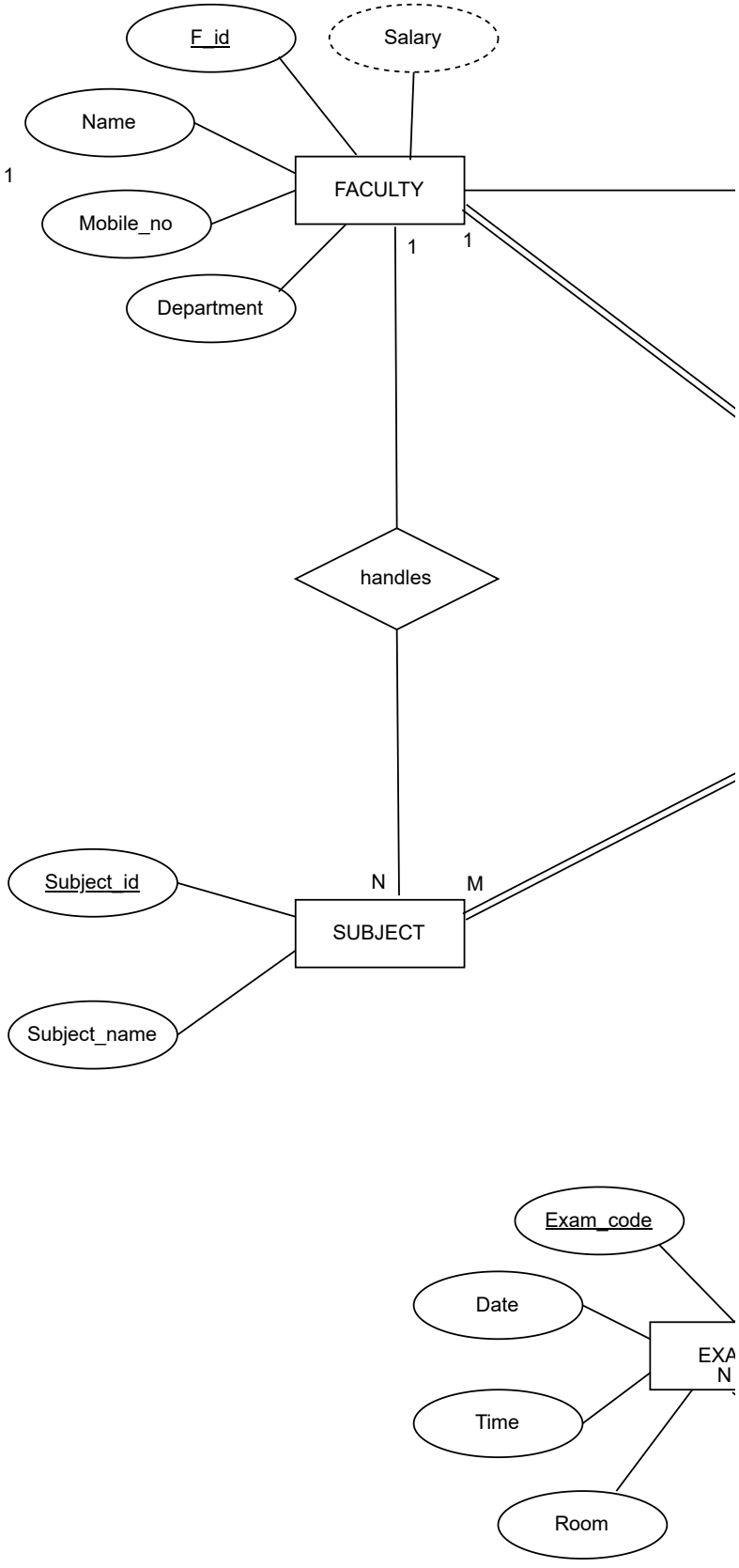

‹days

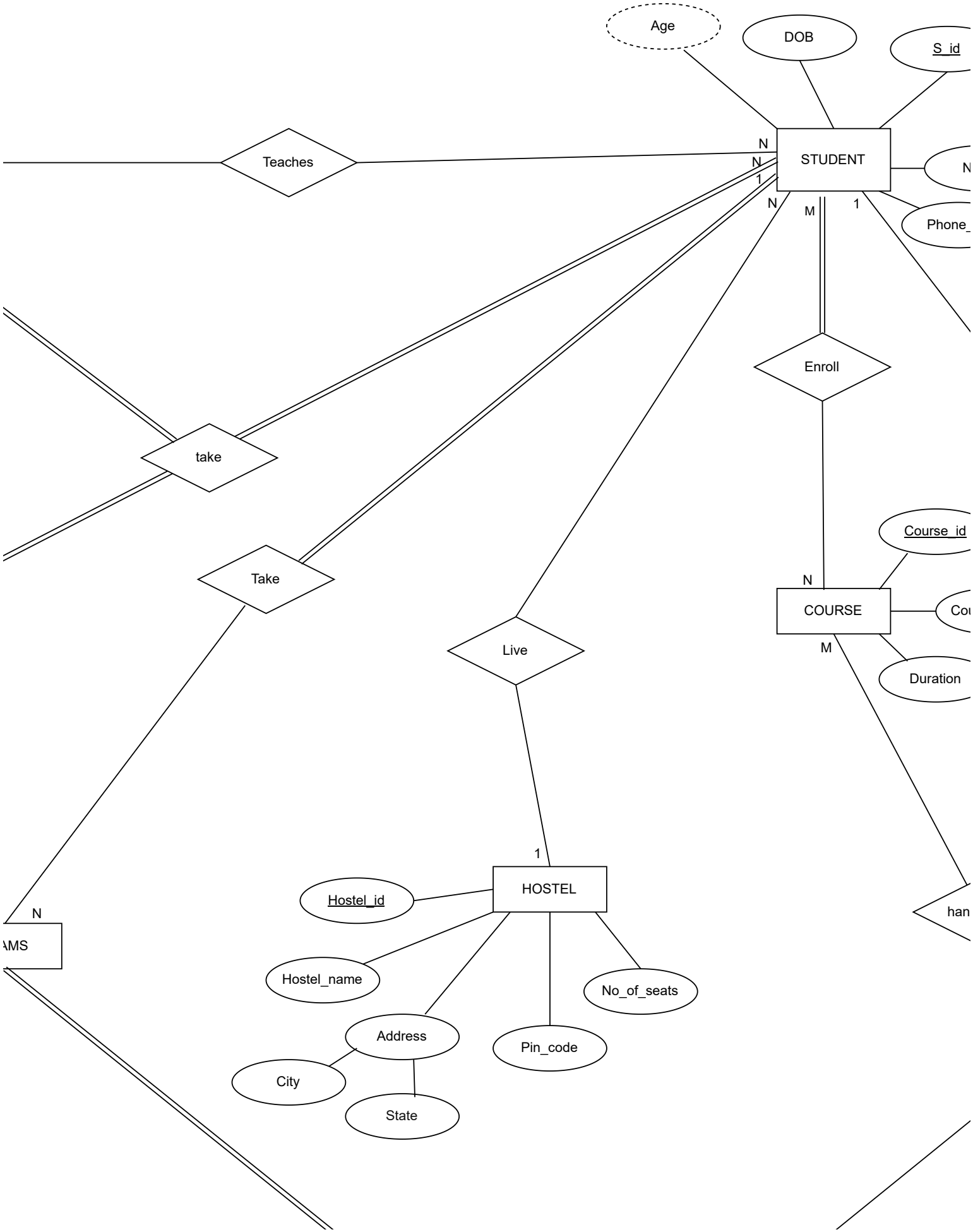

customer name
customer phone
seat reservations
1
reservation

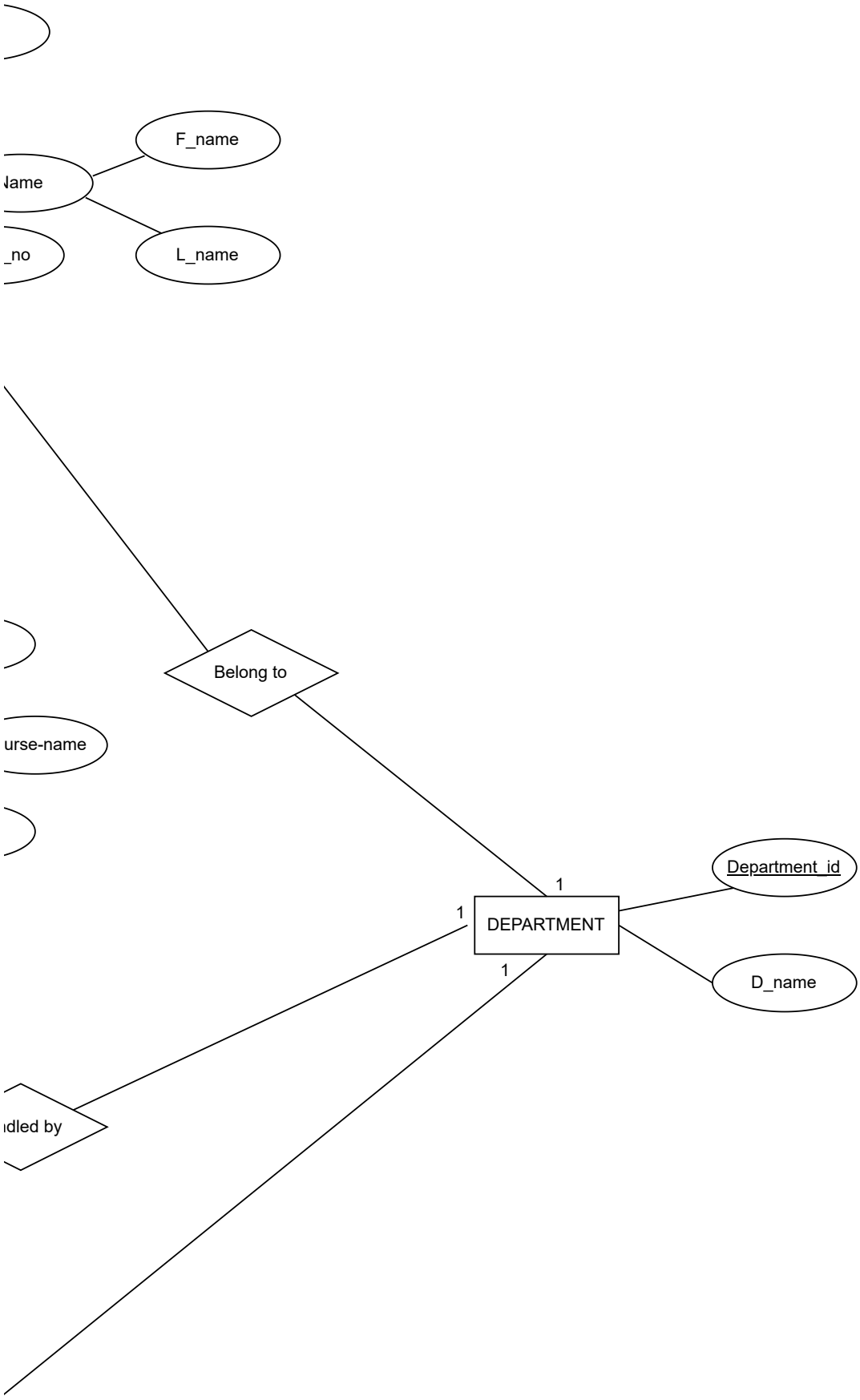

includes
Airport code
city
name
state
leg-No
N
Airport
1
1
departs/arrives
N
Flight leg
1
Arrival time
landing
Leg instance
1
eparture time
N
Airplane Type
Number of
available seats
1
1
occurrence
1
1
Date
share
assigned
belongs
airplane_id
1
N
Airplane
1
tal number of
seats.

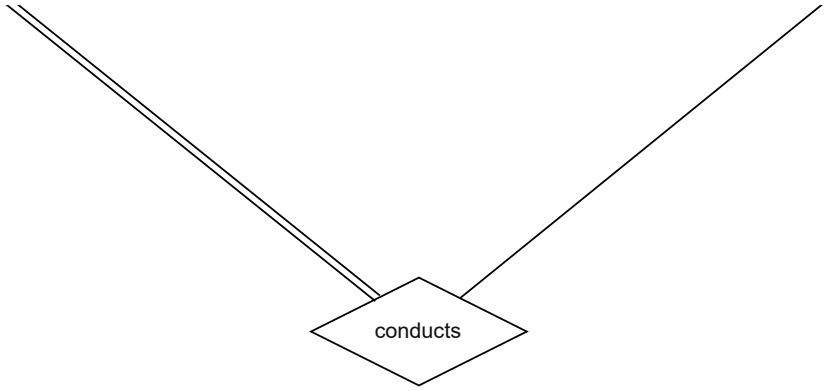

uled_dep_time
_arr_time
pe_name
company
x_seats

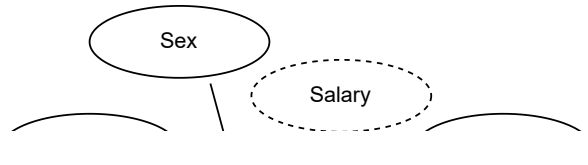
College Management System

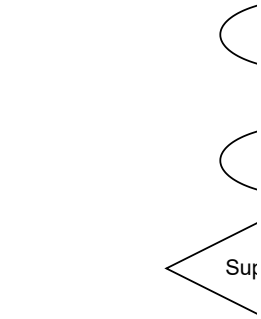

F_id
Salary
Name
1
FACULTY
Mobile_no
1
1
Department
handles
Subject_id
N
M
SUBJECT
Subject_name
Exam_code
Date
EXA
N
Time
Room


Age
DOB
S_id
STUDENT
Teaches
N
N
1
N
M
1
Phone_
Enroll
take
Take
Course_id
N
COURSE
M
Duration
Live
1
HOSTEL
Hostel_id
N
AMS
Hostel_name
No_of_seats
Address
Pin_code
City
State
han

