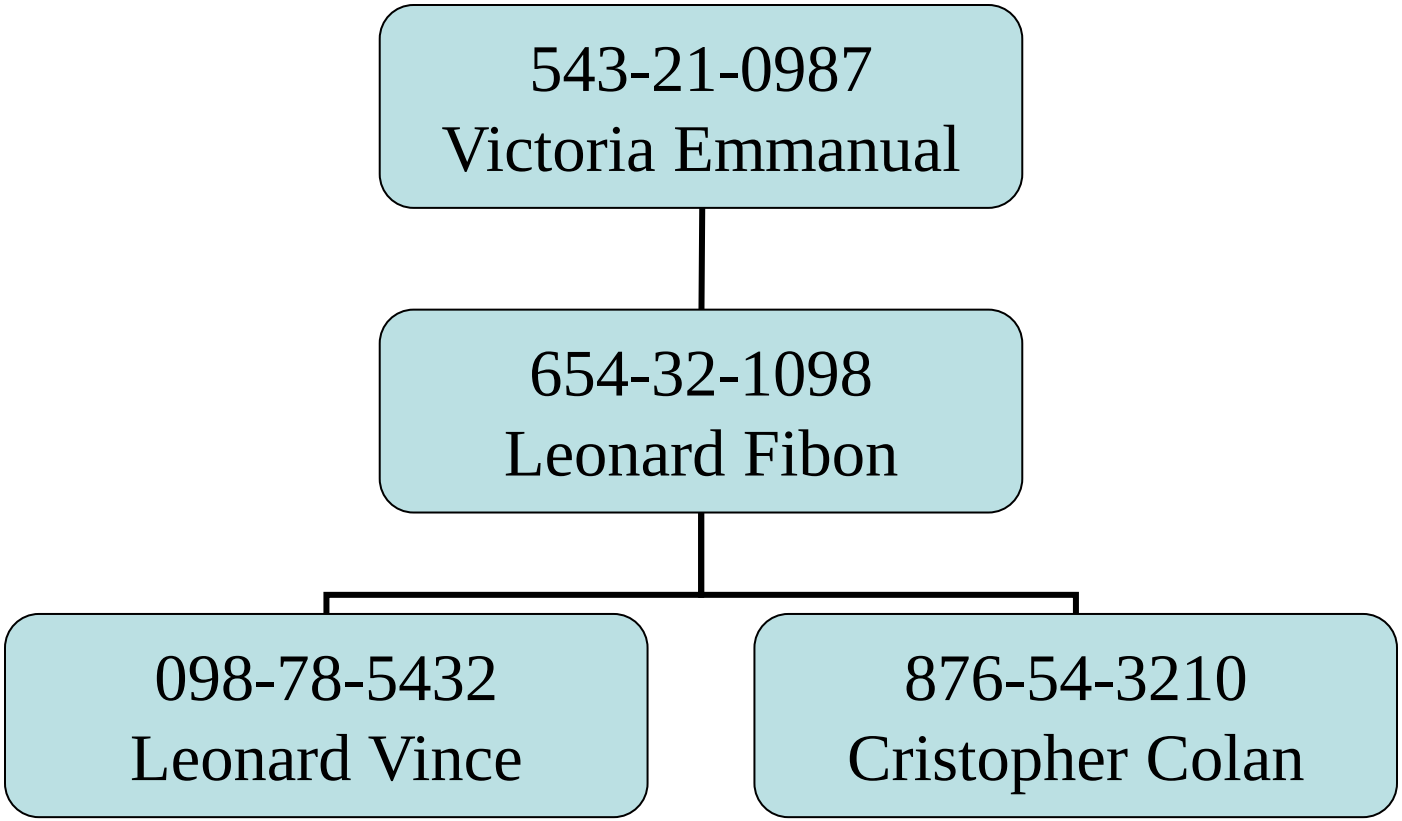
Chapter 3

Self-Referential Relationships

Hierarchical Relationships

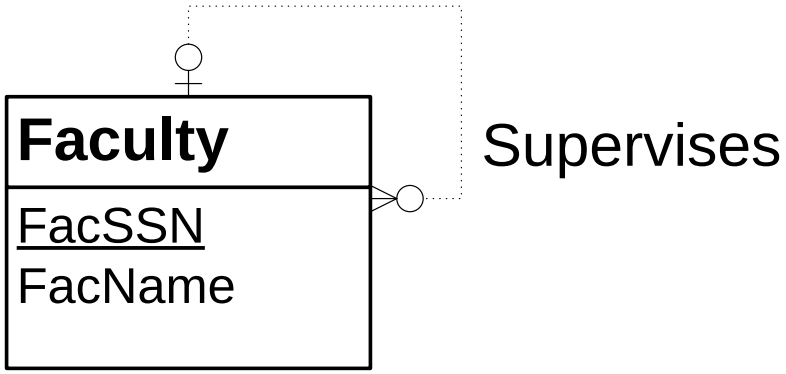
- Faculty have supervisors
- How to represent this?

Hierarchical Organization

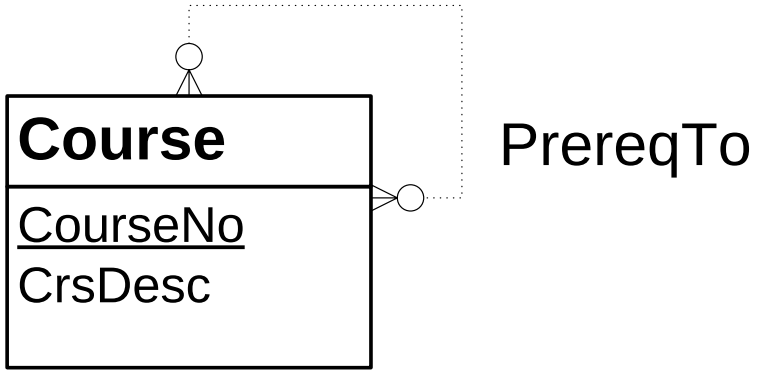


ERD Notation for Self-Referencing Relationships

a) manager-subordinate



b) course prerequisites



FacSupervisor Column

FacSSN	FacFirstName	FacLastName	FacRank	FacSalary	FacSupervisor
098-76-5432	LEONARD	VINCE	ASST	$35,000	654-32-1098
543-21-0987	VICTORIA	EMMANUEL	PROF	$120,000	
654-32-1098	LEONARD	FIBON	ASSC	$70,000	543-21-0987
765-43-2109	NICKI	MACON	PROF	$65,000	
876-54-3210	CRISTOPHER	COLAN	ASST	$40,000	654-32-1098
987-65-4321	JULIA	MILLS	ASSC	$75,000	765-43-2109

- FacSupervisor refers to another record in the same table
- Need to ensure that FacSupervisor contains a valid FacSSN
  - Foreign key can reference primary key of same table

Solution: Foreign Key

- A Foreign key can reference its own table's primary key
- Represents relationships among members of the same set
- Not common but important in specialized situations

Self-Join

- Join a table to itself
- Usually involves a self-referencing relationship
- Requires using a table alias

Self-Join Example

Example 18: List faculty members who have a higher salary than their supervisor. Show the social security number, name, and salary of the faculty and supervisor.

```
SELECT Subr.FacSSN, Subr.FacLastName,
       Subr.FacSalary, Supr.FacSSN,
       Supr.FacLastName, Supr.FacSalary
 FROM Faculty AS Subr INNER JOIN
        Faculty AS Supr
        ON Subr.FacSupervisor = Supr.FacSSN
 WHERE Subr.FacSalary > Supr.FacSalary
```

Summary

- Relational model is commercially dominant
- Learn primary keys, data types, and foreign keys
- Visualize relationships