CS 631 – Online Hotel Reservation System Project
Deliverable 1

- *Please do NOT submit a copy of your deliverable for every member of the group. Only ONE COPY FOR EACH GROUP should be submitted by one of the members of the group on or before the due date through Moodle.*
- *Please submit a single file (doc or pdf) with all your material (text, figures, images etc.).*
- *Please make sure that you write the Course and Section number, the name of the group members and the group number clearly on the first page of your deliverable.*

Requirements

Deliverable 1 must contain an analysis of the intended database system, and a conceptual schema. It must describe the problems encountered in this phase and justify the solutions.

What is expected:

1. Outline the goals of this phase of the project.

2. Analyze the entire application for the Online Hotel Reservation System and come up with an extended ER diagram. Use the notation for E/R model constructs and additional notation for specialization/generalization hierarchies we learned in class.

- Show entity types, relationship types (including class/subclass relationship types), and attributes. Show different types of attributes (simple/composite, single-valued/multi-valued, stored/derived) if needed. Show roles on recursive relationship types.

- Show key attributes (only one key per entity type should be shown on the ER diagram).

- Include structural constraints (cardinalities ratio and participation constraints). Use both notations for the constraints of relationship types on the diagram as an exercise (the traditional one and the (min, max) notation).

- Use some diagram editor to draw a clean diagram.

3. Mention any assumptions you made in doing the above that go beyond what is given in the project description. In particular, mention all assumptions that led you in determining structural constraints.

4. Make a list of constraints that apply over and above what you can show in the diagram. In particular make a list of additional keys for entity types (if there are any).

5. Besides the above, comment on the difficulties you faced in doing this conceptual design task.

NOTE: The above specification will drive your subsequent phases. As in any actual design and implementation, you will be revising what you do here as you proceed through the phases. Please be explicit and detailed when writing your deliverable. This will help you in the long run!

CS 631/002 – Online Hotel Reservation System Project

Deliverable 1

Group 3

Lin Tang

Yuhao Shi

Xiaoxi Yang

Requirements

Deliverable 1 must contain an analysis of the intended database system, and a conceptual schema. It must describe the problems encountered in this phase and justify the solutions.
What is expected:
1. Outline the goals of this phase of the project.
2. Analyze the entire application for the Online Hotel Reservation System and come up with an extended ER diagram. Use the notation for E/R model constructs and additional notation for specialization/generalization hierarchies we learned in class.

- Show entity types, relationship types (including class/subclass relationship types), and attributes. Show different types of attributes (simple/composite, single-valued/multi-valued, stored/derived) if needed. Show roles on recursive relationship types.

- Show key attributes (only one key per entity type should be shown on the ER diagram).

- Include structural constraints (cardinalities ratio and participation constraints). Use both notations for the constraints of relationship types on the diagram as an exercise (the traditional one and the (min, max) notation).

- Use some diagram editor to draw a clean diagram.

3. Mention any assumptions you made in doing the above that go beyond what is given in the project description. In particular, mention all assumptions that led you in determining structural constraints.
4. Make a list of constraints that apply over and above what you can show in the diagram. In particular make a list of additional keys for entity types (if there are any).
5. Besides the above, comment on the difficulties you faced in doing this conceptual design task.

1. Goals of this phase: create a perfect E-R diagram

- In this phase, we need to create an E-R diagram of this project first before we start to build a database
- As we are designers, an E-R diagram enables us to concentrate on specifying the properties of the data of this project, without being concerned with storage and implementation details, which makes it is easier to create a good conceptual database design.
- Giving a good conceptual database design to customer, which can be easily understood by our customer.
- After the E-R diagram created, we can mapping it into a relational database schema, then build a basic frame of database of this project.

2. Building a E-R diagram

See the last page

3. Assumptions

- This program should enable to make sure automatically every room only have one continuous period of time per year to have a discounted price, which means if a room already had a discounted price this year, the hotel cannot make a discounted price for this room again in this year.
- We assume every hotel should have at least 4 kinds of breakfast types.
- We assume every hotel should have at least 3 kinds of service types.
- Entity Hotel Chain contains all hotels' number.
- After a new customer register successfully, system give a ID to him automatically.

4. List of additional keys for entity types

Hotel Chain: HC_ID (it contain the numbers of all hotels)
Room_Res: RR_ID (it based on the Invoice number of Reservation)

5. Difficulties

- At first, it is a little bit hard to make sure the entity Room, Breakfast, Service are weak entities or strong entities, because we often see a sentence "Prices and descriptions of xxxx may vary from one hotel to another for the same type of xxxx". We think every room should identified by which hotel it belongs to and its room number, so we decide Room, Breakfast, Service are weak entities.
- Some of the (Min, Max) is based on the real situation, we should make some assumption of it.
- The structural constraints of this project are hard to be decided, but we make our best effort to do it.