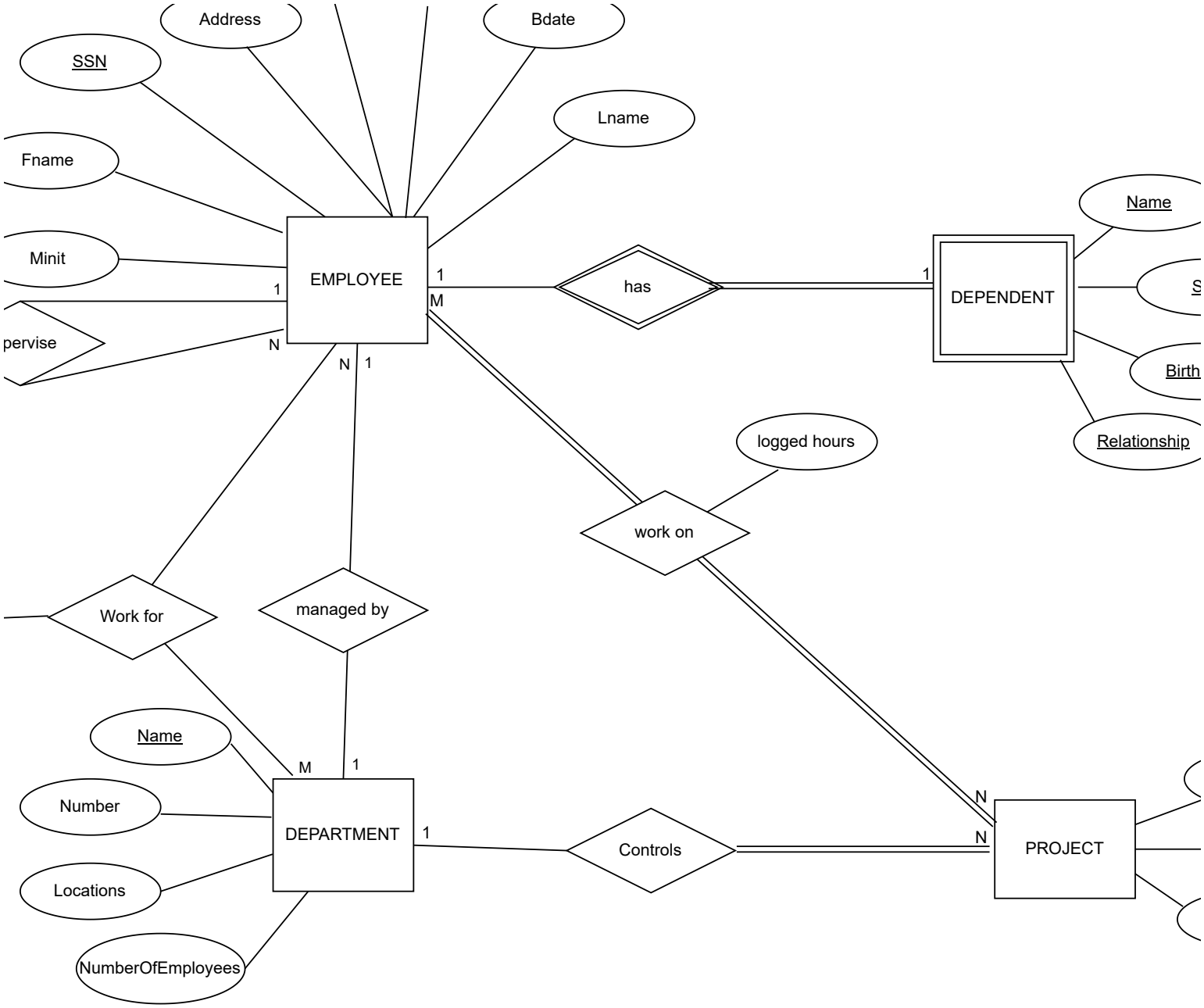

F_name
L_name
Belong to
Department_id
DEPARTMENT
D_name
1
1
1


conducts

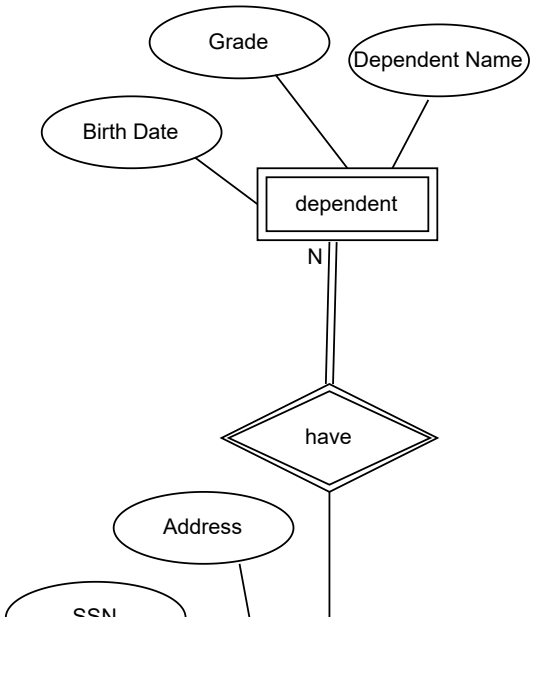

Sex
Salary



Text


Address
Bdate
SSN
Lname
Fname
Minit
EMPLOYEE
1
M
has
1
DEPENDENT
Name
Birth
Relationship
pervise
1
N
N
1
logged hours
work on
Work for
managed by
Name
M
1
Number
DEPARTMENT
1
Controls
N
N
PROJECT
Locations
NumberOfEmployees


Sex
date
Name
Number
Location


Grade
Dependent Name
Birth Date
dependent
N
have
Address
SSN
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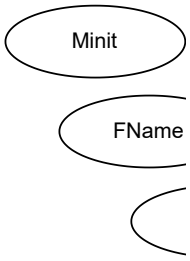

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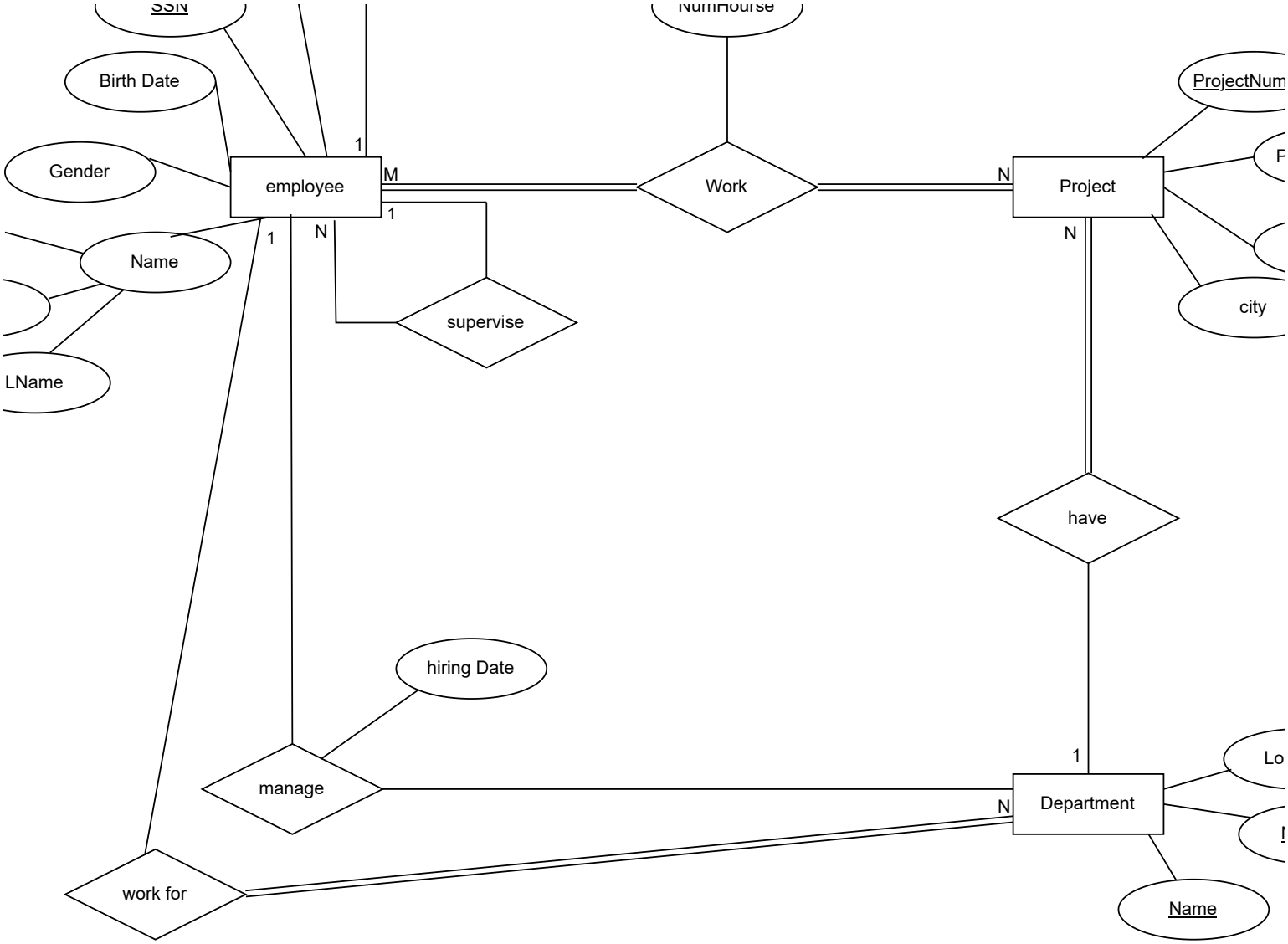

