DATABASE SYSTEM MODELS

MINI PROJECT

“Water Conservation System”

SUBMITTED BY:

Srihari S S (4NM18IS119)

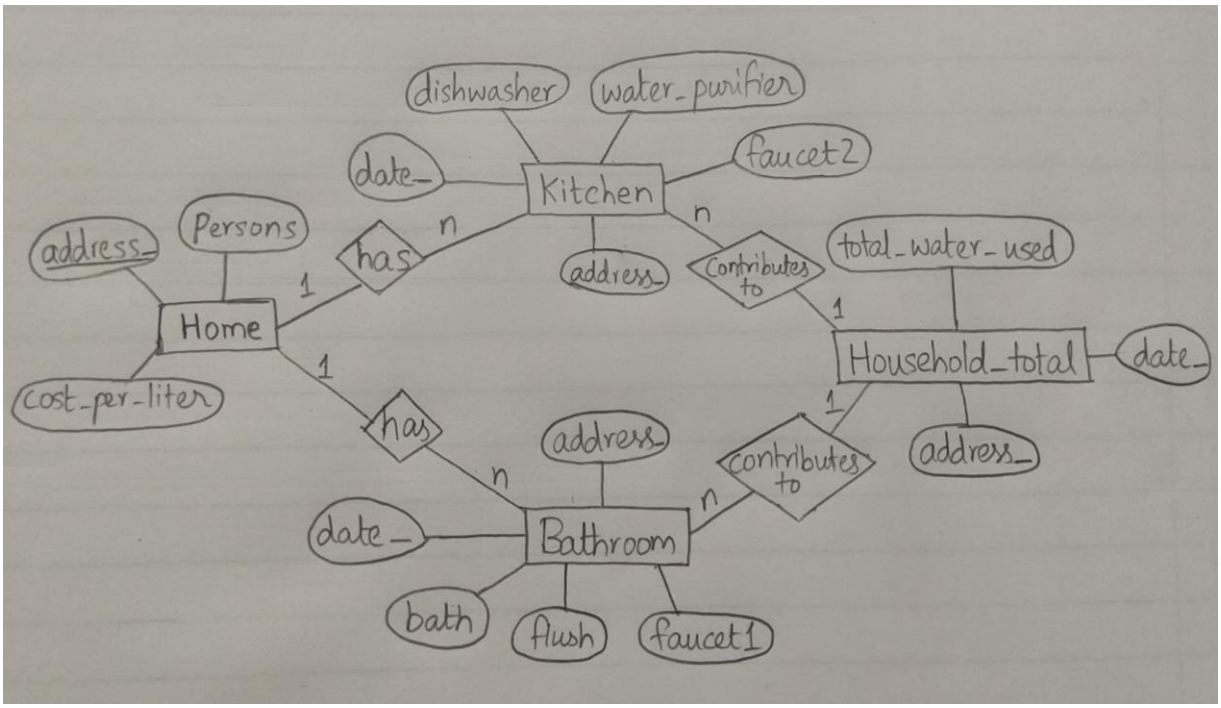
Tushar (4NM18IS127)

SUBMITTED TO:

Mrs. Sandhya S (Information Science)

Water Conservation System

ER Diagram:



Schema:

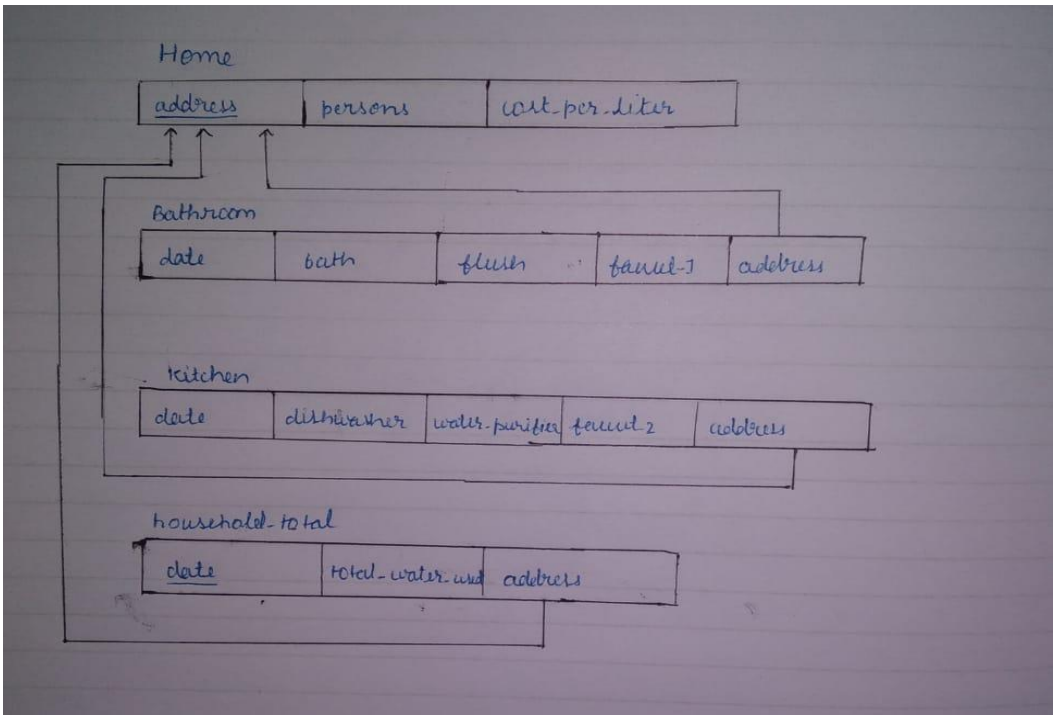
HOME (**<u>address_,</u>** persons, cost_per_liter)

