INFO 6210 Data Management and Database Design Project – Spring 2021

DATABASE DESIGN FOR AN APARTMENT RENTAL LISTINGS

TEAM:

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OBJECTIVES:

To Design a Database for Apartment Rental Services which supports following features:

- Users must register and login with details like Email, Username, Password, Phone Number.
- Users are allowed to upload their listings as well as view new and existing listings.
- Users can filter their priorities/preferences to find a suitable property.
- Users who are a premium account holders will get to know the upcoming deals before the rest of the users.
- Renting/Leasing details must be stored, Users and Employees must be able to access the details.
- Details of the Employees must be maintained such as email, firstname, lastname, designation, phone number etc.

PROBLEM STATEMENT:

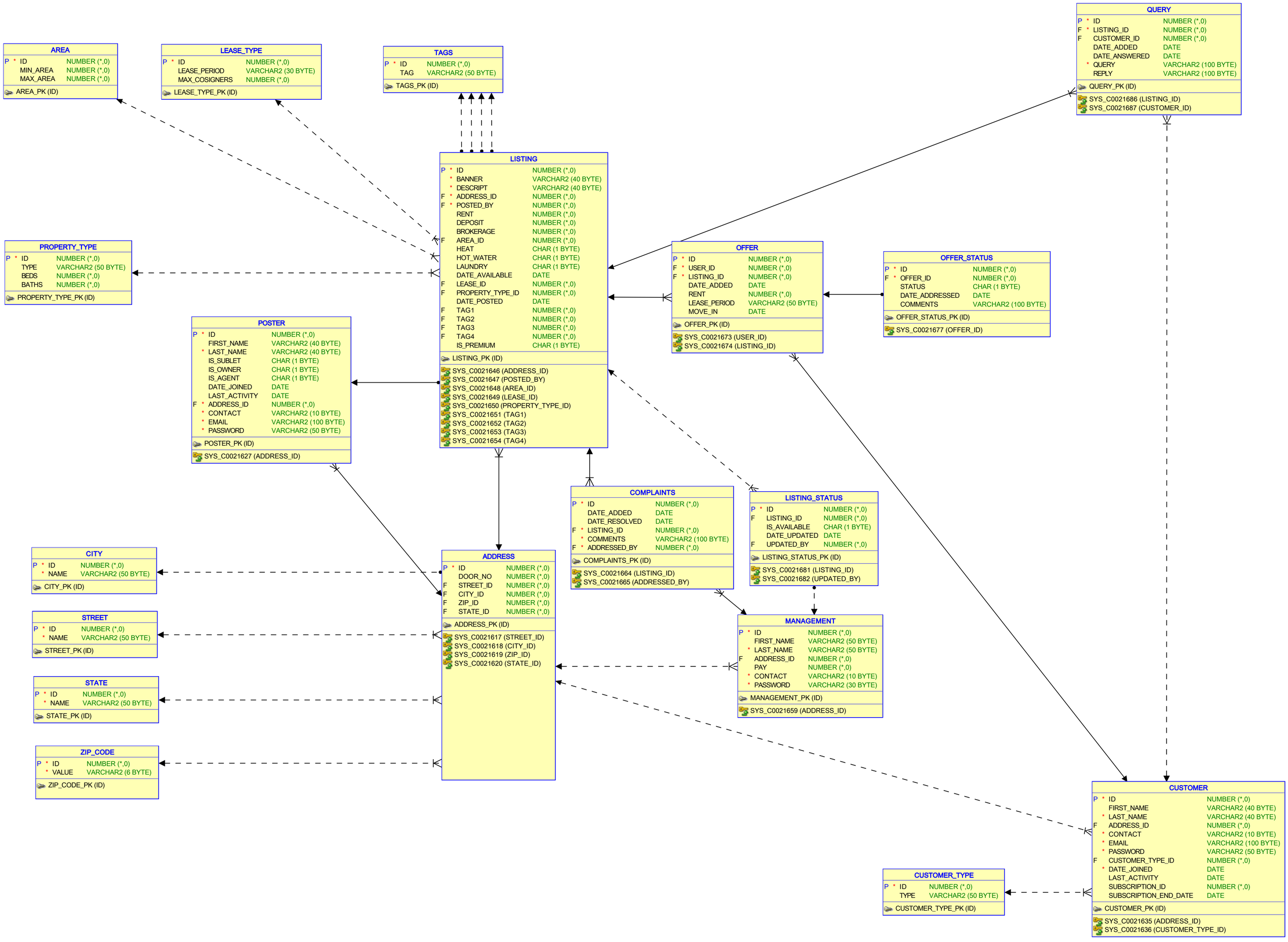
1) User may switch the account from normal to premium and vice-versa, which will be difficult to track manually .
2) Unable to retrieve all the listings proposed by a particular user, since users and listings are stored in separate files.
3) Multiple users are signing-up with the same username and it is difficult to prevent this by manually searching the existing usernames. This causes data inconsistency.
4) Difficult to find the deal proposed by a user for one of his/her listing details manually.