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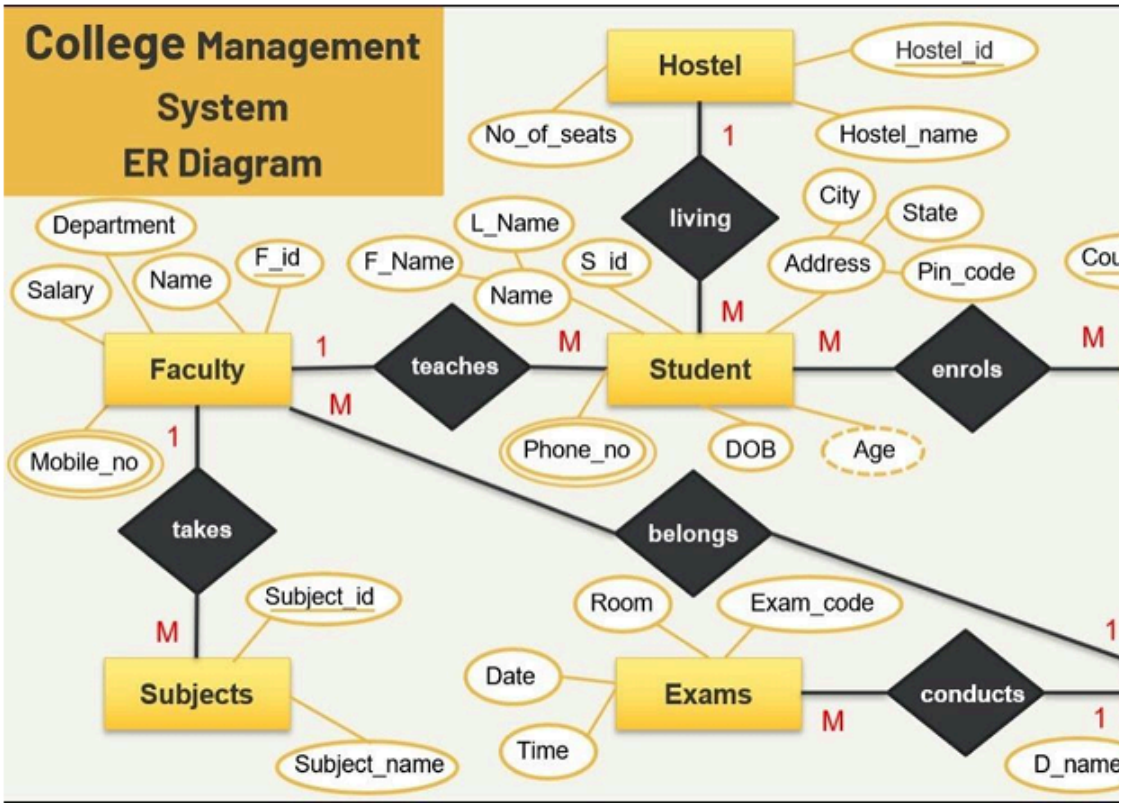
ProjectName
location
ɔcation
Number



