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Module 1 Report

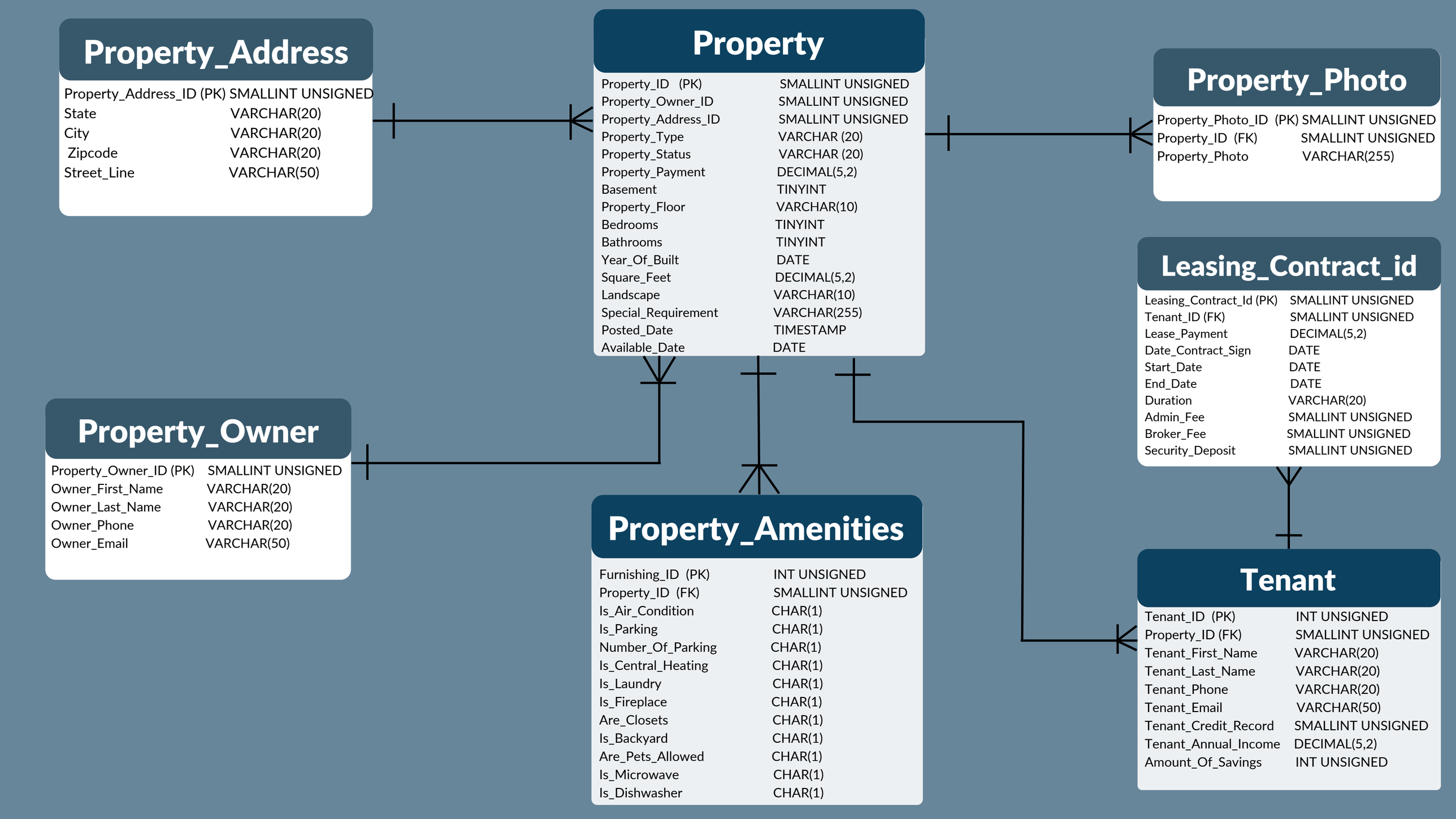
Data Model for rental units

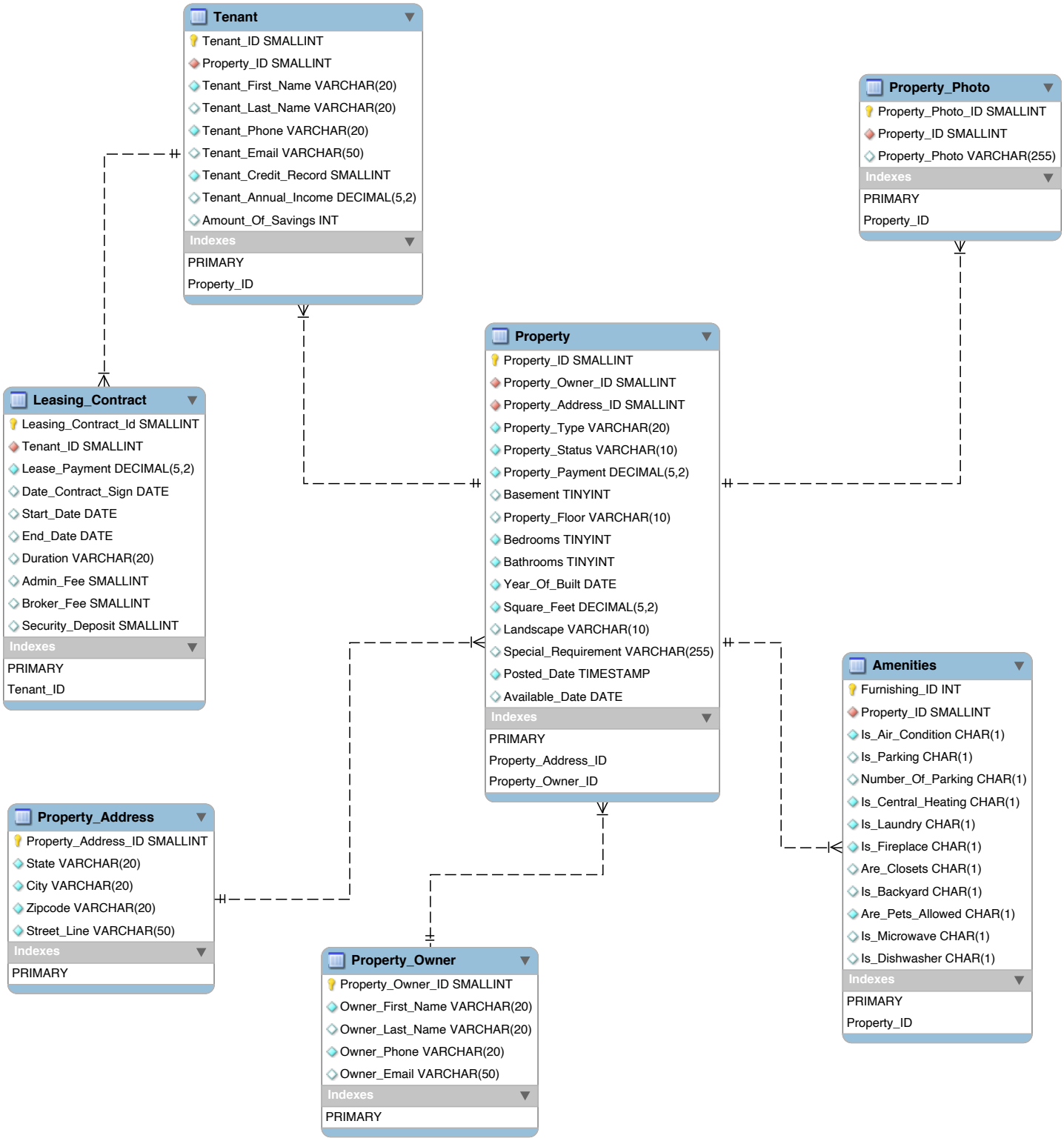
Every year there are more than ten thousand students enrolled at Universities, which are located in New York City. To accommodate their housing needs, the university provides four residential halls within five-block radius of the buzzing campus offering around three thousand beds, which leads to a majority of postgraduate students choosing to rent their apartments outside residential halls. The apartment hunting process is time-consuming, and the data information online can be misleading. It takes days, even weeks to decide where the perfect location is for students, especially when they are from all over the world and not familiar with local life. With this question, our team is trying to design a database that can help students to filter, choose, and decide where and when they can live according to their personal preferences.

When it comes to choosing a living space, there are three main factors—location, price, and the condition of that place. Location-wise, we choose to include buildings within one-hour transportation, since most of the students don't mind saving budget and compromising transit time. In terms of budget, the main difference between students and family renters is that they are willing to share the apartment and have roommates. Thus, the number of rooms is an essential factor. Amenities can add a major cost to the rent price as well, so there is a separate table for amenities.

To filter the right property, there are some important factors such as the type of the building (Property_Type varchar(20)), how large is the space (Square_feet decimal(5,2)), and how many rooms are included (Bedrooms tinyint, Bathrooms tinyint).

The important entities and the relationships are shown in the ER diagram below, including suitable data types.


