cct College Dublin
Computing • IT • Business

Vitoria Regia Fernandes de Oliveira - 2019153

Module: Databases

Lecturer : Mikhail Timofeev

Continuous Assessment 1

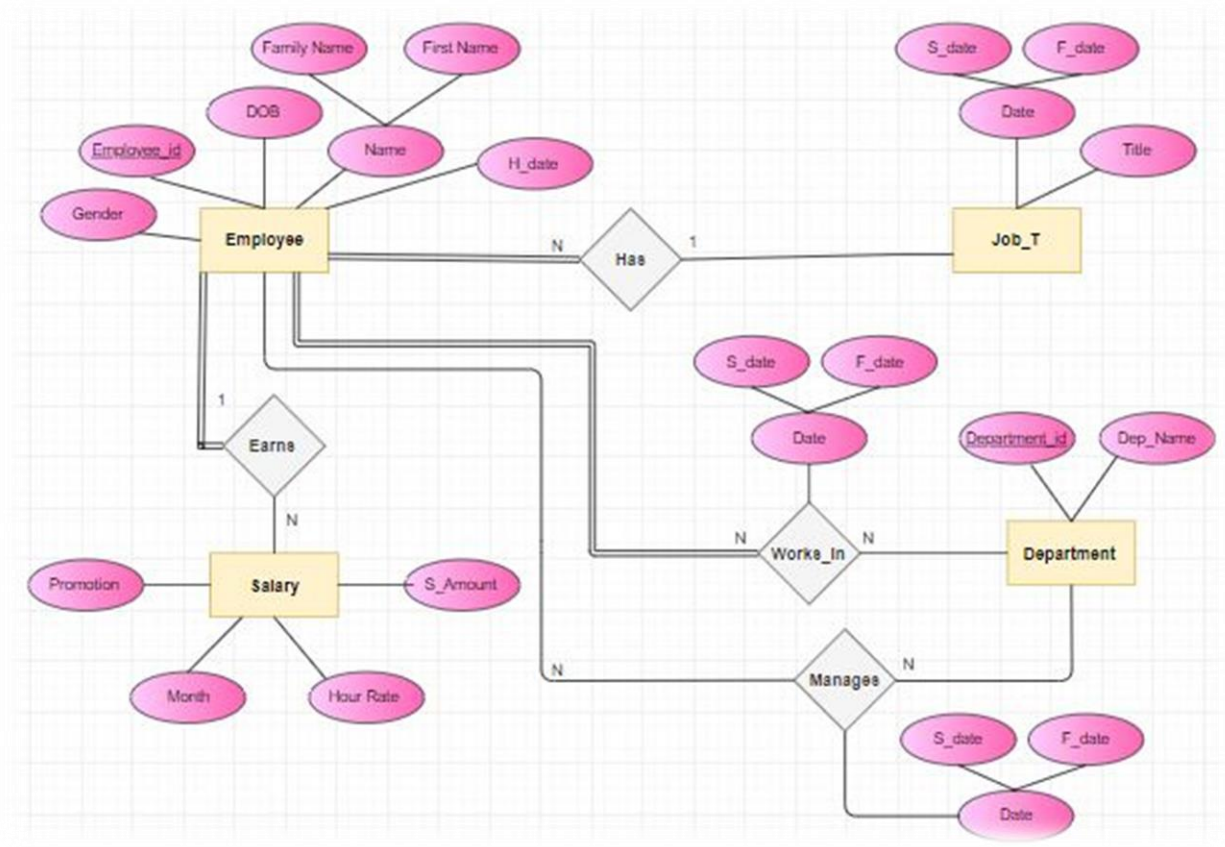
Project Title : Employees

It was requested to design and implement a Database for the HR department of a company using a structured approach based on the requirements given as follows:

ERM

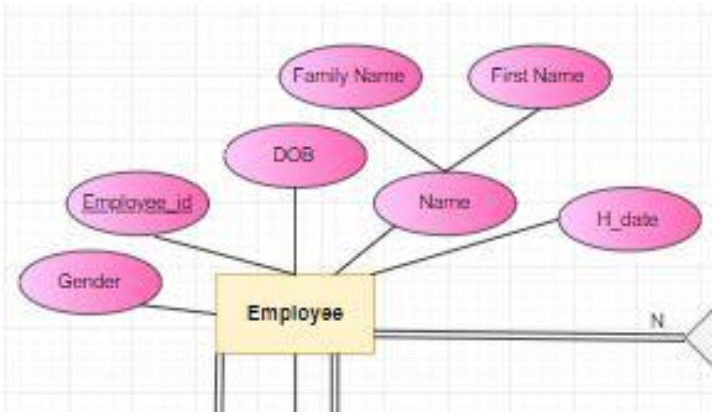
The tool of my choice was draw.io; Models are in 3NF.

As a final result for the ERM you can find an image and it descriptions bellow.



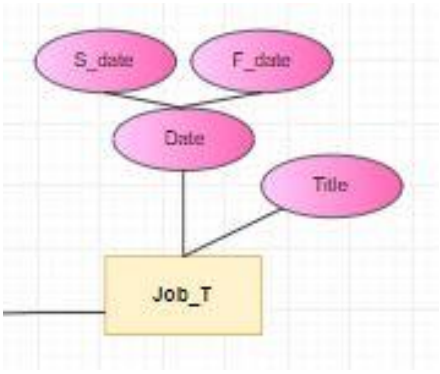
- Employees : should have a unique identifier, date of birth, name, gender, salary, and hire date

Following the requiremenst i designed a entity called EMPLOYEE with a composite attribute for Name and other 4 simple attributes, where the attribute Employee_id is a primary key for this entity as the image bellow depics.



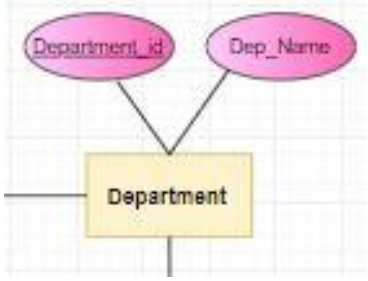
- Title : names should be stored for each employee with dates for which the employee held that title

This entity i named Job_T, witha simple attribute Title, whick will hel the name of the position for na employee and also with a composite attribute for the Start (S_date) and Final (F_date) period of time an employee held that title.



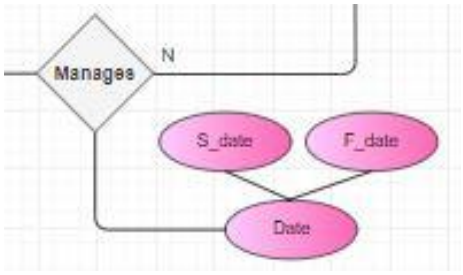
- Departments: have a name and a unique identifier. A department can have several managers over different periods, and at the same time

This entity have a primary key which is the Department_id a simple atribute Dep_name for the department name.



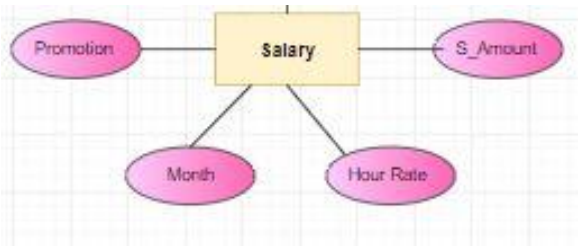
- Department Manager: should have the unique department number, the employee number, and the dates they managed the department.

In this case i chose to add attributes related to the periodo of time (S_date and F_date) to a relationship called Manages which is linked to employee and Department Entities.



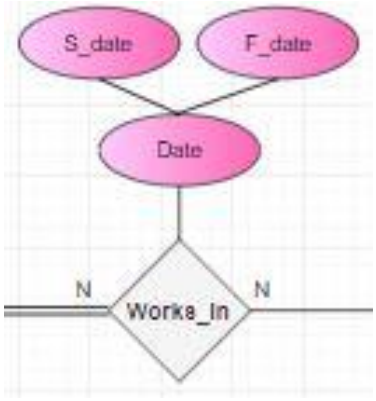
- Salary: changes, such as promotions and increases, should be recorded by storing the salary dates

Following the requirements, the entity Salary was designed with na Entity Promotion, Boolean data type so it can be input as true or false if for that year a particular employee should be given a promotion. The attribute Month referes to the amount of hours worked for each employee; Hour Rate, i considered that for this company all salaries arr hourly rated, so to have the final amout there is na other Entity S_amout that holds the final amount of money na employee will receive as payment for that period.



