

Module 5

Mapping E-R Diagrams to Relational Model

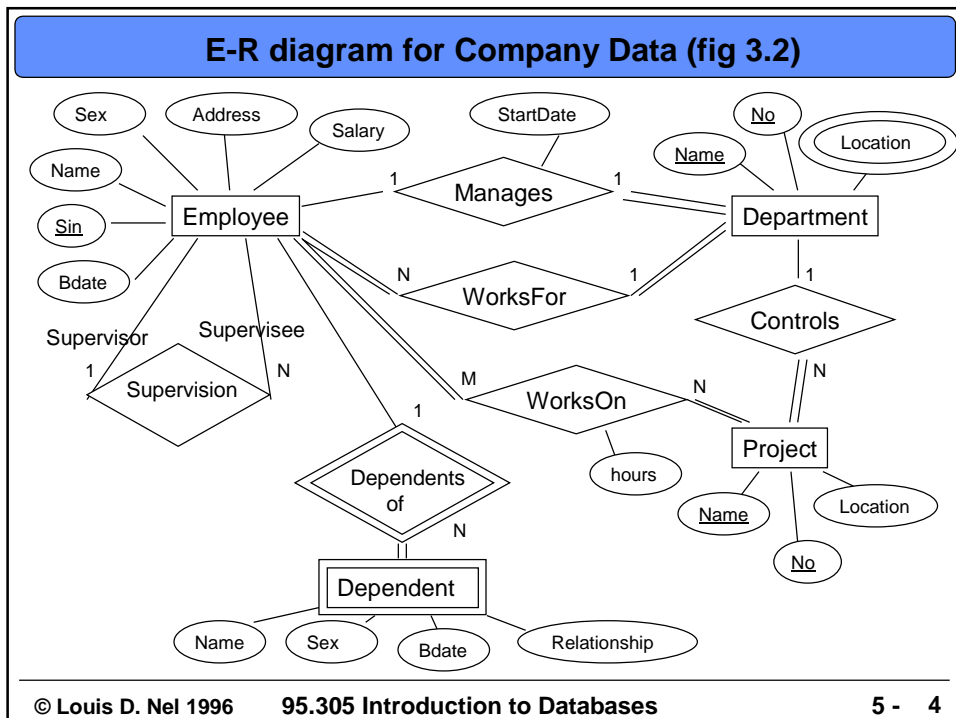
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Objectives

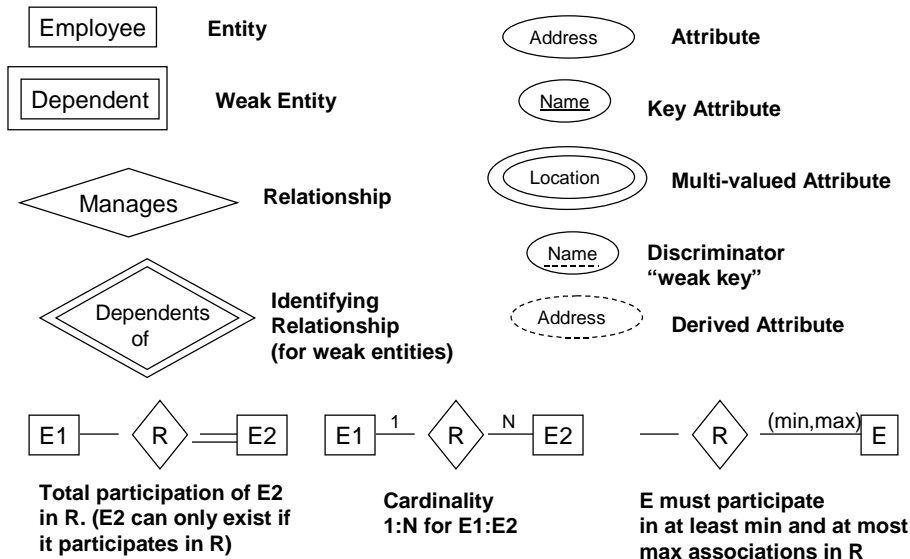
- Learn basic approach to mapping E-R diagram to relational model
- Reference:
Elmasri & Navathe, Chapter 6

