

# SQL Project

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### Task 1:

create a SQL script that will execute to create given tables in a MySQL database. Be sure to include: all tables and their attributes, primary keys, foreign keys, any constraints. Your script should be able to be executed in one run without errors.

### Task 2:

SQL DML commands

### Task 3:

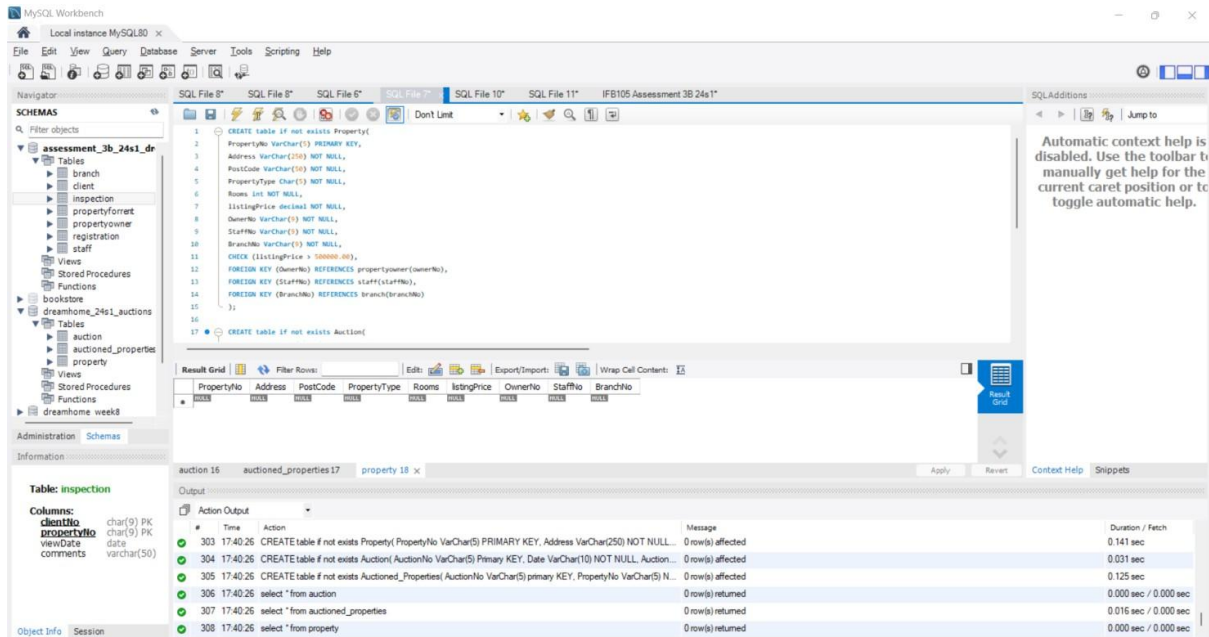
SQL selects requiring joining tables

### Task 4:

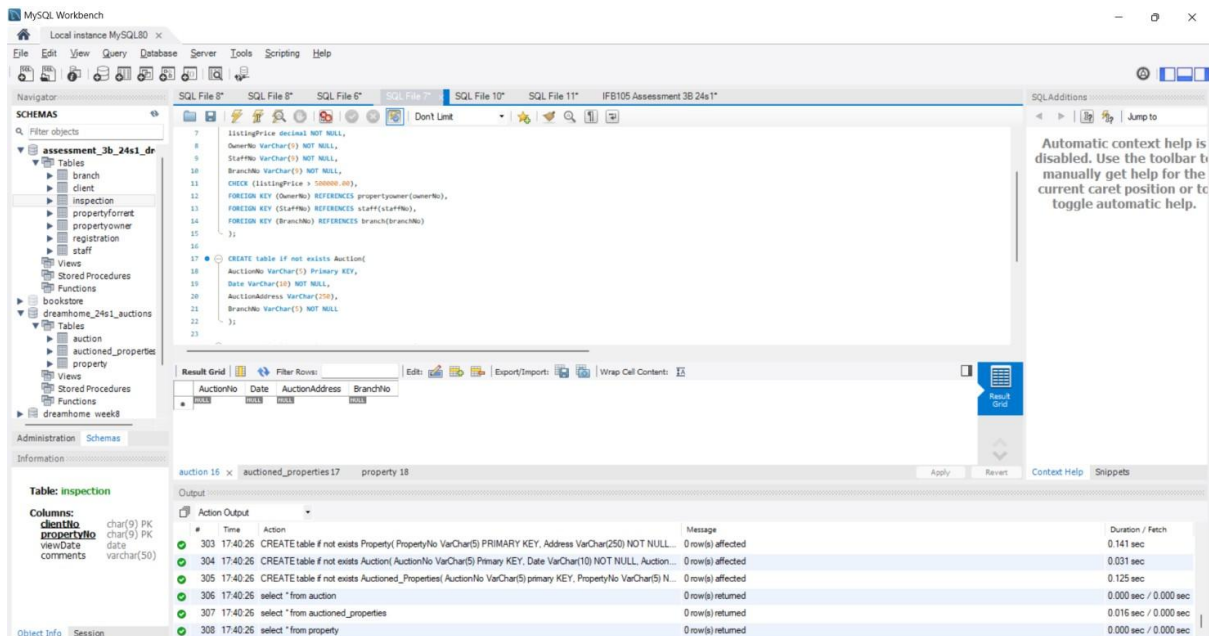
SQL DCL commands

## Task 1:

```
CREATE table if not exists Property(  
PropertyNo VarChar(5) PRIMARY KEY,  
Address VarChar(250) NOT NULL,  
PostCode VarChar(50) NOT NULL,  
PropertyType Char(5) NOT NULL, Rooms int NOT NULL, listingPrice decimal NOT NULL,  
OwnerNo VarChar(9) NOT NULL,  
StaffNo VarChar(9) NOT NULL,  
BranchNo VarChar(9) NOT NULL,  
CHECK (listingPrice > 500000.00),  
FOREIGN KEY (OwnerNo) REFERENCES propertyowner(ownerNo),  
FOREIGN KEY (StaffNo) REFERENCES staff(staffNo),  
FOREIGN KEY (BranchNo) REFERENCES branch(branchNo)  
);
```



CREATE table if not exists Auction(  
 AuctionNo VarChar(5) Primary KEY,  
 Date VarChar(10) NOT NULL,  
 AuctionAddress VarChar(250),  
 BranchNo VarChar(5) NOT NULL  
 );



CREATE table if not exists Auctioned\_Properties(  
 AuctionNo VarChar(5) primary KEY,  
 PropertyNo VarChar(5) NOT NULL,  
 AuctionDate VarChar(10) NOT NULL,  
 AuctionAddress VarChar(250),  
 BranchNo VarChar(5) NOT NULL  
 );

