

## CPSC 2221

### Assignment 2

Total Marks: 72

Due Date: 30 Nov 2016

Submission through D2L

Ques1. Consider the following tables: [32 Marks]

- **Hotel** (hotelNo, hotelName, city)
- **Room** (roomNo, hotelNo, type, price)
- **Booking** (hotelNo, guestNo, dateFrom, dateTo, roomNo)
- **Guest** (guestNo, guestName, guestAddress)

where Hotel contains hotel details and hotelNo is the primary key;

- Room contains room details for each hotel and (roomNo, hotelNo) forms the primary key;
- Booking contains details of bookings and (hotelNo, guestNo, dateFrom) forms the primary key;
- Guest contains guest details and guestNo is the primary key.

Provide the SQL queries for following:

1. List all double or family rooms with a price below £40.00 per night, in ascending order of price.
2. List the bookings for which no dateTo has been specified.
3. What is the total revenue per night from all double rooms?
4. List the price and type of all rooms at the Grosvenor Hotel.
5. List all guests currently staying at the Grosvenor Hotel.
6. List the rooms that are currently unoccupied at the Grosvenor Hotel.
7. List the number of rooms in each hotel in London.
8. What is the most commonly booked room type for each hotel in London?

Ques 2. Consider the following tables: [30 Marks]

- **Book** (ISBN, title, edition, year)
- **BookCopy** (copyNo, ISBN, available)
- **Borrower** (borrowerNo, borrowerName, borrowerAddress)
- **BookLoan** (copyNo, dateOut, dateDue, borrowerNo)

where	<b>Book</b>	contains details of book titles in the library and the ISBN is the key.
	<b>BookCopy</b>	contains details of the individual copies of books in the library and copyNo is the key. ISBN is a foreign key identifying the book title.

	<b>Borrower</b>	contains details of library members who can borrow books and borrowerNo is the key.
	<b>BookLoan</b>	contains details of the book copies that are borrowed by library members and copyNo/dateOut forms the key. borrowerNo is a foreign key identifying the borrower.

Formulate the following queries in relational algebra, tuple relational calculus, and domain relational calculus.

1. List all book titles.
2. List all borrower details.
3. List all book titles published in the year 2012.
4. List all copies of book titles that are available for borrowing.
5. List all copies of the book title Lord of the Rings that are available for borrowing.

Ques 3. In what sense does relational calculus differ from relational algebra, and in what sense they are similar. **[10 Marks]**