

**Review Session**  
**Spring 2009**  
**Part 2**  
**Entity-Relationship Modeling**  
**Assignment**

**Celebrity Vacations**

To increase their profits, Celebrity Vacations - a company in Wilmington, DE -, would like to try out a new formula aimed at the middle age fantasies of boomers with lots of energy, ambition and money to spare. They offer celebrity vacations during which their guests can do some of their favorite activities accompanied by celebrities – go bike in Colorado with Greg Lemond, learn to cook spicy food with Emeril or go watch a Broadway show with John Travolta. Joe, owner of CV, knows he needs a world-class accounting information system to be successful. He asks you to help him get started. The following is a series of questions (Q) that you asked CV employees about CV's business processes and their answers (A). Next, you should read this information carefully and translate it into an **E-R diagram**.

**Q. Tell us more about the role of celebrities in your business activities.**

A. CV currently has more than 500 celebrities you can choose from. CV records the schedule of most celebrities. Days are instances of schedule. It happens that we have days when no celebrities are available. Some celebrities are available for more than 75 days a year (we pay them well). We record celebrities in the system even when we are not sure if they will ever be available. You will be able to choose from more than 50 celebrities if you book a vacation with us this Christmas!

**Q. Could you tell us more about the vacation packages?**

A. Guests (customers) can choose from 13 different packages including “Aquatics with celebrities” and “Relax with celebrities.” Each package has at least 10 different activity types to choose from – e.g. the “relax with celebrities” package includes sailing trips, candlelight dinners, tango dancing, wine tasting, how to make cocktails, etc. It is possible to record activity types without them being used in a vacation package. The same activity type can be used in many vacation packages.

**Q. Explain us how you work with resorts?**

A. For each vacation package, CV selects (and records) a number of resorts that are able to support it (i.e., the resort must support all the activity types that are included in the package). We have more than 10 resorts for all 13 vacation packages and the same resort can host more than one vacation package. Only resorts that are able to support a vacation package are recorded. Resorts are further grouped into locations. CV distinguishes between the following three locations: US and Canada, Caribbean and Europe. We record exactly one location for each resort. Currently, we have many resorts for each location. However, it might be possible to have a location without a resort. Ooh! We forgot to tell you. Most celebrities limit their availability to locations. For example, Bill Clinton only participates in activities in the US and Canada (one location) while Ziggy Marley participates in activities all over the world. We haven't recorded locations for all celebrities. At least one celebrity is recorded per location. Let's get back to the resorts. CV has agreements with all resorts that they must have a number of rooms available (reserved) per specific room type – e.g. the ‘Copper Mountain’ resort in Colorado should have 10 (number of rooms) luxurious suites (room type) and 10 duplex suites available. We currently have (1) more than 200 resorts that have reserved “luxurious suites” for us, and (2) no resorts that offer “deco-plus” rooms (deco-plus is a room type).

**Q. Let's go back to celebrities now. Let's take a look at other factors that limit their availability.**

A. The availability of celebrities also depends on the activities they are willing to participate in. Celebrities do not want to participate in all activities. For example, it is unlikely that Michael Jordan is going to teach you ballroom classes. We explicitly record the activity types celebrities are willing to participate in. Most celebrities are willing to participate in many activity types. We have a number of celebrities that have accepted to participate in the program but that haven't specified their activity types yet (e.g. Mike Tyson). We have a number of celebrities available for most activity types. However, Jacky Chan is the only celebrity who is willing to participate in 'scuba diving with sharks'. What if he leaves the program? We would keep 'scuba diving with sharks' as an activity type.

**Q. Is it hard to get celebrities involved and how do you contact them?**

A. Having celebrities sign up for our program is really hard. We often ask celebrities that already work for us to help us get other celebrities to sign up. We explicitly record referrals: celebrities referred to us by other celebrities. Only a few celebrities actually have helped us and we got most celebrities to sign up without help (no referral). John Travolta has been the most helpful celebrity. He has referred more than ten other celebrities to us (including Ellen Page and Tilda Swinton!). A celebrity can be referred by only one other celebrity. Contacting celebrities is also really hard. They all give their personal phone number but it never seems to work. The biggest celebrities (less than 20%) typically have one or more representatives. We want to include information regarding representatives in our database (id, name, phone, and email). We differentiate between two different types of representatives: manager and assistant. A celebrity can have only one manager but can have many assistants. We only record representatives that are either manager or assistant of at least one celebrity. The same representative can't be manager and assistant at the same time. One of the representatives (Holly Wood), is manager of more than 20 celebrities. Another representative (S. H. Owbizz), is an assistant for two celebrities: Meryl Streep and Cameron Diaz.

**Q. Let's talk about the reservations?**

A. Reservations are always made by a guest. There is exactly one guest per reservation. You become a guest when you make your first reservation with CV. A guest can make more than one reservation. Let's look at the other information that needs to be recorded for a reservation.

- Guests always make a reservation for a vacation package. There is exactly one vacation package per reservation. We currently have more than 200 reservations for the 'relax with celebrities' package. However, we haven't any reservations yet for the "Learn E-R modeling with celebrities" package (Bill Gates agreed to participate in some of the activities for this package!).
- Guests select one of the resorts that offer their vacation package. Exactly one resort is selected per reservation. We have some resorts for which no reservations have been made yet. We have two reservations for the Copper Mountain resort this week. They further select one of the room types offered by the resort. Exactly one room type is selected per reservation. Not all room types have been selected. Some room types have been selected many times.
- Next, the guest makes reservations for the activities s/he is interested in. The choices are limited to the activities listed for the vacation package. There is at least one activity per reservation. All activities are assigned a unique code and a time slot (a calendar day; i.e., an instance of schedule). There is exactly one reservation for each activity. Last year, we had at least 50 activities for every (calendar) day. However, it is possible to have a day without activities.

- Next, guests decide if they would like to have one or more celebrities participate in their activities. They make a selection from the celebrities available. The celebrity is then assigned to the specific activity. As stated above, you can have more than one celebrity for the same activity. Also, you could decide to enjoy your activities without a celebrity -- do you really want to go bowling with Richard Simmons? John Travolta participated in three activities last week.

**Q. What other information do you record about activities?**

A. We specify exactly one activity type for each activity. We have a number of activity types for which no activity has been recorded yet (i.e. no reservation has been made yet). There are hundreds of activities for most activity types.

CV gives you the following information about entities and attributes they are interested in

|                              |                             |
|------------------------------|-----------------------------|
| Location-name                | Representative-email        |
| Vacationpackage-name         | Celebrity-name              |
| Guest-name                   | Celebrity-telephone         |
| Representative-name          | Guest-telephonenumber       |
| Location-description         | Representative-id           |
| Schedule-month               | Vacationpackage-description |
| Reservation-code             | Reservation-employeename    |
| Roomtype-name                | Resort-name                 |
| Vacationpackage-standardcost | Schedule-year               |
| Activitytype-name            | Activitytype-description    |
| Roomtype-description         | Resort-address              |
| Resort-Roomtype-quantity     | Schedule-day                |
| Activity-code                | Representative-phone        |
| Activitytype-riskcategory    |                             |

**ASSIGNMENT**

**DO** Draw an Entity-Relationship Diagram.  
Define the cardinalities and relationship attributes.

**DON'T** You do not have to put attributes on your solution!  
You don't have to draw a relational database structure!