Property_Address
Property_Address_ID (PK) SMALLINT UNSIGNED
State VARCHAR(20)
City VARCHAR(20)
Zipcode VARCHAR(20)
Street_Line VARCHAR(50)
Property
Property_ID (PK) SMALLINT UNSIGNED
Property_Owner_ID SMALLINT UNSIGNED
Property_Address_ID SMALLINT UNSIGNED
Property_Type VARCHAR (20)
Property_Status VARCHAR (20)
Property_Payment DECIMAL(5,2)
Basement TINYINT
Property_Floor VARCHAR(10)
Bedrooms TINYINT
Bathrooms TINYINT
Year_Of_Built DATE
Square_Feet DECIMAL(5,2)
Landscape VARCHAR(10)
Special_Requirement VARCHAR(255)
Posted_Date TIMESTAMP
Available_Date DATE
Property_Photo
Property_Photo_ID (PK) SMALLINT UNSIGNED
Property_ID (FK) SMALLINT UNSIGNED
Property_Photo VARCHAR(255)
Leasing_Contract_id
Leasing_Contract_Id (PK) SMALLINT UNSIGNED
Tenant_ID (FK) SMALLINT UNSIGNED
Lease_Payment DECIMAL(5,2)
Date_Contract_Sign DATE
Start_Date DATE
End_Date DATE
Duration VARCHAR(20)
Admin_Fee SMALLINT UNSIGNED
Broker_Fee SMALLINT UNSIGNED
Security_Deposit SMALLINT UNSIGNED
Property_Owner
Property_Owner_ID (PK) SMALLINT UNSIGNED
Owner_First_Name VARCHAR(20)
Owner_Last_Name VARCHAR(20)
Owner_Phone VARCHAR(20)
Owner_Email VARCHAR(50)
Property_Amenities
Furnishing_ID (PK) INT UNSIGNED
Property_ID (FK) SMALLINT UNSIGNED
Is_Air_Condition CHAR(1)
Is_Parking CHAR(1)
Number_Of_Parking CHAR(1)
Is_Central_Heating CHAR(1)
Is_Laundry CHAR(1)
Is_Fireplace CHAR(1)
Are_Closets CHAR(1)
Is_Backyard CHAR(1)
Are_Pets_Allowed CHAR(1)
Is_Microwave CHAR(1)
Is_Dishwasher CHAR(1)
Tenant
Tenant_ID (PK) INT UNSIGNED
Property_ID (FK) SMALLINT UNSIGNED
Tenant_First_Name VARCHAR(20)
Tenant_Last_Name VARCHAR(20)
Tenant_Phone VARCHAR(20)
Tenant_Email VARCHAR(50)
Tenant_Credit_Record SMALLINT UNSIGNED
Tenant_Annual_Income DECIMAL(5,2)
Amount_Of_Savings INT UNSIGNED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Property_ID SMALLINT
Tenant_First_Name VARCHAR(20)
Tenant_Last_Name VARCHAR(20)
Tenant_Phone VARCHAR(20)
Tenant_Email VARCHAR(50)
Tenant_Credit_Record SMALLINT
Tenant_Annual_Income DECIMAL(5,2)
Amount_Of_Savings INT
Indexes
PRIMARY
Property_ID
Property_Photo
Property_Photo_ID SMALLINT
Property_ID SMALLINT
Property_Photo VARCHAR(255)
Indexes
PRIMARY
Property_ID
Leasing_Contract
Leasing_Contract_Id SMALLINT
Tenant_ID SMALLINT
Lease_Payment DECIMAL(5,2)
Date_Contract_Sign DATE
Start_Date DATE
End_Date DATE
Duration VARCHAR(20)
Admin_Fee SMALLINT
Broker_Fee SMALLINT
Security_Deposit SMALLINT
Indexes
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Tenant_ID
Property
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Property_Owner_ID SMALLINT
Property_Address_ID SMALLINT
Property_Type VARCHAR(20)
Property_Status VARCHAR(10)
Property_Payment DECIMAL(5,2)
Basement TINYINT
Property_Floor VARCHAR(10)
Bedrooms TINYINT
Bathrooms TINYINT
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Landscape VARCHAR(10)
Special_Requirement VARCHAR(255)
Posted_Date TIMESTAMP
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Property_Owner_ID
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Is_Parking CHAR(1)
Number_Of_Parking CHAR(1)
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Is_Laundry CHAR(1)
Is_Fireplace CHAR(1)
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Is_Backyard CHAR(1)
Are_Pets_Allowed CHAR(1)
Is_Microwave CHAR(1)
Is_Dishwasher CHAR(1)
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Property_Address
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City VARCHAR(20)
Zipcode VARCHAR(20)
Street_Line VARCHAR(50)
Indexes
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Owner_Last_Name VARCHAR(20)
Owner_Phone VARCHAR(20)
Owner_Email VARCHAR(50)
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PRIMARY