Workshop 2
Database Foundations.
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2.) a.) Show the number of apartments with more than 50 Area

$\Pi_{Number}(\sigma_{Area>50}(Apartment))$

Number
102
103
306
308
409
310

b.) Show the numer ahdowner of the apartments with more than 2 and less than 4 rooms.

$\Pi_{Number,Owner}(\sigma_{Room>2 \land Room<4}(Apartment))$

Number	owner
102	Neil Pearl
103	Alex van Halen
306	Sammy Hagar
409	wolfgang van Halen
310	Valerie Bertinelli

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

$\Pi_{Number,owner,Area}(\sigma_{area>40 \land area<70}(Apartment))$

Number	owner	Area
101	Chad Smith	45
102	Neil Pearl	60
305	David lee Roth	50
308	Gary Cherone	55
409	wolfgang van Halen	65

d.) show all rows of apartment where owner contains "van Halen" and name it VanHalen Apartments.

$P_{vanHalen apartments}(\sigma_{Owner contains "van Halen"}(Apartment))$

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.) Using hex table called PublicServices, show the number of the apartments with more tan 60 Area with all Public Services available

$$\Pi_{number}(\sigma_{area>60}(Apartments) \times PublicServices)$$

Service ID	Name
1	"water"
2	"Electricity"
3	"Gas"

Number
103
306
409
310

2.) a.) show the owners name with more than 50 Age

$$\Pi_{name}(\sigma_{age>50}(Owner))$$

Name
Alex van Halen
Eddie van Halen
David Lee Roth
Sammy Hagar
Michaels Antony
Valerie Bertinelli

b.) Show the name and age of owners with more tan 1 and less than 3 children.

$$\Pi_{name,age}(\sigma_{children>1 \wedge children<3}(owner))$$

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

c.) Show the name, age and children of owner with more tan 40 and less than 60 age.

$$\Pi_{name,age,children}(\sigma_{age>40 \wedge age<60}(Owner))$$

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

d.) Show all rows of Owner where there is a "ar" in the name.

$P_{ROWNERS}$ ($\sigma_{name\ contain\ "ar"}$ (owner))

OwnerID	Name	Age	Children	Pets
2	Neil Pearl	45	1	0
6	Summer Hager	65	2	1
8	Gary Cherone	40	1	0

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

$$\Pi_{name}\ (\sigma_{pets>1\ \wedge\ children<2}\ (owner))$$

*there is no one with that conditions.

3.) a.) Show the ApartmentNumber, Owner and Common Space of reservations with date 2020-01-01 and called newYear reservations.

$P_{NewYearReservation}$ ($\Pi_{ApartmentNumber,Owner,CommonSpace}$ ($\sigma_{date=2020-01-01}$ (Reservations))))

*there is no one with that date.

b.) Show the Owner of reservations after 2024-01-02 date, and the CommonSpace is Pool or the ApartmentNumber is 104 or 102

Π_{owner} ($\sigma_{date>2024-01-02\ \wedge\ (commonSpace=Pool\ \vee\ apartmentNumber=104\ \vee\ apartmentNumber=102)}$ (Reservations))

Owner
Neil Pearl
Alex van Halen
Chad Smith

c.) Show the reservationsID and Common Space of Reservations.

ReservationsID	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

4.)

Owner

Owner ID (Pk) INt Auto Increment
name   varchar(30) unique
age   int Not Null
Children int
Pets   int

Apartment

Apartment ID int Auto Increment
Number int Not Null
Block int Not Null
Owner(FK) varchar(30)
Area int
Rooms int

Reservations

Apartment Number (FK) int
Owner(FK) varchar(30)
date date Not Null
Common Space varchar(30)
Reservations ID (Pk) int Auto Increm