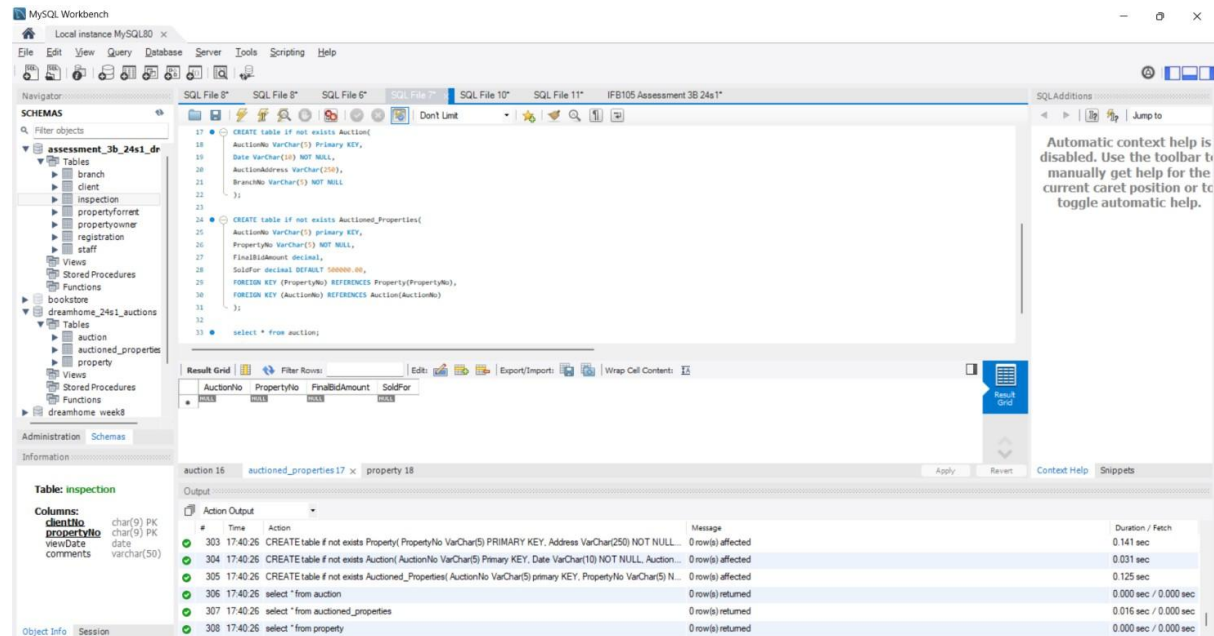
FinalBidAmount decimal,

SoldFor decimal DEFAULT 500000.00,

FOREIGN KEY (PropertyNo) REFERENCES Property(PropertyNo),

FOREIGN KEY (AuctionNo) REFERENCES Auction(AuctionNo)

);



## Task 2:

- a) Select the client number, first name, last name, email address, preferred type and max rent of all clients that have a prefType of Flat and maxRent greater than \$400.

select clientNo, fName, lName, emailAddr, prefType, maxRent from client

where (maxRent > 400) and (prefType = 'Flat');

MySQL Workbench interface showing a SQL query and its results.

**SQL Query:**

```

1 select * from client;
2 select clientNo, fName, lName, emailAddr, prefType, maxRent
3 from client
4 where (maxRent > 400) and (prefType = 'Flat');
5
6 INSERT INTO client (clientNo, fName, lName, address, mobTelNo, emailAddr, prefType, maxRent)
7 VALUES
8 ('CR80', 'Chris', 'Smith', '12 Mary St Brisbane City', '0141583594', 'Chrissmith@hotmail.com.au', 'Flat', 750);
9
10 select * from inspection;
11 DELETE from inspection
12 where (clientNo = 'CN75')
13 and (propertyNo = 'PF016');

```

**Result Grid:**

clientNo	fName	lName	emailAddr	prefType	maxRent
CN55	Robert	De Niro	rdenero@hotmail.com.au	Flat	470.0
CN65	Katherine	Hepburn	khepburn@hotmail.com.au	Flat	560.0
CN85	Tom	Hanks	thanks@hotmail.com.au	Flat	460.0

**Table: inspection**

Columns: clientNo, propertyNo, viewDate, comments

Object Info Session

**b)** DreamHome has a new client, Chris Smith, his address is 12 Mary St Brisbane city, telephone number 0141583594, email address [chrissmith@hotmail.com.au](mailto:chrissmith@hotmail.com.au), preference type is a Flat, and he is willing to pay a max rent of \$750. Assign him the client number 'CR80'. Write a SQL statement that will add his record to the database.

INSERT INTO client (clientNO, fName, lName, address, mobTelNo, emailAddr, prefType, maxRent)

