Data, Data Management and Modelling
Logical and Physical Schema
Week-1

<u>**Logical Schema Tasks:**</u>

1. Design an ER-Diagram for a car-insurance company whose customers own one or more cars. Each car has associated with it zero to any number of recorded accidents.

   Car insurance tables that the insurance company is expecting to have are:

   > **Person (driver-id, name, address)**
   > **Car (license, year, model)**
   > **Accident (report-number, date, location, damage-amount)**

   Now Design an E-R Diagram for the given scenario

2. The company you work for wants to digitize their timecards. You have been asked to design the database for submitting and approving timecards. Draw the database ER-Diagram with the following information:
   - A timecard should have hours worked and date submitted
   - Each timecard is associated with exactly one employee
   - Each timecard must have a ID
   - Each timecard has a status: it is either approved, not approved, or pending
   - Each employee has a unique ID
   - Each employee has a name and address.
   - Each employee is associated with exactly one manager
   - Each manager has a ID and a name
   - Each manager oversees multiple employees
   - Each manager approves timecards for multiple employees

   If you feel that you must make some assumptions, please state them clearly so that they are easily understood by the graders. Remember to indicate the key for each entity, as well as the multiplicity of each relationship (e.g. one-to-many) using the appropriate notation.

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3. **Pick and Shovel Construction Company is a multi-state building contractor specializing in medium priced town homes. Assume that Pick and Shovel's mainly includes customers, employees, projects and equipment. A customer with his registration number, name, account information, address can hire the company for more than one project where the necessary information about projects are, ID, title, starting date, ending date and feedback, and employees sometimes work on more than one project at a time. Equipment, however, is assigned to only one project at a time. Employees have information of name, social security number, department, designation, rank. Equipment holds the information about the type and availability.**

   Now draw an ER-Diagram showing those entities.

Physical Schema Tasks:

Design a Logical Schema on the following problem given below and then build a Physical Schema/ Data Model followed by this Logical Schema.

1. **There is a product shipping company which keeps the information of the shipped items. The shipped items can be characterized by item number, weight, dimensions, insurance, destination, and final delivery date. The items are delivered via transportation. Transportations are characterized by a transport id, transport type, delivery route. The items are collected from warehouses, where the warehouse has its id, title, location, address. The items to be shipped have direct relation with the warehouse.**