BATHROOM (date_, bath, flush, faucet1, address_)

KITCHEN (date_, dishwasher, water_purifier, faucet2, address_)

HOUSEHOLD_TOTAL (date_, total_water_used, address_)

Schema Diagram:



Create Statements:

```
create database WATER
use WATER
create table home(address_ varchar(20) primary key,
        persons integer,
        cost_per_liter integer )

create table bathroom(date_ date,
                              bath integer,
  flush integer, faucet1 integer,
```

```
  address_ varchar(20),
  constraint fk1 foreign key(address_) references HOME(address_))

create table kitchen(date_ date ,
        dishwasher integer,
        water_purifier integer,
        faucet2 integer,
        address_ varchar(20),
        constraint fk2 foreign key(address_) references HOME(address_))

create table household_total(date_ date,
total_water_used integer,
address_ varchar(20),
constraint fk3 foreign key(address_) references HOME(address_))
```

Insert Statements:

```
insert into HOME values('Home1' ,4 , 12)
insert into HOME values('Home2' ,3 , 10)
insert into HOME values('Home3' ,5 , 14)
insert into HOME values('Home4' ,2 , 9)

insert into bathroom values('2020-12-27', 356, 120, 38, 'Home1')
insert into bathroom values('2020-12-28', 253, 180, 29, 'Home1')
insert into bathroom values('2020-12-29', 389, 150, 18, 'Home1')
```

```
insert into bathroom values('2020-12-27', 256, 90, 21, 'Home2')
insert into bathroom values('2020-12-28', 253, 60, 19, 'Home2')
insert into bathroom values('2020-12-29', 307, 90, 18, 'Home2')

insert into bathroom values('2020-12-27', 456, 220, 38, 'Home3')
insert into bathroom values('2020-12-28', 383, 280, 42, 'Home3')
insert into bathroom values('2020-12-29', 489, 170, 37, 'Home3')

insert into bathroom values('2020-12-27', 156, 80, 17, 'Home4')
insert into bathroom values('2020-12-28', 223, 70, 14, 'Home4')
insert into bathroom values('2020-12-29', 229, 110, 18, 'Home4')


insert into kitchen values('2020-12-27', 210, 30, 38, 'Home1')
insert into kitchen values('2020-12-28', 212, 28, 29, 'Home1')
insert into kitchen values('2020-12-29', 211, 29, 18, 'Home1')

insert into kitchen values('2020-12-27', 180, 20, 21, 'Home2')
insert into kitchen values('2020-12-28', 153, 21, 19, 'Home2')
insert into kitchen values('2020-12-29', 107, 17, 18, 'Home2')

insert into kitchen values('2020-12-27', 356, 40, 38, 'Home3')
insert into kitchen values('2020-12-28', 323, 47, 42, 'Home3')
insert into kitchen values('2020-12-29', 319, 49, 37, 'Home3')

insert into kitchen values('2020-12-27', 96, 11, 17, 'Home4')
insert into kitchen values('2020-12-28', 103, 10, 14, 'Home4')
```

insert into kitchen values('2020-12-29', 109, 9, 18, 'Home4')

