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Apartment

Management System

Apartment Management System

The Apartment Management System is a comprehensive database-driven application designed to efficiently manage and track information related to apartments, residents, leases, payments, and maintenance requests. The system captures key details about buildings, apartments, and residents, including contact information, lease agreements, rent payments, and move-in/move-out dates.

Additionally, it handles maintenance requests, tracking reported issues, resolution status, and associated apartments. By integrating these features, the system streamlines administrative tasks, enhances communication between residents and management, and provides valuable insights into occupancy rates, revenue, and property maintenance. Ultimately, the Apartment Management System aims to simplify the complexities of property management.

Entities :

1. **Building**: Represents a residential building with attributes

- Building ID (primary key)
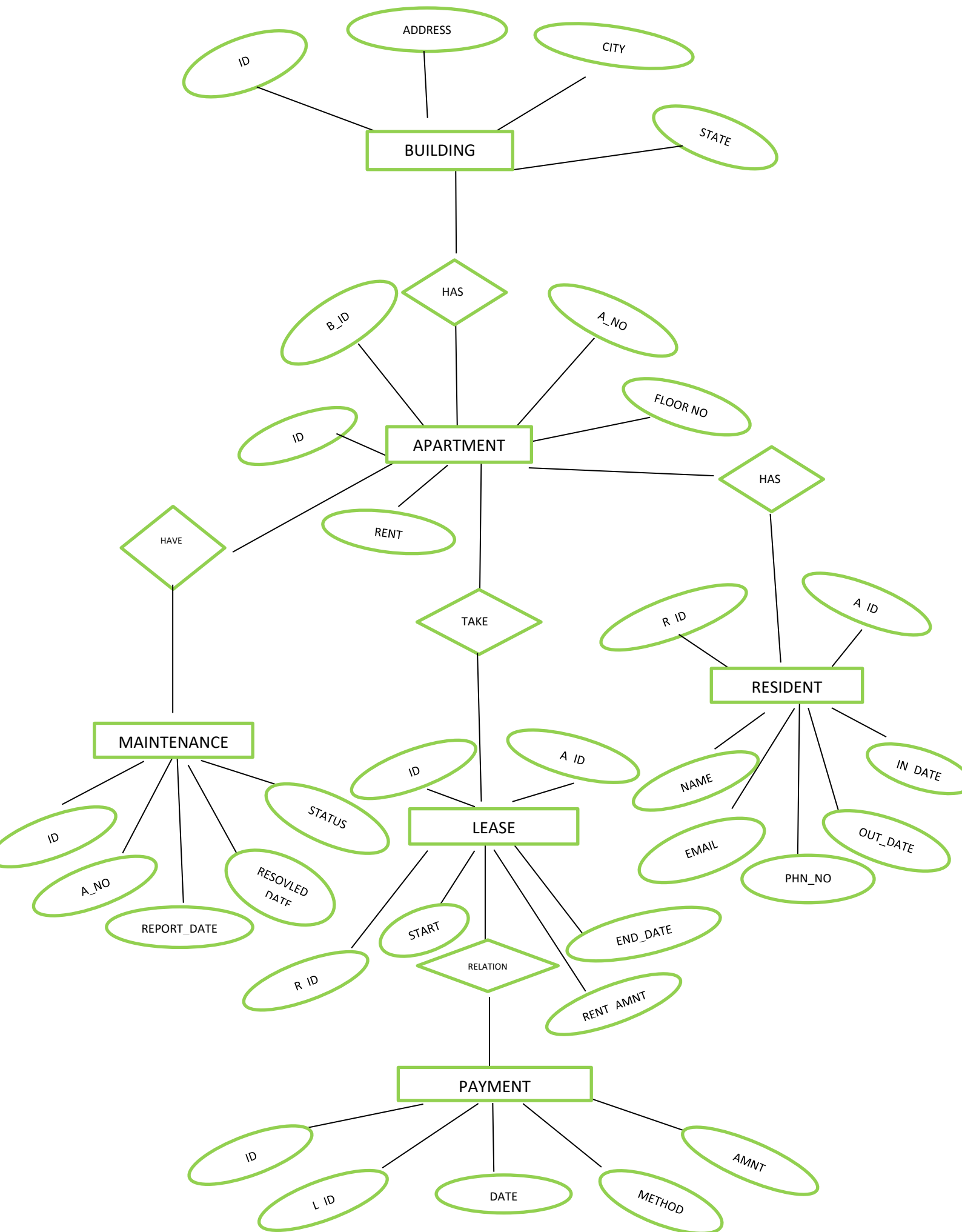- Address
- City
- State

