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MIDTERM: Databases - 2018/2019  
Software Engineering Department, Computer Science Faculty, NRU HSE  
Task Set A

Task 1. Entity-Relationship Modelling. Company has a few branches (each branch is in a distinct city) and time to time send employees to business trips from one branch to another. Each trip has a planned and fact start and end dates, and a task assigned to it. Trip may be cancelled before its start, and date of cancellation is to be recorded too. For each trip travel department reserves a pair of flights and books a hotel at destination city. Each flight has an origin and destination cities, air company, flight number, date and time of departure, and a ticket price. Hotel has name, address (including city), and room charge for overnight stay. Draw an ER diagram for this domain.

Task 2. DDL. Build a relational database scheme for model from Task 1. (CREATE TABLEs).

Task 3. SQL. Find all hotels in Paris booked by employees from Berlin in current calendar year.

Task 4. SQL. Find company spending on hotel bookings in previous month grouped by city of hotel.

Task 5. SQL. Find company spending on hotel bookings in previous month grouped by city of employee who stayed in there.

Task 6. SQL. Find top 3 branches by number of trip cancellation in three days before trip start date.

Task 7. SQL. Find all pairs of employees who travelled in the same day between the same pair of cities in the same direction but on different flights.