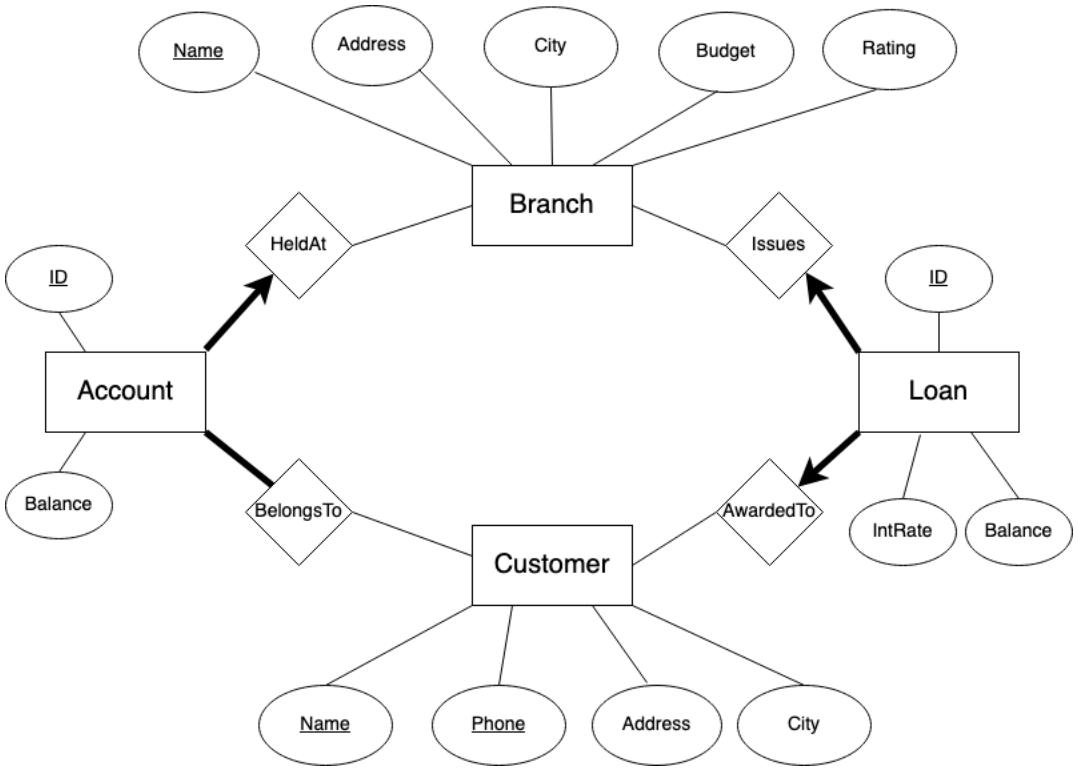
CPSC 304: Introduction to Relational Algebra
In-Class Exercise: ER Diagrams 1 Solution

General Note

There are often many possible correct solutions. If your answer is different from what we list here, it is not necessarily incorrect. Take a step back to evaluate your diagram to see what it can/can't do as opposed to the solution we list here.

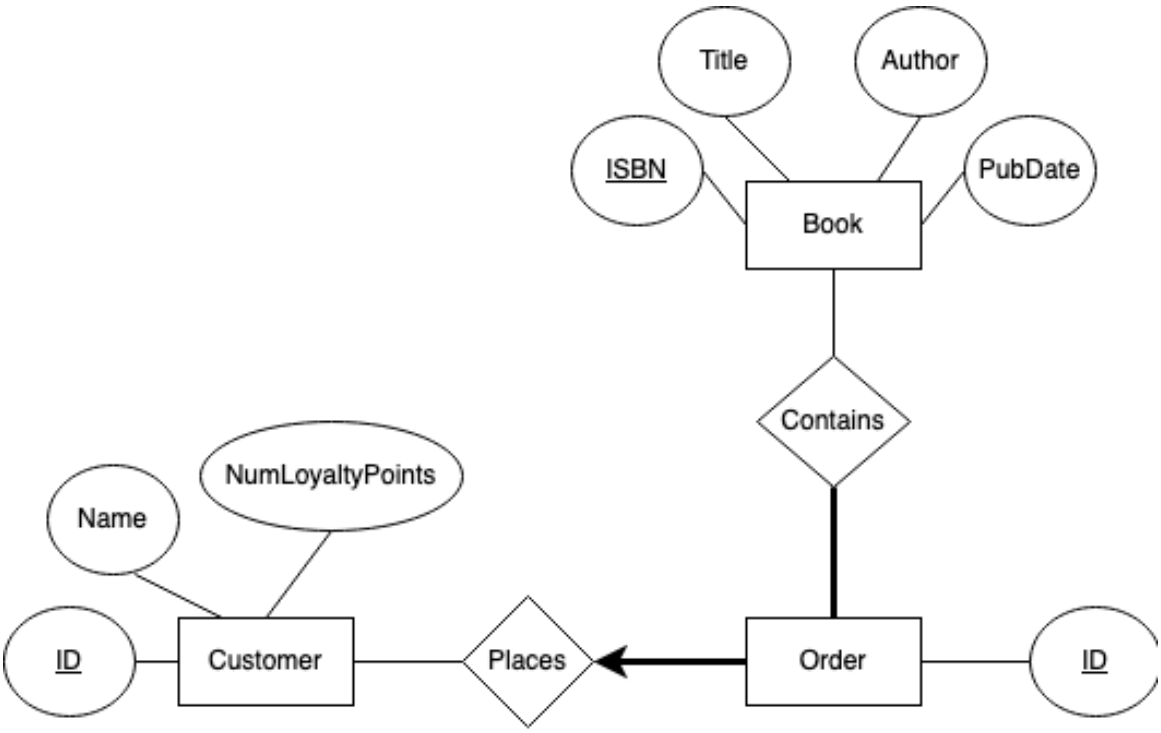
Question 1



Other solutions are possible. For example, it is OK to use a ternary relationship for Branch-Loan-Customer since the solid arrow from Loan will apply to both Branch and Customer. In other words, a loan must be issued by a single branch *and* it must be awarded to a single customer. Note that it is possible for a customer to have an account, but not have a loan, or vice-versa.

Certain constraints like the account balance must be a value greater than 0 cannot be expressed through an ER diagram but the database can enforce this (we will discuss this further when we cover SQL).

Question 2



If we assume that author names are unique (i.e., no two authors can have the same name), then author + title could also be a key. Information about alternate keys is something we cannot represent on an ER diagram.

Other assumptions:

- Not all books have to be ordered