حل تمرین پایگاه داده
جلسه سی و ششم

A Simple Example

A company has several departments. Each department has a supervisor and at least one employee. Every supervisor has only one department under him. Employees must be assigned to at least one, but possibly more departments. At least one employee is assigned to a project, but an employee may be on vacation and not assigned to any projects. The important data fields are the names of the departments, projects, supervisors and employees, as well as the supervisor and employee number and a unique project number.

Identify Entities

- *A company has several **departments**. Each department has a **supervisor** and at least one **employee**. Every supervisor has only one department under him Employees must be assigned to at least one, but possibly more departments. At least one employee is assigned to a **project**, but an employee may be on vacation and not assigned to any projects. The important data fields are the names of the departments, projects, supervisors and employees, as well as the supervisor and employee number and a unique project number.*

- *A true entity should have more than one instance*

Identified Relationships

4

A Department is assigned an employee

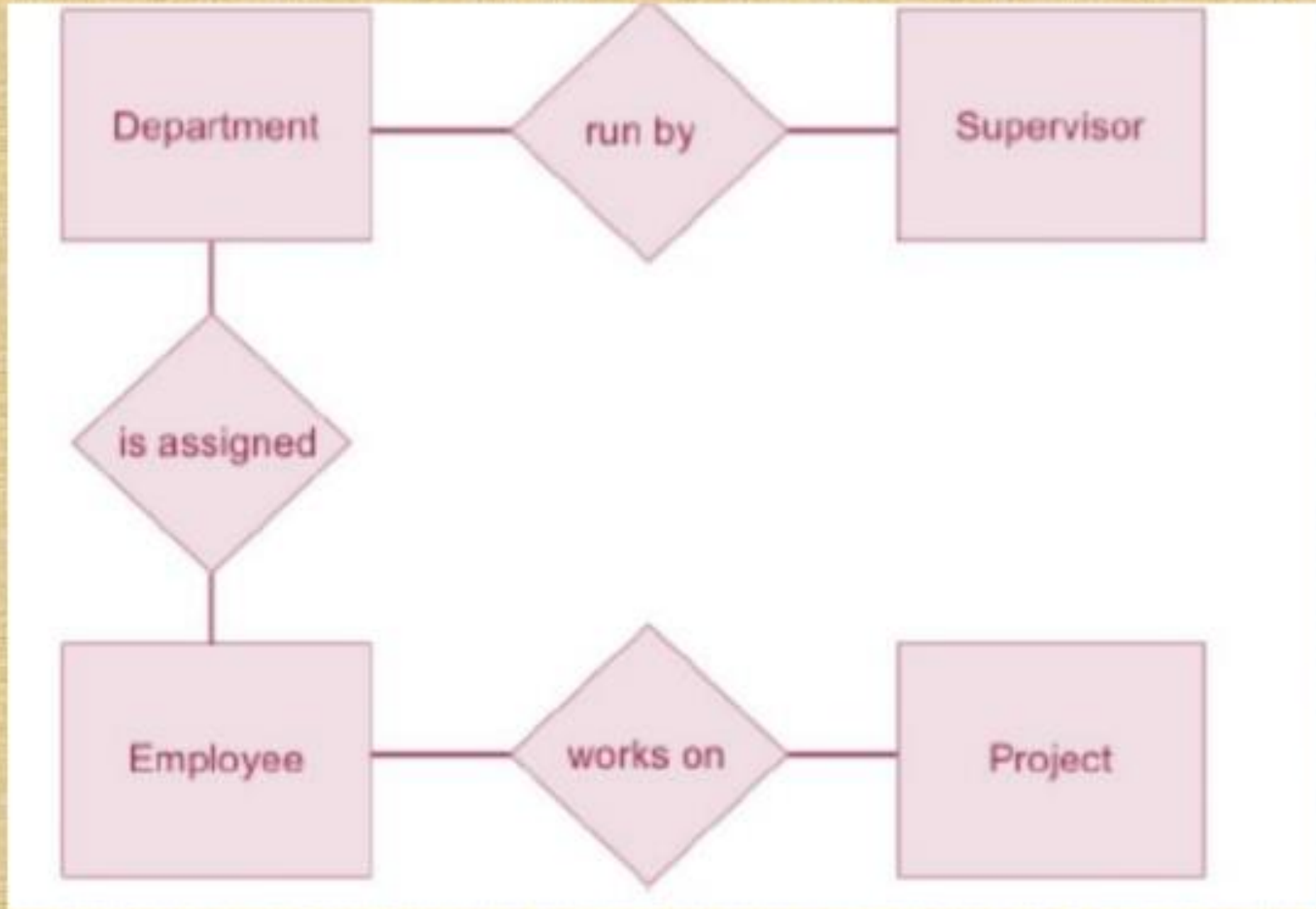A Department is run by a supervisor

An employee belongs to a department

An employee works on a project

A supervisor runs a department
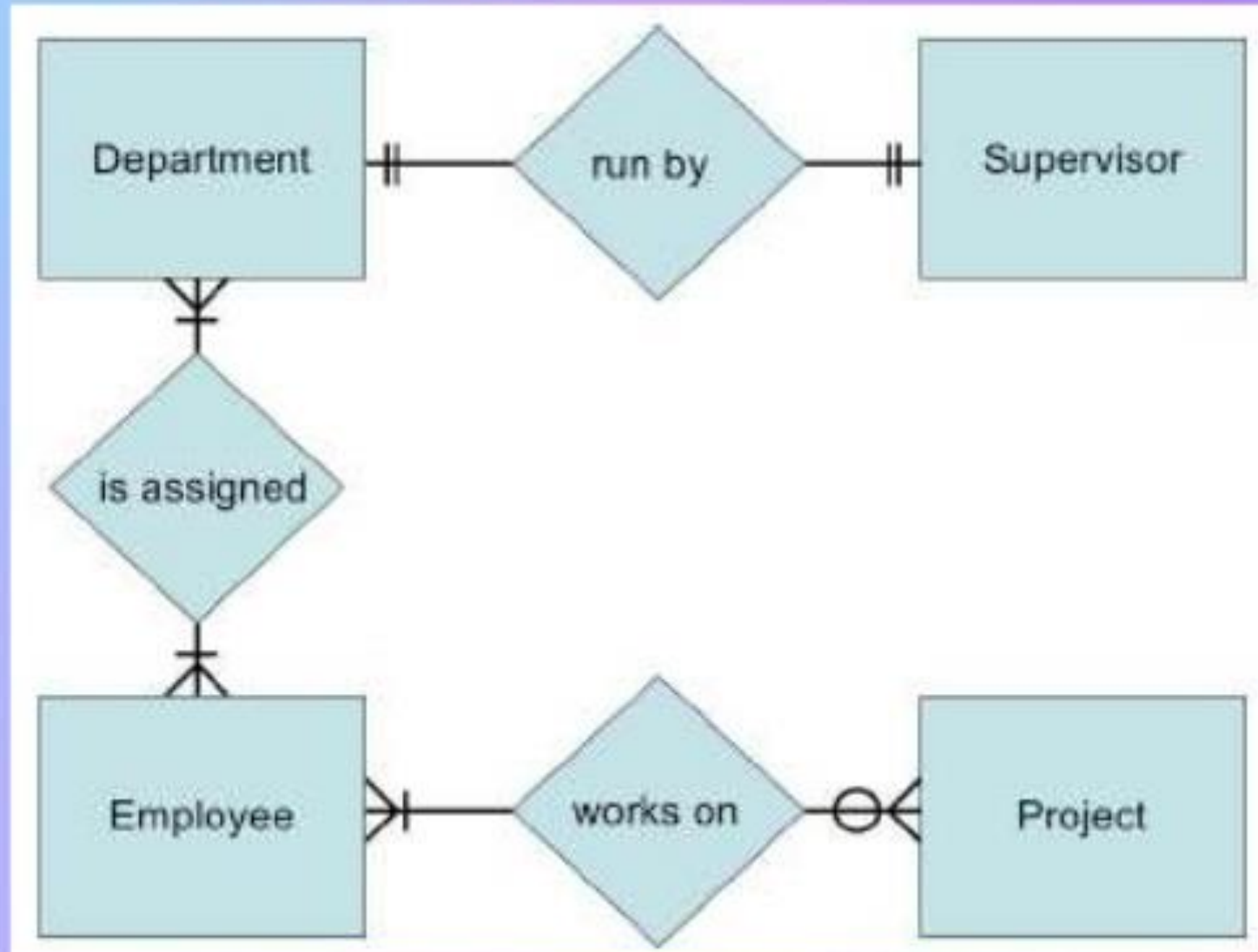
A project uses an employee

