CIS 2109 HW6

10/26/2018

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1. Can a customer have an unlimited number of plans?

Answer:

Yes, a customer can have zero to any number of plans.

Rationale for answer:

For this problem I used Customer entity, Plan entity, and the relationship between them.

1. Can a customer exist without a plan?

Answer:

Yes, a customer can exist without a plan based on the relationship between the two entities, which says that a customer can have zero to any number of plans.

Rationale for answer:

For this problem I used Customer entity, Plan entity, and the relationship between them.

1. Is it possible to create a plan without knowing who the customer is?

Answer:

No, a customer must exist to create a new plan, based on the relationship between Plan and Customer entity.

Rationale for answer:

For this problem I used Customer entity, Plan entity, and the relationship between them.

1. Does the operator want to limit the types of handsets that can be linked to a specific plan type?

Answer:

Yes, the relationship between the Plan, Handset and Handset Type entities states that a Plan can have one to many Handsets, but those handsets have a mandatory one relationship with the Handset Type entity.

Rationale for answer:

For this problem I used the Plan entity, Handset entity, and the Handset Type entity, and the relationship between them.

1. Is it possible to maintain data regarding a handset without connecting it to a plan?

Answer:

Yes, each Handset entity has a mandatory one Handset Type entity. Each Handset Type entity has a mandatory one relationship with the Manufacturer entity and Operating System entity, so each Handset will have this data without connecting to a plan.

Rationale for answer:

For this problem I used the Handset entity, the Handset Type entity, and the Operating System entity, the Manufacturer entity, and the relationship between them.

1. Can a handset be associated with multiple plans?

Answer:

No, the Handset entity has an optional zero to one relationship with the Plan entity.

Rationale for answer:

For this problem I used the Handset entity, the Plan entity, and the relationship between the two entities.

1. Assume a handset type exists that can utilize multiple operating systems. Could this situation be accommodated within the model included in Figure 2-24?

Answer:

No, the Handset Type entity has a mandatory one relationship with the Operating System entity.

Rationale for answer:

For this problem I used the Handset Type entity, the Operating System entity, along with the relationship between them.

1. Is the company able to track a manufacturer without maintaining information about its handsets?

Answer:

Yes, a manufacturer can be tracked through the Manufacturer entity which doesn’t rely on any other entity to maintain information on manufacturers. (I believe this is what the question was asking, it is somewhat unclear what track means)

Rationale for answer:

For this problem I used the Handset Type entity, the Manufacturing entity, along with the relationship between them.

1. Can the same operating system be used on multiple handset types?

Answer:

Yes, the relationship from the Operating System entity to the Handset Type entity is optional many relationship. So, an Operating System can be on multiple handset types.

Rationale for answer:

For this problem I used the Handset Type entity, the Operating System entity, along with the relationship between them.

1. There are two relationships between Customer and Plan. Explain how they differ.

Answer:

Relationship one: “Is responsible for” states that a Plan needs mandatory one Customer to be responsible for it, and a Customer can be responsible for optional many Plans.

Relationship two: “Belongs” states that a Plan belongs to mandatory one to many Customers, and a Customer can belong to optional many Plans.

Rationale for answer:

For this problem I used Customer entity, Plan entity, and the relationship between them.

1. Characterize the degree and the cardinalities of the relationship that connects Customer to itself. Explain its meaning.

Answer:

The Customer relationship to itself is a unary relationship with a cardinality of optional many on one end, and optional one on the other end. The meaning of this relationship is, a customer could have none, one family member, or none to many family members.

Rationale for answer:

I used the Customer entity and its relationship with itself.

1. Is it possible to link a handset to specific customer in a plan with multiple customers?

Answer:

No, from the current set up the handset(s) for a given plan are attached to that plan. So, the handset(s) have no relationship with the Customers attached to the plans they’re attached to.

Rationale for answer:

For this problem I used the Handset, Plan, and Customer entities, along with the relationship between them.

1. Can the company track a handset without identifying its operating system?

Answer:

No, a Handset has a mandatory one Handset Type, which in turn has a mandatory one relationship with the Operating System entity.

Rationale for answer:

For this problem I used the Handset, Handset Type, and Operating System entities, along with the relationship between them.

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