Hostel

Hostel_id	Hostel_Name	No_Of_Seats

Living

Student

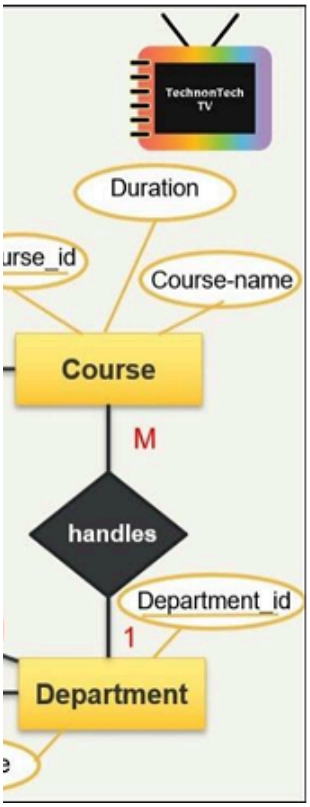
S_id	L_Name	F_Name	City	State

Student _Phone_no

S_id	Phone_no

teaches

Faculty

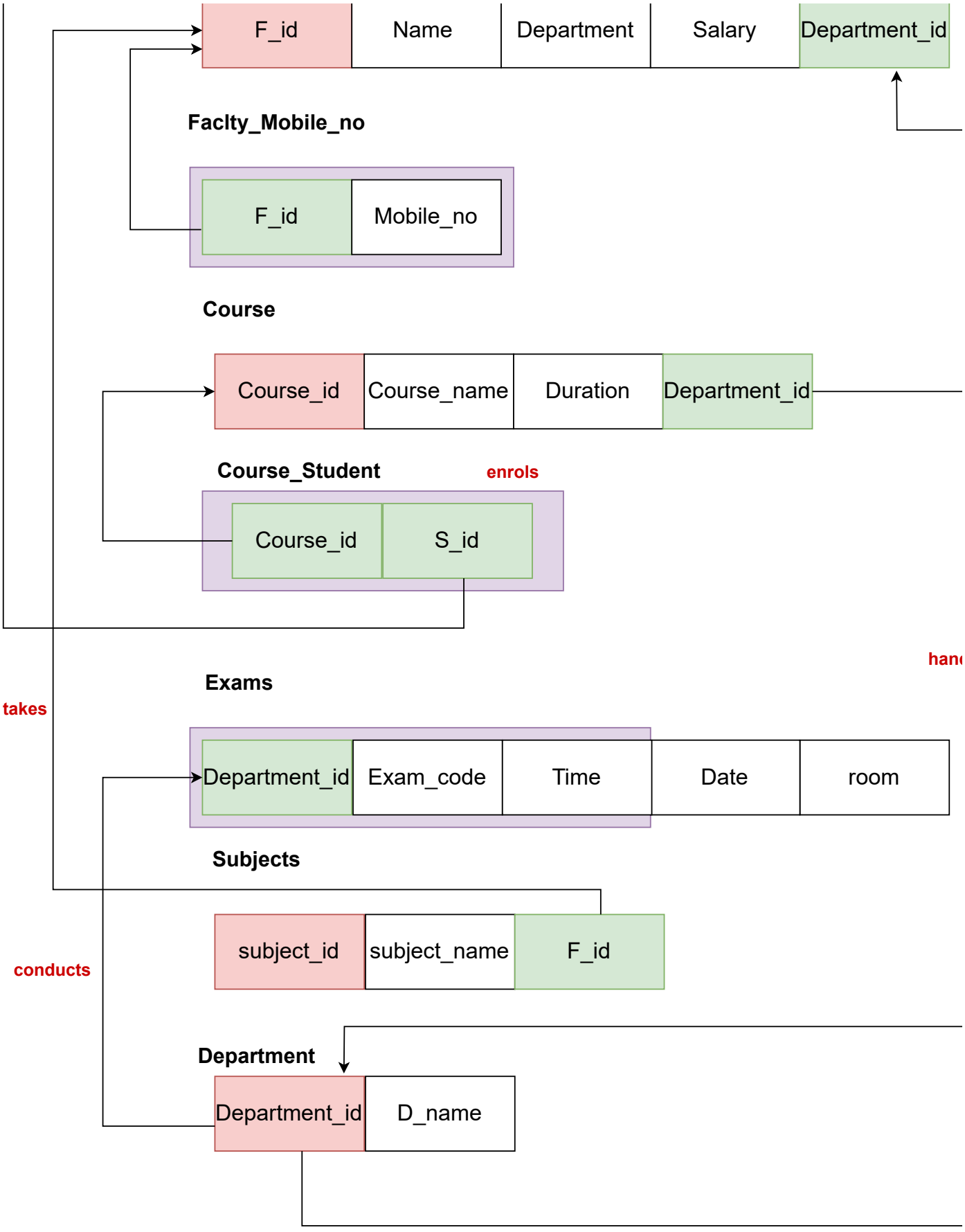


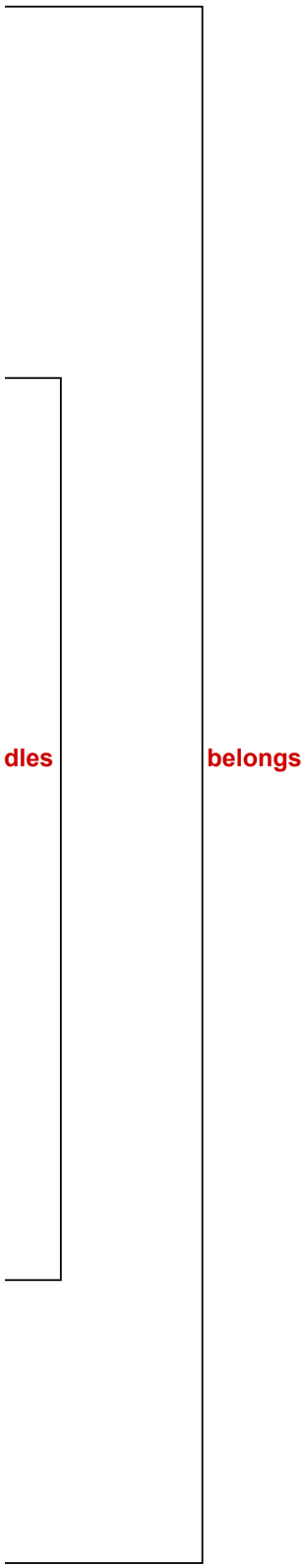
Primary Key

foreign key

Composite Primary Key

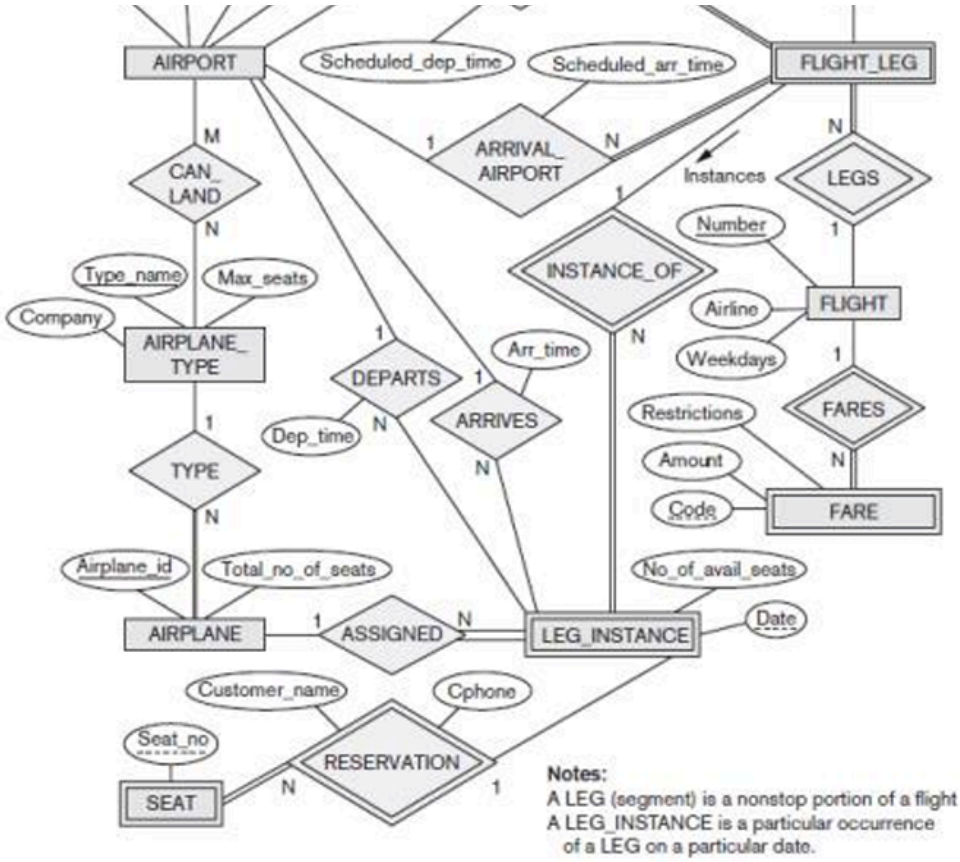
Pin_Code	DOB	Hostel_id	F_id


F_id
Name
Department
Salary
Department_id
Faclty_Mobile_no
F_id
Mobile_no
Course
Course_id
Course_name
Duration
Department_id
Course_Student
enrols
Course_id
S_id
hand
Exams
takes
Department_id
Exam_code
Time
Date
room
Subjects
subject_id
subject_name
F_id
conducts
Department
Department_id
D_name


dles
belongs


Airport_code
City
State
Name
DEPARTURE_
AIRPORT
1
N
Leg_no


