

Workshop 2

①

a) Show the Number of the apartments with more than 50 Area.

π number (σ Area > 50 (Apartment))

Number
702
703
306
308
409
310

b) Show the Number and owner of the apartments with more than 2 Rooms and less than 4 rooms.

π Number, owner (σ Rooms $> 2 \wedge$ Rooms < 4 (Apartment))

Number	Owner
702	Neil Pearl
703	Alex Van Halen
306	Sammy Magar
409	Wolfgang Van Halen
310	Valerie Bertinelli

c) Show the Number, Owner and Area of the apartments with more than 40 Area and less than 70 Area.

π Number, owner, Area (σ Area $> 40 \wedge$ Area < 70 (Apartment))

Number	Owner	Area
701	Chad Smith	45
702	Neil Pearl	60
305	David Lee Roth	50
308	Gary Cherone	55
409	Wolfgang Van Halen	65

- d) Show all rows of the table Apartment where the owner contains the word Van Hulen, and called VanHulenApartments.

Π VanHulenApartments ($\sigma_{\text{owner} = \text{"van Hulen"}} (\text{Apartment})$)

VanHulenApartments

Apartment ID	Number	Block	Owner	Area	Rooms
3	103	1	Alex Van Hulen	75	3
4	304	2	Eddie van Hulen	30	1
9	409	1	Wolfgang van Hulen	65	1

- e) Show the Number of the apartments with more than 60 Area with all the PublicServices.

Π Number ($\sigma_{\text{Area} > 60} (\text{Apartment} \times \text{PublicServices})$)

Number
103
306
409
310

②

- a) Show the Name of the owners with more than 50 age.

Π Name ($\sigma_{\text{age} > 50} (\text{Owner})$)

Name
Alex Van Hulen
Eddie Van Hulen
David Lee Ruth
Sammy Hagar
Michael Anthony
Valerie Bertinelli

- b) Show the Name and Age of the owners with more than 1 children and less than 3 children.

Π Name, age ($\sigma_{\text{children} > 1 \wedge \text{children} < 3} (\text{Owner})$)

Name	Age
chad Smith	50
Eddie van Hulen	58
Sammy Hagar	65
Valerie Bertinelli	65

c) Show the Name, Age and children of the owners with more than 40 age and less than 60 age.

Π Name, Age, children (σ Age > 40 \wedge Age < 60 (Owner))

Name	Age	children
Chad Smith	50	2
Neil Peall	45	1
Catle der Helen	58	2
David Lee Ruth	55	1

d) Show all the rows of the table owner where there is a 'ar' or 'ar' substring in the Name and called R-owners.

R-owners (σ Name LIKE 'ar' (Owner)).

R-owners

ownerID	Name	Age	children	Pets
2	Neil Peall	45	1	0
6	Sammy Hayer	65	2	1
8	Gary Cherone	40	1	0

e) Show the Name of the owners with more than 1 Pets and less than 2 children.

Π Name (σ Pets > 1 \wedge children < 2 (Owner))

Name

③

a) Show the Apartment Number, Owner and Common Space of the reservation with Date 2020-01-01 and called NewYearReservations.

NewYearReservations (Π Apartment Number, Owner, Common Space (σ Date = 2020-01-01 (Reservation)))

NewYearReservations.

Apartment Number	Owner	Common Space
101	Chad Smith	Soccer field.

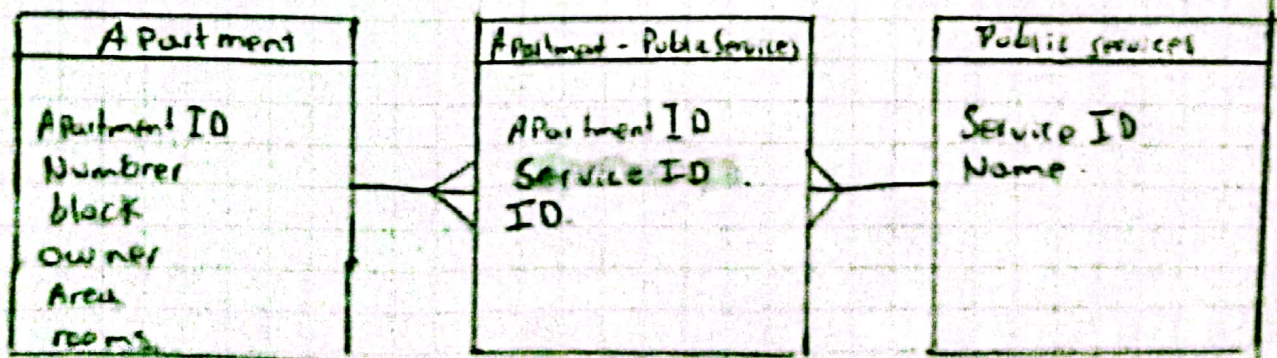
Relations:

	E_1	E_2	E_3	E_4
E_1		✓	✓	✓
E_2	✓			
E_3	✓			✓
E_4	✓		✓	

Phrases and relations.