Topics

- Mapping E-R Diagram to relational Model



Entity-Relationship Notation



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Company Relational Database Schema

EMPLOYEE

fname	minit	lname	<u>ssn</u>	bdate	address	sex	salary	superssn	dno
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DEPARTMENT

dname	<u>dnumber</u>	mgrssn	mgrstartdate
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DEPT_LOCATIONS

<u>dnumber</u>	<u>dlocation</u>
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PROJECT

pname	<u>pnumber</u>	plocation	dnum
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WORKS_ON

<u>essn</u>	<u>pno</u>	hours
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DEPENDENT

<u>essn</u>	<u>dependent_name</u>	sex	bdate	relationship
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Note:

Attributes referring to the same thing can have different name
(pnumber vs. pno)

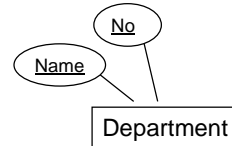
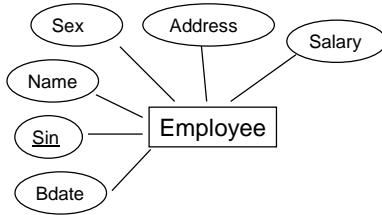
Attributes referring to different things can have the same name
(name of employee or name of department)

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Step 1 -Create Entity Relations from Entities

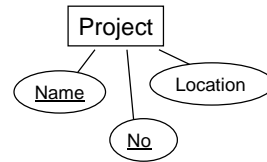


Step 1:

Create relation for each table using rectangular entities and their simple attributes -not composite attributes

