

# Workshop 2

Table Apartments

ApartmentID	Number	Block	Owner	Area	Rooms
1	101	1	Chad Smith	45	2
2	102	3	Neil Pearl	60	3
3	103	1	Alex Van Halen	75	3
4	304	2	Eddie Van Halen	30	1
5	305	3	David Lee Roth	50	2
6	306	1	Sammy Hagar	70	3
7	207	2	Michael Anthony	40	2
8	308	3	Gary Cherone	55	2
9	409	1	Wolfgang Van Halen	65	3
10	310	2	Valerie Bertinelli	80	3

a)  $\pi$  number ( $\sigma_{\text{Area} > 50}$  (Apartment))

Number
102
103
306
308
409
310

b)  $\Pi(\text{Number}, \text{owner}) (\sigma_{\text{Rooms} \geq 2 \wedge \text{Rooms} \leq 4} (\text{Apartment}))$

Number	owner
102	Neil Pearl
103	Alex Van Halen
306	Sammy Hagar
409	Wolfgang Van Halen
310	Valerie Bertinelli

c)  $\Pi(\text{Number}, \text{owner}, \text{Area}) (\sigma_{(\text{Area} > 40 \wedge \text{Area} < 70)} (\text{Apartment}))$

Number	owner	Area
101	Chad Smith	45
102	Neil Pearl	60
309	David Lee Roth	50
308	Gary Cherone	55
409	Wolfgang Van Halen	65

d)  $\rho_{\text{VanHalenApartments}} (\sigma_{\text{Van Halen} \in \text{owner}} (\text{Apartment}))$

Van Halen Apartments

ApartmentID	Number	Block	owner	Area	Rooms
3	103	1	Alex Van Halen	75	3
4	304	2	Eddie Van Halen	30	1
9	409	1	Wolfgang Van Halen	65	3



e)  $\sigma_{Area > 60}$  (Apartment)  $\times$  Public Services

$\sigma_{Area > 60}$  (Apartment) =

ApartmentID	Number	Block	Owner	Area	Rooms
3	103	1	Alex Van Halem	75	3
6	306	1	Sanny Hager	70	3
9	409	1	Wolfgang Van Halem	65	3
10	310	2	Valerie Bertinelli	80	3

Public Services

ServiceID	Name
1	"Water"
2	"Electricity"
3	"Gas"

$\sigma_{Area > 60}$  (Apartment)  $\times$  Public Services

ApartmentID	Number	Block	Owner	Area	Rooms	ServiceID	Name
3	103	1	Alex Van Halem	75	3	1	"Water"
3	103	1	Alex Van Halem	75	3	2	"Electricity"
3	103	1	Alex Van Halem	75	3	3	"Gas"
6	306	1	Sanny Hager	70	3	1	"Water"
6	306	1	Sanny Hager	70	3	2	"Electricity"
6	306	1	Sanny Hager	70	3	3	"Gas"
9	409	1	Wolfgang van Halem	65	3	1	"Water"
9	409	1	Wolfgang Van Halem	65	3	2	"Electricity"
9	409	1	Wolfgang van Halem	65	3	3	"Gas"
10	310	2	Valerie Bertinelli	80	3	1	"Water"
10	310	2	Valerie Bertinelli	80	3	2	"Electricity"
10	310	2	Valerie Bertinelli	80	3	3	"Gas"

2. a)  $\pi_{\text{Name}} (\sigma_{\text{Age} > 50} (\text{owner}))$

Name

Alex Van Halen

Eddie Van Halen

David Lee Roth

Sammy Hagar

Michael Anthony

Valerie Bertinelli

b)  $\pi_{(\text{Name}, \text{Age})} (\sigma_{\text{Children} > 1 \wedge \text{Children} < 3} (\text{owner}))$

Name	Age
Chad Smith	50
Eddie Van Halen	58
Sammy Hagar	65
Valerie Bertinelli	65

c)  $\pi_{(\text{Name}, \text{Age}, \text{Children})} (\sigma_{\text{Age} > 40 \wedge \text{Age} < 60} (\text{owner}))$

