CREATE TABLES :-

```sql
1    CREATE DATABASE ApartmentFinder;
2    GO
3
4    USE ApartmentFinder;
5    GO
6
7    CREATE TABLE [User] (
8      User_ID INTEGER NOT NULL IDENTITY(1,1) PRIMARY KEY,
9      First_Name VARCHAR(50) NOT NULL,
10     Last_Name VARCHAR(50) NOT NULL,
11     Phone_No BIGINT NOT NULL,
12     Email VARCHAR(100) NOT NULL,
13     Date_Of_Birth DATE NOT NULL,
14   --   User types : L (Lister), C (Customer)
15     User_Type CHAR(1) NOT NULL
16     -- CONSTRAINT User_Type_CHK CHECK (
17     --        User_Type IN ('L', 'C')
18     --    )
19   );
20
21   CREATE TABLE Lister (
22     Lister_ID INTEGER PRIMARY KEY,
23   --   Lister Type : B (Broker), O (Owner)
24     Lister_Type CHAR(1) NOT NULL,
25     -- CONSTRAINT Lister_Type_CHK CHECK (
26     --        Lister_Type IN ('B', 'O')
27     --    ),
28     Active_Properties INTEGER
```

Messages

3:32:04 PM	Started executing query at Line 1
	Commands completed successfully.
3:32:04 PM	Started executing query at Line 3
	Commands completed successfully.
3:32:04 PM	Started executing query at Line 6
	Commands completed successfully.
	Total execution time: 00:00:00.439

TRIGGERS :-

```sql
1    USE ApartmentFinder;
2    GO
3
4    -- 1. Trigger that automatically updates the Active_Properties column in the Lister table whenever
5    --    a new property is inserted or deleted in the Property table by that Lister_ID.
6    CREATE TRIGGER UpdateActiveProperties
7    ON Property
8    AFTER INSERT, DELETE
9    AS
10   > BEGIN ...
30
31   END;
32
33   -- 2. Trigger to check Property Availability
34   CREATE TRIGGER Property_Availability_Check
35   ON Listing
36   FOR INSERT
37   AS
38   > BEGIN ...
59   END;
```

Messages

3:32:29 PM	Started executing query at Line 34
	Commands completed successfully.
	Total execution time: 00:00:00.011

INSERT RECORDS :-

Phone number check constraint

```
817    INSERT INTO [User] (First_Name, Last_Name, Phone_No, Email, Date_Of_Birth, User_Type)
818    VALUES
819    ('Casey', 'Kohl', 12345, 'kohl.c@example.com', '2000-01-01', 'C');
820
```

Messages

3:40:36 PM   Started executing query at Line 817
Msg 547, Level 16, State 0, Line 1
The INSERT statement conflicted with the CHECK constraint "CHK_PhoneNumberLength". The conflict occurred in database "ApartmentFinder", table "dbo.User", column 'Phone_No'.
The statement has been terminated.
Total execution time: 00:00:00.027

User Type constraint (can only have values : 'L' for Listers and 'C' for Customers)

```
817    INSERT INTO [User] (First_Name, Last_Name, Phone_No, Email, Date_Of_Birth, User_Type)
818    VALUES
819    ('Casey', 'Kohl', 1234567890, 'kohl.c@example.com', '2000-01-01', 'user');
```

Messages

3:46:53 PM   Started executing query at Line 817
Msg 2628, Level 16, State 1, Line 1
String or binary data would be truncated in table 'ApartmentFinder.dbo.User', column 'User_Type'. Truncated value: 'u'.
The statement has been terminated.
Total execution time: 00:00:00.021

Lister Type constraint (can only have values : 'B' for Brokers and 'O' for Owner)

```
817    INSERT INTO Lister (Lister_ID, Lister_Type, Active_Properties)
818    VALUES (42, 'Agent', 3)
```