Include only the simple component attributes from compound attributes

Select a key attribute to serve as the relation key



Entity -Relations

EMPLOYEE

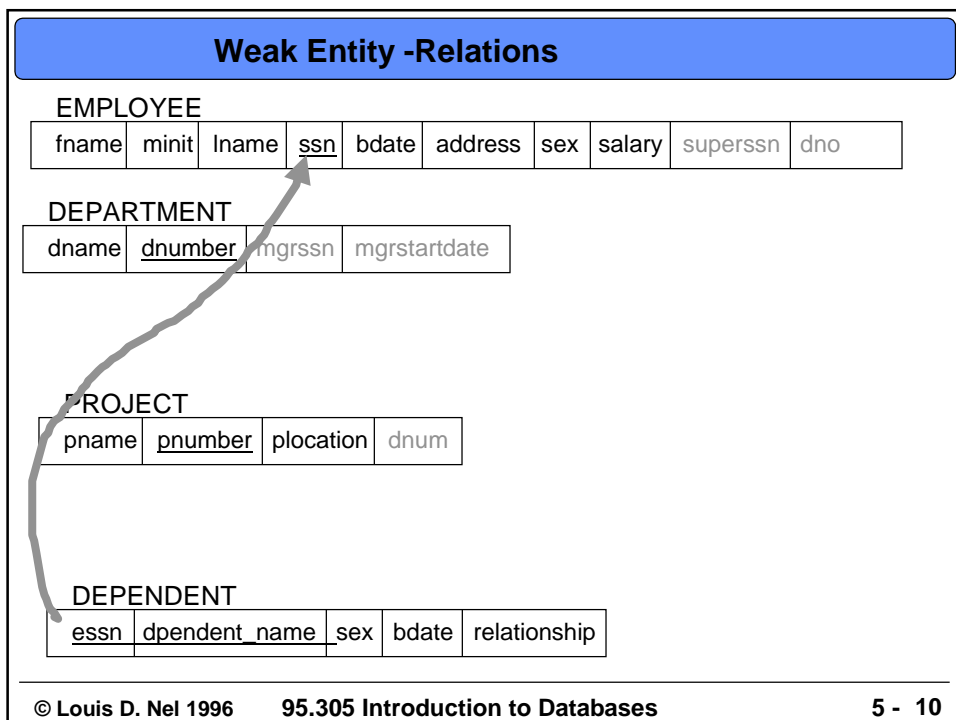
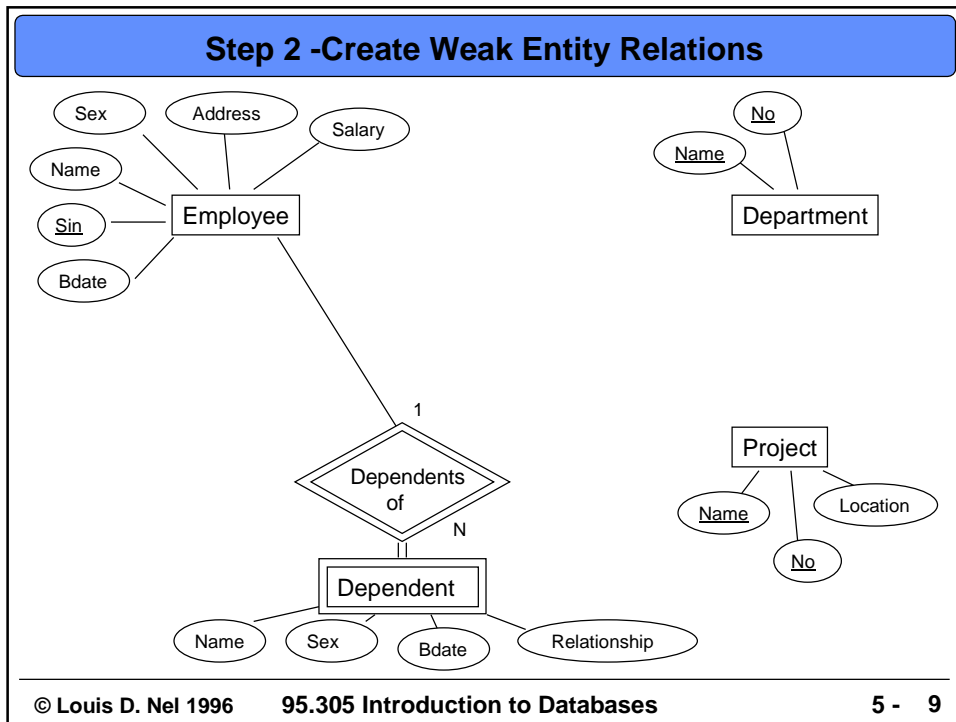
fname	minit	lname	<u>ssn</u>	bdate	address	sex	salary	superssn	dno
-------	-------	-------	------------	-------	---------	-----	--------	----------	-----