- Works_in:

In order to have information about the lenght of time na employee have been working or worked in a department i designed a relationship linking Employee and department Entities.



- Relationships:

1 Employee xHASx Job_T

For this relationship between the Entities Employee and Job_t i considered that every Employee will hold a Title, N:1;

2 Employee x Works_in x Department

For this Relationship i considered that every Employee have to be part of a Department, and not all departments will necessarely have an employee. - N:N

3 Employee x Earns x Salary

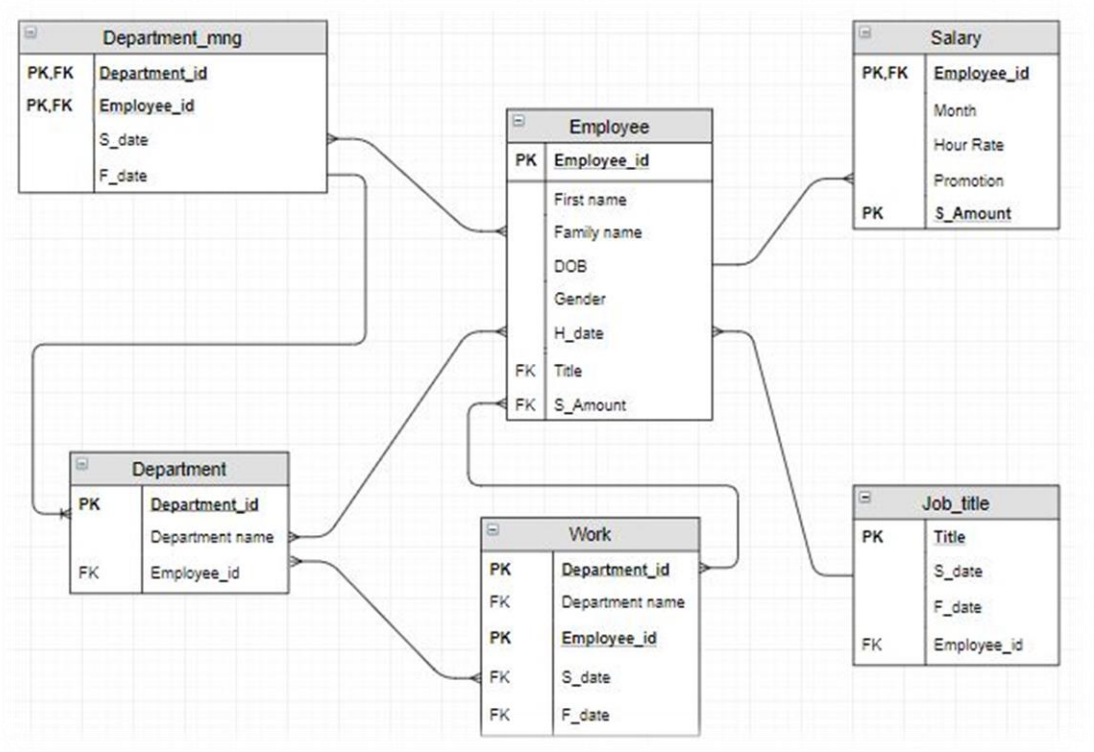
For this relationshil i considered that every Employee have to earn a Salary – 1:N

4 Employee x Manages x Department

This Relationship is related to the employe who hols a title as a Manager for a department. There will be many employes Managing Departments, but not every employee will be a Manager – N:N

Logical Model

Please find bellow the Logical Model for this project with Tables, outlining the Primary keys and foreign keys foreach table and its relationships



Physical Model

Bellow thePhysical Model for this project with Tables, outlining the Primary keys and foreign keys for each table and its relationships, also the data tupe for each tuple.