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**Module 1 Report**

# Data Model for rental units

Every year there are more than ten thousand students enrolled at Pace University, New York Campus. 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) | NT 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 |

**Tenant**
- 🔑 Tenant_ID SMALLINT
- 🔶 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

**Property**
- 🔑 Property_ID SMALLINT
- 🔶 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
- ◇ Year_Of_Built DATE
- ◇ Square_Feet DECIMAL(5,2)
- ◇ Landscape VARCHAR(10)
- ◇ Special_Requirement VARCHAR(255)
- ◇ Posted_Date TIMESTAMP
- ◇ Available_Date DATE

Indexes
PRIMARY
Property_Address_ID
Property_Owner_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
PRIMARY
Tenant_ID

**Amenities**
- 🔑 Furnishing_ID INT
- 🔶 Property_ID SMALLINT
- ◇ 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)

Indexes
PRIMARY
Property_ID

**Property_Address**
- 🔑 Property_Address_ID SMALLINT
- ◇ State VARCHAR(20)
- ◇ City VARCHAR(20)
- ◇ Zipcode VARCHAR(20)
- ◇ Street_Line VARCHAR(50)

Indexes
PRIMARY

**Property_Owner**
- 🔑 Property_Owner_ID SMALLINT
- ◇ Owner_First_Name VARCHAR(20)
- ◇ Owner_Last_Name VARCHAR(20)
- ◇ Owner_Phone VARCHAR(20)
- ◇ Owner_Email VARCHAR(50)

Indexes
PRIMARY