VALUES

('CR80', 'Chris', 'Smith', '12 Mary St Brisbane City', '0141583594', 'Chrissmith@hotmail.com.au', 'Flat', 750);

MySQL Workbench interface showing a SQL query and its results.

**SQL Query:**

```

1 select * from client;
2 select clientNo, fName, lName, emailAddr, prefType, maxRent
3 from client
4 where (maxRent > 400) and (prefType = 'Flat');
5
6 INSERT INTO client (clientNo, fName, lName, address, mobTelNo, emailAddr, prefType, maxRent)
7 VALUES
8 ('CR80', 'Chris', 'Smith', '12 Mary St Brisbane City', '0141583594', 'Chrissmith@hotmail.com.au', 'Flat', 750);
9
10 select * from inspection;
11 DELETE from inspection
12 where (clientNo = 'CN75')
13 and (propertyNo = 'PF016')
14 and (viewDate = '2023-04-20');
15
16 select * from staff;
17 UPDATE staff
18 set salary = (Salary * 1.2)
19 where
20 staffNo in ('S0037', 'S0041');
21 select * from staff;

```

**Result Grid:**

#	Time	Action	Message	Duration / Fetch
304	17:40:26	CREATE table if not exists Auction(AuctionNo VarChar(5) Primary KEY, Date VarChar(10) NOT NULL, Auction...	0 row(s) affected	0.031 sec
305	17:40:26	CREATE table if not exists Auctioned_Properties(AuctionNo VarChar(5) primary KEY, PropertyNo VarChar(5) N...	0 row(s) affected	0.125 sec
306	17:40:26	select * from auction	0 row(s) returned	0.000 sec / 0.000 sec
307	17:40:26	select * from auctioned_properties	0 row(s) returned	0.016 sec / 0.000 sec
308	17:40:26	select * from property	0 row(s) returned	0.000 sec / 0.000 sec
309	17:46:20	select clientNo, fName, lName, emailAddr, prefType, maxRent from client where (maxRent > 400) and (prefTyp...	3 row(s) returned	0.000 sec / 0.000 sec
310	17:47:39	INSERT INTO client (clientNO, fName, lName, address, mobTelNo, emailAddr, prefType, maxRent) VALUES (...	1 row(s) affected	0.000 sec

