Database Project

Deliverable	Description	Due by 11:58 PM On	Points
ER Diagram of business requirements	Part One	Tuesday, Feb. 14, 2017	25
Transforming ERD into a relational database schema	Part Two	Tuesday, Feb. 21, 2017	15
Implementation of database: table creation, population, updates	Part Three	Tuesday, Feb. 28, 2017	30
Completion of database prototype: import/enter external data, advanced SQL queries to support the business	Part Four	Tuesday, Mar. 7, 2017	30

This is the last part of the project that started with an idea for a database, design of a database using the ER diagram, transforming the design to relational schema and finally implementing the design and writing advanced SQL queries.

Part Four:

Download the Access file **LuxuryLodgingsDatabase.accdb** and **save as 'YourName_PartFour'**. Use this database to complete this part of the project. You may need to click the 'Enable Content' button before continuing. All the tables are created. All the tables are populated with data except for the RESERVATION table.

Steps:

1. (5 points) The GUEST and GUEST_PHONE tables are populated with data. Write a select statement to view the data in the GUEST and GUEST_PHONE table.

    - Write the SQL statements to change the first and last names for guest G101 to your first and last name.

    - Guest G101 does not have phone numbers in the GUEST_PHONE table. Write the SQL statements to add a work phone number and a cell phone number to the GUEST_PHONE table for Guest G101. Do not use your actual phone numbers; make up numbers.

    Save all your queries to the database file.

2. (5 points) Import data from an external data file.

Download the Excel file reservationData.xlsx . You do not need Excel on your computer to use this file. **Import the Excel data into the RESERVATION table** in your database. The reservations are for the 20 guests in the GUEST table.

- View the video on How to Import Excel data to ACCESS

3. **For the following query requests:**

- Save each of your SQL queries in the database file. Name each query appropriately.
  When you join on a composite primary key and foreign key, you must use join criteria for each attribute in the composite.

a. (5 points) Write the SQL statement to retrieve first and last names of guests who have never reserved a family ('F') room. You **must** use a subquery.

b. (5 point) The owners would like to know the revenue generated so far
   i.e. where CheckOutDate < NOW( )
   for each room type in each hotel. Write the SQL statement that will calculate the Revenue generated for each room type in each hotel. The calculation **must be done** in the SQL statement. To calculate the Revenue:

   i. Determine the length of stay for each reservation (i.e. number of days) using the DateDiff function
      (datediff('d', CheckInDate, CheckOutDate))

   ii. Multiply this calculation by the room rate
   iii. Embed the entire calculation in the SQL aggregate function SUM ( )

   Your output should be formatted as shown below. The exact revenue totals are not given; this is made up data.
   Keep in mind, your Revenue totals may change on a daily basis, as we want to include only those reservations that are completed, not ongoing or future reservations.

Revenue By Room Type		
Hotel	RoomType	Revenue
A111	D	37500
A111	F	14700
A111	S	26700
B100	D	29500
B100	F	17500
B100	S	41700

c. (5 points) Write the SQL statement to determine the number (count) of rooms in each hotel that have never been reserved. Must use a **left or right join**.

d. The owners would like to know which rooms were available (not reserved) last year, i.e. from Dec. 1, 2016 through Dec.31, 2016. They want to use this information to predict what the hotel occupancy might be like for this year (2017). This needs to be done in two parts. Notice the second part is for extra credit.

   Part one: (5 points) Write a query that returns the hotel ID , room number, check in date and check out date of the rooms that were **reserved** during the above specified time period. To determine if a room was reserved (i.e. unavailable) you need to compare the check in and check out dates in a reservation to the **StartDate** (Dec. 1, 2016) and the **EndDate** (Dec. 31, 2016).

Note: use date formatted as m/d/yyyy enclosed in tags, for example. #7/1/2016#.

Use the following WHERE clause (replace **StartDate** and **EndDate** with Dec. 1, 2016 and Dec. 31, 2016 respectively, in the proper format.

```
Where CheckInDate between StartDate and EndDate
    or CheckOutDate between StartDate and EndDate
    or (CheckInDate < StartDate and CheckOutDate > EndDate)
```

Part two: (5 points Extra Credit) To find the rooms that were available between Dec. 1, 2016 and Dec. 31, 2016 you first need to save the query from part one as **ReservedRooms**
Then, using **ReservedRooms**, and any other tables you think you need, write the SQL statement to return all available rooms for the specified time period. Include the Hotel ID, Room number, and room type for each available room.

Submissions

Submit your ACCESS database file ("yourName_PartFour) via the D2L Dropbox for Database Project Part 4.

Database Project Part Four Grading Rubric

(Based on the criteria in the course rubric available in the Overview of this course in D2L)
Learning Outcomes:

- Use external data facility in ACCESS/MySQL to import excel/csv data into the database
- Analyze request for information and write the SQL retrieval statement

Problem Number(s)	Proficient 5	Nearing Proficiency 4 - 3	Needs Improvement 2 - 0
2	Shows a comprehensive understanding of ACCESS development facilities • Uses ACCESS external data facilities to get all data from Excel file into database; data is imported to the correct table.	Shows an adequate understanding of ACCESS development facilities • Uses ACCESS external data facilities to get some data from Excel file into database; data is imported to incorrect table.	Shows minimal or no understanding of ACCESS development facilities • Did not import data from Excel document into the database.
1, 3 (max 5 points each)	Shows a comprehensive understanding of the concepts of database retrieval • Completely and correctly apply selection, projection and join relational algebra concepts Identifies all the important	Shows an adequate understanding of the concepts of database retrieval • Adequately apply selection, projection and join relational algebra concepts Identifies most of the important elements of the retrieval	Shows minimal or no understanding of the concepts of database retrieval • Inadequately or did not apply selection, projection and join relational algebra concepts Identifies a minimal number or

	elements of the retrieval request • Completely and correctly identifies the tables, attributes, selection and join criteria, grouping and ordering of attributes • Completely and correctly identifies the data subsets on which aggregate functions, date functions and calculations are to be applied. Uses correct SQL syntax and notation to execute the solution completely and correctly • Results are complete and correct.	request • Adequate analysis of the request to identify correct tables, some of the attributes and most of the selection and join criteria, grouping and ordering of attributes • Incomplete or incorrectly identification of the data subsets on which aggregate functions, date functions and calculations are applied • Mostly correct calculations Uses correct SQL syntax and notation to execute and incomplete solution • Results are incomplete and/or incorrect.	none of the important elements of the retrieval request • Incomplete or incorrect analysis of the tables, attributes, selection and join criteria, grouping and ordering of attributes • Minimal or no identification of the data subsets on which aggregate functions, date functions and calculations are applied • Incorrect or no calculations Uses incorrect SQL syntax and notation to execute the solution • Results are incomplete or incorrect • No results produced due to SQL syntax or notation errors.