MySQL create database RentalProperty

Consider the Enhanced CERD provided below:

A diagram of a rental agreement

Description automatically generated

1. Shown above is an CERD diagram for Vacation Property Rentals. This organization rents preferred properties in several states/provinces. As shown in the figure, there are two basic types of properties: beach properties and mountain properties. I have provided the DBDL in the next page. Implement the DBDL in MySQL. Write database definition statements in MySQL for each of the relations shown. Ensure you have the appropriate PK and FK constraints. Write MySQL INSERT commands to insert at least 5 records to the RENTER, PROPERTY tables. In the RENTAL AGREEMENT tables INSERT at least 15 records. INSERT the appropriate records in the subtypes, Activity and the propertyActivity tables.
2. Generate the MySQL EER diagram using the reverse engineering utility.
3. Suggest an integrity constraint that would ensure that no property is rented twice during the same time interval. Implement this constraint in MySQL? When checking for the constraint provide an error message if the constraint is violated.

**DBDL for RentalProperty**

**A screenshot of a computer

Description automatically generated**

**EDW Case**

Atlantic Insurance Company, is involved primarily in the sale of annuity products, would like you to design a data mart for its sales and marketing organization. Presently, the OLTP system is a legacy system residing on a shared network drive consisting of approximately 600 different flat files. For the purposes of our case study, you can assume that 30 different flat files are going to be used for the data mart. Some of these flat files are transaction files that change constantly. The OLTP system is shut down overnight on Friday evening beginning at 6 p.m. for backup. During that time, the flat files are copied to another server, an extraction process is run, and the extracts are sent via FTP to a UNIX server. A process is run on the UNIX server to load the extracts into MySQL and rebuild the star schema. For the initial loading of the data mart, all information from the 30 files was extracted and loaded. On a weekly basis, only additions and updates will be included in the extracts. Although the data contained in the OLTP system are broad, the sales and marketing organization would like to focus on the sales data only. After substantial analysis, the ERD shown in Figure 1 below and was developed to describe the data to be used to populate the data mart.

A diagram of a policy

Description automatically generated

From this ERD, you get the set of relations shown in the Figure 2 below.

A screenshot of a computer screen

Description automatically generated

Sales and marketing is interested in viewing all sales data by territory, effective date, type of policy, and face value. In addition, the data mart should be able to provide reporting by individual agent on sales as well as commissions earned. Occasionally, the sales territories are revised (i.e., zip codes are added or deleted). The Last Redistrict attribute of the Territory table is used to store the date of the last revision. Some sample queries and reports are listed here:

• Total sales per month by territory, by type of policy.

• Total sales per quarter by territory, by type of policy.

• Total sales per month by agent, by type of policy.

• Total sales per month by agent, by zip code.

• Total face value of policies by month of effective date.

• Total face value of policies by month of effective date, by agent.

• Total face value of policies by quarter of effective date.

• Total number of policies in force, by agent.

• Total number of policies not in force, by agent.

• Total face value of all policies sold by an individual agent.

• Total initial commission paid on all policies to an agent.

• Total initial commission paid on policies sold in a given month by agent.

• Total commissions earned by month, by agent.

• Top-selling agent by territory, by month.

Commissions are paid to an agent on the initial sale of a policy. The InitComm field of the policy table contains the percentage of the face value paid as an initial commission. The Commission field contains a percentage that is paid each month as long as a policy remains active or in force. Each month, commissions are calculated by computing the sum of the commission on each individual policy that is in force for an agent.

**QUESTIONS:**

a) Create a star schema for this case study. How did you handle the time dimension? Draw the star schema.

b) Would you prefer to normalize (snowflake) the star schema of your answer to a) If so, how and why? Redesign the star schema to accommodate your recommended changes. Draw the snowflake schema.

c) Agents change territories over time. Redesign your answer to handle this slowly changing dimensional data. Draw the schema to accommodate these changes.

d) Customers may have relationships with one another (e.g., spouses or parents and children). Redesign your answer accommodate these relationships. Draw the schema to accommodate these relationships

f) Place all diagrams and associated assumptions

e) The OLTP system data for the Atlantic Insurance Company is in a series of flat files. What process do you envision would be needed in order to extract the data and create the ERD shown in Figure 1? How often should the extraction process be performed? Should it be a static extract or an incremental extract?

i) After some further analysis, you discover that the Commission field in the Policies table is updated yearly to reflect changes in the annual commission paid to agents on existing policies. Would knowing this information change the way in which you extract and load data into the data mart from the OLTP system?

Create the associated Data dictionary in MS Excel to explain the PKs, FKs, the data type of various fields, the source of the data, any indexes, and any other constraints for the final EDW design.

**EDW implementation issues**

a) recommend a cloud DBaaS and explain what features the cloud provider has that you think is appropriate for the EDW implementation. The provider you pick can be any of IaaS or PaaS or SaaS. You need to justify why you chose this provider.

b) what data security measures must be taken. Consider, hardware, communication and software security.

c) Implement the Date/Time dimension using MySQL DDL commands. Insert at least 5 records to the Date/Time dimension table. Provide the MySQL code to implement this dimension.

d) What Administrative Schema privileges would you provide for the various roles described in the EDW case if it is implemented using MySQL. Provide concise answers. Provide a table with user roles and corresponding privileges.