**Table: inspection**

Columns: clientNo, propertyNo, viewDate, comments

Object Info Session

**c)** Write a SQL statement to DELETE the inspection record for client 'CN75' who inspected property 'PF016' on '2023-04-20'.

DELETE from inspection where (clientNo = 'CN75') and (propertyNo = 'PF016') and (viewDate = '2023-04-28');

The screenshot shows the MySQL Workbench interface. The SQL editor contains a script with the following queries:

```

1 select * from client;
2 select clientNo, fName, lName, emailAddress, prefType, maxRent
3 from client
4 where (maxRent > 400) and (prefType = 'Flat');
5
6 INSERT INTO client (clientNo, fName, lName, address, mobTelNo, emailAddress, prefType, maxRent)
7 VALUES
8 ('CR09', 'Chris', 'Smith', '12 Mary St Brisbane City', '0141583594', 'Chrissmith@hotmail.com.au', 'Flat', 750);
9
10 select * from inspection;
11 DELETE from inspection
12 where (clientNo = 'CN75')
13 and (propertyNo = 'PF016')
14 and (viewDate = '2023-04-28');
15
16 select * from staff;
17 UPDATE staff
18 set salary = (Salary * 1.2)
19 where
20 staffNo in ('SN037', 'ST041');
21 select * from propertyowner;

```

The Output window shows the results of the execution:

#	Time	Action	Message	Duration / Fetch
306	17:40:26	select * from auction	0 row(s) returned	0.000 sec / 0.000 sec
307	17:40:26	select * from auctioned_properties	0 row(s) returned	0.016 sec / 0.000 sec
308	17:40:26	select * from property	0 row(s) returned	0.000 sec / 0.000 sec
309	17:46:20	select clientNo, fName, lName, emailAddress, prefType, maxRent from client where (maxRent > 400) and (prefType = 'Flat');	3 row(s) returned	0.000 sec / 0.000 sec
310	17:47:39	INSERT INTO client (clientNo, fName, lName, address, mobTelNo, emailAddress, prefType, maxRent) VALUES ('CR09', 'Chris', 'Smith', '12 Mary St Brisbane City', '0141583594', 'Chrissmith@hotmail.com.au', 'Flat', 750);	1 row(s) affected	0.000 sec
311	17:48:33	DELETE from inspection where (clientNo = 'CN75') and (propertyNo = 'PF016') and (viewDate = '2023-04-28');	0 row(s) affected	0.000 sec

d) Increase the salary of staff with staff numbers SN037 and ST041 by 20% using the IN operator.

UPDATE staff

set salary = (Salary \* 1.2) where staffNo in ('SN037', 'ST041');

The screenshot shows the MySQL Workbench interface. The SQL editor contains a script with the following queries:

```

7 VALUES
8 ('CR09', 'Chris', 'Smith', '12 Mary St Brisbane City', '0141583594', 'Chrissmith@hotmail.com.au', 'Flat', 750);
9
10 select * from inspection;
11 DELETE from inspection
12 where (clientNo = 'CN75')
13 and (propertyNo = 'PF016')
14 and (viewDate = '2023-04-28');
15
16 select * from staff;
17 UPDATE staff
18 set salary = (Salary * 1.2)
19 where
20 staffNo in ('SN037', 'ST041');
21
22 select * from propertyowner;
23 select * from propertyforrent
24 where ownerNo =
25 (select ownerNo from propertyowner
26 where (fName = 'John') and (lName = 'Kent'));

```

The Output window shows the results of the execution:

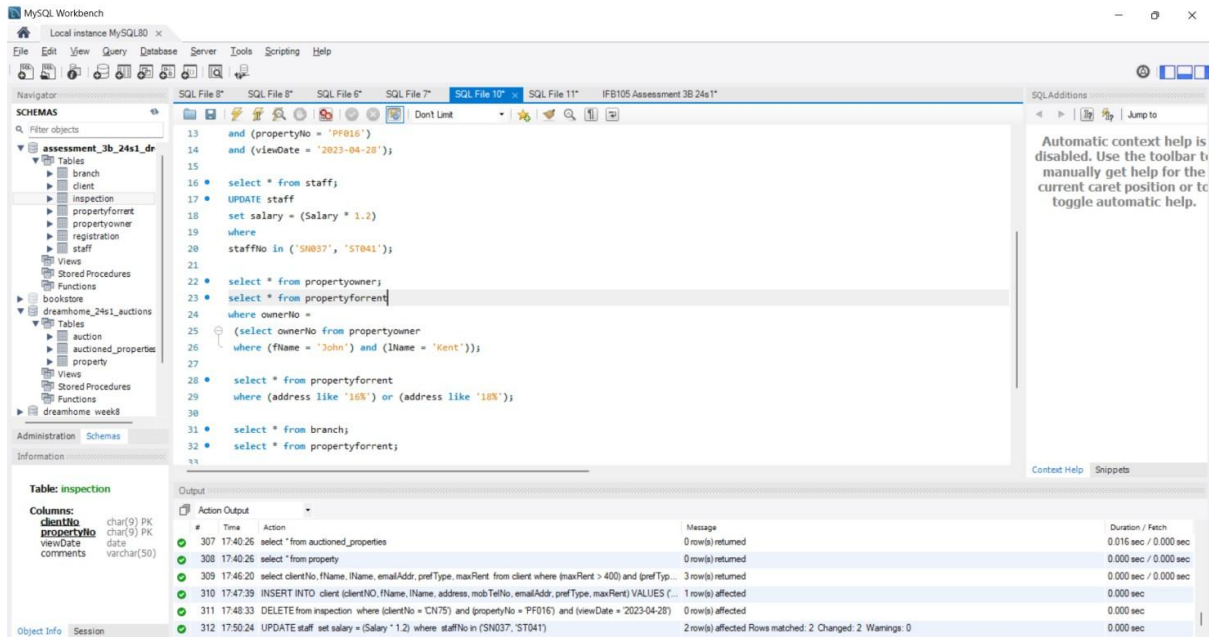
#	Time	Action	Message	Duration / Fetch
307	17:40:26	select * from auctioned_properties	0 row(s) returned	0.016 sec / 0.000 sec
308	17:40:26	select * from property	0 row(s) returned	0.000 sec / 0.000 sec
309	17:46:20	select clientNo, fName, lName, emailAddress, prefType, maxRent from client where (maxRent > 400) and (prefType = 'Flat');	3 row(s) returned	0.000 sec / 0.000 sec
310	17:47:39	INSERT INTO client (clientNo, fName, lName, address, mobTelNo, emailAddress, prefType, maxRent) VALUES ('CR09', 'Chris', 'Smith', '12 Mary St Brisbane City', '0141583594', 'Chrissmith@hotmail.com.au', 'Flat', 750);	1 row(s) affected	0.000 sec
311	17:48:33	DELETE from inspection where (clientNo = 'CN75') and (propertyNo = 'PF016') and (viewDate = '2023-04-28');	0 row(s) affected	0.000 sec
312	17:50:24	UPDATE staff set salary = (Salary * 1.2) where staffNo in ('SN037', 'ST041');	2 row(s) affected Rows matched: 2 Changed: 2 Warnings: 0	0.000 sec

e) How many properties does John Kent (PO046) currently have listed for rent?

where ownerNo =

(select ownerNo from propertyowner where (fName = 'John') and (lName = 'Kent'));

