Case Study: Insurance Company Data Model

An insurance company has recently hired you for a summer internship project as part of its effort to create their database design to improve its business performance.

Database Specifications:

The insurance company offers different types of policies to its customers. Each policy has a unique identifying number. Policies are divided into two categories: Health Insurance Policy and Auto Insurance Policy. For each health insurance policy, the company stores its term periods as well as pricing information for each term, and annual income range. For each auto insurance policy, the insurance company stores its coverage specification and market value range for the cars it covers.

Database design should also include customer information. For each customer, the insurance company stores a unique customer id, name, birth date, address, phone and employment information. Employment information has two components: job title and annual income. Each customer may hold more than one health insurance policies on his/her name, and start and end date of each policy that he/she is holding must be recorded.
Each customer may submit as many number of claims as he/she wishes. Therefore, for each customer's claim, the company stores a number, its reason, submission date and the amount that is claimed in CAD.

Each customer may own as many number of cars as he/she wishes. For each car, the company stores its unique vehicle identification number, plate number, model, color and its market value. A car cannot be covered by more than one auto insurance policy, and it must be covered by an auto insurance through a broker: Each car has a coverage that is offered for an auto insurance policy, and a broker gives a quote for that coverage. In order to better suit client's needs, each auto-insurance policy can have several levels of coverage, and one coverage is chosen for a specific car. Start and end date of the coverage, and the broker's quote must be recorded. For each broker, company stores a unique id, its name, address and commission percentage. Finally, each car may have a number of damages. Each damage that is reported must be recorded on different dates. Each damage has at least one description which explains the cause of the damage. The insurance company also needs to record cars' damages that are reported and covered by an auto insurance policy.

Part I (50 pts): EER Model

Create an ER model based on the database specifications.
For each entity you create, ask yourself:

- What are its attributes?
- What attributes can make up its key?
- Is the entity weak?

Part II (50 pts): Relational Model

Create a relational model based on your EER model. Make sure to follow the steps outlined in your lecture notes.