

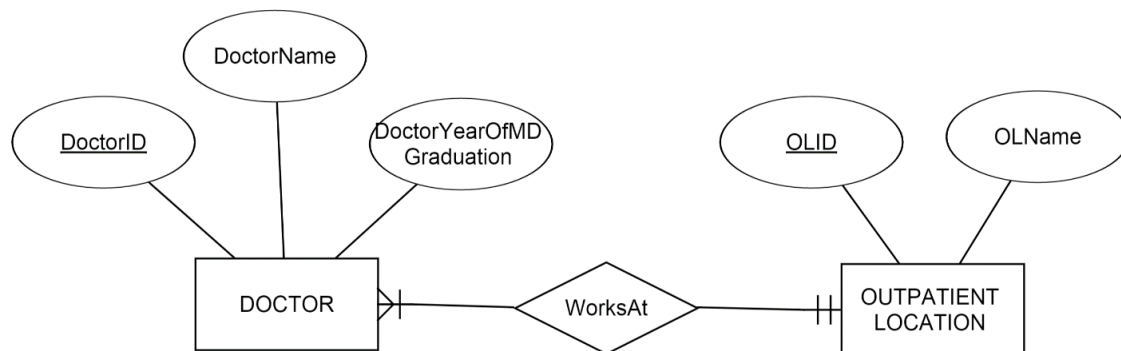
All of the exercises in this document were adapted from materials created by Dr. Nenad Jukić, Professor of Information Systems and the Director of Business Intelligence and Data Warehousing Graduate Certificate Program at the Quinlan School of Business, Loyola University, Chicago, Illinois, USA. The exercises are excerpts from the textbook, “Database Systems: Introduction to Databases and Data Warehouses” (<http://www.amazon.com/Database-Systems-Introduction-Databases-Warehouses/dp/0132575671>), Prentice Hall, 2013 and are used in the “Managing Big Data with MySQL” course with permission of the publisher.

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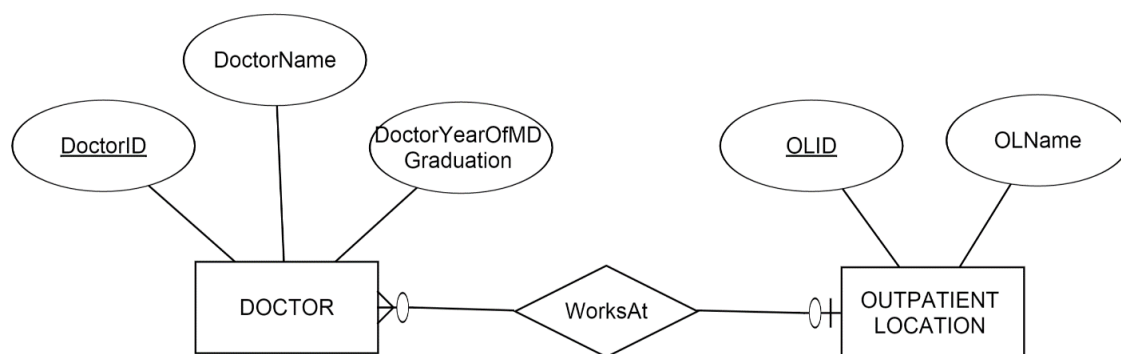
Entity-Relationship Diagram Answer Key

