CMPT 354 Fall 2019
Database Systems
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Assignment 7

Total marks: 300 (30% of the assignments)
Due date: November 28, 2019

In this assignment, you will write a simple application program for the Airbnb database, created in Assignment 3, and implement several functions for querying and modifying the database.

Preparation

1. You can use the following programming languages to implement the application: Java, Python and C++. Helpdesk has provided the following instructions and examples for using the CSIL databases from various programming languages including Java, and Python: http://www.sfu.ca/computing/about/support/csil/windows/how-to-use-sql.html#sample-codes.
2. You can find your password for the database connection in your database's dbo.helpdesk table in SQL Server -- right click on it and select "Select top 1000 rows".
3. We assume that you are familiar with at least one of the above-mentioned programming languages. Here, we list several tutorials about creating applications based on databases in different languages:

   Creating, Running and Packaging Your First Java Application: https://www.jetbrains.com/help/idea/creating-running-and-packaging-your-first-java-application.html

   Java Application with SQL Server Database:

   https://www.youtube.com/watch?v=KzNW4oTpYvs

   Python with SQL Server Database:

   https://www.c-sharpcorner.com/UploadFile/75a48f/micro/

Application Requirements

Your application should either have a graphical user interface or a command line interface with a hierarchical menu to support the following functions. Your submitted application should be run directly on the workstations in CSIL without compiling by the user. For example, an .exe file or an executable JAR file if you use Java for implementation. If you use Python, you can simply submit a .py file that we can directly run. Note that once the program is running, it should allow the tester to test all its functions and not terminate unless the tester manually closes the window or console. The functions to be implemented are as follows:

Search Listings

1. This function allows the user to search for a suitable listing the satisfies certain criteria.
2. A user should be able to set the following filters as their search criteria: minimum and maximum price, number of bedrooms, and start and end date.
3. After the search is complete, a list of search results must be shown to the user. The list must include the following information for each listing: id, name, first 25 characters of description, number of bedrooms, price. The results can be shown on the terminal or in a GUI.
4. If the search result is empty, an appropriate message should be shown to the user.

Book Listing

1. A user must be able to select a listing from the results of the function Search Listings and book it. This can be done by entering the listing's id in a terminal or by clicking at a listing in a GUI.
2. All the booking information should be recorded in the Booking table.
3. When a listing is booked, the Calendar table needs to be updated as well. This should happen by the first trigger you wrote for assignment 4.

Write Review

1. A user should be able to write a review of a listing after his stay in that listing.
2. To write a review, a user must enter their name and the program should show all the bookings of that user. Then the user can select one of their bookings and write a review of that listing.
3. The following information should be asked from the user who wants to write a review: user's name, current date, review text.
4. The program should allow a review only if the given date is after the stay_to attribute of the related booking record. You need to make sure that the triggers you implemented in assignment 4 are working properly with your application program. If any error happened in a trigger, your program should print the trigger's error message and let the user know that the review was not stored.

Submission

Test your application to make sure it can successfully connect to the database and run. Import/restore the data to the original status where necessary. **At submission time your database must contain an identical copy of the provided data without modifications** (insertions, deletions, updates) for the purpose of running test cases by the TA.

Submit a zip-file Assignment7.zip to CourSys.

The zip file should include your complete project directory, including all the source code and the used libraries, an executable application file for your project, as well as a simple read-me file describing how to use your application. You can illustrate the usage of your application in the read-me file with screenshots if you want.