Messages

3:55:33 PM   Started executing query at Line 817
Msg 2628, Level 16, State 1, Line 1
String or binary data would be truncated in table 'ApartmentFinder.dbo.Lister', column 'Lister_Type'. Truncated value: 'A'.
The statement has been terminated.
Total execution time: 00:00:00.036

Listing Type constraint (can only have values : 'R' for Rent and 'S' for Sell)

```
817    INSERT INTO Listing (Property_ID, Listing_Date, Listing_Status, Listing_Type)
818    VALUES (1, '2024-03-17', 'Active', 'On Sale');
819
```

Messages

4:00:19 PM   Started executing query at Line 816
Msg 2628, Level 16, State 1, Line 2
String or binary data would be truncated in table 'ApartmentFinder.dbo.Listing', column 'Listing_Type'. Truncated value: 'O'.
The statement has been terminated.
Total execution time: 00:00:00.010

Rating constraint (can only have values between 1 and 5)

```
816    INSERT INTO Review (Lister_ID, Customer_ID, Property_ID, Rating, Comment)
817    VALUES (2, 1, 1, 10, 'Great experience renting this property.');
818
```

Messages

4:02:36 PM   Started executing query at Line 815
Msg 547, Level 16, State 0, Line 2
The INSERT statement conflicted with the CHECK constraint "Rating_Check". The conflict occurred in database "ApartmentFinder", table "dbo.Review", column 'Rating'.
The statement has been terminated.
Total execution time: 00:00:00.027

NON CLUSTERED INDEXING

```
4    -- Index on Lister table for Lister_Type
5    CREATE NONCLUSTERED INDEX IX_Lister_ListerType ON Lister(Lister_Type);
6    -- Query to select listers of a specific type
7    SELECT *
8    FROM Lister
9    WHERE Lister_Type = '0' AND Active_Properties > 2;
10
```

Results   Messages

	Lister_ID	Lister_Type	Active_Properties
1	4	0	3
2	88	0	6
3	92	0	4
4	96	0	3
5	100	0	3
6	104	0	3
7	108	0	4

```
12    CREATE NONCLUSTERED INDEX IX_Customer_CustomerType ON Customer(Customer_Type);
13    -- Query to select customers of a specific type
14    SELECT *
15    FROM Customer
16    WHERE Customer_Type = 'Rent';
17
```

Results   Messages

	Customer_ID	Customer_Type	Budget_Min	Budget_Max	Preferred_Location
1	1	Rent	1000	2000	Downtown
2	5	Rent	NULL	NULL	NULL
3	7	Rent	NULL	NULL	NULL
4	9	Rent	1500	2500	New York

```sql
27    CREATE NONCLUSTERED INDEX IX_Property_ListerID ON Property(Lister_ID);
28    -- Query to select properties listed by a specific lister
29    SELECT *
30    FROM Property
31    WHERE Lister_ID = 6;
32
```

Results   Messages

	Property_ID	Lister_ID	Address_Line_1	Address_Line_2	City	State	Country	Zipcode
	3	6	123 Main St	Apt 201	New York	NY	USA	10001
	41	6	112 Estrella St	Unit 1201	New York	NY	USA	10002
	42	6	456 Elm St	Unit 301	New York	NY	USA	10002
	43	6	789 Oak St	Suite 401	New York	NY	USA	10003
	44	6	101 Pine St	Floor 2	New York	NY	USA	10004
	45	6	222 Maple St	Apartment 501	New York	NY	USA	10005

```sql
37    SELECT *
38    FROM Listing
39    WHERE Listing_Type = 'S' AND Listing_Status = 'Inactive';
40
```

Results   Messages

	Listing_ID	Property_ID	Listing_Date	Listing_Status	Listing_Type
1	21	22	2024-09-17	Inactive	S
2	23	24	2024-11-19	Inactive	S
3	25	26	2024-07-17	Inactive	S
4	27	28	2024-09-17	Inactive	S

