## Relational schema

Users (email, firstname, lastname, passwd, role)

Agent (email, estate\_agency, job\_title, phone)

Renter (email, age, sex, job, phone)

Address (address\_id, email, city, state, address)

Preference (email, desired\_date, preferred\_location, budget)

CreditCard (card\_no, email, address\_id, bank)

Reward (reward\_id, email, point\_count)

RewardDetail (detail\_id,reward\_id, operation, point, opt\_date)

Property (property\_id, email, property\_type, description, city, state, address, availability, rental\_price, square\_footage)

House (property\_id, rooms\_number)

Apartment (property\_id, rooms\_number, building\_type)

Commercial (property\_id, business\_type)

Neighborhood (property\_id, neighborhood\_id, crime\_rate)

Nearby (property\_id, nearby\_id, type, name, description, images)

PropertyBooking (property\_id, booking\_date, status, email, card\_no)

## SQL script

create table Users

  (email    varchar(100),

   firstname  varchar(20)  not null,

   lastname varchar(20) not null,

   passwd varchar(20)  not null,

   role varchar(10) check (role in ('agent', 'renter')),

   primary key (email)

  );

create table Agent

  (email varchar(100),

   estate\_agency varchar(100),

   job\_title varchar(20),

   phone varchar(10),

   primary key (email),

   foreign key (email) references Users (email)

    on delete cascade

  );

create table Renter

  (email varchar(100),

   age numeric(2,0) check (age > 18),

   sex varchar(10) check (sex in ('male', 'female')),

   job varchar(20),

   phone varchar(10),

   primary key (email),

   foreign key (email) references Users (email)

    on delete cascade

  );

create table Address

  (address\_id varchar(32),

   email varchar(100),

   city varchar(20),

   state varchar(20),

   address varchar(200),

   primary key (address\_id),

   foreign key (email) references Users (email)

    on delete cascade

  );

create table Preference

  (email varchar(100),

   desired\_date date,

   preferred\_location varchar(100),

   budget numeric(7,2) check (budget > 0),

   primary key (email,desired\_date, preferred\_location, budget)

  );

create table CreditCard

  (card\_no varchar(16),

   email varchar(100),

   address\_id varchar(100),

   bank varchar(40) not null,

   primary key (card\_no),

   foreign key (email) references Renter (email)

    on delete cascade,

   foreign key (address\_id) references Address (address\_id)

    on delete set null

  );

create table Reward

  (reward\_id varchar(64),

   point\_count numeric(6,0) check (point\_count > 0),

   primary key (reward\_id),

   foreign key (email) references Renter (email)

    on delete cascade

  );

create table RewardDetail

  (detail\_id varchar(100),

   operation varchar(30),

   point numeric(6,0) check (point > 0),

   opt\_date date,

   primary key (detail\_id),

   foreign key (reward\_id) references Reward (reward\_id)

    on delete cascade

  );

create table Property

  (property\_id varchar(40),

   email varchar(100),

   property\_type varchar(10) check (property\_type in ('house', 'apartment','commercial')),

   description varchar(1000),

   city varchar(20),

   state varchar(20),

   address varchar(200),

   availability numeric(1,0) check (availability=0 or availability = 1) default 1,

   rental\_price numeric(7,2) check (rental\_price > 0),

   square\_footage numeric(5,2) check (square\_footage > 0),

   primary key (property\_id),

   foreign key (email) references Agent (email)

    on delete set null

  );

create table House

  (property\_id varchar(40),

   rooms\_number numeric(1,0) check (rooms\_number > 0 ),

   primary key (property\_id),

   foreign key (property\_id) references Propery (property\_id)

    on delete cascade

  );

create table Apartment

  (property\_id varchar(40),

   rooms\_number numeric(1,0) check (rooms\_number > 0 ),

   building\_type varchar(10) not null,

   primary key (property\_id),

   foreign key (property\_id) references Propery (property\_id)

    on delete cascade

  );

create table Commercial

  (property\_id varchar(40),

   business\_type varchar(20) not null,

   primary key (property\_id),

   foreign key (property\_id) references Propery (property\_id)

    on delete cascade

  );

create table Neighborhood

  (property\_id varchar(40),

   neighborhood\_id varchar(20) not null,

   crime\_rate numeric(6,4) check (crime\_rate >= 0),

   primary key (property\_id,neighborhood\_id),

   foreign key (property\_id) references Propery (property\_id)

    on delete cascade

  );

create table Nearby

  (property\_id varchar(40),

   nearby\_id numeric(2,0),

   type varchar(10) not null,

   name varchar(20) not null,

   description varchar(200),

   images varchar(100),

   primary key (property\_id,nearby\_id),

   foreign key (property\_id) references Propery (property\_id)

    on delete cascade

  );

create table PropertyBooking

  (property\_id varchar(40),

   booking\_date date,

   status varchar(1),

   email varchar(100),

   card\_no varchar(16),

   primary key (property\_id,booking\_date,status),

   foreign key (email) references Renter (email),

   foreign key (card\_no) references CreditCard (card\_no)

  );