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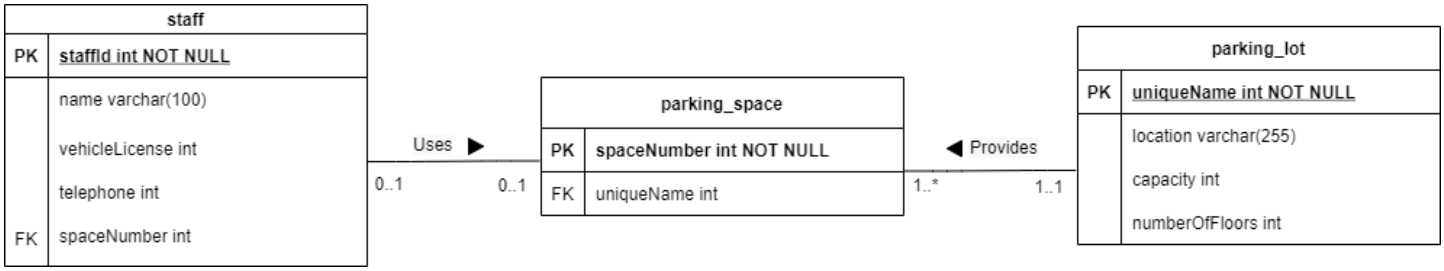
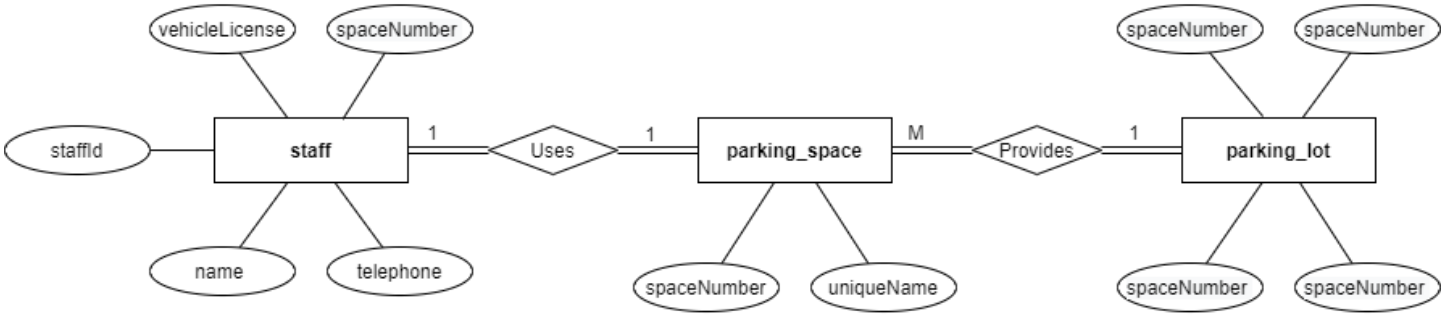
Jurusan	: Sistem Informasi
Mata Kuliah	: Database Design and Management (Teori)

