



Northeastern University

CS 5200 Homework 1 (Chapter 12 Connolly & Begg)

Each question is worth 10 points each. Convert the following textual description to an entity-relationship diagram in UML notation. Please spend time differentiating between entities, attributes, relationships and values of attributes. If you are identifying a strong entity - make sure you identify a primary key for it. You are not required to use superclass/subclass hierarchy for any of these problems, but may choose to do so if you wish.

1. A book has a title, an ISBN number (a unique international book number), a publisher, a language it was written in, the total number of pages and an author's name.
2. A book has a title, an ISBN number, a publisher, a language it was written in, and the total number of pages. An author has a name and a place of origin. An author writes a book. A book is written by one author and an author writes 1 to many books.
3. A book has a title, an ISBN number, a language it was written in, and the total number of pages. An author has a name and a place of origin. A publisher has a name, a city and a country. **A book is written by 1 to many authors.** A publisher releases a book. A publisher can release 1 to many books but a book is released by one publisher.
4. A television set has a unique serial number and is associated with a specific manufacturer and a model for that manufacturer. Each television set is associated with exactly 1 manufacturer and 1 model for that manufacturer. A manufacturer has a unique name. A manufacturer can produce 1 to many television models. **A model name is unique for a specific manufacturer but is not unique across all manufacturers.** A model name is associated with at least 1 manufacturer.
5. A television set has a unique serial number and is associated with a specific manufacturer and a model for that manufacturer. Each television set is associated with exactly 1 manufacturer and 1 model for that manufacturer. A manufacturer has a unique name. A manufacturer can produce 1 to many television models. **A model does not have a unique name but is associated with at least 1 manufacturer.** An electronic store has a unique name and a unique address that consists of a street number, street address, town, state and zip code. A store stocks 1 to many television sets but a television set can only be found at 1 and only 1 store.
6. A television set has a unique serial number and is associated with a specific manufacturer and a model for that manufacturer. Each television set is associated with exactly 1 manufacturer and 1 model for that manufacturer. A manufacturer has a unique name. A manufacturer can produce 1 to many television models. A model does not have a unique name but is associated with at least 1 manufacturer. An electronic store has a unique name and a unique address that consists of a street number, street address, town, state and zip code. A store stocks 1 to many television sets but a television set can only be found at 1 and only 1 store. A customer consists of a name, and a unique credit card number. A customer buys a television set at a store. **A television can be bought by at most one customer but a customer may buy 0 to many television sets.**

7. The world is composed of 7 continents. A continent has a unique name and a current population. The names of the continents are: Africa, Antarctica, Asia, Europe, Australia/Oceania, North America and South America. A country has a unique name, and a current population. **Each continent is composed of 0 to many countries. A country may be situated on 1 to many continents.**
8. The world is composed of 7 continents. A continent has a unique name and a current population. A country has a unique name, and a current population. There are also languages that are spoken in the world. Each continent is composed of 0 to many countries. A country may be situated on 1 to many continents. A country has 1 to many official languages. A language may be an official language for 0 to many countries.
9. Each house in a development contains 8 rooms. Each room contains a location (within the house) and a name. The location of the room uniquely identifies the room within the house. A room may be classified as a bedroom, a bathroom or a common room. A room can be classified as only 1 type of room. **A specific room type can be associated with many different rooms in the house.**
10. Each house in a development contains 8 rooms. Each room contains a location (within the house) and a name. The location of the room uniquely identifies the room within the house. A room may be classified as a bedroom, a bathroom or a common room. A room can be classified as only 1 type of room. A specific room type can be associated with many different rooms in a house. **Each room has a collection of furniture.** Each furniture piece has a color and a location (in the room). The furniture types are: sofa, chair, bookcase. **A furniture can have only 1 furniture type but there may be many instances of a furniture type in a room.**

Homework submission

Create a pdf file named hwk1lastnamefi.pdf, where lastname is your last name and fi is your first initial. The pdf file should contain 10 images labeled 1-10.

Optional/Mandatory topic