PROPOSED SOLUTIONS:

1) Specific listings are marked as premium, which would mean that customers with a subscription ID are allowed access to those listings. At the end of the subscription period, their accounts would revert back automatically to normal status.
2) The database design will help to link the Users and Listings with the help of a FOREIGN KEY in this case which will be the POSTER ID key which will act as a bridge table and connect users to listings and a smooth data flow and consistency.

3) All the users will be provided with a CUSTOMER-ID, where ID being the primary key hence giving every user a unique number. The database clearly shows that in the customer table that as soon as you register you would be provided with a key.

4) In the design there is a separate table for the tags where the users can change the tags as well as rent according to their need and change to their convenience.


AREA
P * ID NUMBER (*,0)
MIN_AREA NUMBER (*,0)
MAX_AREA NUMBER (*,0)
AREA_PK (ID)
LEASE_TYPE
P * ID NUMBER (*,0)
LEASE_PERIOD VARCHAR2 (30 BYTE)
MAX_COSIGNERS NUMBER (*,0)
LEASE_TYPE_PK (ID)
TAGS
P * ID NUMBER (*,0)
TAG VARCHAR2 (50 BYTE)
TAGS_PK (ID)
QUERY
P * ID NUMBER (*,0)
F * LISTING_ID NUMBER (*,0)
F CUSTOMER_ID NUMBER (*,0)
DATE_ADDED DATE
DATE_ANSWERED DATE
* QUERY VARCHAR2 (100 BYTE)
REPLY VARCHAR2 (100 BYTE)
QUERY_PK (ID)
SYS_C0021686 (LISTING_ID)
SYS_C0021687 (CUSTOMER_ID)
LISTING
P * ID NUMBER (*,0)
* BANNER VARCHAR2 (40 BYTE)
* DESCRIPT VARCHAR2 (40 BYTE)
F * ADDRESS_ID NUMBER (*,0)
F * POSTED_BY NUMBER (*,0)
RENT NUMBER (*,0)
DEPOSIT NUMBER (*,0)
BROKERAGE NUMBER (*,0)
F AREA_ID NUMBER (*,0)
HEAT CHAR (1 BYTE)
HOT_WATER CHAR (1 BYTE)
LAUNDRY CHAR (1 BYTE)
DATE_AVAILABLE DATE
F LEASE_ID NUMBER (*,0)
F PROPERTY_TYPE_ID NUMBER (*,0)
DATE_POSTED DATE
F TAG1 NUMBER (*,0)
F TAG2 NUMBER (*,0)
F TAG3 NUMBER (*,0)
F TAG4 NUMBER (*,0)
IS_PREMIUM CHAR (1 BYTE)
LISTING_PK (ID)
SYS_C0021646 (ADDRESS_ID)
SYS_C0021647 (POSTED_BY)
SYS_C0021648 (AREA_ID)
SYS_C0021649 (LEASE_ID)
SYS_C0021650 (PROPERTY_TYPE_ID)
SYS_C0021651 (TAG1)
SYS_C0021652 (TAG2)
SYS_C0021653 (TAG3)
SYS_C0021654 (TAG4)
PROPERTY_TYPE
P * ID NUMBER (*,0)
TYPE VARCHAR2 (50 BYTE)
BEDS NUMBER (*,0)
BATHS NUMBER (*,0)
PROPERTY_TYPE_PK (ID)
OFFER
P * ID NUMBER (*,0)
F * USER_ID NUMBER (*,0)
F * LISTING_ID NUMBER (*,0)
DATE_ADDED DATE
