COMP211 Database Design

Class Practice 2

The following tables form part of a database held in a relational DBMS.

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 room and (roomNo, hotelNo**)** forms the primary key;

where hotelNo is a FK referring to Hotel(hotelNo)

For getting details of hotelName

Booking contains details of bookings and (hotelNo, guestNo, dateFrom) forms the primary key. **Note that this choice of primary key tells us that:**

- **For each hotel, on a given date, a guest can just book one room from it.**
- **But on each given date, a guest can book more than one rooms if they are in different hotels (because otherwise, the smallest set of attributes to uniquely identify a record will simply be guestNo and dateFrom)**

where hotelNo is a FK referring to Hotel(hotelNo)

guestNo is a FK referring to Guest(guestNo)

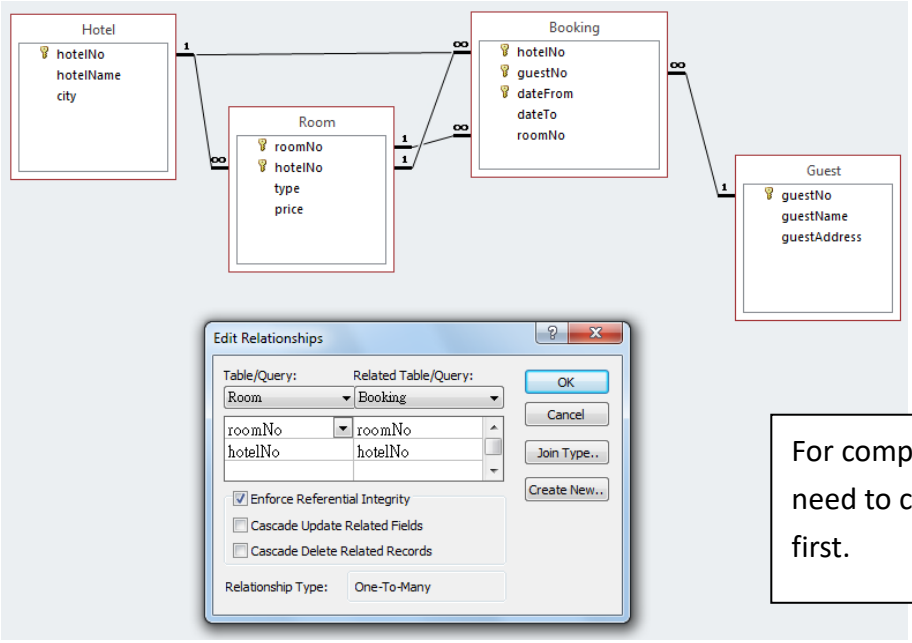
(roomNo, hotelNo) is a FK referring to Room(roomNo, hotelNo)

For getting details of guestName

For getting details of type & price

Guest contains guest details and guestNo is the primary key.

1. Identify the foreign keys in this schema.



For composite FK, you need to create an index first.

2. Explain how the entity and referential integrity rules apply to these relations.

Entity integrity: For each of the given relations, the primary key values cannot contain any nulls in order to satisfy entity integrity rule.

Referential integrity:

Room is related to Hotel through the attribute hotelNo. Therefore, hotelNo in Room should either be null or contain the number of an existing hotel in the Hotel relation. In this case study, it would probably be unacceptable to have a hotelNo in Room with a null value because hotelNo in Room is part of the composite primary key.

Booking is related to Hotel through the attribute hotelNo. Therefore, hotelNo in Booking should either be null or contain the number of an existing hotel in the Hotel relation. In this case study, it would probably be unacceptable to have a hotelNo in Booking with a null value because hotelNo in Booking is part of the composite primary key.

Booking is related to Guest through the attribute guestNo. Therefore, guestNo in Booking should either be null or contain the number of an existing guest in the Guest relation. In this case study, it would probably be unacceptable to have a guestNo in Booking with a null value because guestNo in Booking is part of the composite primary key.

Booking is also related to Room through the attributes (roomNo, hotelNo). Therefore, (roomNo, hotelNo) in Booking should either be null or contain the number of an existing (roomNo, hotelNo) in the Room relation. In this case study, it would probably be unacceptable to have hotelNo in Booking with a null value because it forms part of the composite primary key.