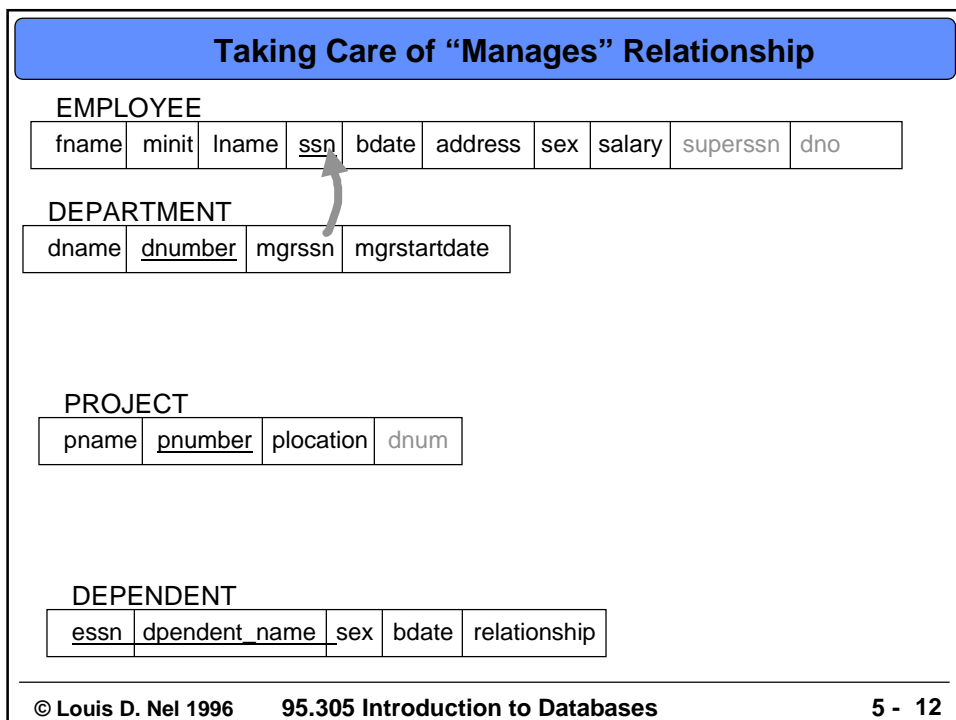
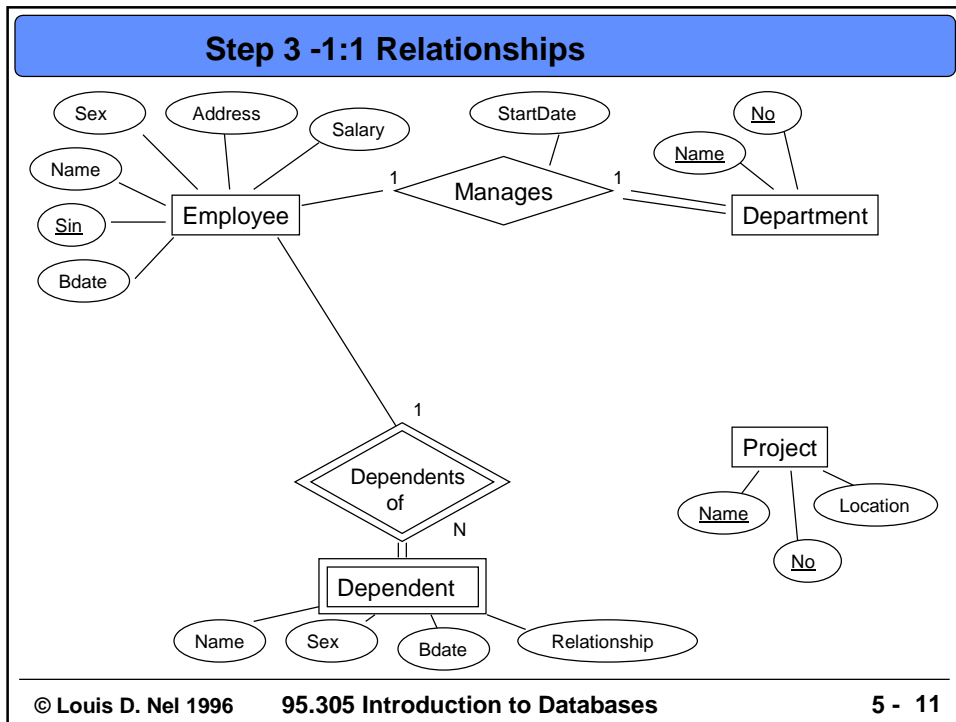
DEPARTMENT