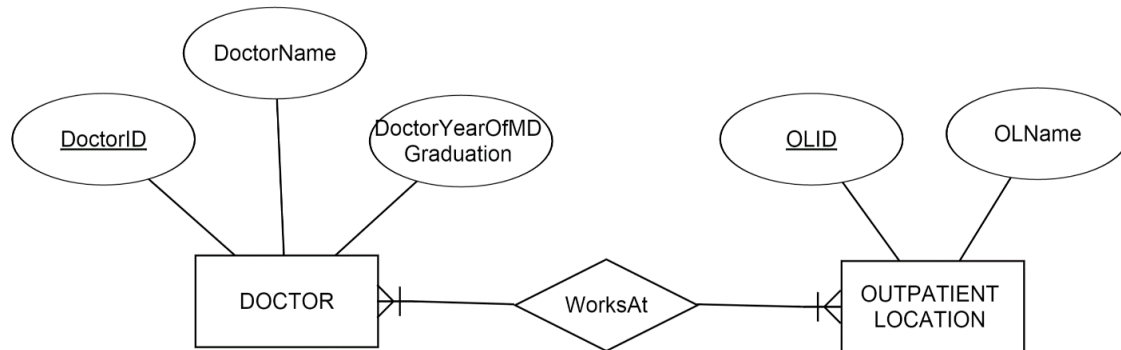
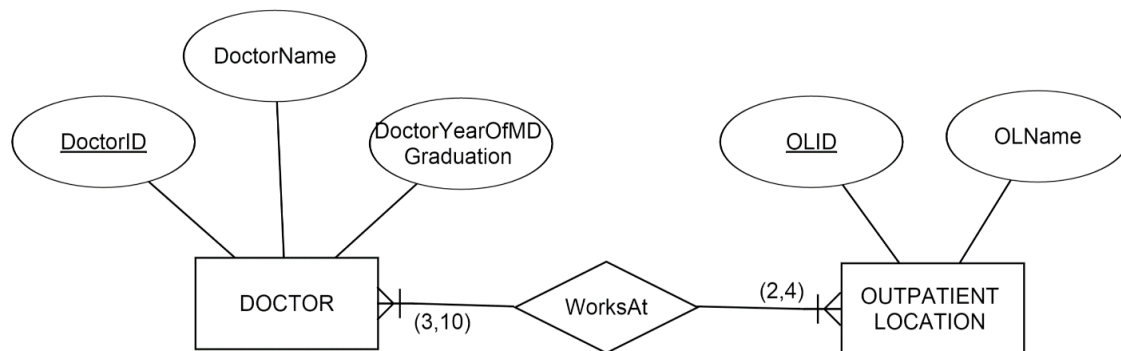
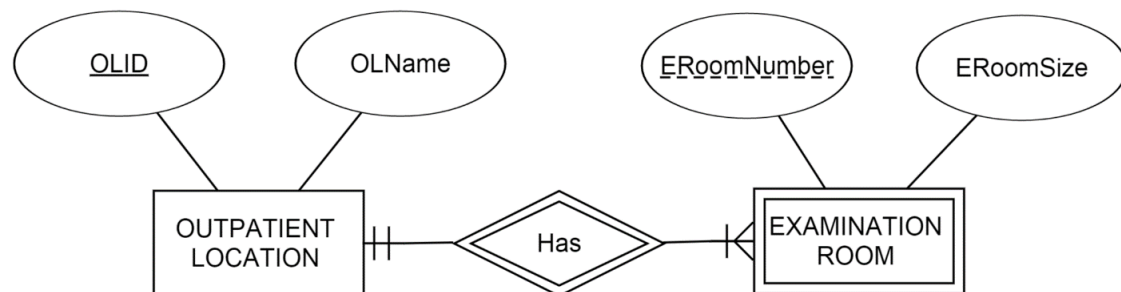
This is the answer key to the exercises in the “Entity-Relationship Diagram Exercises” document included with the course materials.

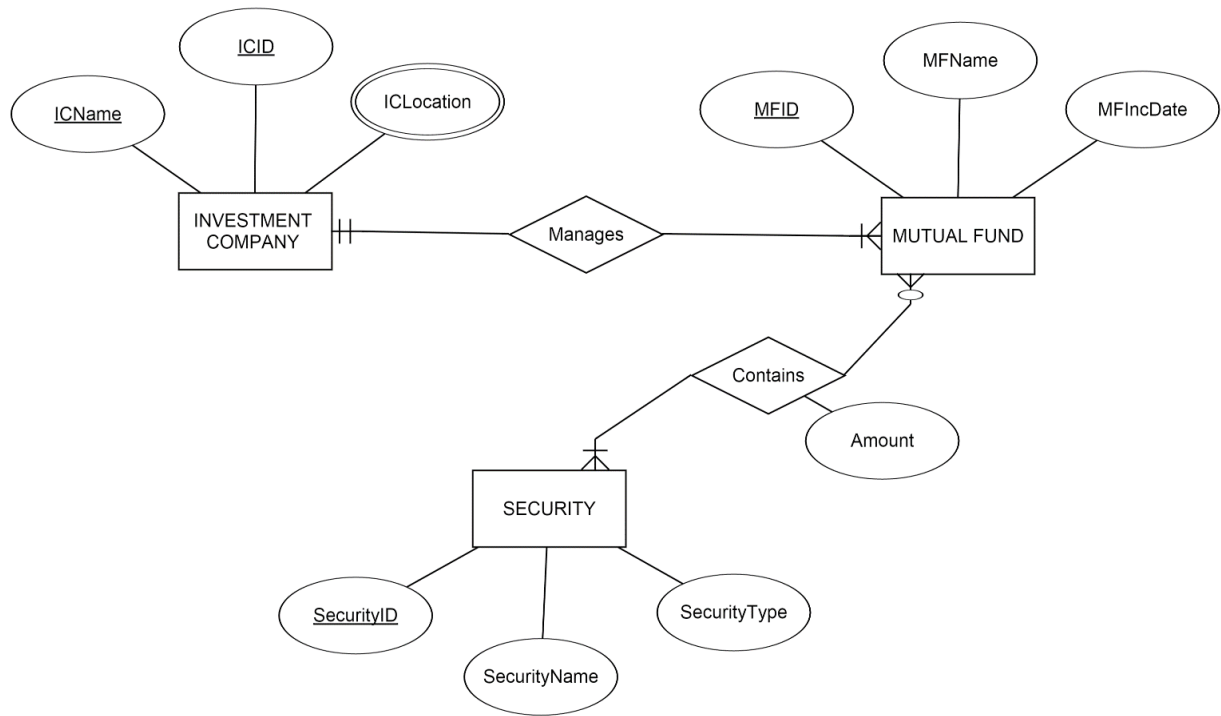
Exercise 1a.