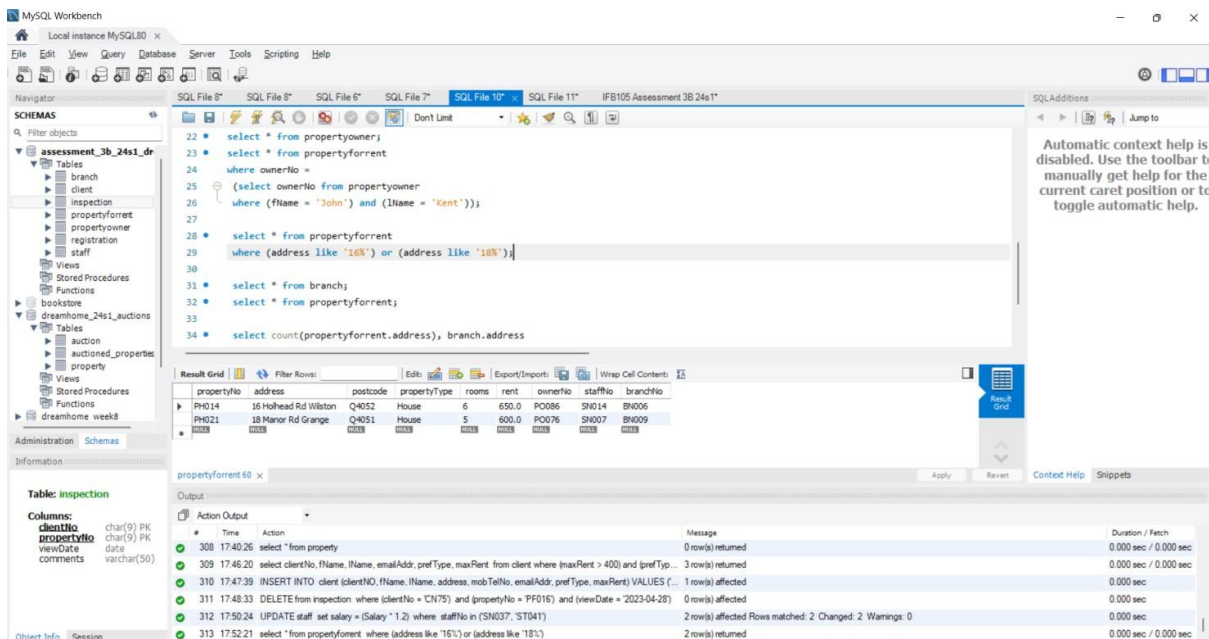




f) Find all properties listed for rent with addresses starting with "16" or "18".

select \* from propertyforrent

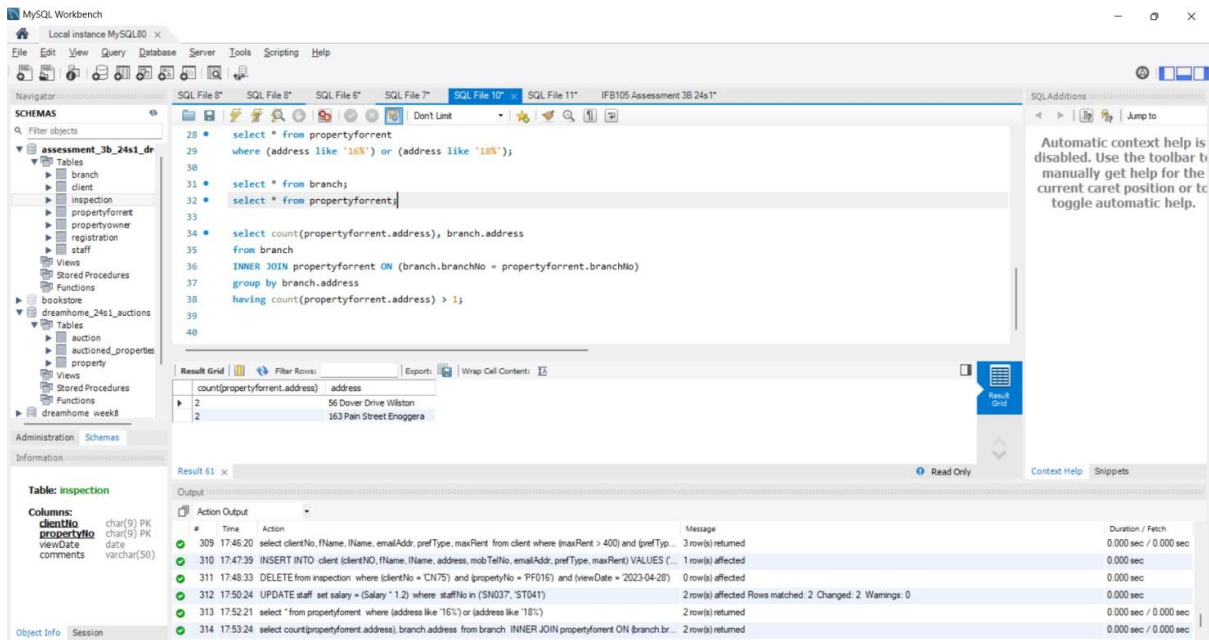
where (address like '16%') or (address like '18%');



g) Find all branch addresses and total properties listed at each branch where more than 1 properties are currently listed for rent.

select count(propertyforrent.address), branch.address from branch

INNER JOIN propertyforrent ON (branch.branchNo = propertyforrent.branchNo) group by branch.address having count(propertyforrent.address) > 1;