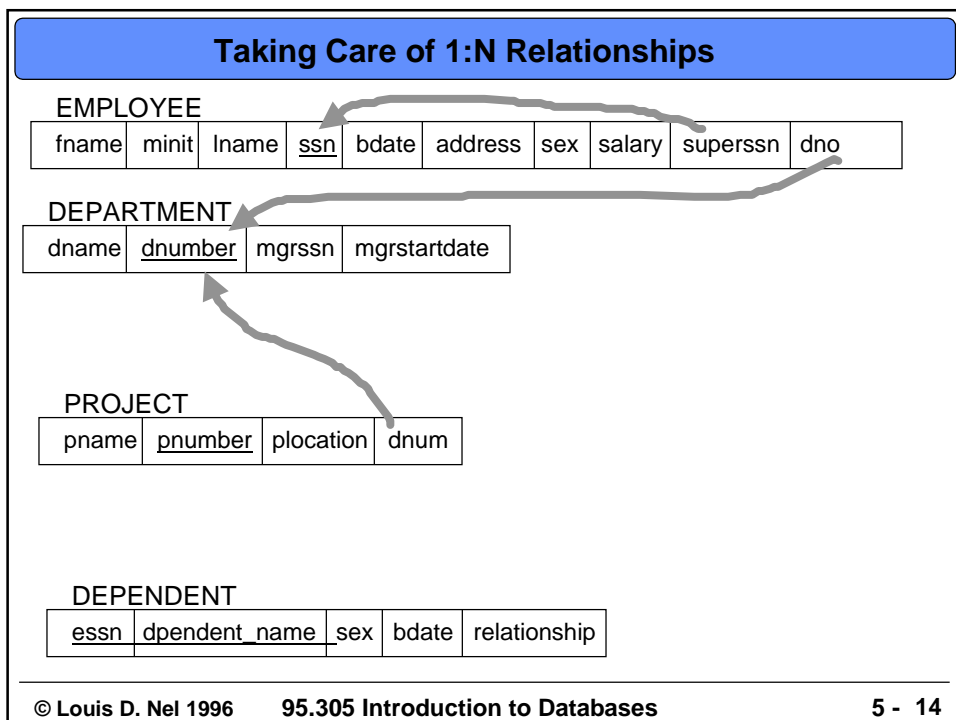
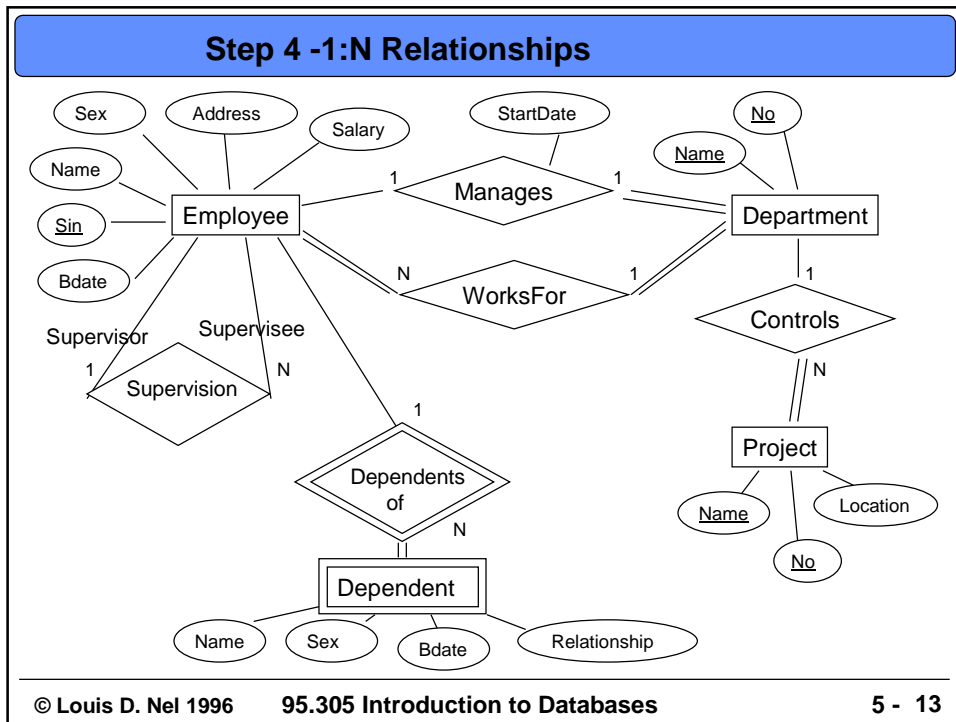
dname	<u>dnumber</u>	mgrssn	mgrstartdate
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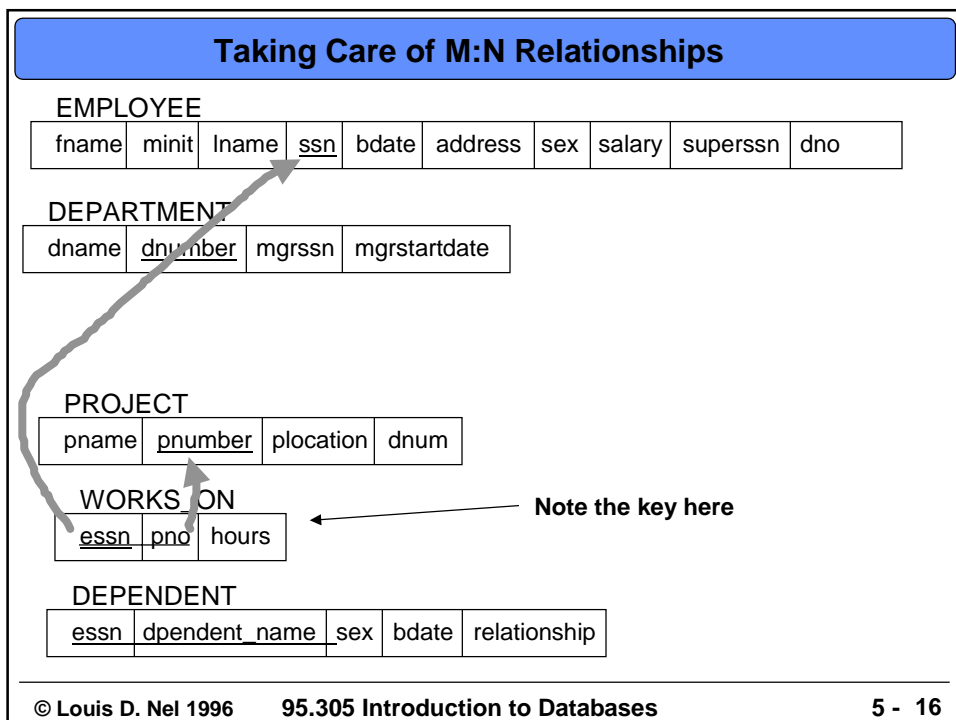
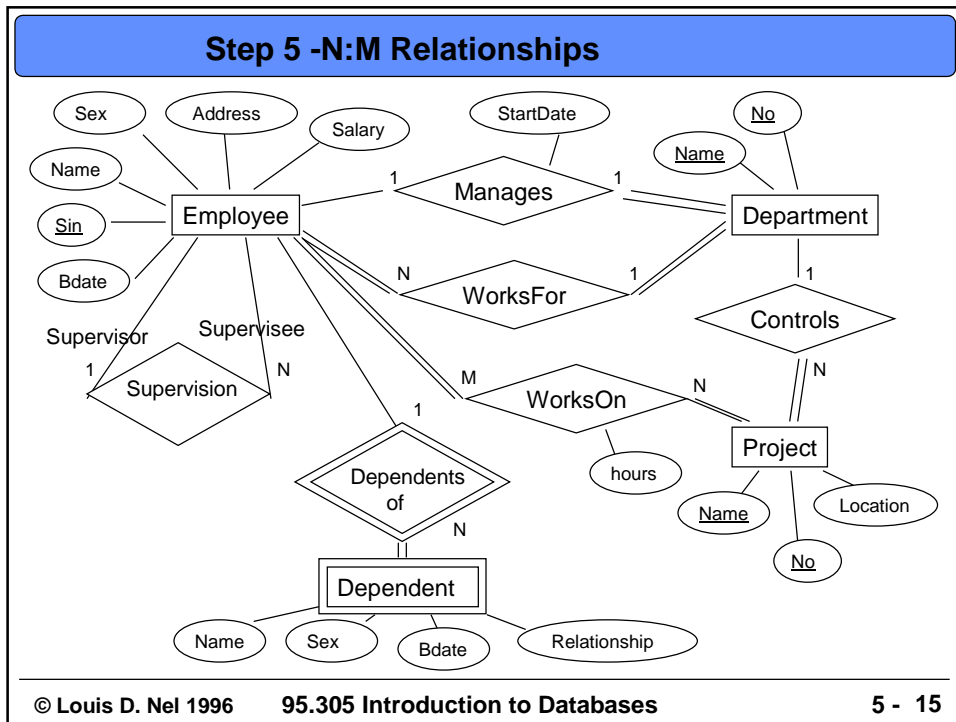
PROJECT