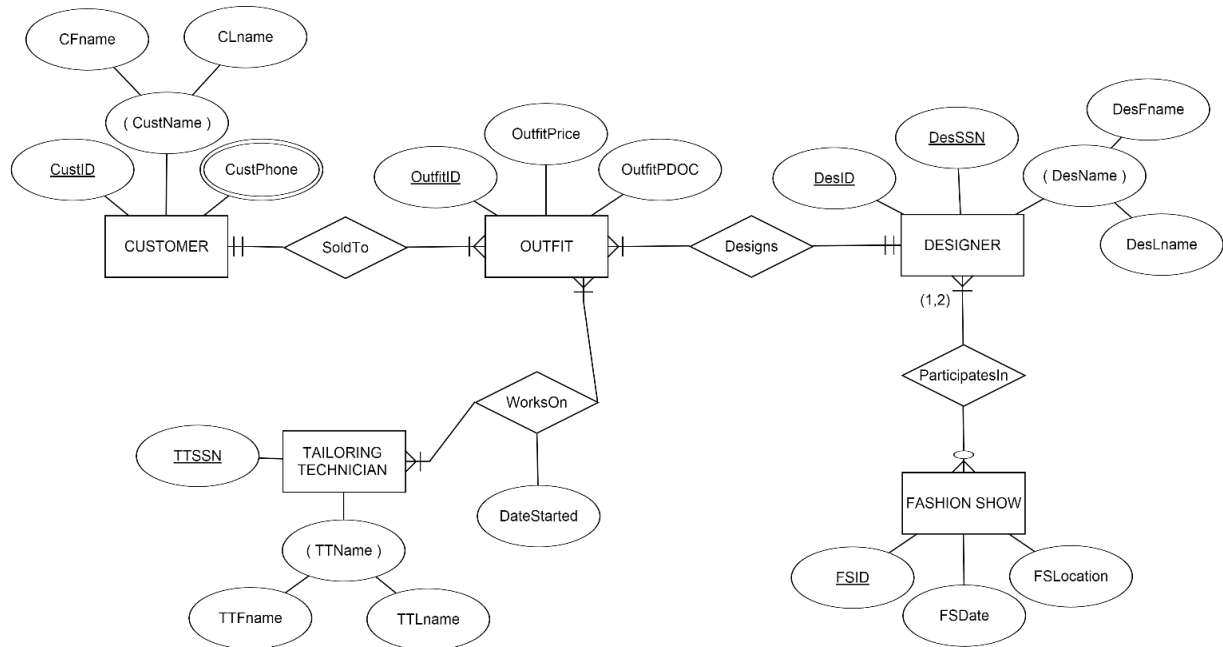


Exercise 1b.



Exercise 1c.**Exercise 1d.****Exercise 2.**

Exercise 3.

Exercise 4.**Exercise 5.**

ExoProtect Employees' Computers Database needs to keep track of the following:

- For each computer, the database will keep track of a computer ID (unique), the computer make, and the computer model.
- For each employee, the database will keep track of an employee identifier (unique), an employee name, and multiple employee skills.
- For each software package the database will keep track of a software package ID (unique), and the software package name.
- Each computer is assigned to exactly one employee. An employee can have zero or one computers assigned to him or her.
- Each computer is maintained by exactly one employee. An employee can maintain multiple computers, but an employee does not have to maintain any.
- Each employee can be certified to use multiple software packages, but an employee does not have to be certified to use any.
- Each software package must be certified for use by at least one employee, but it can have many employees certified for its use.
- Each computer can have several software packages installed on it, but it does not have to have any installed.
- Every software package must be installed on one computer, but it can be installed on many.
- For every instance of a software package installed, the database will keep track of the date of the installation.
- For each software package the database will keep track of number of installations.