

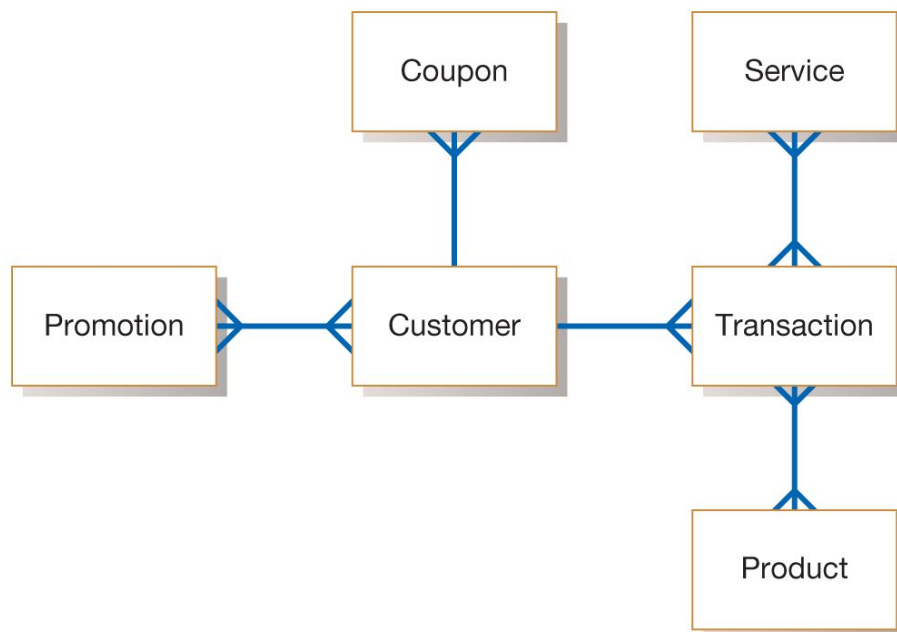
Jim Watanabe, manager of the “No Customer Escapes” project, and assistant director of IT for Petrie Electronics, was sitting in the company cafeteria. He had just finished his house salad and was about to go back to his office when Stephanie Welch sat down at his table. Jim had met Stephanie once, back when he started work at Petrie. He remembered she worked for the database administrator.

“Hi, Jim, remember me?” she asked.

Sure, Stephanie, how are you? How are things in database land?”

“Can’t complain. Sanjay asked me to talk to you about the database needs for your new customer loyalty system.” Stephanie’s phone beeped. She pulled it out of her oversize bag and looked at it. She started to text as she continued to talk to Jim. “How far along are you on your database requirements?”

That’s kind of rude, Jim thought. Oh well. “We are still in the early stages. I can send you a very preliminary E-R diagram we have, along with a description of the major entities.”



“OK, that will help. I suspect that you won’t have too many new entities to add to what’s already in the system,” Stephanie responded, still looking at her phone and still texting. She briefly looked up at Jim and smiled slightly before going back to texting. “Just send the E-R to me, and I’ll let you know if I have any questions.” She stood up, still looking at her phone. “Gotta go,” she said, and she walked away.

OK, Jim thought, I need to remember to send Stephanie the preliminary E-R we have. I should probably send her the entity descriptions too, just in case. Jim stood up, carried his tray over to the recycling area of the cafeteria, and went back to his office.

Entity	Description
Coupon	A coupon is a special promotion created specifically for an individual customer. A coupon is for a set dollar amount, for example, \$10. The customer may use it like cash or like a dollars-off promotion when purchasing products or services. Coupons can only be created for an individual customer based on the points in his or her customer loyalty account. For each dollar value of a coupon, a certain number of points must be redeemed. Coupons must be accounted for when created and when redeemed.
Customer	A customer is someone who buys products and/or services from Petrie Electronics. Customers include both online customers and those who shop in Petrie's brick-and-mortar stores.
Product	An item made available for sale to a Petrie customer. For example, a product is a 40" Sony LCD HD television. Products can be purchased online or in brick-and-mortar stores.
Promotion	A promotion is a special incentive provided to a customer to entice the customer into buying a specific product or service. For example, a promotion intended to sell Blu-ray discs may involve 2-for-1 coupons. Promotions are targeted to all customers, or to subsets of customers, not just to individual customers.
Service	A job performed by one of Petrie's associates for a customer. For example, upgrading the memory in a computer by installing new memory cards is a service that Petrie provides for a fee. Services may only be ordered and performed in brick-and-mortar stores, not online.
Transaction	A record that a particular product or service was sold to a specified customer on a particular date. A transaction may involve more than one product or service, and it may involve more than one of a particular kind of product or service. For example, one transaction may involve blank DVDs and pre-recorded DVDs, and the pre-recorded DVDs may all be of the same movie. For members of the loyalty program, each transaction is worth a number of points, depending on the dollar value of the transaction.

When Jim got back to his office, Sanjay was waiting for him.

"I've got more information on those alternatives we talked about earlier," Sanjay said. "I had one of my employees gather some data on how the alternatives might satisfy our needs." (See the descriptions of the alternatives at the end of Chapter 6 .) Sanjay handed Jim a short report. "The matrix shows the requirements and constraints for each alternative and makes it relatively easy to compare them."

Criteria	Weight	Alt A: Rating	SBSI Score	Alt B Rating	XRA Score	Alt C Rating	Nova Score
Requirements							
Effective customer incentives	15	5	75	4	60	4	60
Easy for customers to use	10	3	30	4	40	5	50
Proven performance	10	4	40	5	50	3	30
Easy to implement	5	3	15	4	20	3	15
Scalable	10	3	30	4	40	3	30
Vendor support	10	3	30	4	40	3	30
	60		220		250		215
Constraints							
Cost to buy	15	3	45	4	60	5	75
Cost to operate	10	3	30	4	40	4	40
Time to implement	5	3	15	3	15	3	15
Staff to implement	10	3	30	4	40	3	30
	40		120		155		160
TOTAL	100		340		405		375

"The matrix favors the XRA CRM system," Jim said, after looking over the report. "It looks like their proposal meets our requirements the best, but the Nova group's proposal does the best job with the constraints."

"Yes, but just barely," Sanjay said. "There is only a five point difference between XRA and Nova, so they are pretty comparable when it comes to constraints. But I think the XRA system has a pretty clear advantage in meeting our requirements."

"XRA seems to be pretty highly rated in your matrix in terms of all of the requirements. You have them ranked better than the other two proposals for implementation, scalability, and vendor support," Jim said. "The '5' you gave them for proven performance is one of the few '5's you have in your whole matrix."

"That's because they are one of the best companies in the industry to work with," Sanjay responded. "Their reputation is stellar."

"This looks really promising," Jim said. "Let's see if reality matches what we have here. It's time to put together the formal request for proposal. I'll get that work started today. I hope that all three of these companies decide to bid."

- 1. Do you agree with the team's conclusion that the only six entity types needed are listed in the case? If you disagree, define additional entity types, explain why they are necessary.**
2. What would be the attribute that could be used as a unique identifier for each entity presented in this case (and any additional entities you identified in question 1)
3. Are any of the entities in this diagram weak entities?