**CSE 370 – Database Systems**

## **ASSIGNMENT 1**

## **SPRING 24**

**Full Name (in Block Letter): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**ID: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Section: \_\_\_\_\_\_ Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Marks: 20**

**Question 1: Design an Entity-Relationship (ER) diagram for a database that stores information about "Web Series." Create the ER diagram based on the following data requirements: [12 points]**

* A web series is characterized by its title and year of release. It also has attributes for the budget and nominations received for various awards. A web series can have multiple directors.
* Web series consist of multiple episodes, each uniquely identified by an episode number. Note that the same episode number can exist in different web series. For each episode, we want to store the release date, viewer rating and duration.
* Actors are cast in several web series. Each actor is uniquely identified by their name and date of birth and has attributes including SSN, phone numbers, emails, and a set of addresses (comprising house number, road number, city, and country). When an actor is cast in a web series, a role and script are assigned to them. Each actor must be cast in at least one web series.
* Actors can appear in different episodes. For each appearance in an episode, actors have a payment per unit time, and we also store the total unit of time they have worked in each episode. This allows us to calculate the total payment for a particular episode for each actor.
* Actors can mentor or groom other actors. An actor can be mentored by multiple other actors.
* There are production companies, and each production company is responsible for producing at least one web series. A web series is produced by a single production company. Each production company is uniquely identified by its title and license number and may have a set of directors associated with it.
* Each web series may be adapted from one or more novels, while a novel can serve as the source material for multiple web series. For each novel, we store the unique title of the novel, its authors and publisher. For each adaptation, we need to record the adaptation type (e.g., faithful adaptation or creative interpretation).

***Do not assume any attributes/entities/relationships/multivalued/composite other than the ones mentioned above. For participation constraints/cardinality ratios, if they are not hinted at in the question, you may assume according to your logical reasoning.***

**Question 2:**

**Let's consider the scenario of designing an Enhanced Entity-Relationship (EER) diagram for an "Online Retail Platform." Your database should encompass various elements related to products, customers, orders, vendors, categories, and any other relevant components. [8 points]**

In your EER diagram, you have the creative freedom to design entities, attributes, and relationships as you see fit, while adhering to the following constraints:

* *Include at least one disjoint-total specialization/generalization.*
* Include at least one overlapping-partial specialization/generalization.
* Incorporate a minimum of four regular/strong entities (excluding subclasses).
* Implement at least one recursive relationship.
* Integrate at least one Many-to-Many (M:N) relationship.
* Include at least one One-to-Many (1:N) relationship.
* Incorporate at least one weak entity.

Ensure that your EER diagram is logically accurate, vividly realistic, and comprehensive, effectively representing the database required for an **Online Retail Platform** Platform.

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