Type



Partial Key attribute

Primary Key attribute

foreign key attribute

composite ke attribute

Relationsh

Entity

Airport

Airport_code	city	state	Name

departure_Airport

Arrival_Airport

Flight_Leg

leg_no	Airport_code	number	Secheduled_arr_time	Secheduled_dep_time

Airplane_Type

type_name	Max_seat	Company

Legs

AirplaneType_Airport

Airport_code	type_name

Departs

Arrives

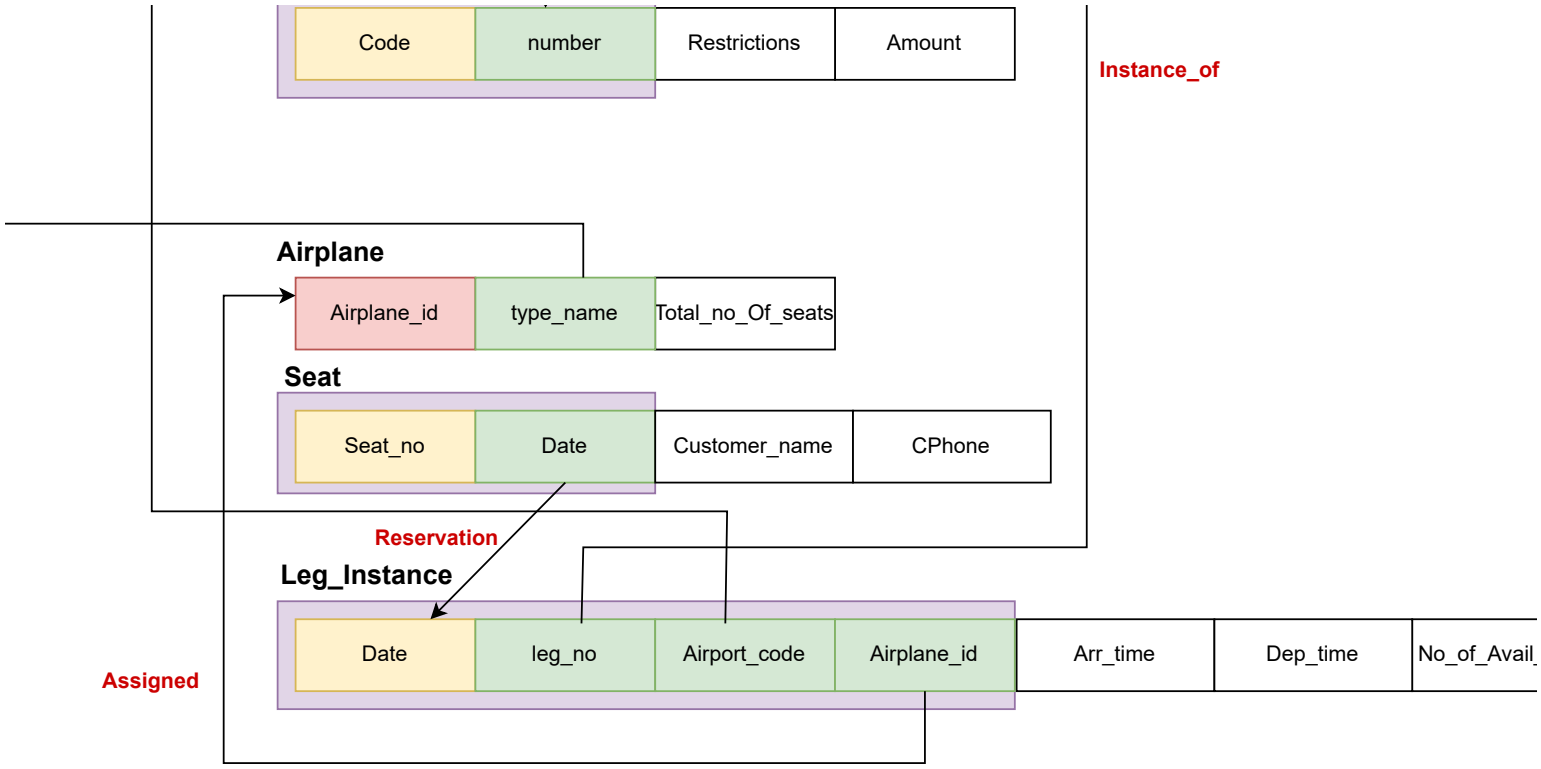
Flight

number	Airline	weekdays

Fares

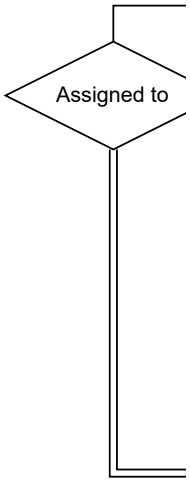
Fare

ip


Code
number
Restrictions
Amount
Instance_of
Airplane
Airplane_id
type_name
Total_no_Of_seats
Seat
Seat_no
Date
Customer_name
CPhone
Reservation
Leg_Instance
Date
leg_no
Airport_code
Airplane_id
Arr_time
Dep_time
No_of_Avail
Assigned