pname	<u>pnumber</u>	plocation	dnum
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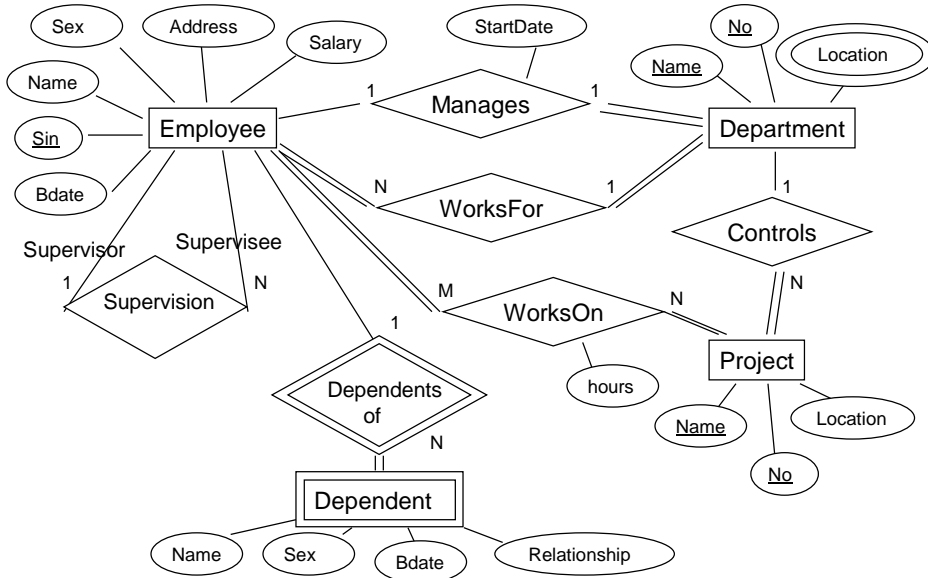