RENT NUMBER (*,0)
LEASE_PERIOD VARCHAR2 (50 BYTE)
MOVE_IN DATE
OFFER_PK (ID)
SYS_C0021673 (USER_ID)
SYS_C0021674 (LISTING_ID)
OFFER_STATUS
P * ID NUMBER (*,0)
F * OFFER_ID NUMBER (*,0)
STATUS CHAR (1 BYTE)
DATE_ADDRESSED DATE
COMMENTS VARCHAR2 (100 BYTE)
OFFER_STATUS_PK (ID)
SYS_C0021677 (OFFER_ID)
POSTER
P * ID NUMBER (*,0)
FIRST_NAME VARCHAR2 (40 BYTE)
* LAST_NAME VARCHAR2 (40 BYTE)
IS_SUBLET CHAR (1 BYTE)
IS_OWNER CHAR (1 BYTE)
IS_AGENT CHAR (1 BYTE)
DATE_JOINED DATE
LAST_ACTIVITY DATE
F * ADDRESS_ID NUMBER (*,0)
* CONTACT VARCHAR2 (10 BYTE)
* EMAIL VARCHAR2 (100 BYTE)
* PASSWORD VARCHAR2 (50 BYTE)
POSTER_PK (ID)
SYS_C0021627 (ADDRESS_ID)
COMPLAINTS
P * ID NUMBER (*,0)
DATE_ADDED DATE
DATE_RESOLVED DATE
F * LISTING_ID NUMBER (*,0)
* COMMENTS VARCHAR2 (100 BYTE)
F * ADDRESSED_BY NUMBER (*,0)
COMPLAINTS_PK (ID)
SYS_C0021664 (LISTING_ID)
SYS_C0021665 (ADDRESSED_BY)
LISTING_STATUS
P * ID NUMBER (*,0)
F LISTING_ID NUMBER (*,0)
IS_AVAILABLE CHAR (1 BYTE)
DATE_UPDATED DATE
F UPDATED_BY NUMBER (*,0)
LISTING_STATUS_PK (ID)
SYS_C0021681 (LISTING_ID)
SYS_C0021682 (UPDATED_BY)
CITY
P * ID NUMBER (*,0)
* NAME VARCHAR2 (50 BYTE)
CITY_PK (ID)
STREET
P * ID NUMBER (*,0)
* NAME VARCHAR2 (50 BYTE)
STREET_PK (ID)
STATE
P * ID NUMBER (*,0)
* NAME VARCHAR2 (50 BYTE)
STATE_PK (ID)
ZIP_CODE
P * ID NUMBER (*,0)
* VALUE VARCHAR2 (6 BYTE)
ZIP_CODE_PK (ID)
ADDRESS
P * ID NUMBER (*,0)
DOOR_NO NUMBER (*,0)
F STREET_ID NUMBER (*,0)
F CITY_ID NUMBER (*,0)
F ZIP_ID NUMBER (*,0)
F STATE_ID NUMBER (*,0)
ADDRESS_PK (ID)
SYS_C0021617 (STREET_ID)
SYS_C0021618 (CITY_ID)
SYS_C0021619 (ZIP_ID)
SYS_C0021620 (STATE_ID)
MANAGEMENT
P * ID NUMBER (*,0)
FIRST_NAME VARCHAR2 (50 BYTE)
* LAST_NAME VARCHAR2 (50 BYTE)
F ADDRESS_ID NUMBER (*,0)
PAY NUMBER (*,0)
* CONTACT VARCHAR2 (10 BYTE)
* PASSWORD VARCHAR2 (30 BYTE)
MANAGEMENT_PK (ID)
SYS_C0021659 (ADDRESS_ID)
CUSTOMER
P * ID NUMBER (*,0)
FIRST_NAME VARCHAR2 (40 BYTE)
* LAST_NAME VARCHAR2 (40 BYTE)
F ADDRESS_ID NUMBER (*,0)
* CONTACT VARCHAR2 (10 BYTE)
* EMAIL VARCHAR2 (100 BYTE)
* PASSWORD VARCHAR2 (50 BYTE)
F CUSTOMER_TYPE_ID NUMBER (*,0)
* DATE_JOINED DATE
LAST_ACTIVITY DATE
SUBSCRIPTION_ID NUMBER (*,0)
SUBSCRIPTION_END_DATE DATE
CUSTOMER_PK (ID)
SYS_C0021635 (ADDRESS_ID)
SYS_C0021636 (CUSTOMER_TYPE_ID)
CUSTOMER_TYPE
P * ID NUMBER (*,0)
TYPE VARCHAR2 (50 BYTE)
CUSTOMER_TYPE_PK (ID)

