

Assignment 2

Data Management (INFO125)

Deadline: Friday, 18.10.2024 at 13:00

INSTRUCTIONS: To be completed in groups of 1-3 students. The assignment is mandatory for all students of INFO125 and should be submitted on Mitt UiB. Please note that questions about the assignments or group seminars should be directed to your seminar leader (TA).

Question 1

Consider the following relations for a database that keeps track of booking flats and choose the primary keys:

FLAT (Flat#, Type, Address, Price_perUnit)

OPTION (Flat#, Option_name, Extra_price)

BOOKING (Agent#, Flat#, Date, Booking_price)

AGENT (Agent_id, Name, Phone)

FLAT

Flat#	Type	Address	Price_perUnit
A105	3BHK	Waltham Abbey	200
A308	5BHK	Charlotte Street	220
B216	3BHK	Old Gloucester Street	290
B201	3BHK	Old Gloucester Street	290

OPTION

Flat#	Option_name	Extra_price
A105	Balcony East Facing	1100
A308	Window	600
B216	Mezzanine Floor	1000

BOOKING

Agent#	Flat#	Date	Booking_price
A1	A105	12-01-2016	1100
A2	B216	02-02-2016	2100

AGENT

Agent_id	Name	Phone
A1	Will Smith	44 20 7520 1490
A2	Ashley Rawdon	44 20 8650 2999
A3	John Stuart	44 20 7419 5000

Now answer the following questions:

- What can be the foreign keys for this schema, stating any assumptions you make.
- Which of the following operations violate the referential integrity constraints and which one does not.
 - INSERT <'A1', 'A308', '03-03-2016', 2100> INTO BOOKING
 - INSERT <'A1', 'C205', '03-03-2016', 2100> INTO BOOKING
 - INSERT <'A4', 'Arilia Sengupta', '44 20 7836 5454'> INTO AGENT

Question 2

Consider the following Hotel, Room, Booking and Guest schemas in a DBMS.

- Hotel(hotelNo,hotelName, hotelType, hotelAddress, hotelCity, numRoom)
- Room(roomNo, hotelNo, roomPrice)
- Booking(bookingNo, hotelNo, guestNo, checkIn, checkOut, totalGuest, roomNo)
- Guest(guestNo, firstName, lastName, guestAddress)

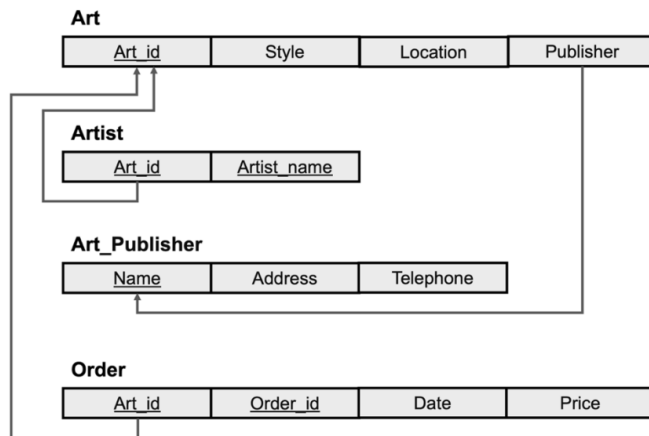
The hotelNo is the primary key for Hotel table and roomNo is the primary key for the Room relation. Booking stores the details of room reservations and bookingNo is the primary key. Guest stores the guests details and guestNo is the primary key.

- Write SQL script to list details of hotels in New York in descending order by number of rooms
- Write SQL script to list the details of all guests whose first name is 'Sara' in ascending order by address.

Question 3

The following figure represents a database schema called Art_Gallery. Write SQL statements that would create a Art_Gallery database with the given tables (relations) and columns (attributes). Specify the primary keys and foreign keys according to the figure. You can make your own decisions on the

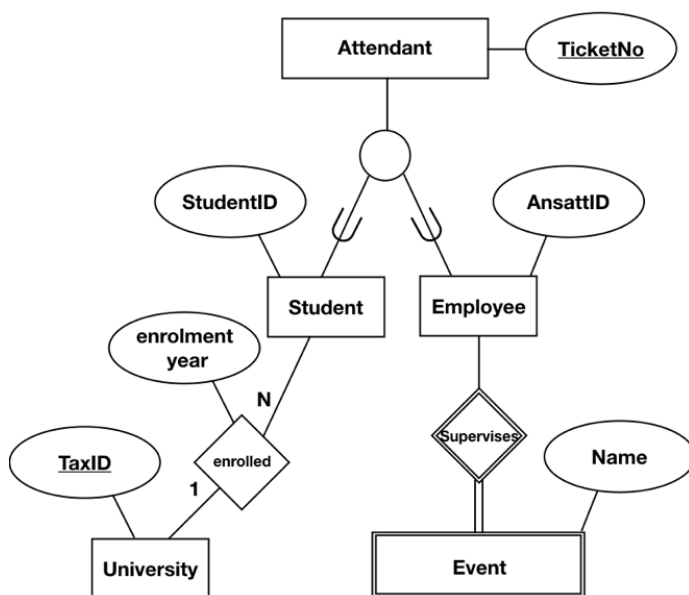
data types for the columns and their domains. You can also decide whether or not certain columns can have NULL values. Note: Different Solutions are possible.



Art_Gallery

Question 4

Consider the following EER diagram and map it to the relational model as well as indicating the foreign keys.



Note: Different Solutions are possible