

ERD DIAGRAM CHEN NOTATION

Entities

1. Employees
2. Job Title
3. Departments
4. Department Managers
5. Salary record

1. Employees

- a. Employee ID - (PK)
- b. Date of Birth – Simple Attribute
- c. Name – Composite Attribute (Might have First, Middle, Surname etc.)
- d. Gender – Simple Attribute
- e. Salary – My input for salary is a simple attribute, but Employee Entity probably will use just salary_id after normalization.
- f. Hire Date – Simple Attribute

2. Job Title

- a. Job Title ID – PK
- b. Job Title Name – Simple Attribute

3. Departments

- a. Department ID – PK
- b. Department name – Simple Attribute

4. Department Manager

Department Manager Entity is a weak entity. Therefore, relationship between the department and department manager is a weak relationship. PK of the entity belongs to Departments Entity. Therefore, Department Manager Entity existence related with existence of Departments Entity.

I thought for a while about the entity. It is kind of a middle table between employees and departments. I will explain further in the relations section.

- a. Department Number – PK
- b. Employee Number – Employee ID
- c. Dates Managed – Composite Attribute – Start Date, End Date

5. Salary History

- a. Date : A simple attribute
- b. Salary : A simple attribute
- c. Description : If there is any changes for the salary explanation for that.

Relationship Between The Entities

1. EMPLOYEES **has** a JOB TITLE
2. EMPLOYEES **earn** SALARY
3. EMPLOYEES **work** in DEPARTMENTS
4. MANAGERS **manage** DEPARTMENTS

The explanation for Department Manager Entity – Departments – Employee relation.

Department ID (PK) and Employee ID (PK) should be compound key for Department Manager Entity. Therefore, it is a weak entity and a middle table. However, provided information for the Department Manager Entity requires a unique Department Number which is (PK). It is also added as an PK attribute. It will be checked in normalization part.

CARDINALITY

Employees - Job Title : Each employee **MUST** have a job title. It is total participation. Each employee can have only one title and many employees has title. It's 1 to N

Department Manager – Department : A department can have several manager and a manager can manage only one department. It's also 1 to N.

Employees – Salary_ History : Each employee can have many salary records because of salary increments. But more than one employee cannot have same salary records. It's unique for each employee. It's 1 to N.

Employees – Department : There are many departments can have many employees, and an employee can belong to many departments. It's M to N.