

Instructions for Skills Practice – Physical ERD

Assignment

Create a physical data model for the iSchool Webstore System expressed as an Entity-Relationship Diagram (ERD). To accomplish this, I recommend the following process:

1. Begin with the conceptual data model that you created for the Conceptual ERD skills practice assignment.
2. Consult the posted solution to the Skills Practice - Conceptual ERD assignment. Make improvements to your conceptual ERD diagram to correct any deficiencies in your version:
 - a. Add missing entity types
 - b. Add missing attributes
 - c. Add missing relationships
 - d. Add missing relationship names
 - e. Add missing associative entities for relationships that carry data
 - f. Add or correct the cardinality indicators at the end of each relationship line

When your work is complete, your data model should contain sufficient information to answer any question that will be posed by the iSchool Webstore System. Feel free to refer to the posted solution to the Conceptual ERD skills practice assignment while improving your version.

Also, consider the state machine diagram that you created for the last skills practice assignment. If you have identified important states of the Order that cannot be recorded in your data model, then add attributes and/or relationships to carry that information.

3. Create associative entities to allow implementation of any many-to-many relationships that remain in your diagram. In a physical data model for a relational database, all many-to-many relationships must be replaced by an associative entity.
4. Add data types to the attributes in each entity type in your diagram. Please pay close attention to how I found this Visio feature in the tutorial video.
5. Remove repeating data from your entity types:
 - a. Repeating attributes
 - b. Repeating attribute groups

6. Make further model changes to achieve normalization:
 - a. Make sure that attributes and relationships are placed on the correct entity type in your model. Placing these on the wrong entity type can result in redundant information in your model.
 - b. Make sure that attributes are only stored on one entity type in your model. Be suspicious of attributes on different entity types that have very similar names.
 - c. Remove any attributes from the model that can be calculated from other attributes in the model.
 - d. Where appropriate, replace free-form text fields with a relationship to an entity type that holds controlled values.

7. Add foreign keys that are needed to implement each of the relationships shown in your model. **Remember that only one of the two entity types that participate in the relationship is given a foreign key.** In a one-to-many relationship, the “many” side is given a foreign key that points to the “one” side.

Tools

Use MS Visio 2013 unless otherwise arranged with the instructor. I have recorded a demo video that shows how to create a Physical ERD using this tool

Length

One ERD should be submitted. It may occupy several pages if necessary.

Format

Please submit a **single PDF file**.

File Naming Conventions

The name of the file that you submit should include both your name and the name of the assignment. It should follow the form:

trainor_kevin_physical_erd.pdf

Due By

Please submit this assignment by the date and time shown in the Weekly Schedule.