Name	Age	Children
Chad Smith	50	2
Neil Pearl	45	1
Eddie Van Halen	58	2
David Lee Roth	55	1



d)  $\rho_{\text{Owners}} (\sigma_{\text{Age} \in \text{Name}} (\text{Owner}))$

2 Owners

ownerID	Name	Age	Children	Pets
2	Neil Pearl	45	1	0
6	Sunny Hagar	65	2	1
8	Gary Chelone	40	1	0

e)  $\pi_{\text{Name}} (\sigma_{\text{Pets} > 1 \wedge \text{Children} < 2} (\text{Owner}))$

No results →

Name

3.9)  $\rho_{\text{NewYearReservations}} (\pi_{\text{ApartmentNumber}, \text{Owner}, \text{Common Space}} (\sigma_{\text{Date} = 2020-01-01} (\text{Reservations})))$

New Year Reservations

ApartmentNumber	Owner	Common Space

b)  $\pi_{\text{Owner}} (\sigma_{\text{ReservationDate} > 2024-01-02 \wedge \text{CommonSpace} = \text{'Pool'}} \vee \text{ApartmentNumber} = 104 \vee \text{ApartmentNumber} = 102})$

(Reservations))

Owner

Alex Van Hagen

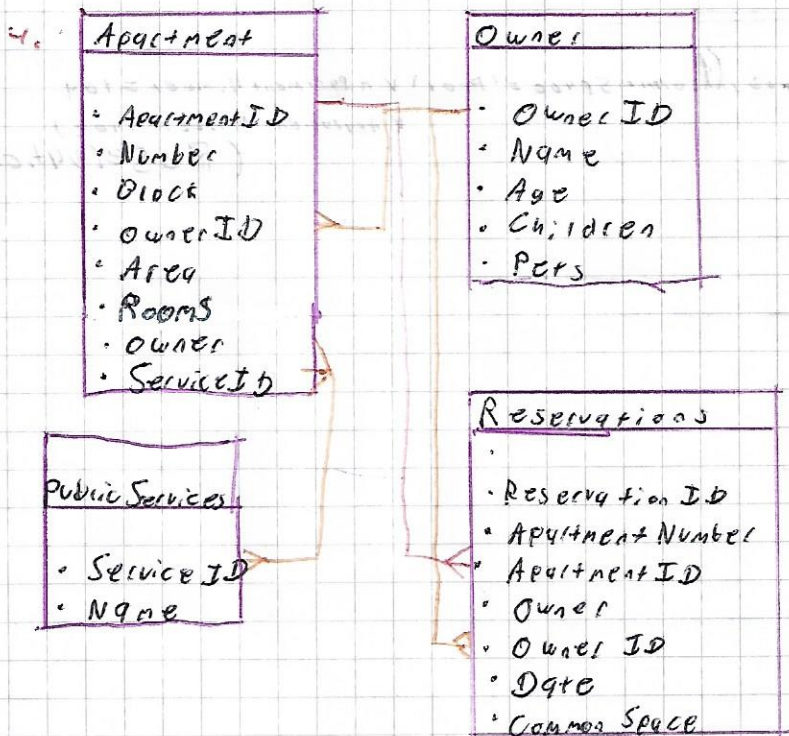
Chad Smith

Neil Pearl

Chad Smith

c) TT (Reservations ID, Common Space) (Reservations

Reservation ID	Common Space
1	Soccer Field
2	Pool
3	Gym
4	Pool
5	Soccer Field
6	Gym
7	Pool
8	Gym
9	Soccer Field
10	Pool





### Apartment

- Apartment ID : int / not null / unique
- Number : int / not null
- Block : int / not null / unique
- Owner ID : int / not null / unique
- Area : int / null / default : 0
- Rooms : int / null / default : 0
- Owner : Varchar(50) / null
- Service : int / null / default : 0

### Owner

- Owner ID : int / not null / unique
- Name : Varchar(50) / not null
- Age : int / not null
- Children : int / null / default : 0
- Pets : int / null / default : 0

### Reservations

- Reservation ID : int / not null / unique
- Apartment Number : int / not null
- Apartment ID : int / not null / unique
- Owner : Varchar(50) / not null
- Owner ID : int / not null / unique
- Date : date / not null
- Comment : Varchar(100) / not null

### Public Services

- Service ID : int / not null / unique
- Name : Varchar(50) / not null / unique

### Active Service

- Service ID : int / not null / unique
- Apartment ID : int / not null / unique