

CSCI 403 - Database Management

Sample Quiz 2

Instructions: Circle **one** answer for each question.

These questions concern the WidgetCo entity-relationship diagram in figure 1.

Questions:

1. Which of the following statements about WidgetCo's supply chain is most likely true?
 - (a) Each supplier contributes a single widget to each of WidgetCo's products.
 - (b) Assemblies may be made of multiple widgets; some widgets are used in more than one assembly.
 - (c) Each widget is used in no more than a single WidgetCo product.
 - (d) WidgetCo markets assemblies as different products in different markets.
2. Considering the relationship **sells**, what would be the best choice to map the relationship into a relational schema?
 - (a) Make one relation combining attributes from **supplier** and **widget**.
 - (b) Add a column **widget_id** into the **supplier** relation and make it a foreign key back to the **id** attribute of **widget**.
 - (c) Add a column **supplier_id** into the **widget** relation and make it a foreign key back to the **id** attribute of **supplier**.
 - (d) Nothing needs to be done to capture the relationship in the schema.
3. Considering the relationship **is part of**, what would be the best choice to map the relationship into a relational schema?
 - (a) Make one relation combining attributes from **assembly** and **widget**.
 - (b) Add a column **widget_id** into the **assembly** relation and make it a foreign key back to the **id** attribute of **widget**.
 - (c) Add a column **assembly_id** into the **widget** relation and make it a foreign key back to the **id** attribute of **assembly**.
 - (d) Make a cross-reference relation containing columns **widget_id** and **assembly_id** as foreign keys back to the **widget** and **assembly** relations, and use both columns as the primary key for the new relation.

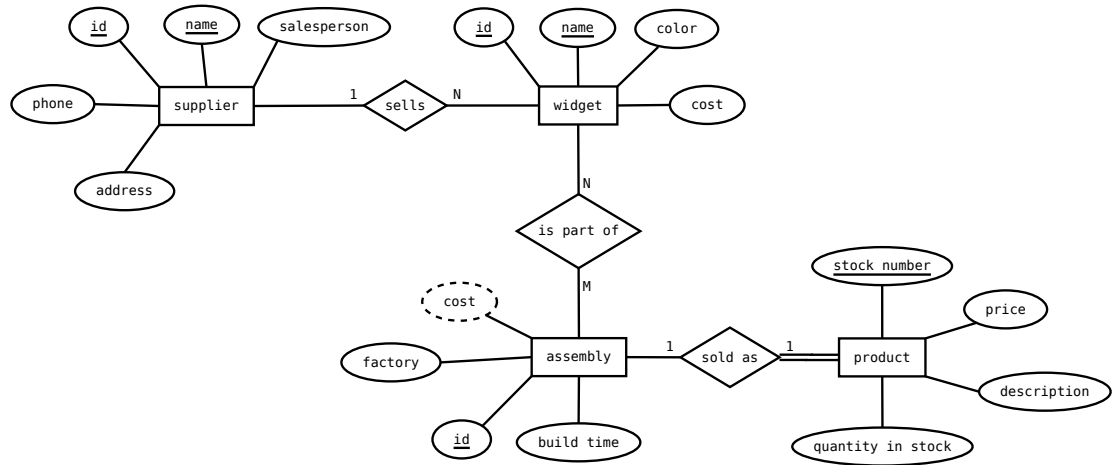


Figure 1: ERD for WidgetCo supply chain

4. Suppose WidgetCo decides they can improve their bottom line by taking competitive bids from suppliers for each type of widget. In what way should the ER diagram be modified?
 - (a) The **sells** relationship will become N:M, and the widget cost will become an attribute of the **sells** relationship.
 - (b) The **sells** relationship will become N:M, and the widget cost will become an attribute of the **supplier** entity.
 - (c) The **supplier** entity should be made into a weak entity identified by the **sells** relationship.
 - (d) No changes are necessary, the ER diagram is fine as is.
5. Why might the designer of the data model have decided to make **product** and **assembly** be separate entities, when there is a 1:1 relationship between them and they could be put into one relation?
 - (a) The two entities model different concepts; **assembly** models an item that can be manufactured, together with details about its manufacture, while **product** models the customer-facing product catalog.
 - (b) Not all of the possible assemblies will be part of the product catalog at all times.
 - (c) The product catalog will be updated often with changing prices and stock quantities, while the facts about a particular assembly are relatively static.
 - (d) All of the above.