ERD DIAGRAM CHEN NOTATION

Entities

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

## Employees

1. Employee ID - (PK)
2. Date of Birth – Simple Attribute
3. Name – Composite Attribute (Might have First, Middle, Surname etc.)
4. Gender – Simple Attribute
5. Salary – My input for salary is a simple attribute, but Employee Entity probably will use just salary\_id after normalization.
6. Hire Date – Simple Attribute

## Job Title

1. Job Title ID – PK
2. Job Title Name – Simple Attribute

## Departments

1. Department ID – PK
2. Department name – Simple Attribute

## 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.

1. Department Number – PK
2. Employee Number – Employee ID
3. Dates Managed – Composite Attribute – Start Date, End Date

## Salary History

1. Date : A simple attribute
2. Salary : A simple attribute
3. 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.