CSE 3241 Project Checkpoint 02 – Relational Model and Relational Algebra

In a **NEATLY TYPED** document, provide the following:

1. Provide a current version of your ER Model as per Project Checkpoint 01. If you were instructed to change the model for Project Checkpoint 01, make sure you use the revised version of your ER Model.

2. Map your ER model to a relational schema. Indicate all primary and foreign keys and show how they relate to each other. Make sure that you properly follow the mapping algorithm and evaluate and map each element shown in your ERD. Your relational schema must be fully consistent with your ERD. Show and explain all the steps you take in the process.

3. Given your relational schema, provide the relational algebra to perform the following queries. If your schema cannot provide answers to these queries, revise your ER Model and your relational schema to contain/supply the appropriate information for these queries:

   a. Create a list of IP items and the stores selling those.
   b. Find the titles of all IP Items that cost less than $10.
   c. Generate a list of IP item titles and dates of purchase made by a given buyer (you choose how to designate a buyer).
   d. List all the buyers who purchased an IP Item from a given store (you choose how to designate a store) and the names of the IP Items they purchased.
   e. Find the buyer who has purchased the most IP Items and the total number of IP Items they have purchased.
   f. Create a list of stores who currently offer 5 or less IP Items for sale.
   g. Find the highest selling item, total number of units of that item sold, total dollar sales for that item, and the store/seller who sells it.
   h. Create a list of all payment types accepted, number of times each of them was used, and total amount charged to that type of payment.
   i. Retrieve the name and contact info of the customer who has the highest karma point balance.

4. Three additional interesting queries in plain English and also relational algebra. Each of your queries should include at least one of these:
   a. outer joins
   b. aggregate function
   c. "extra" entities from CP01