_Seate

Requirements


Assigned to

System 1: Hotel Management System

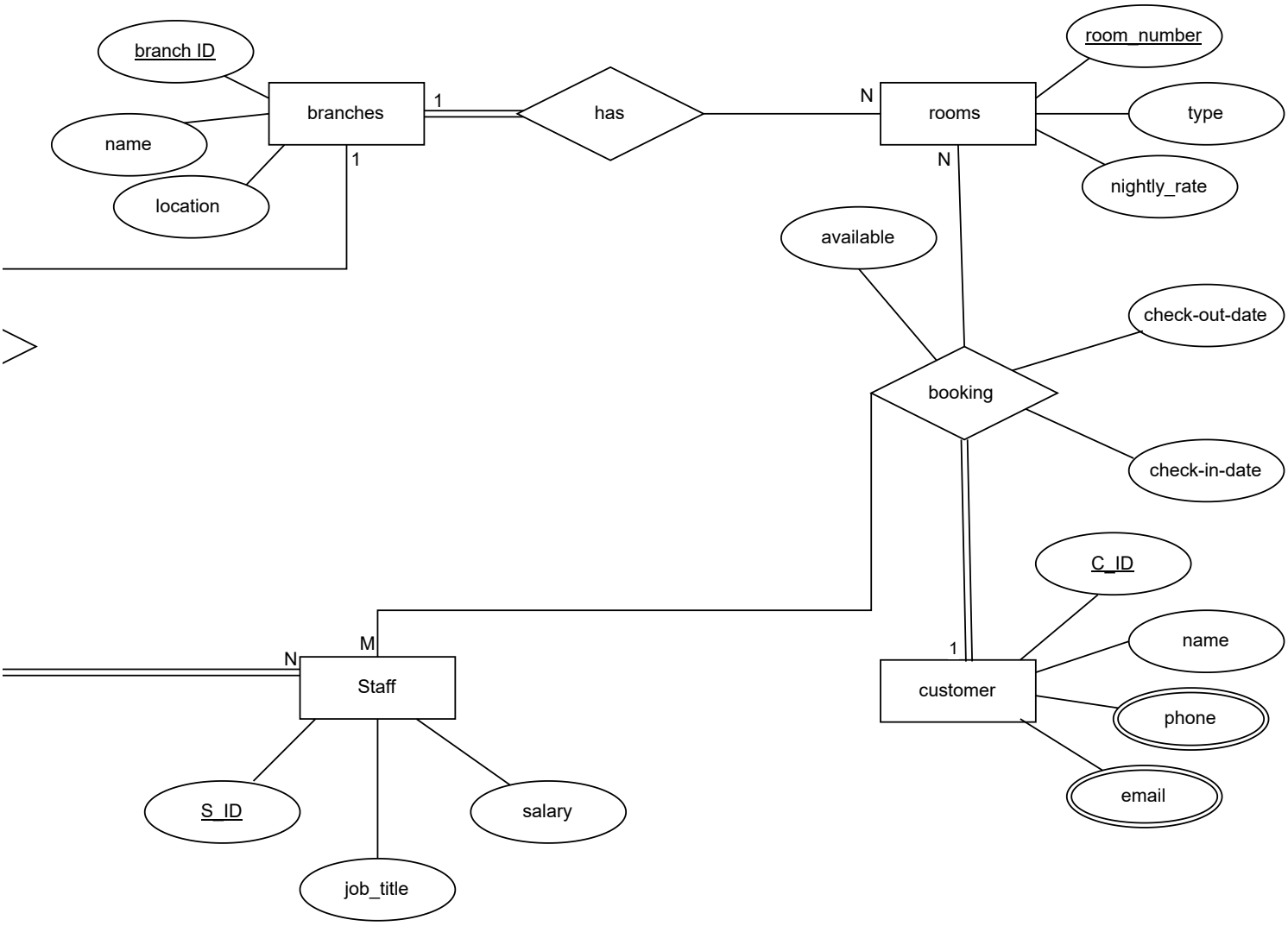
Scenario:

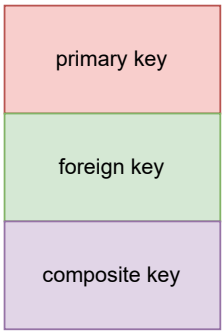
A hotel chain wants to develop a database system to manage its bookings, rooms, customers, and staff across multiple branches.

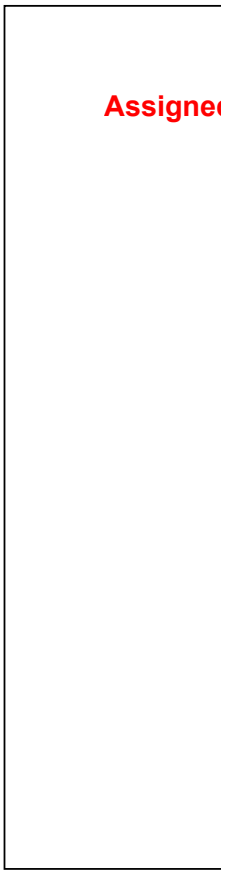
Requirements:

1. The hotel chain operates in multiple **branches**, each identified by a branch ID, name, and location.
2. Each **branch** has multiple **rooms**, each identified by a room number, type, and nightly rate.
3. A **customer** can book one or more rooms, and each **booking** includes a check-in and check-out date.
4. A **booking** is linked to a customer and can include multiple rooms.
5. Each **customer** has a unique ID, name, phone, and email.
6. **Staff** are assigned to a specific branch and are identified by ID, name, job title, and salary.
7. A staff member can check in or check out customers (many-to-many with role attribute like "check-in", "check-out").
8. The system should track the availability of each room based on bookings.

