# Lab Manual # 3 – Entity Relationship Diagram Lab

**Objective:** ER Modeling

**Scope:** Study and apply ER Modeling in the form of a Case Study.

**Tool:** Draw.io

**Entity-Relationship Model:**
The entity-relationship (ER) model is a popular high-level conceptual data model. This model and its variations are frequently used for the conceptual design of database applications, and many database design tools employ its concepts.

**Example:**
A sample database application, called COMPANY, serves to illustrate the basic ER model concepts and their use in schema design. We list the data requirements for the database here, and then create its conceptual schema step-by-step as we introduce the modeling concepts of the ER model. The COMPANY database keeps track of a company's employees, departments, and projects. Suppose that after the requirements collection and analysis phase, the database designers provide the following description of the mini world—the part of the company that will be represented in the database.

- The company is organized into departments. Each department has a unique name, a unique number, and a particular employee who manages the department. We keep track of the start date when that employee began managing the department. A department may have several locations.

- A department controls a number of projects, each of which has a unique name, a unique number, and a single location.

- The database will store each employee's name, Social Security number, 2 addresses, salary, sex (gender), and birth date. An employee is assigned to one department but may work on several projects, which are not necessarily controlled by the same department. It is required to keep track of the current number of hours per week that an employee works on each project, as well as the direct supervisor of each employee (who is another employee).

- The database will keep track of the dependents of each employee for insurance purposes, including each dependent's first name, sex, birth date, and relationship to the employee.

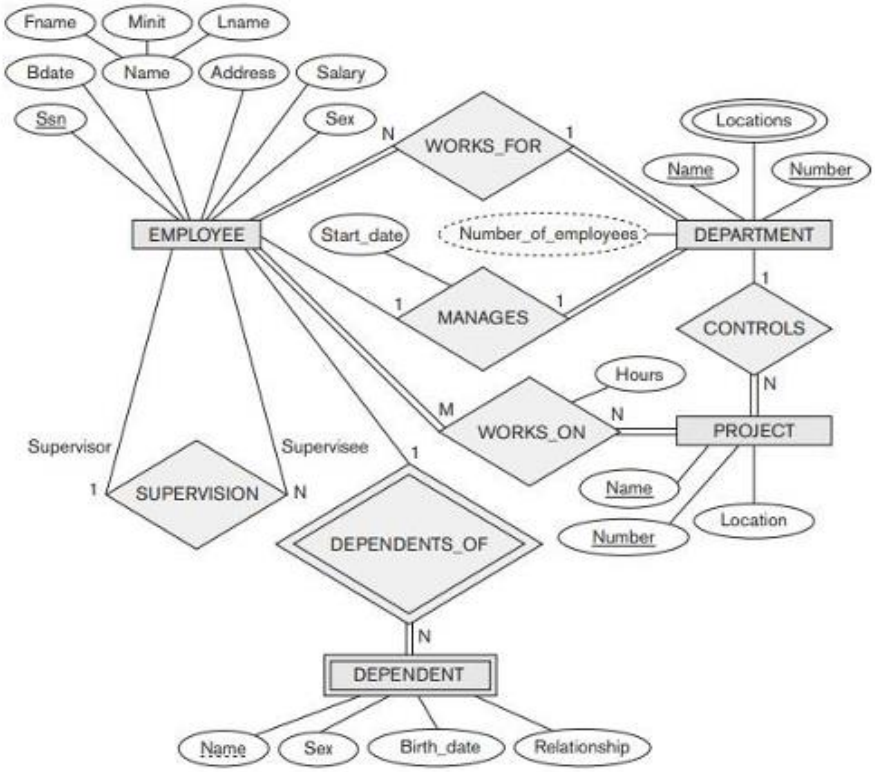


***Figure 1: An ER schema diagram for the COMPANY database***