The Company ER Schema*

Week 5

* Source: TextBook (Elmasri / Navathe: Fundamentals of Database Systems)

Objectives

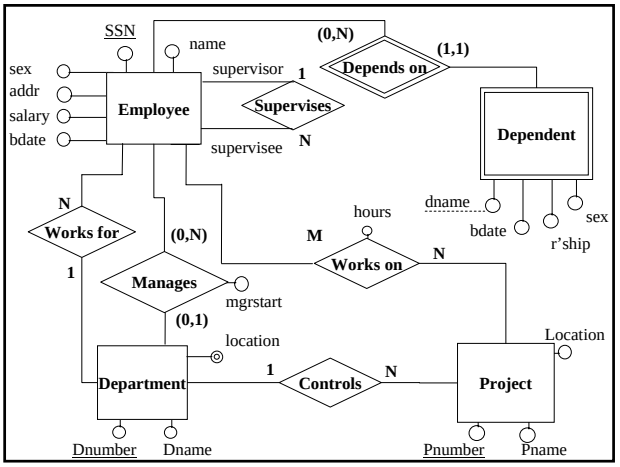
- Reinforce the ER and Relational model concepts learned
- Illustrate the mapping of ER model to Relational model
- Practical aspect: set up and use the Database Database used in Exercises and the Assessed Lab using the DBMS provided

The Company Database (UoD in text)

- Employees have a unique social security number, a name, sex, address, salary and birthdate. They may be supervised by another employee and may also work for a department.
- Employees may work for projects, for certain number of hours
- Departments have a department name, a unique department number and may have several locations

The Company Database (cont'd)

- A Department may be managed by an employee starting on a date
- Projects have a name, a unique project number, a location, and may be controlled by a department
- Dependents have a name (unique for the employee they depend on), sex, and birthdate recorded. The type of relationship with the employee is also represented.



Company Relational Schema

Employee (ssn, name, sex, address, salary, bdate, dno, superssn)

Department (dnumber, dname, mgrssn, mgrstartdate)

Dlocation (dnumber, dlocation)

Project (pnumber, pname, plocation, dnum)

Dependent (essn, dependent_name, sex, bdate, relationship)

Works_on (essn,pno,hours)

Adding Foreign Key Constraints

Employee(ssn, name, sex, address, salary, bdate, dno, superssn)
- fk:superssn is ssn in Employee
- fk:dno is dnumber in Department

Department(dnumber, dname, mgrssn, mgrstartdate)
- fk:mgrssn is ssn in Employee

Dept_locations(dnumber, dlocation)
- fk:dnumber is dnumber in Department

Project(pnumber, pname, plocation, dnum)
- fk:dnum is dnumber in Department

Dependent(essn, dependent_name, sex, bdate, relationship)
- fk: essn is ssn in Employee

Works_on(essn,pno,hours)
- fk: essn is ssn in Employee; pno is pnumber in Project

Notes

- Foreign key constraints which result from 1:N or 1:1 relations mapped as an attribute
- Composite key of dependent (because of weak entity)
- Foreign key may refer to the same relation (e.g. supervisor's ssn)
- Dlocation is a mapping of multivalued attribute
- Works_on is an N:M relation, notice composite key and two foreign keys
- No need to call attributes the same way in separate relations (e.g. ssn and essn)

Representation in the Oracle Express DBMS…

- To set up the Database, see the Oracle Express SQL Practice Guide
- The database is set up using scripts
- Remember to back up (H:, external media) any queries you may write and want to keep

The End