

**Due:**

Tuesday 05 April, 2022 by 15:30

**Total Points: 100**

**Deliverables:**

Acceptable formats for the submissions include:

- Printed or neatly handwritten document
- Microsoft Word, text, or PDF document
- Other similar methods

**Database Structural Information:**

The following tables form part of a Hotel database held in an RDBMS:

**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.

**Problem Set:**

1. **(10 points)** Create the Guest table using the integrity enhancement features of SQL.
2. **(10 points)** Now create the **Hotel, Room, and Booking** tables using the integrity enhancement features of SQL with the following constraints:
  - (a) **type** must be one of Single, Double, or Family.
  - (b) **price** must be between 1,000 and 10,000 TL.
  - (c) **roomNo** must be between 1 and 100.
  - (d) **dateFrom** and **dateTo** must be greater than today's date.
  - (e) The same room cannot be double-booked (at the same time).
  - (f) The same guest cannot have overlapping bookings (two rooms at the same time).
3. **(10 points)** Create a separate table with the same structure as the Booking table to hold archive records. Using the INSERT statement, copy the records from the Booking table to the archive table relating to bookings before 22 March 2018. Delete all bookings before 22 March 2018 from the Booking table.
4. **(10 points)** Assume that all hotels in the world are stored in our DB. Create a view containing the cheapest hotels in the world.
5. **(10 points)** Create a view containing the guests who are from BRICS countries. NOTE: Google search BRICS if you do not know what that is.
6. **(10 points)** Give the users Manager and Director full access to these views, with the privilege to pass the access on to other users.
7. **(10 points)** Give the user Accounts SELECT, UPDATE and INSERT access to these views. Show this in two (2) ways:
  - Giving full access and then taking away those the user does not need.
  - Giving only the access rights as stated.

8. (30 points) Consider the following view defined on the Hotel schema:

```
CREATE VIEW HotelBookingCount (hotelNo, bookingCount)
AS SELECT h.hotelNo, COUNT(*)
      FROM Hotel h, Room r, Booking b
      WHERE h.hotelNo = r.hotelNo AND r.hotelNo = b.hotelNo
            AND r.roomNo = b.roomNo
      GROUP BY h.hotelNo;
```

For each of the following queries, state whether the query is valid (**according to the slides and text**), and do the following:

- If the query is invalid, state why
- If the query is valid, show how each of the queries would be mapped on to a query on the underlying base tables.

- (a) `SELECT *`  
    `FROM HotelBookingCount;`
- (b) `SELECT hotelNo`  
    `FROM HotelBookingCount`  
    `WHERE hotelNo =H001;`
- (c) `SELECT MIN(bookingCount)`  
    `FROM HotelBookingCount;`
- (d) `SELECT COUNT(*)`  
    `FROM HotelBookingCount;`
- (e) `SELECT hotelNo`  
    `FROM HotelBookingCount`  
    `WHERE bookingCount > 1000;`
- (f) `SELECT hotelNo`  
    `FROM HotelBookingCount`  
    `ORDER BY bookingCount;`