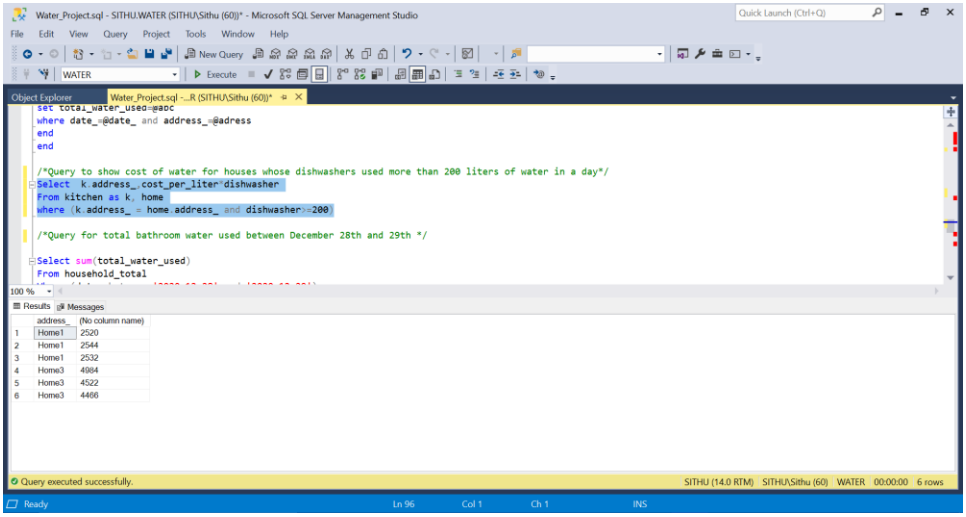
Queries:

1. Query to show cost of water for houses whose dishwashers used more than 200 liters of water in a day

Select k.address_,cost_per_liter*dishwasher

From kitchen as k, home

where (k.address_ = home.address_ and dishwasher>=200)

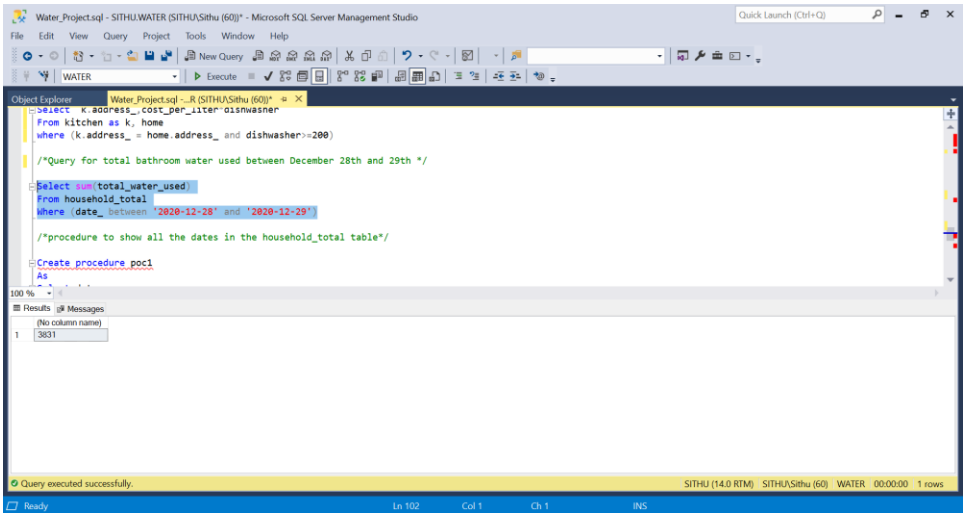


2. Query for total bathroom water used between December 28th and 29th

Select sum(total_water_used)

From household_total

Where (date_ between '2020-12-28' and '2020-12-29')



3. To show which house updated bathroom column how number of times (with view)

Create view v1 as

(Select h.address_,count (*) as c

From bathroom as b, home as h

Where b.address_=h.address_

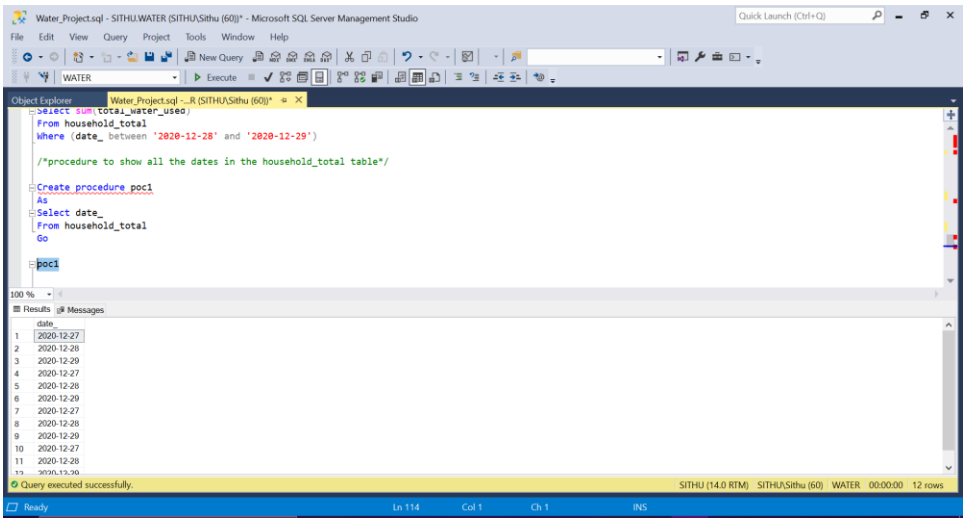
Group by h.address_)