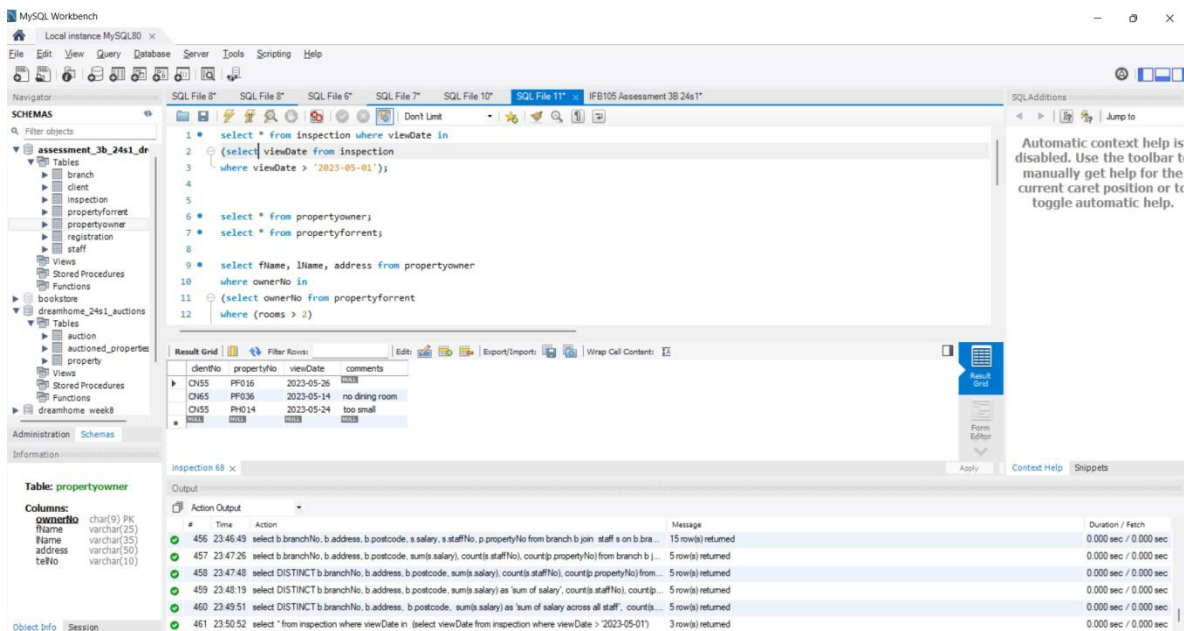


## Task 3:

a) Select all the attributes in the Client table regarding clients that have a house viewing date after the 1st May 2023 using a subquery.

select \* from inspection where viewDate in

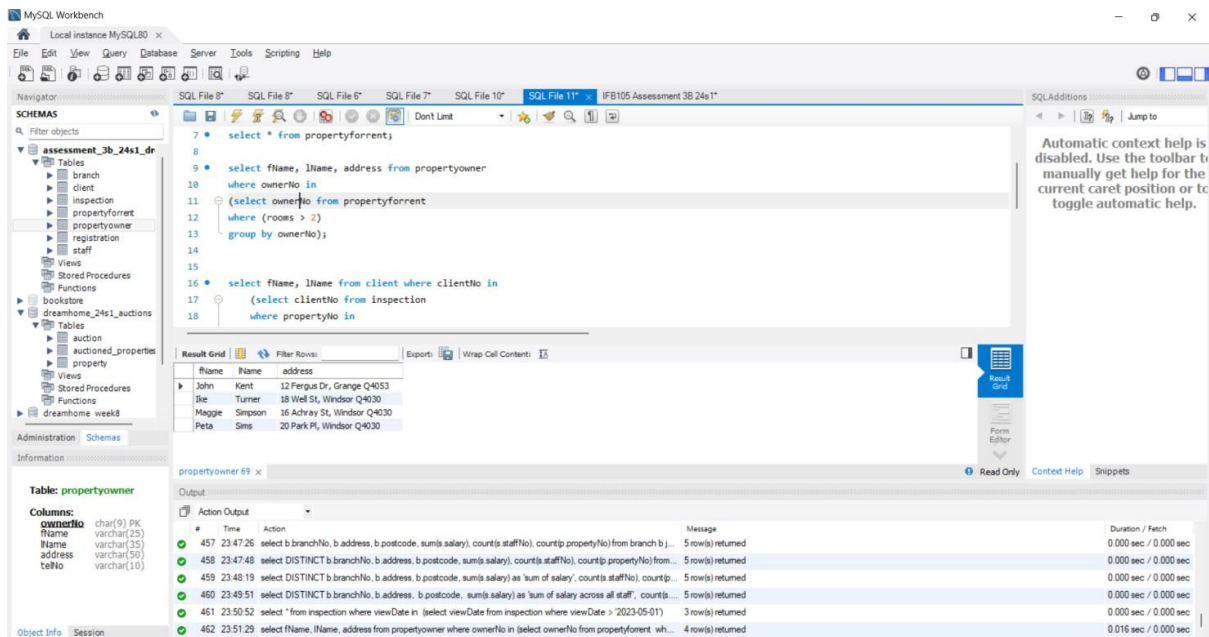
(select viewDate from inspection where viewDate > '2023-05-01');