2. **Apartment**: Represents an individual apartment within a building with attributes
   - Apartment ID (primary key)
   - Building ID (foreign key referencing the Building entity)
   - Apartment Number
   - Floor Number
   - Rent
3. **Resident**: Represents a resident living in an apartment with attributes:
   - Resident ID (primary key)
   - Apartment ID (foreign key referencing the Apartment entity)
   - Name
   - Email
   - Phone Number
   - Move-In Date
   - Move-Out Date

4. **Lease**: Represents a lease agreement with attributes
   - Lease ID (primary key)
   - Apartment ID (foreign key referencing the Apartment entity)
   - Resident ID (foreign key referencing the Resident entity)
   - Lease Start Date
   - End Date
   - Rent Amount

5. **Payment**: Represents a payment made by a resident with attributes
   - Payment ID (primary key)
   - Lease ID (foreign key referencing the Lease entity)
   - Payment Date
   - Payment Amount
   - Payment Method

6. **Maintenance**: Represents maintenance requests for an apartment with attributes
   - Maintenance ID (primary key)
   - Apartment ID (foreign key referencing the Apartment entity)
   - Description

- Date Reported
- Date Resolved
- Status

Relationships:

- ❖ A building can have multiple apartments (one-to-many).
- ❖ An apartment is located in one building (many-to-one).
- ❖ An apartment can have multiple residents (one-to-many).
- ❖ A resident lives in one apartment (many-to-one).
- ❖ A lease is associated with one apartment and one resident (many-to-one).
- ❖ A resident can have multiple leases (one-to-many).
- ❖ A payment is associated with one lease (many-to-one).
- ❖ A maintenance request is associated with one apartment (many-to-one).

ER DIAGRAM OF APARTMENT MANAGEMENT SYSTEM

An Entity-Relationship (ER) diagram for an apartment/building management system.

BUILDING (rectangle) with attributes: ID, ADDRESS, CITY, STATE

BUILDING — HAS (diamond) — APARTMENT

APARTMENT (rectangle) with attributes: B_ID, A_NO, FLOOR NO, ID, RENT

APARTMENT — HAVE (diamond) — MAINTENANCE

APARTMENT — TAKE (diamond) — LEASE

APARTMENT — HAS (diamond) — RESIDENT

MAINTENANCE (rectangle) with attributes: ID, A_NO, REPORT_DATE, RESOVLED DATE, STATUS

RESIDENT (rectangle) with attributes: R_ID, A_ID, NAME, EMAIL, PHN_NO, OUT_DATE, IN_DATE

LEASE (rectangle) with attributes: ID, A_ID, R_ID, START, END_DATE, RENT_AMNT

LEASE — RELATION (diamond) — PAYMENT

PAYMENT (rectangle) with attributes: ID, L_ID, DATE, METHOD, AMNT

EER Diagram of Apartment Management System

resident
- ⚷ r_id INT
- ◇ a_id INT
- ◇ r_name VARCHAR(20)
- ◇ r_email VARCHAR(30)
- ◇ r_phnNo VARCHAR(10)
- ◇ r_move_in_date DATE
- ◇ r_move_out_date DATE

Indexes

apartment
- ⚷ a_id INT
- ◇ b_id INT
- ◇ a_no INT
- ◇ a_floorNo INT
- ◇ a_rent MEDIUMTE...

Indexes

building
- ⚷ b_id INT
- ◇ b_address VARCHAR(3...
- ◇ b_city VARCHAR(10)
- ◇ b_state VARCHAR(10)

Indexes

payment
- ⚷ p_id INT
- ◆ l_id INT
- ◇ p_date DATE
- ◇ p_amount MEDIUMTE...
- ◇ p_method VARCHAR(10)

Indexes

lease
- ⚷ l_id INT
- ◇ a_id INT
- ◇ r_id INT
- ◇ l_start_date DATE
- ◇ l_end_date DATE
- ◇ l_rent_amnt MEDIUMTE...

Indexes

maintenance
- ⚷ m_id INT
- ◇ a_id INT
- ◇ description VARCHAR(5...
- ◇ m_date_reported DATE
- ◇ m_date_resolved DATE
- ◇ m_status VARCHAR(10)

Indexes