Select address_

From v1

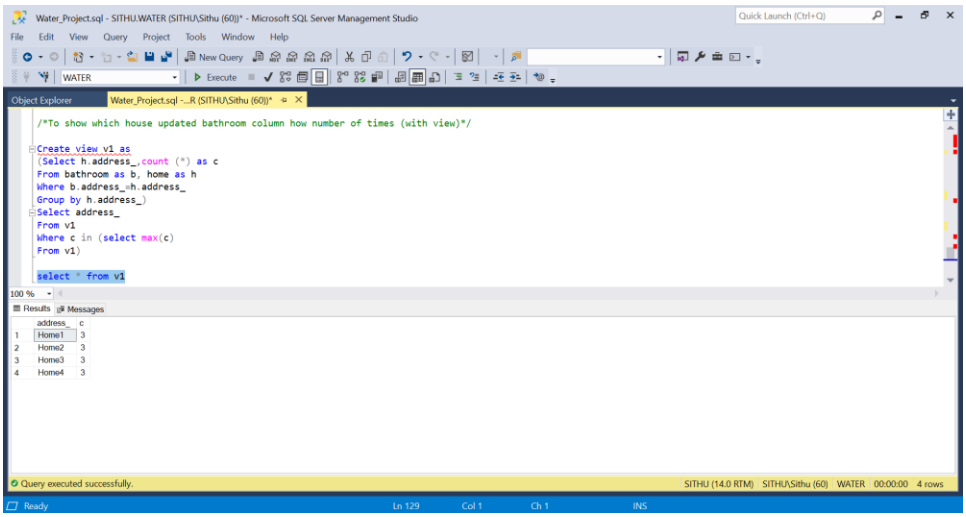
Where c in (select max(c)

From v1)



4. Procedure to show all the dates in the household_total table

```
Create procedure poc1
As
Select date_
From household_total
Go
```

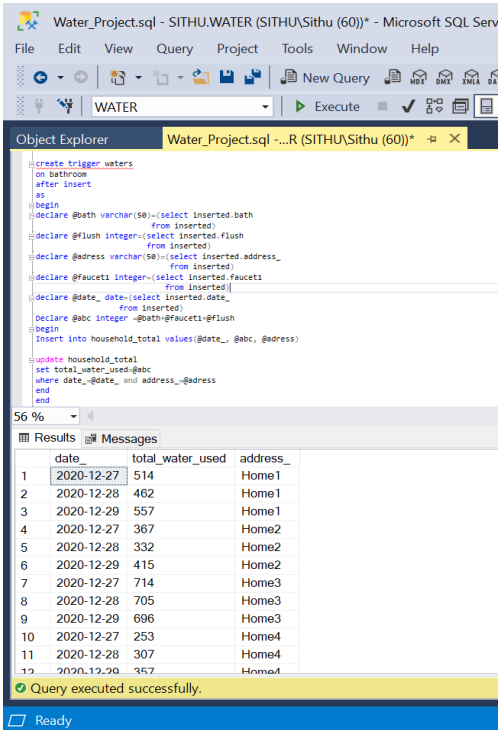


5. Trigger to update ‘household_total’ with total bathroom water used on inserting into the table ‘bathroom’

```
create trigger waters
on bathroom
after insert
as
begin
declare @bath varchar(50)=(select inserted.bath
 from inserted)
declare @flush integer=(select inserted.flush
from inserted)
declare @adress varchar(50)=(select inserted.address_
 from inserted)
declare @faucet1 integer=(select inserted.faucet1
from inserted)
```

```
declare @date_ date=(select inserted.date_
  from inserted)
Declare @abc integer =@bath+@faucet1+@flush
begin
Insert into household_total values(@date_, @abc, @adress)

update household_total
set total_water_used=@abc
where date_=@date_ and address_=@adress
end
end
```



	date_	total_water_used	address_
1	2020-12-27	514	Home1
2	2020-12-28	462	Home1
3	2020-12-29	557	Home1
4	2020-12-27	367	Home2
5	2020-12-28	332	Home2
6	2020-12-29	415	Home2
7	2020-12-27	714	Home3
8	2020-12-28	705	Home3
9	2020-12-29	696	Home3
10	2020-12-27	253	Home4
11	2020-12-28	307	Home4
12	2020-12-29	357	Home4