**Entities and Attributes :**

Employee

* Num\_E Primary Key Unique identifier of the employee
* Name Employee’s name
* Position Job position/title
* Salary Employee’s salary
* Num\_S Foreign Key —-> Department Department the employee belongs to

Department

* Num\_S Primary Key Unique identifier of the department
* Label Department name/label
* Manager Name Name of the department manager

Project

* Num\_P Primary Key Unique identifier of the project
* Title Project title
* StartDate Project starting date
* EndDate Project ending date
* Num\_S Foreign Key —-> Department Department to which the project belongs

Participation Association between Employee and Project

* Num\_E Primary Key, Foreign Key —-> Employee Employee assigned to the project
* Num\_Primary Key, Foreign Key —-> Project Project in which the employee participates
* Role The role of the employee the project

**Relationships and Cardinalities**

1. Employee – Department works in

Interpretation:

* Each employee works in exactly one department (1,1).
* A department can have zero or many employees (0,N).

Interpretation:

* Each project belongs to exactly one department (1,1).

| Tableau 1 | | |
| --- | --- | --- |
| Employee (1,1). |  | Department (0,N). |
| Num\_E Primary key  Name  Position  Salary  Num\_S Foreign Key | ——— Works in——— | Num\_S Primary key  Label  ManagerName |

| Tableau 2 | | |
| --- | --- | --- |
| Project (1,1) |  | Department (0,N). |
| Num\_P Primary key  Title  StartDate  EndDate  Num\_S Foreign Key | ——— belong to——— | Num\_S Primary key  Label  ManagerName |

| Tableau 3 | | |
| --- | --- | --- |
| Employee (0,N) |  | Project (0,N) |
| Num\_P Primary key, Foreign Key  Role | ——— Participation——— | Num\_P Primary key |

* A department can manage zero or many projects (0,N).

Interpretation:

* An employee can participate in multiple projects (0,N).
* A project can have multiple employees (0,N).
* The Participation table is necessary because:
  + It resolves the many-to-many relationship.
  + It stores additional information such as the role of the employee in the project.

Entities: Employee, Department, Project

Relationships:

* One-to-Many —->Employee works in Department
* One-to-Many —->Project belongs to Department
* Many-to-Many ——> Employee participates in Project