VIEWS :-

```sql
31    select * from ActivePropertyDetails;
32
```

Results   Messages

	P…	Address_Line_1	Addr…	City	State	Zipcode	I	E	Area…	Lister_ID	Liste…	Active…
1	1	123 Main St		New York	NY	10001	2	1	1000	2	B	1
2	2	456 Oak St	Apt 3B	Los Angeles	CA	90001	3	2	1500	4	0	3
3	3	123 Main St	Apt 201	New York	NY	10001	2	1	1000	6	B	6
4	4	789 Elm St	Unit 5C	San Francisco	CA	94103	4	3	2200	8	0	2
5	5	456 Pine St	Suite 1…	Los Angeles	CA	90002	3	2	1800	10	B	4
6	6	890 Maple Ave	Unit 2A	Chicago	IL	60611	2	1	1200	12	0	2
7	7	567 Oak St	Apt 15E	Miami	FL	33101	5	4	3000	14	B	3

```sql
61    select * from Property_Amenities
62
```

Results   Messages

	Property_ID	Address_Line_1	Address_Line_2	City	State	Zipcode	Bedroom	Bathroom	Area_Size	Water	Ga
1	1	123 Main St		New York	NY	10001	2	1	1000	1	1
2	2	456 Oak St	Apt 3B	Los Angeles	CA	90001	3	2	1500	1	1
3	3	123 Main St	Apt 201	New York	NY	10001	2	1	1000	1	0
4	4	789 Elm St	Unit 5C	San Francisco	CA	94103	4	3	2200	1	1

```
91    select * from Customer_Reviews
92
```

Results   Messages

LastName	Property_ID	Address_Line_1	City	State	Zipcode	Rating	Comment
	1	123 Main St	New York	NY	10001	5	Great experience renting this property.
	2	456 Oak St	Los Angeles	CA	90001	4	Enjoyed my stay, the location was convenient.
	3	123 Main St	New York	NY	10001	5	Beautiful apartment, exceeded expectations.
on	4	789 Elm St	San Francisco	CA	94103	4	Comfortable and clean, would rent again.
dez	5	456 Pine St	Los Angeles	CA	90002	5	Lovely property with great amenities.
n	6	890 Maple Ave	Chicago	IL	60611	5	Fantastic experience, highly recommend!

```
134    -- Demonstartion of view CustomerTransactionSummary
135    SELECT * from CustomerTransactionSummary
```

Results   Messages

	Total_Customers	Customers_With_Rent_Transaction	Customers_With_Sell_Transaction	Inactive_Customers
1	59	16	18	25

```
119    -- Demonstartion of view Properties_For_Sale
120    Select * from Properties_For_Sale
```

Results   Messages

	Property_ID	Address_Line_1	Address_Line_2	City	State	Zipcode	Bedroom	Bathroom	Area_Size	Asking_Price
1	2	456 Oak St	Apt 3B	Los Angeles	CA	90001	3	2	1500	250000
2	4	789 Elm St	Unit 5C	San Francisco	CA	94103	4	3	2200	280000
3	6	890 Maple Ave	Unit 2A	Chicago	IL	60611	2	1	1200	320000
4	8	432 Birch St	Apt 304	Seattle	WA	98101	3	2	1600	300000
5	10	765 Walnut St	Apt 401	Houston	TX	77002	4	3	2400	350000
6	12	876 Maple St	Apt 102	Philadelphia	PA	19103	2	1	1100	270000

STORED PROCEDURES :-

```
63    EXEC GetCustomerTransactions 43;
64
```

Results   Messages

	Custom…	Transaction_…	Monthly_…	Transaction_Date	Transacti…	Agreement…	Lease_Sta…	Lease_End…
1	Renter	24	1550	2024-02-15 00:00:00.…	Pending	2024-01-12	2024-02-15	2025-02-14
2	Renter	24	1550	2024-02-20 00:00:00.…	Cancelled	2023-11-05	2023-12-01	2024-11-30

```
103    -- Demonstartion of stored procedure GetPropertyListings
104    EXEC GetPropertyListings 'Boston', 'MA', 'R', 1000, 3000;
105
```