- Apartment - Public Services : $* \rightarrow *$
- Apartment - Owner : $* \rightarrow 1$
- Apartment - Reservations : $1 \rightarrow *$
- Owner - Reservations : $1 \rightarrow *$
- An apartment can have many services and a service can serve many apartments
- An apartment can have one owner but an owner can have many apartments
- An apartment can have many reservations but one reservation belongs to one apartment.
- An owner can do many reservation but one reservation have one owner,

Breaking many to many relations:



b). Show the owner of the reservation after 2024-01-02 date, and the CommonsSpace is pool or the Apartment Number is 104 or the ApartmentNumber is 102.

Π owner (σ (date > '2024-01-02') \wedge (CommonSpace = 'Pool' \vee ApartmentNumber = 104 \vee ApartmentNumber = 102) (Reservations))

Owner
Alex van Haler
Chad Smith
Chad Smith

c). Show the reservations ID and comon. space of the reservations.

Π Reservations ID, CommonsSpace (Reservations)

Reservations ID	CommonSpace
1	Soccer field.
2	Pool
3	Gym
4	Pool
5	Soccer field
6	Gym
7	Pool
8	Gym
9	Soccer field
10	Pool

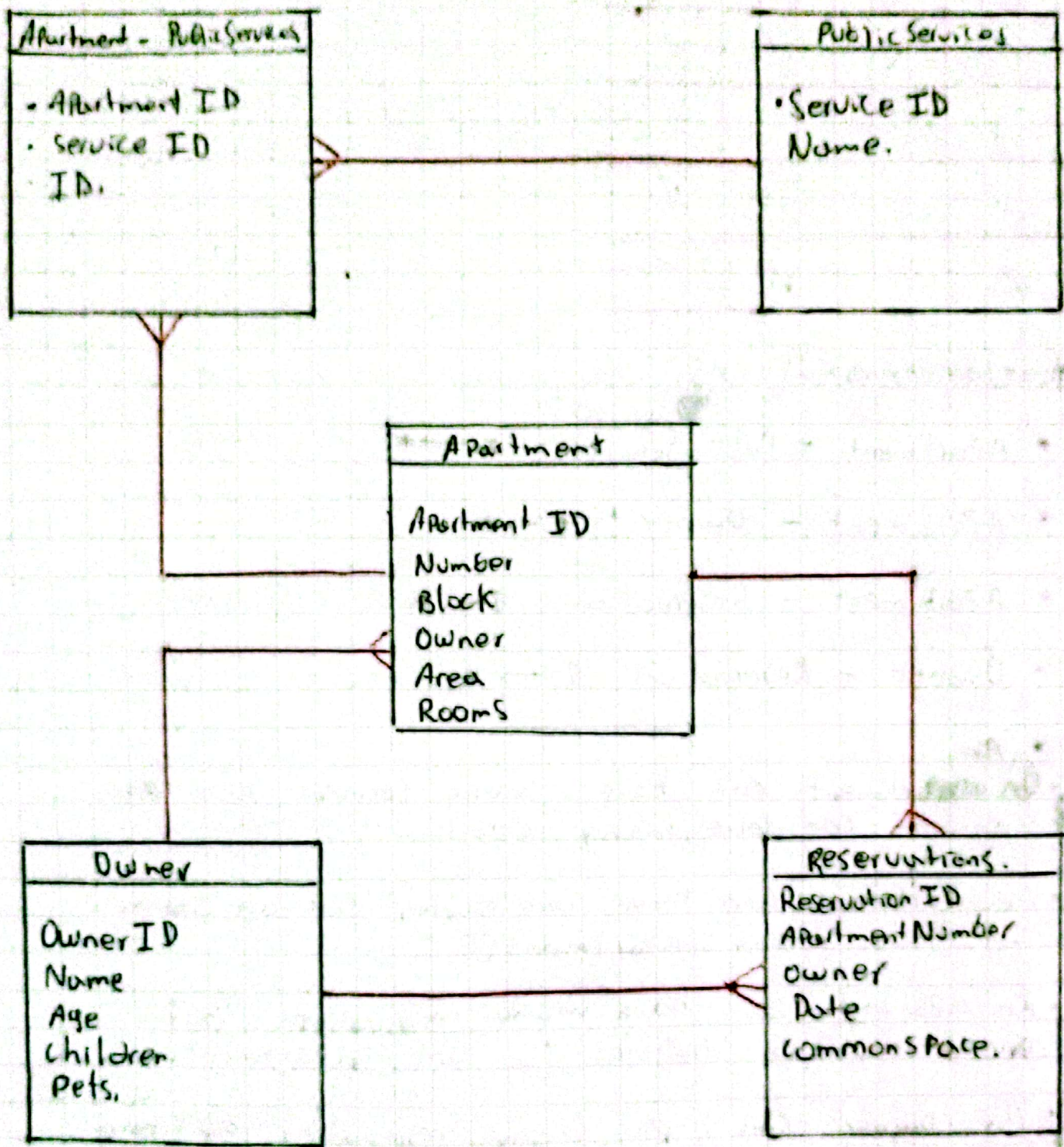
④ Entities and attributes.

E1. Apartment : Apartment ID, Number, Block, Owner Area Rooms.

E2. PublicServices: Service ID, Name.

E3. Owner: Owner ID, Name, age, children, Pets.

E4. Reservations: Reservation ID, ApartmentNumber, owner, Date, CommonsSpace.



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