Home Work #1

Start your assignment with the following text provided you can honestly agree with it.

- *I certify that every answer in this assignment is the result of my own work; that I have neither obtained my answers from the Internet nor from any one else; and I have not shared my answers or attempts at answers with anyone else.*

Build a conceptual schema using the Entity-Relationship model (extended if necessary with generalization) from the following natural language specification of the requirements of an online bookstore.

1. Express your schema using a *readable* ER diagram.
   - The diagram in your submitted PDF file must be readable on Canvas (it cannot be graded if it is turned 90 degrees to the right or left!).
   - Make every effort to make the diagram fit in a page.
   - *Notation*: You must use the notation developed in class.
     Add an asterisk on relationship cardinalities to indicate that it is assumed.

2. Add the following.
   - Make clear what reasonable assumptions, if any, you are making.
   - If a specified constraint is not expressible in your ER schema, then specify it separately under the heading Additional Constraints. For each such constraint, first pinpoint the construct(s) in your schema on which the constraint must hold, and second, state it precisely and concisely.
   - If you can spot constraints that are desirable but not specified, then state those similarly but separately, under the heading Desirable Constraints.

Requirements

We have a large collection of books; each book is identified by a unique ISBN number. Each book has a title, one or more authors; an edition number, a year of publication, and a price in US dollars. For each book, we remember its reviewers, if any. For both reviewers and authors, we keep track of the name, address, and phone number. While it is possible that two such people may have the same name, we are convinced that they could never have the same name and phone number. For authors, we also store a URL that points to a professional webpage. Rarely do we find that a book is sold out; typically, for each book, we have many copies stored in one or more of our warehouses. Each warehouse has a unique code, as well as an address and phone number. Each book is published by a publisher for whom we remember a unique name, an address, a phone number, and a URL.

It is important to note that different editions of the same book have the same authors, reviewers, and publisher.

We only deal with customers who live in the USA. We identify our customers by a unique email address; we also store the name, address (an address has four components: street address, city, state, and zipcode), and phone number.

While visiting our website, a customer has the option of creating a shopping basket, which could be initially empty. Once created, we store it and remember it using a unique basket_id; the creation date of the basket is important. The customer cannot create another basket until the current one has either been deleted or closed through a placed order. We do not care about the contents of deleted baskets.

A customer chooses books by browsing our website and inserts them into his/her existing basket (if no basket exists at that point in time, it is created), specifying a quantity for each book. (Of course, a customer may also delete entries in his/her basket.)

When the customer places an order, we store the destination address, which may or may not be the customer's address. Also, the customer's basket becomes a closed basket at that time. Once an order is placed, we use a proprietary order fulfillment algorithm to determine for each book in the order, the source warehouse(s) and number of copies from that warehouse; and that packaging plan is stored.