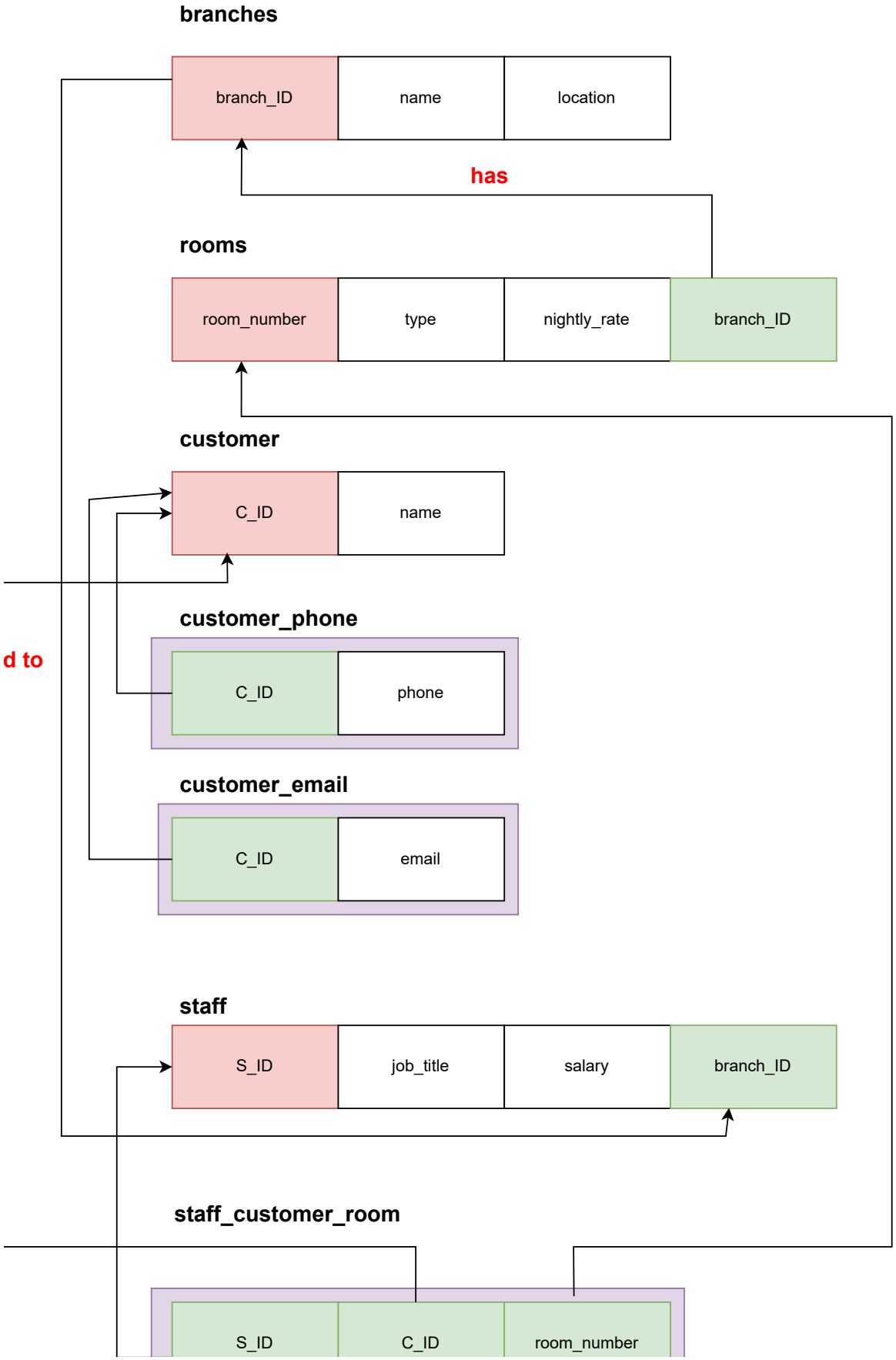
ERD



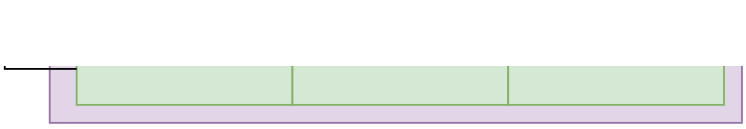

primary key
foreign key
composite key


Assigne

Mapping


branches
branch_ID
name
location
has
rooms
room_number
type
nightly_rate
branch_ID
customer
C_ID
name
d to
customer_phone
C_ID
phone
customer_email
C_ID
email
staff
S_ID
job_title
salary
branch_ID
staff_customer_room
S_ID
C_ID
room_number

1



Requirements

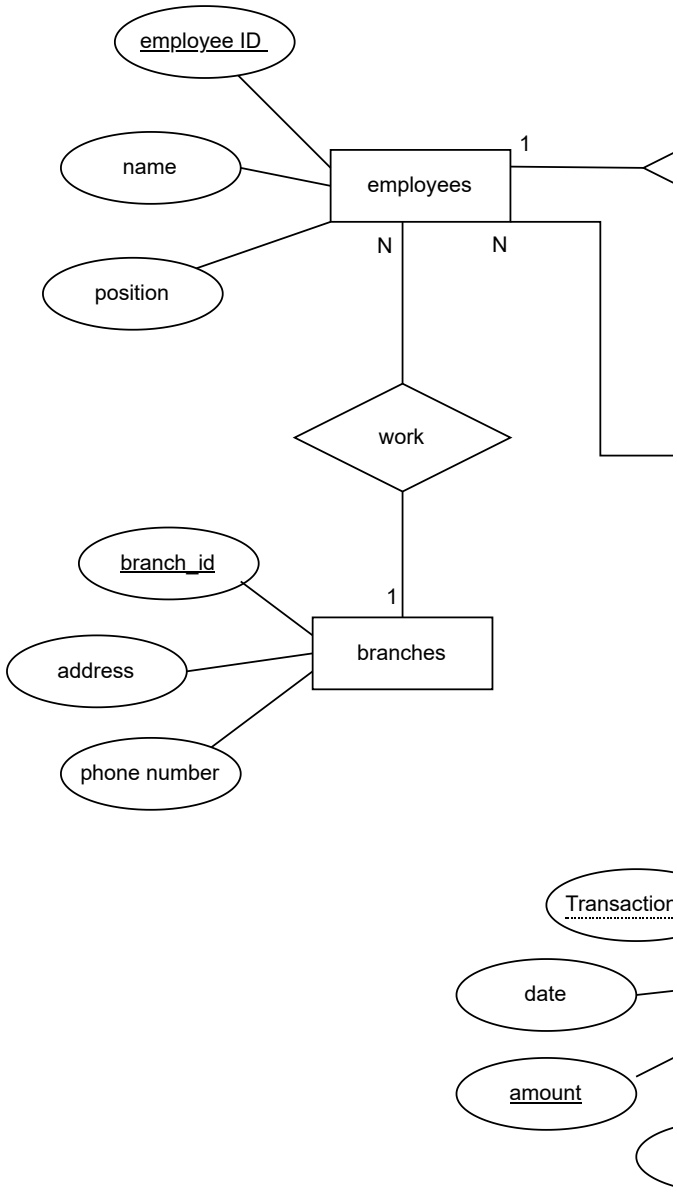
System 2: Banking System

📘 **Scenario:**

A bank needs a system to manage customer accounts, employees, loans, and transactions.

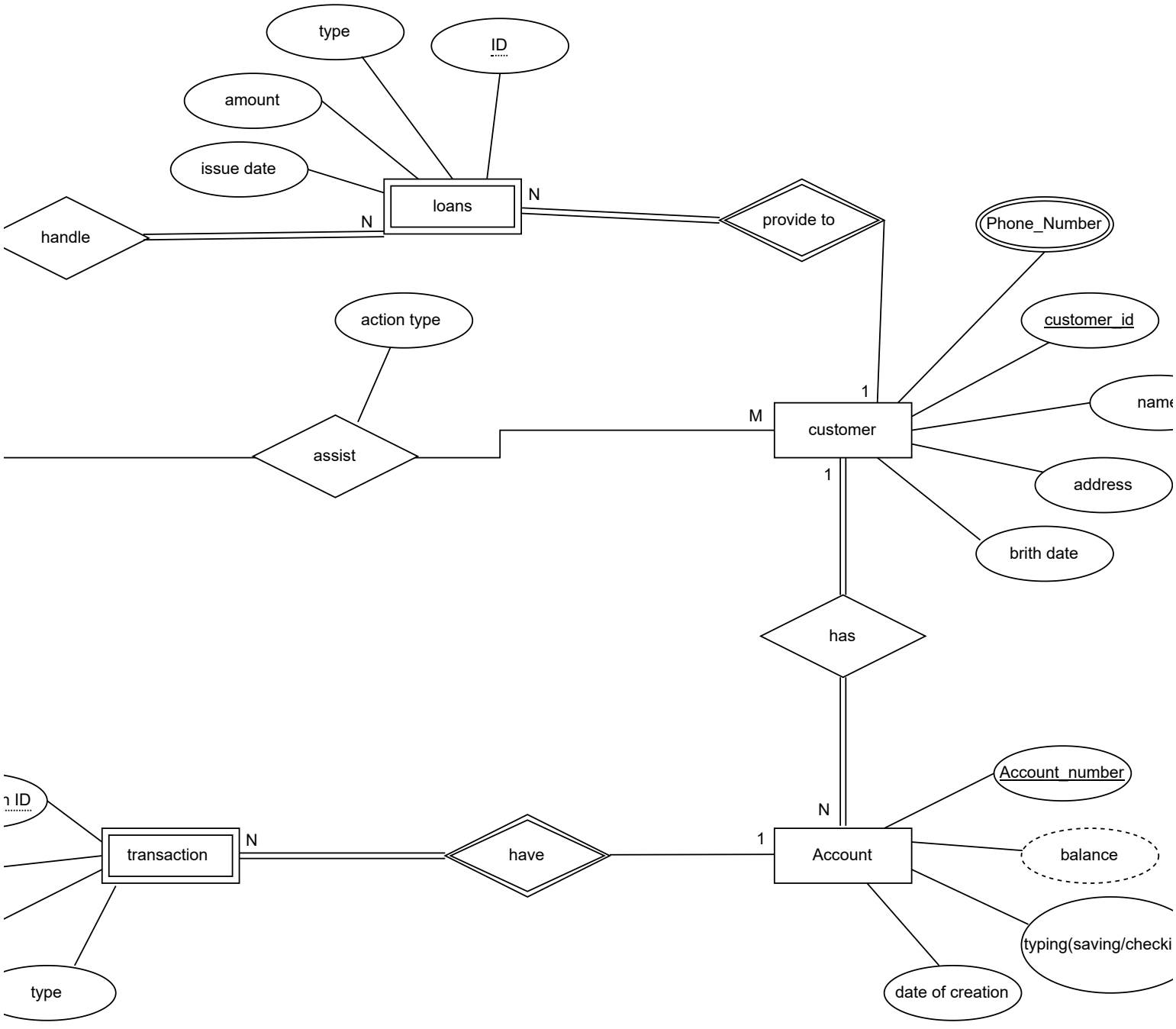
📜 **Requirements:**

1. The bank operates multiple **branches**, each with a branch ID, address, and phone number.
2. **Customers** can have multiple **accounts**, but each account belongs to only one customer.
3. Customers are identified by a customer ID, name, address, phone number, and date of birth.
4. Each **account** has an account number, balance, type (savings/checking), and date of creation.

