

Enterprise Modeling – KaDo’s Revenue Cycle

Ashley Clark and Mark King run a “Kachina Dolls” store in downtown Newark, Delaware. They buy dolls from artists in the South West (mostly Arizona) and sell them to customers in the North East. They desperately need an enterprise system for their sales activities and ask you (ACCT302 students) to help them. They would like you to define an enterprise model for them starting from the information below.

KaDo sells items (or dolls). There is exactly one item category for each item. KaDo has a list with more than 30 item categories. Examples of item categories are HEE (Warrior Woman Kachina), HOS (Road Runner Kachina), KWE (Wolf Kachina), and SPI (Spider Kachina). KaDo has currently more than 50 items of type “HEE” available. However, “SPI” is a new category and KaDo does not have SPI items yet. Ashley and Mark determine (and record) a price for each possible combination of Item Category and Quality Category. For example, the “price” of an item of category “HEE” with quality “3” should be \$85.

Currently, KaDo has more than 200 customers. Some customers haven’t ordered or bought (sale¹) any items yet. There are two different ways for customers to buy items (dolls) from KaDo. First, customers can simply walk into the store, select one or more items from the shelves, and pay for them. There are no orders. Second, customers can place orders. Customers then specify the item categories they are interested in and the quantity per item category per quality category they would like to order (as specified by order-lines). The following are examples of order-lines:

Instances of OrderLine			
Order	ItemCategory	QualityCategory	Quantity
1	HEE	4	3
1	HOS	4	3
1	KWE	4	3
1	NUV	3	3
1	WAK	4	3
1	WUY	4	3
2	KOC	1	1
2	KOC	3	1
2	HOS	5	1
.....			

For example, the first order-line defines that Order “1” requests “3” items (quantity) of ItemCategory “HEE” with QualityCategory “4”; the second order-line defines that the same order (Order “1”) requests “3” items (quantity) of ItemCategory “HOS” with QualityCategory “4”; etc. There is exactly one order for each order-line. There is exactly one item category for each order-line. There is exactly one quality category for each orderline. There is at least one order-line per order. Stated differently, it is impossible to have orders without order-lines. Thus far, no one has ordered items of item category “SPI” (Spider) yet. It should be possible to add new quality categories -- e.g., quality category “6” -- before they are included on an order-line.

¹ Note: the terms “sale” and “shipment” are used interchangeably.

Partial shipments are common. It often takes more than 2 weeks to ship the dolls. There is at most one order per shipment. There is at least one item per shipment. KaDo has currently more than 500 items in stock; i.e., items not sold to a customer yet. All items have a unique tag-number.

There is exactly one customer per order, exactly one customer per shipment, and exactly one customer per cash receipt. The same customer can place more than one order, there can be many shipments for the same customer, and the same customer can pay more than once. The following are KaDo's payment policies²: KaDo accepts pre-payments and installments; no down payments are required for credit sales. Sometimes, customers make payments that apply to multiple shipments. All money received is deposited into the same account.³ It is impossible to record a cash receipt transaction without recording the transaction's account. KaDo actually has a second account. There are no transactions for the second account yet. This account will never be used for cash receipts.

Kado has a reference program. A customer gets a \$50 award if s/he references a new customer (s/he gets the money when the new customer makes her/his first payment). A customer can be referenced by at most one other customer but a customer can reference many customers. Not all customers reference other customers.

All customers are assigned a status⁴ code (A, B, C, D, E). KaDo would like to track (record) the status history of customers. For example, Jerome Ekaf received status "A" on 9/1/2006, received status "B" on 3/12/2007, and received status ("C") last week (9/14/2007). Nobody has reached status E (the highest possible) yet. However, 4 customers have currently status "D."

There are currently 14 KD (Kachina Doll) chapters in the North East. KD chapters are non-profit organizations that bring together people interested in kachina dolls. They organize activities such as exhibitions, presentations, social events, and maintenance workshops. KaDo records information for all KD chapters.⁵ All KD chapters have the same organizational structure: they have one president and a number of members. KaDo records its customers' involvement with KD chapters. Only 25% of KaDo's customers are involved with KD chapters. For seven (and thus 50%) of the KD chapters, the president is one of KaDo's customers. The KD chapters have an agreement that the same person can't be the president of more than one chapter. However, the same person can be a member of different KD chapters. KaDo is only interested in recording the current information (current members and presidents). There are currently two KD chapters with none of KaDo's customers as members. However, one chapter has 25 of KaDo's customers as members.

² Note – ignore the fact that customers who visit the store are expected to pay cash. You only have to model the credit sales.

³ Note – accounts are instances of the Cash entity.

⁴ Note – model status as an entity since it has its own attributes (e.g. description).

⁵ Note – KaDo is only interested in North East KD chapters. So, "all" KD chapters refer to the 14 KD chapters in the North East.

ASSIGNMENT:

Draw an Enterprise Model (E-R Diagram) for KaDo's Revenue cycle!

Note: Draw the relationship attributes.
Do NOT draw the entity attributes.

Attribute List

Customer-code	Order-number
CashReceipt-rano	Shipment-date
Status-code	QualityCategory-code
Cash-code	ItemCategory-code
Status-preferred-discount	Shipment-CashReceipt-amount
ItemCategory-name	Cash-name
KDChapter-name	CashReceipt-date
Customer-name	Order-date
Customer-address	Item-tag-number
Customer-Status-date	ItemCategory-description
Shipment-number	KDChapter-description
QualityCategory-label	Customer-phone
Item-description	Status-description
ItemCategory-QualityCategory-sellprice	OrderLine-quantity
KDChapter-address	