

# Phase 1: Database and Entity-Relation (ER) Diagram Design

**Due: 11am Feb 10**

## What to Turn In:

Turn in a hard copy of the ER diagram and the schema of the relational tables.  
(Remember to write your names, one submission per team)

During Phase 1, your task is to design a conceptual model of the database and draw an ER diagram that can capture the information needed for this database. You need to model the data stored in the database as entity sets and relationship sets with cardinality and participation constraints, show attributes and identify primary key for each entity set. Then, you should translate your ER diagram into a set of relational tables with primary key and foreign key constraints (if any) indicated. (You do not need to write create table statements.)

Your database needs to store the following information about an internet bookstore.

There should be information about books, authors, publishers, customers, orders, shopping carts, etc. Books may be hardcover, paperback, electronic and audio. Customers may be members who will get free shipping, non-members and one-time guests. Authors can also be customers.

Your application should have the following functionalities:

1. There is a super user who can modify all contents of the database.
2. Publishers can add new books.
3. Customers can register, and login with username and password, and update their own information. Customers may become members after paying membership fee.
4. Customers may make purchases of books. Customers should be able to check their order information and purchase history.
5. Customers should be able to search by keyword.
6. Different types of books may have different delivery method.
7. Customers may give books they have purchased a rating between 1 and 5 and a comment.