DRAWING ROUGH ERD

Fill in Cardinality

- Supervisor
  - Each department has **one** supervisor.
- Department
  - Each supervisor has **one** department.
  - Each employee can belong to one or more departments
- Employee
  - Each department must have **one or more** employees
  - Each project must have **one or more** employees
- Project
  - Each employee can have **0 or more** projects.
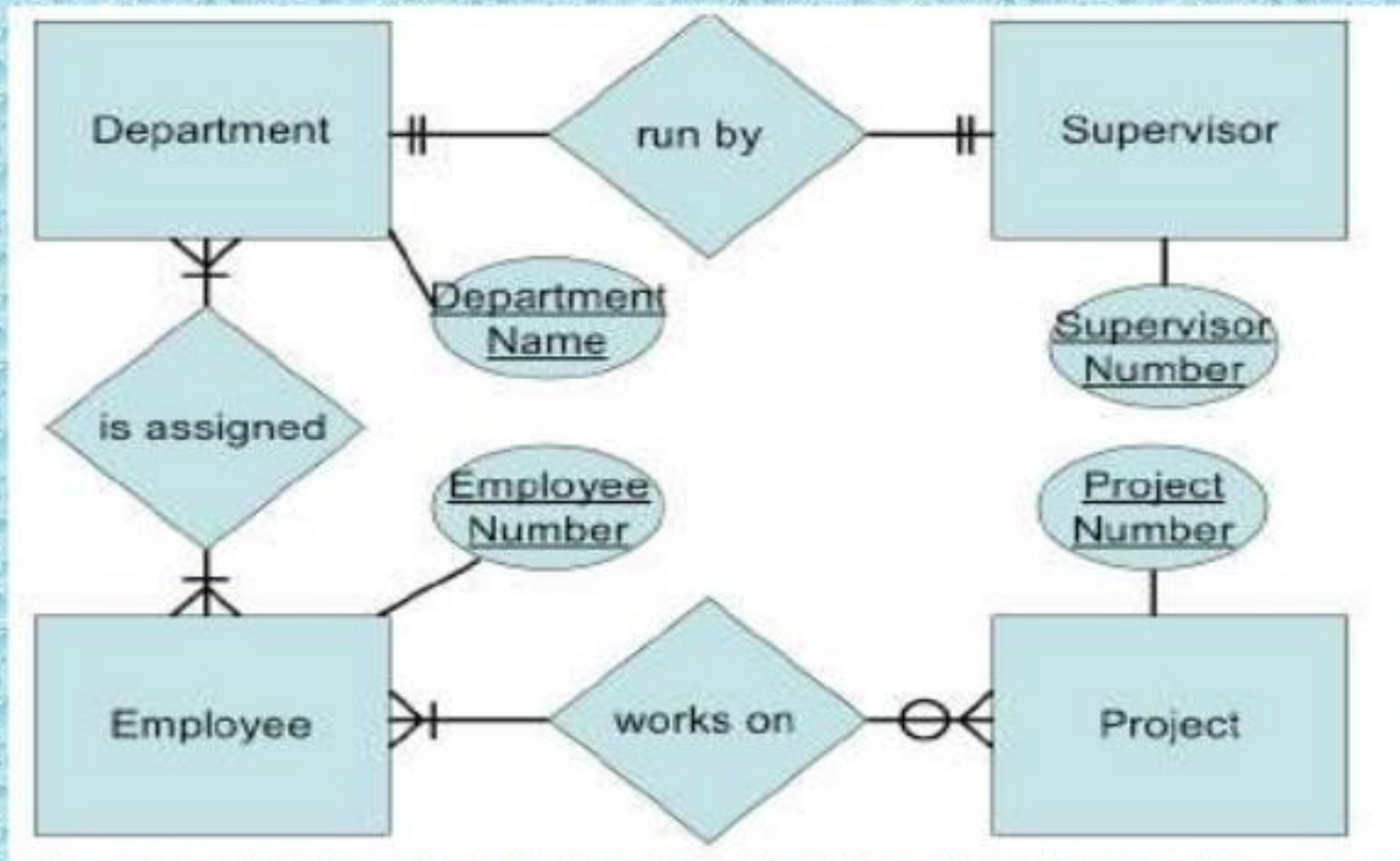
ERD with Cardinality

ATTRIBUTES

Department	• Department Name
Employee	• Employee Name • Employee No.
Supervisor	• Supervisor Name • Supervisor No.
Project	• Project Name • Project No.

Rough ERD Plus Primary Keys

Fully Attributed ERD