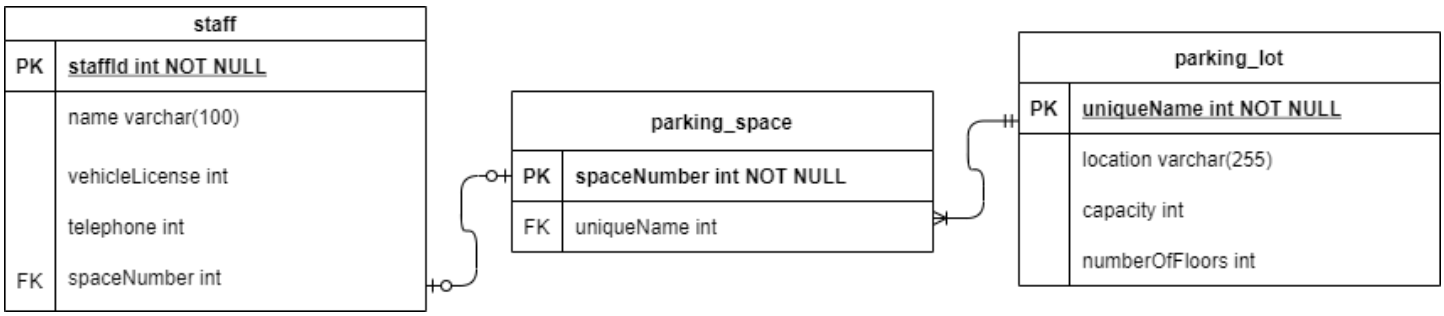
1. Create an ER model for each of the following descriptions:
   a. A large organization has several parking lots, which are used by staff.
   b. Each parking lot has a unique name, location, capacity, and number of floors (where appropriate).
   c. Each parking lot has parking spaces, which are uniquely identified using a space number.
   d. Members of staff can request the sole use of a single parking space. Each member of staff has a unique number, name, telephone extension number, and vehicle license number.
   e. Represent all the ER models described in parts (a), (b), (c), and (d) as a single ER model. Provide any ssumptions necessary to support your model.
      - Notasi UML



      - Notasi Chen



      - Notasi Crow's Feet



2. Read the following case study, which describes the data requirements for a DVD rental company. The DVD rental company has several branches throughout the United States. The data held on each branch is the branch address made up of street, city, state, and zip code, and the telephone number. Each branch is given a branch number, which is unique throughout the company.

   Each branch is allocated staff, which includes a Manager. The Manager is responsible for the day-to-day running of a given branch. The data held on a member of staff is his or her name, position, and salary. Each member of staff is given a staff number, which is unique throughout the company.

   Each branch has a stock of DVDs. The data held on a DVD is the catalog number, DVD number, title, category, daily rental, cost, status, and the names of the main actors and the director. The catalog number uniquely identifies each DVD. However, in most cases, there are several copies of each DVD at a branch, and the individual copies are identified using the DVD number. A DVD is given a category such as Action, Adult, Children, Drama, Horror, or Sci-Fi. The status indicates whether a specific copy of a DVD is available for rent.

   Before borrowing a DVD from the company, a customer must first **register as a member of a local branch**. The data held on a member is the first and last name, address, and the date that the member registered at a branch. Each member is given a member number, which is unique throughout all branches of the company. Once registered, **a member is free to rent DVDs, up to a maximum of ten at any one time**. The data held on each DVD rented is the rental number, the full name and number of the member, the DVD number, title, and daily rental, and the dates the DVD is rented out and returned. The DVD number is unique throughout the company.

   a. Identify the main entity types of the DVD rental company.
   b. Identify the main relationship types between the entity types described in part (a) and represent each relationship as an ER diagram.
   c. Determine the multiplicity constraints for each relationships described in part (b). Represent the multiplicity for each relationship in the ER diagrams created in part (b).
   d. Identify attributes and associate them with entity or relationship types. Represent each attribute in the ER diagrams created in (c).
   e. Determine candidate and primary key attributes for each (strong) entity type.
   f. Using your answers to parts (a) to (e), attempt to represent the data requirements of the DVD rental company as a single ER diagram. State any assumptions necessary to support your design.