Results   Messages

	Property_ID	Listing_Date	Listing_Status	Listing_Type	Water	Gas	Electricity	Parking	Pets_Allowed
1	9	2024-02-17	Active	R	1	1	1	1	1
2	19	2023-05-17	Active	R	0	1	1	1	0

```
165    EXEC GetListerPropertiesWithDetails 6;
166
```

Results   Messages

	PropertyID	Address	City	State	Zipcode	Bedrooms	Bathrooms	AverageRating	NumberOfReviews
1	3	123 Main St	New York	NY	10001	2	1	3.50	2
2	41	112 Estrella St	New York	NY	10002	3	2	NULL	0
3	42	456 Elm St	New York	NY	10002	2	1	NULL	0
4	43	789 Oak St	New York	NY	10003	3	2	NULL	0
5	44	101 Pine St	New York	NY	10004	1	1	NULL	0
6	45	222 Maple St	New York	NY	10005	2	1	NULL	0

```
185    EXEC GetListingsByDaysAvailable 100;
```

Results Messages

	Listing_ID ⌄	Property_ID ⌄	Listing_D… ⌄	Listing_S… ⌄	Listing_T… ⌄	Days_Avai… ⌄
1	1	1	2024-03-17	Active	R	21
2	2	2	2024-03-17	Active	S	21
3	3	3	2024-02-17	Active	R	50
4	6	6	2024-01-17	Active	S	81
5	7	7	2024-03-27	Active	R	11
6	9	9	2024-02-17	Active	R	50
7	12	12	2024-03-17	Active	S	21
8	40	41	2024-03-01	Active	R	37
9	41	42	2024-02-15	Active	R	52
1…	42	43	2024-01-10	Active	R	88

FUNCTIONS :-

```
32    SELECT * from GetListerPropertyStats(6);
```

Results Messages

	ListerID ⌄	TotalProper… ⌄	ActivePro… ⌄	InactiveP… ⌄	RentalPro… ⌄	SalePrope… ⌄	MaxBedroo… ⌄	MinBedroo… ⌄	MaxBathro…
1	6	6	5	1	6	0	3	1	2

```
75    SELECT * FROM dbo.GetTopRatedListers(12);
76
```

Results Messages

	Lister_ID ⌄	Full_Name ⌄	Average_Rating ⌄	Total_Active_Properties ⌄
1	22	Alexander Green	5.000000	1
2	4	Michael Brown	4.000000	2
3	12	James Jackson	4.000000	2
4	16	Michael Gonzalez	4.000000	1
5	8	William Anderson	4.000000	1
6	6	Daniel Taylor	3.500000	5

```
106    DECLARE @RentID INTEGER = 15; -- Provide the Rent ID
107    DECLARE @DurationInMonths INTEGER = 12; -- Duration in months
108    DECLARE @MoveInDate DATETIME = '2024-09-01'; -- Move in date
109
110    SELECT dbo.CalculateTotalRentCost(@RentID, @DurationInMonths, @MoveInDate) AS TotalCost;
111
```

Results Messages

	TotalCost ⌄
1	31700.00

```
174   SELECT
175       DISTINCT p.Zipcode,
176       p.[City],
177       p.[State],
178       d.AvgRating,
179       d.NumReviews,
180       COUNT(*) AS NoOfProperties
181   FROM
182   |   Property p
183   CROSS APPLY
184       dbo.CalculateNeighborhoodScore(p.Zipcode) d
185       GROUP BY p.Zipcode, p.[City], p.[State], d.AvgRating, d.NumReviews;
186
```

Results   Messages

	Zipcode	City	State	AvgRating	NumReviews	NoOfProperties
1	2108	Boston	MA	2.000000	3	2
2	10001	New York	NY	3.200000	5	3
3	19103	Philadelphia	PA	2.500000	2	2
4	30303	Atlanta	GA	2.000000	1	1
5	33101	Miami	FL	2.500000	2	2