ADDRESS

COLUMN_NAME	DATATYPE	COMMENTS
ID	NUMBER(38,0)	PRIMARY KEY
DOOR_NO	NUMBER(38,0)	
STREET_ID	NUMBER(38,0)	
CITY_ID	NUMBER(38,0)	
ZIP_ID	NUMBER(38,0)	
STATE_ID	NUMBER(38,0)	

AREA

COLUMN_NAME	DATATYPE	COMMENTS
ID	NUMBER(38,0)	PRIMARY KEY
MIN_AREA	NUMBER(38,0)	
MAX_AREA	NUMBER(38,0)	

CITY

COLUMN_NAME	DATATYPE	COMMENTS
ID	NUMBER(38,0)	PRIMARY KEY
NAME	VARCHAR2(50 BYTE)	

COMPLAINTS

COLUMN_NAME	DATATYPE	COMMENTS
ID	NUMBER(38,0)	PRIMARY KEY
DATE_ADDED	DATE	
DATE_RESOLVED	DATE	
LISTING_ID	NUMBER(38,0)	FOREIGN KEY TO LISTING TABLE ID
COMMENTS	VARCHAR2(100 BYTE)	
ADDRESSED_BY	NUMBER(38,0)	

CUSTOMER

COLUMN_NAME	DATATYPE	COMMENTS
ID	NUMBER(38,0)	PRIMARY KEY
FIRST_NAME	VARCHAR2(40 BYTE)	
LAST_NAME	VARCHAR2(40 BYTE)	

ADDRESS_ID	NUMBER(38,0)	FOREIGN KEY TO ADDRESS TABLE ID
CONTACT	VARCHAR2(10 BYTE)	
EMAIL	VARCHAR2(100 BYTE)	
PASSWORD	VARCHAR2(50 BYTE)	
CUSTOMER_TYPE_ID	NUMBER(38,0)	FOREIGN KEY TO CUSTOMER_TYPE TABLE ID
DATE_JOINED	DATE	
LAST_ACTIVITY	DATE	
SUBSCRIPTION_ID	NUMBER(38,0)	
SUBSCRIPTION_END_DATE	DATE	

CUSTOMER_TYPE

COLUMN_NAME	DATATYPE	COMMENTS
ID	NUMBER(38,0)	PRIMARY KEY
TYPE	VARCHAR2(50 BYTE)	

LEASE_TYPE

COLUMN_NAME	DATATYPE	COMMENTS
ID	NUMBER(38,0)	PRIMARY KEY
LEASE_PERIOD	VARCHAR2(30 BYTE)	
MAX_COSIGNERS	NUMBER(38,0)	

LISTING

COLUMN_NAME	DATATYPE	COMMENTS
ID	NUMBER(38,0)	PRIMARY KEY
BANNER	VARCHAR2(40 BYTE)	
DESCRIPT	VARCHAR2(40 BYTE)	
ADDRESS_ID	NUMBER(38,0)	FOREIGN KEY TO ADDRESS TABLE ID
POSTED_BY	NUMBER(38,0)	FOREIGN KEY TO POSTER TABLE ID
RENT	NUMBER(38,0)	
DEPOSIT	NUMBER(38,0)	
BROKERAGE	NUMBER(38,0)	
AREA_ID	NUMBER(38,0)	FOREIGN KEY TO AREA TABLE ID
HEAT	CHAR(1 BYTE)	
HOT_WATER	CHAR(1 BYTE)	
LAUNDRY	CHAR(1 BYTE)	

DATE_AVAILABLE	DATE	
LEASE_ID	NUMBER(38,0)	FOREIGN KEY TO LEASE_TYPE TABLE ID
PROPERTY_TYPE_ID	NUMBER(38,0)	FOREIGN KEY TO PROPERTY_TYPE TABLE ID
DATE_POSTED	DATE	
TAG1	NUMBER(38,0)	
TAG2	NUMBER(38,0)	
TAG3	NUMBER(38,0)	
TAG4	NUMBER(38,0)	
IS_PREMIUM	CHAR(1 BYTE)	