Step 6 - Multi-valued Attributes



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Taking Care of Multi-valued Attributes

EMPLOYEE

fname	minit	lname	<u>ssn</u>	bdate	address	sex	salary	superssn	dno
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DEPARTMENT

dname	<u>dnumber</u>	mgrssn	mgrstartdate
-------	----------------	--------	--------------

DEPT LOCATIONS

<u>dnumber</u>	<u>dlocation</u>
----------------	------------------

PROJECT

pname	<u>pnumber</u>	plocation	dnum
-------	----------------	-----------	------

WORKS_ON

<u>essn</u>	<u>pno</u>	hours
-------------	------------	-------

DEPENDENT

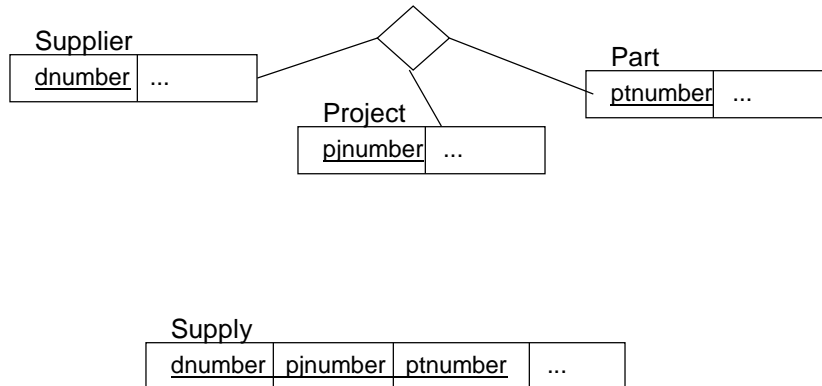
<u>essn</u>	<u>dependent_name</u>	sex	bdate	relationship
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Step 7 N-ary Relations



E-R diagram for Company Data (fig 3.2)