COMPUTED COLUMN BASED ON UDFs :-

```
164   -- Add a computed column to the Customer table for Satisfaction_Score
165   ALTER TABLE Customer
166   ADD Satisfaction_Score AS dbo.GetCustomerSatisfactionScore(Customer_ID);
167   GO
168
169   select * from Customer;
170
171   -- 7. This user-defined SQL function  CalculateNeighborhoodScore  returns a table with computed columns
```

Results   Messages

	Customer_ID	Customer_Type	Budget_Min	Budget_Max	Preferred…	Satisfact…
1	1	Rent	1000	2000	Downtown	3.00
3	3	Sell	200000	300000	Suburb	3.60
5	5	Rent	NULL	NULL	NULL	3.20
7	7	Rent	NULL	NULL	NULL	2.40
9	9	Rent	1500	2500	New York	2.80
11	11	Rent	1200	1800	Denver	2.80
13	13	Rent	800	1500	Boston	3.40

```
140    ALTER TABLE Lister
141    ADD Activity_Status AS dbo.DetermineListerActivityStatus(Lister_ID);
142    GO
143    SELECT * from Lister;
144
```

Results Messages

Lister_ID	Lister_Type	Active_Properties	Activity_Status
2	B	1	Active
4	O	3	Active
6	B	6	Active
8	O	2	Active
10	B	4	Active
12	O	2	Active
14	B	3	Active
16	O	1	Active

COLUMN ENCRYPTION :-

```
246    CREATE OR ALTER VIEW DecryptedPhoneView
247    AS
248    SELECT
249        User_ID,
250        First_Name,
251        Last_Name,
252        Email,
253        Date_Of_Birth,
254        CONVERT(BIGINT, DecryptByKey(Encrypted_Phone_No)) AS Phone_No,
255        User_Type
256    FROM [User];
257
258    select * from DecryptedPhoneView where user_id in (1,2,3,4)
```

Results Messages

	User_ID	First_Name	Last_Name	Email	Date_Of_Birth	Phone_no	User_Type
1	1	Gabriel	Parker	gabriel.parker@example.com	1984-09-30	0x006A9EAB0AE3BC4A8253F91DC6F948370200000073E0875F5C...	C
2	2	Natalie	Gonzalez	natalie.gonzalez@example.com	1997-12-12	0x006A9EAB0AE3BC4A8253F91DC6F948370200000014C5ABC17F...	L
3	3	Henry	Martinez	henry.martinez@example.com	1986-03-25	0x006A9EAB0AE3BC4A8253F91DC6F948370200000008B4BF3FB67...	C
4	4	Ella	Cooper	ella.cooper@example.com	1990-07-08	0x006A9EAB0AE3BC4A8253F91DC6F948370200000028A68265A7...	L

```
245
246    CREATE OR ALTER VIEW DecryptedPhoneView
247    AS
248    SELECT
249        User_ID,
250        First_Name,
251        Last_Name,
252        Email,
253        Date_Of_Birth,
254        CONVERT(BIGINT, DecryptByKey(Encrypted_Phone_No)) AS Phone_No,
255        User_Type
256    FROM [User];
257
258    select * from DecryptedPhoneView where user_id in (1,2,3,4)
```

Results Messages

	User_ID	First_Name	Last_Name	Email	Date_Of_Birth	Phone_No	User_Type
1	1	Gabriel	Parker	gabriel.parker@example.com	1984-09-30	1112223330	C
2	2	Natalie	Gonzalez	natalie.gonzalez@example.com	1997-12-12	5556663330	L
3	3	Henry	Martinez	henry.martinez@example.com	1986-03-25	7778883330	C
4	4	Ella	Cooper	ella.cooper@example.com	1990-07-08	2223339999	L