

a) Yoda's Jedi Academy is a non-profit organization dedicated to training future Jedi Knights. Yoda wants to build a database to keep track of which of the different standardized Jedi examinations each trainee has taken and whether they passed or failed those examinations. Examples of examinations would include "Light Saber Combat," "Contemporary Jedi History," "Jedi Mind Tricks", or "Linear Algebra." Each exam may be offered at different levels. E.g., the "Light Saber Combat" exam has levels 1, 2, and 3. The examinations are done one-on-one: one trainee is examined by one Jedi Master. (Yoda doesn't have time to administer all the examinations himself.) When a trainee takes an exam, she or he can either pass or fail it. Yoda wants to record the result in either case. A trainee can fail each exam up to three times before they are kicked out of the Academy. Also, in some cases a trainee must successfully pass certain exams before they are allowed to take some of the other exams. For example, one must pass Light Saber Combat Level 2 and Contemporary Jedi History Level 3 before being allowed to take Jedi Mind Tricks Level 1 examination. Yoda also wants to record which Jedi Master conducted the examination. To ensure fairness, he plans to occasionally generate reports showing how often each Jedi Master fails students in a particular examination. (E.g., if one Master passes most of the trainees when conducting her Light Saber Combat Level 1 exam, while another Master fails half the students in the same exam, this would be a cause of concern for Yoda.)

Draw an ER diagram for the database. **Make sure to label all the relationships.** You should indicate the attributes but you do not need to include surrogate primary keys or foreign keys at this point.

b) Write a CREATE statement for a table called **order**, which will store the following information: a free-form description of the order, the date when the order was placed, the amount charged to the customer, and a foreign key to the table **customer**. Assume that the primary key of **customer** consists of a single integer column called "customer\_id." The order table also needs a primary key. (Write your answer on the other side of the sheet.)