LISTING_TYPE

COLUMN_NAME	DATATYPE	COMMENTS
ID	NUMBER(38,0)	PRIMARY KEY
LISTING_ID	NUMBER(38,0)	FOREIGN KEY TO LISTING TABLE ID
IS_AVAILABLE	CHAR(1 BYTE)	
DATE_UPDATED	DATE	
UPDATED_BY	NUMBER(38,0)	

MANAGEMENT

COLUMN_NAME	DATATYPE	COMMENTS
ID	NUMBER(38,0)	PRIMARY KEY
FIRST_NAME	VARCHAR2(50 BYTE)	
LAST_NAME	VARCHAR2(50 BYTE)	
ADDRESS_ID	NUMBER(38,0)	FOREIGN KEY TO ADDRESS TABLE ID
PAY	NUMBER(38,0)	
CONTACT	VARCHAR2(10 BYTE)	
PASSWORD	VARCHAR2(30 BYTE)	

OFFER

COLUMN_NAME	DATATYPE	COMMENTS
ID	NUMBER(38,0)	PRIMARY KEY
USER_ID	NUMBER(38,0)	FOREIGN KEY TO CUSTOMER TABLE ID
LISTING_ID	NUMBER(38,0)	FOREIGN KEY TO LISTING TABLE ID
DATE_ADDED	DATE	
RENT	NUMBER(38,0)	
LEASE_PERIOD	VARCHAR2(50 BYTE)	

MOVE_IN	DATE	

OFFER_STATUS

COLUMN_NAME	DATATYPE	COMMENTS
ID	NUMBER(38,0)	PRIMARY KEY
OFFER_ID	NUMBER(38,0)	FOREIGN KEY TO OFFER TABLE ID
STATUS	CHAR(1 BYTE)	
DATE_ADDRESSED	DATE	
COMMENTS	VARCHAR2(100 BYTE)	

POSTER

COLUMN_NAME	DATATYPE	COMMENTS
ID	NUMBER(38,0)	PRIMARY KEY
FIRST_NAME	VARCHAR2(40 BYTE)	
LAST_NAME	VARCHAR2(40 BYTE)	
IS_SUBLET	CHAR(1 BYTE)	
IS_OWNER	CHAR(1 BYTE)	
IS_AGENT	CHAR(1 BYTE)	
DATE_JOINED	DATE	
LAST_ACTIVITY	DATE	
ADDRESS_ID	NUMBER(38,0)	FOREIGN KEY TO ADDRESS TABLE ID
CONTACT	VARCHAR2(10 BYTE)	
EMAIL	VARCHAR2(100 BYTE)	
PASSWORD	VARCHAR2(50 BYTE)	

PROPERTY_TYPE

COLUMN_NAME	DATATYPE	COMMENTS
ID	NUMBER(38,0)	PRIMARY KEY
TYPE	VARCHAR2(50 BYTE)	
BEDS	NUMBER(38,0)	
BATHS	NUMBER(38,0)	

QUERY

COLUMN_NAME	DATATYPE	COMMENTS

ID	NUMBER(38,0)	PRIMARY KEY
LISTING_ID	NUMBER(38,0)	FOREIGN KEY TO LISTING TABLE ID
CUSTOMER_ID	NUMBER(38,0)	FOREIGN KEY TO CUSTOMER TABLE ID
DATE_ADDED	DATE	
DATE_ANSWERED	DATE	
QUERY	VARCHAR2(100 BYTE)	
REPLY	VARCHAR2(100 BYTE)	

STATE

COLUMN_NAME	DATATYPE	COMMENTS
ID	NUMBER(38,0)	PRIMARY KEY
NAME	VARCHAR2(50 BYTE)	

STREETS

COLUMN_NAME	DATATYPE	COMMENTS
ID	NUMBER(38,0)	PRIMARY KEY
NAME	VARCHAR2(50 BYTE)	

TAGS

COLUMN_NAME	DATATYPE	COMMENTS
ID	NUMBER(38,0)	PRIMARY KEY
TAGS	VARCHAR2(50 BYTE)	

ZIP_CODE

COLUMN_NAME	DATATYPE	COMMENTS
ID	NUMBER(38,0)	PRIMARY KEY
NAME	VARCHAR2(50 BYTE)	

CONCLUSION

All the problem statements are resolved by the data model that has been designed.