

## IS446 – Systems Analysis and Design

### Conceptual Data Modeling and State Machine Diagram Practice Assignment

#### Instructions

##### Overview

This assignment is all about conceptual data modeling. You will be practicing three activities that are part of conceptual data modeling:

1. Conducting a *ragbag* planning exercise
2. Drawing an entity-relationship diagram (ERD)
3. Drawing a state-machine diagram

##### Deliverables

Because your first activity, the *ragbag* planning exercise, is a precursor to creating the ERD. You will only be responsible for two deliverables for this assignment:

1. An ERD for the iSchool Webstore System
2. A state-machine diagram for the order entity that appears on your ERD

##### Scope of Data Model

iSchool Webstore is a fairly big case. So, for the purposes of this assignment, you should limit the scope of your effort to include the following requirements:

- Setup a customer
- Setup a product item for sale
- Take an order
- Accept payment for an order
- Track “picking” of the order
- Track shipping of the order
- Report sales

There are other requirements that are discussed in the case document that should NOT be included in the scope of this project. These include:

- Messaging between customer and Webstore staff
- In-person order pickup
- Automated interface to shippers’ systems (like USPS)
- Automated interface to vendor’s systems (like suppliers of T-Shirts, Mugs, etc.)
- Tracking of which Webstore employees performed which actions (like “picking”, shipping, etc.)

### **The *Ragbag* Exercise**

Following the approach that I demonstrate in the Part 1 tutorial video, conduct a *ragbag* exercise for the iSchool Webstore System. The result of this exercise should be several lists of items to be used when creating the ERD in the next step. These include:

- List of entity types
- List of relationship types
- List of attributes
- List of important instances

These lists are for your own use. Please DO NOT submit them.

### **The ERD**

Following the approach that I demonstrate in Parts 2 and Part 3 of the tutorial videos, create an ERD for the iSchool Webstore System. When the diagram is complete, create a PDF copy to submit.

### **The State-Machine Diagram**

Following the approach that I demonstrate in the tutorial video, create a state-machine diagram for the Order entity of the iSchool Webstore System data model. This diagram should document the important states for an order and the triggering action that precipitates the transition to each state. When the diagram is complete, create a PDF copy to submit.

### **Tools**

The *ragbag* exercise can be done with any word processor. Since you are not submitting the output of this exercise, you are free to use any tool.

Both the ERD and the state-machine diagram should be created with whatever diagrammer you have previously chosen to use for this course. This should be Visio 2016, LucidChart, or some other diagrammer that I have previously approved.

### **Format**

Both the ERD and the state-machine diagram should be separate PDF documents.

## **File and Directory Naming**

Create a directory that will hold your two documents. Name the directory using the following scheme:

**surname\_givenname\_conceptual\_data\_modeling\_and\_state\_machine\_diagram**

If I were completing this assignment, I would name my directory:

**trainor\_kevin\_conceptual\_data\_modeling\_and\_state\_machine\_diagram**

The directory should contain your two documents. These should be in PDF format and should be named according to the following scheme:

**surname\_givenname\_conceptual\_data\_model.pdf**

**surname\_givenname\_state\_machine\_diagram.pdf**

If I were completing this assignment, I would name the files as follows:

**trainor\_kevin\_conceptual\_data\_model.pdf**

**trainor\_kevin\_state\_machine\_diagram.pdf**

Use a zip utility to zip up the entire directory to create one file for submission. The submitted file should be named according to the following scheme:

**surname\_givenname\_conceptual\_data\_modeling\_and\_state\_machine\_diagram.zip**

If I were completing this assignment, I would name the files as follows:

**trainor\_kevin\_conceptual\_data\_modeling\_and\_state\_machine\_diagram.zip**

**PLEASE NOTE: All file names must be in lower case. Deductions will be made for submissions that do not conform to this standard.**

## **Due Date**

Please see the Weekly Schedule for the date and time when this assignment is due.

Last Revised

2021-03-22