Instructions

The following questions will ask you to draw an ER diagram.

If you choose to draw the ER diagram on a piece of paper and take a picture with your phone or scan, do double check the image prior to submission. You need to ensure that your answer is clearly and easily seen. If we cannot see your answer, we cannot give a grade for it and will default to 0.

If you choose to use a tool like draw.io (this is not the only tool out there that does something like this so feel free to use your favourite), you need to ensure that you are using the textbook notation. There are many different flavours of ER diagrams out in the wild but in this course, we will only work with the version discussed in the textbook/slides.

Question 1

Each branch is located at a particular location (street address and city) and is identified by a unique name (like "UBC Central", "UBC CS Basement", "UBC Downtown", "UBC Okanagan", etc.) Each year the bank's board defines the yearly budget for each branch, and gives the branch a rating (which is a number from 1 to 10).

A bank's customer is identified by their customer name and phone number (combined). The bank also keeps track of each customer's current street address and city.

The bank offers accounts and loans to its customers. Each account and each loan have a unique ID number and the account and loan are created and maintained by a single branch. Each account is assigned to one or more customers and its balance can never be negative. A loan is always assigned to a single customer, has a fixed interest rate (currently a very attractive 8%), and its balance cannot be negative, either.

People with "no fixed address" are no longer considered for loans. This is because the "UBC CS Basement" branch lent such a person some money, and never got the money back.

Draw an E-R diagram (using the textbook's notation) that models the relevant information provided above for the UBC Bank.

Question 2

A bookstore wants to store the following information in their database.

Books have an ISBN (unique to each book), title, author, and publishing date. Note that the all books written by a particular author have unique names but different authors can publish books with the same name. For example, Alison has written two books called “Book 1” and “Book 2”. Alison’s future books cannot re-use those two names. Michael would be allowed to write a book called “Book 1” without any issue.

Customers have a customer ID, name, and a number of loyalty points.

Customers can place an order to buy some books. Not all customers have made an order before. Some customers may have made many orders.

Each order contains at least one book. An order is always associated with a single customer.

Draw an E-R diagram that models the relevant information provided above for the bookstore. List any assumptions (if any) you had to make for the diagram. Identify the pieces of information (if any) that you could not represent.