branch	
PK	branchNo
	street
	city
	state
	zipcode
	phone
FK	staffNo

staff	
PK	staffNo
	name
	position
	salary
FK	branchNo

dvd	
PK	catalogNo
	title
	rental
	cost
	actors
	director
FK	categoryNo

dvdCopy	
PK	dvdNo
FK	catalogNo
FK	branchNo
FK	rentalNo
	status

dvdCategory	
PK	categoryNo
	categoryName

customer	
PK	memberNo
	fname
	lname
	address

registration	
PK	registrationNo
FK	branchNo
FK	memberNo
	dateRegister

rental	
PK	rentalNo
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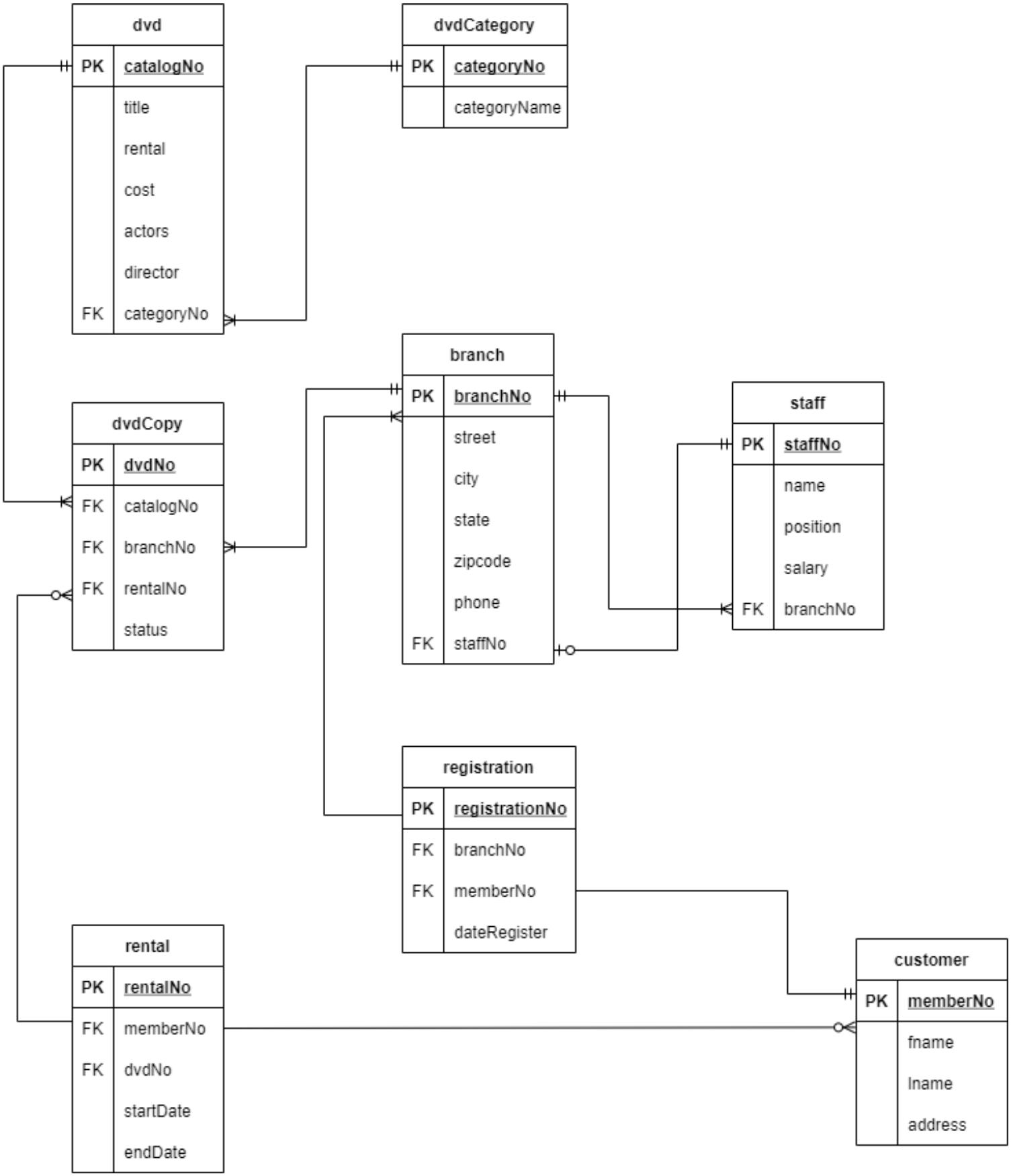
FK	dvdNo
	startDate
	endDate

Notasi Crow’s Feet