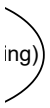

employee ID
name
position
employees
1
N
N
work
branch_id
1
address
branches
phone number
Transactior
date
amount

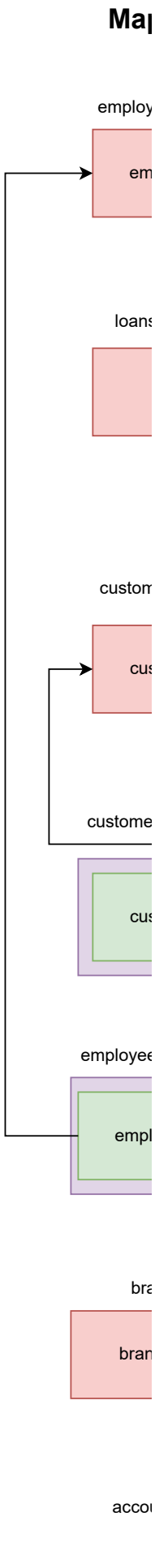
5. Each **account** can have multiple **transactions** (withdrawals, deposits, transfers), each with a unique transaction ID, date, amount, and type.
6. **Loans** are provided to customers, with each loan having an ID, type, amount, and issue date.
7. A customer can have multiple loans, but each loan is handled by a specific **employee**.
8. Employees are identified by employee ID, name, position, and branch ID (they work in one branch).
9. Employees may assist customers in opening accounts or processing loans (relationship attribute: action_type).

ERD




e


ing)


employ
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loans
custom
cus
custome
cus
employee
empl
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bran
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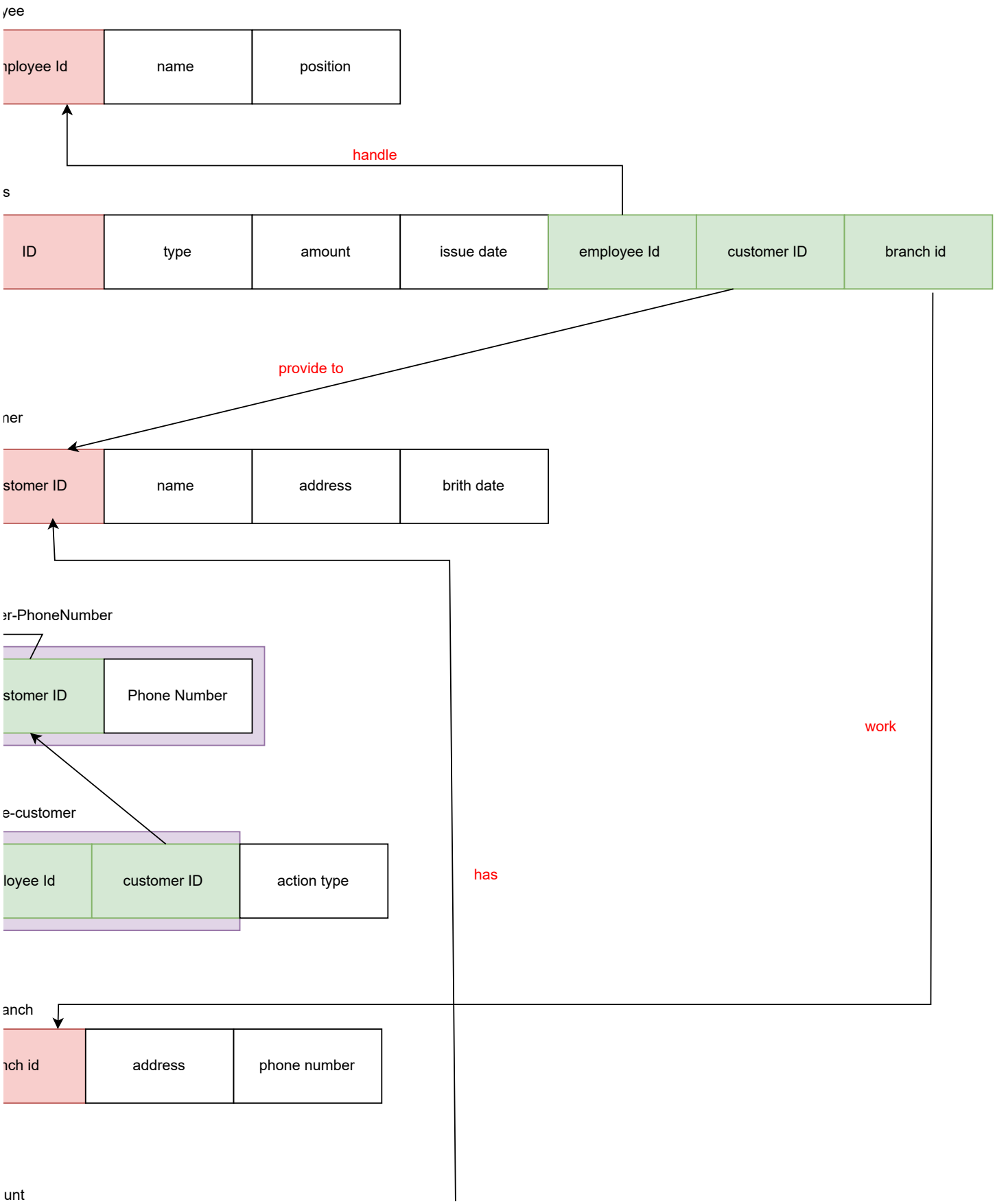
pping


yee
nployee Id
name
position
handle
s
ID
type
amount
issue date
employee Id
customer ID
branch id
provide to
ner
stomer ID
name
address
brith date
er-PhoneNumber
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Phone Number
work
e-customer
loyee Id
customer ID
action type
has
anch
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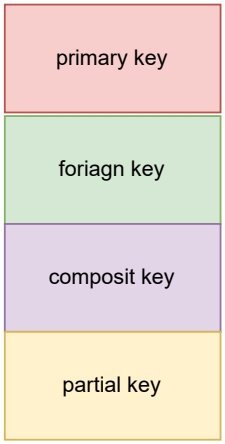
address
phone number
unt


primary key
foriagn key
composit key
partial key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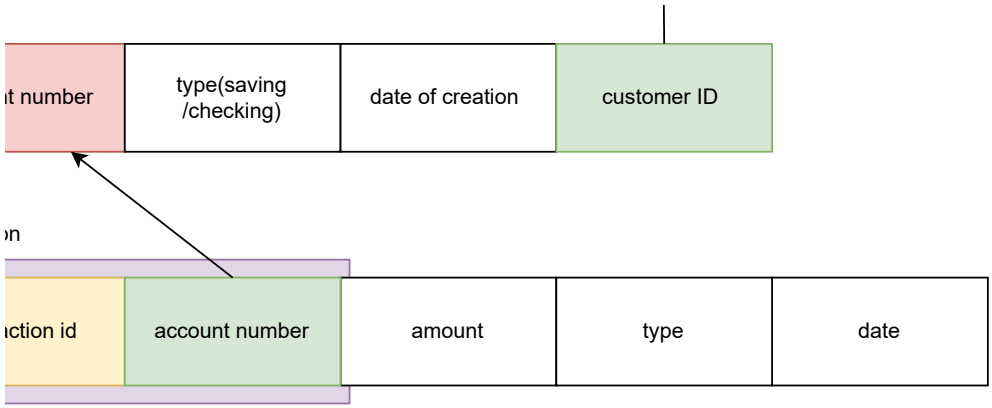
t number
type(saving /checking)
date of creation
customer ID
on
action id
account number
amount
type
date