b) What are the names and addresses of all the property owners who own properties with more than 2 rooms?

select fName, lName, address from propertyowner where ownerNo in

(select ownerNo from propertyforrent where (rooms > 2) group by ownerNo);



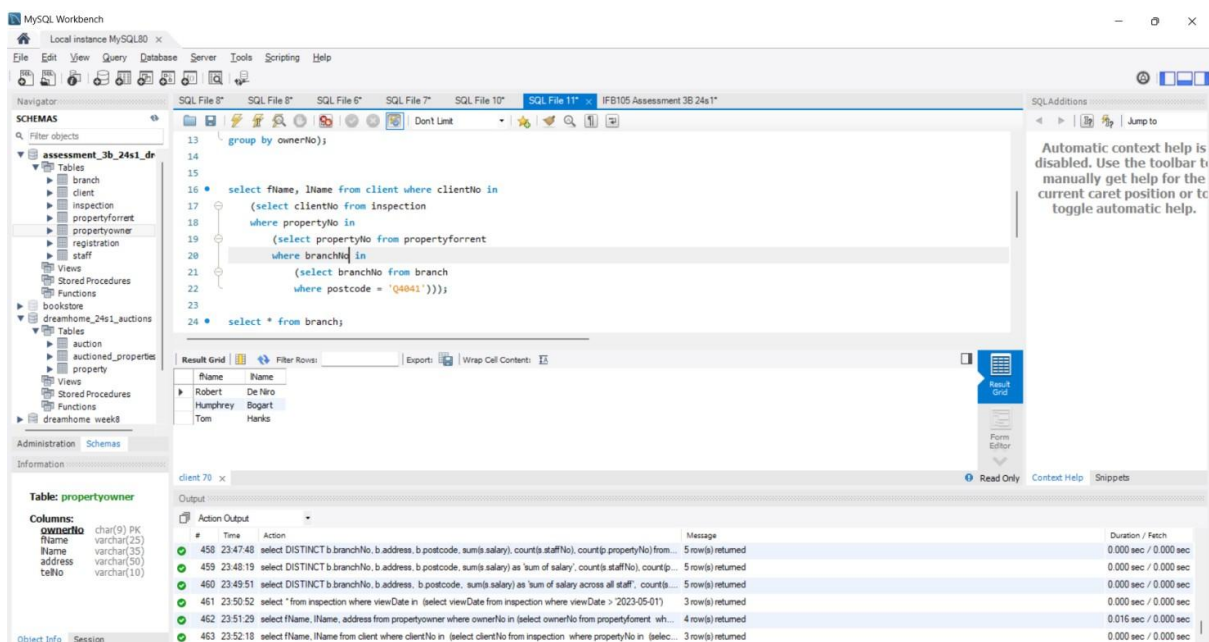
c) What are the names of all the clients who have viewed a property managed by a branch located in post code Q4041?

select fName, lName from client where clientNo in

(select clientNo from inspection where propertyNo in

(select propertyNo from propertyforrent where branchNo in

(select branchNo from branch where postcode = 'Q4041')));



d) For each branch, produce a report that details: the address and postcode of where the branch is located, sum of the salary of all staff that work at that branch, number of distinct employees at the branch, and how many distinct properties belong to that branch.

select



b.branchNo,

b.address,

b.postcode, sum( DISTINCT s.salary) as 'sum of salary across all staff', count(DISTINCT s.staffNo) as 'total staff hired', count(DISTINCT p.address) as 'number of properties owned' from branch b join staff s on b.branchNo = s.branchNo join propertyforrent p on p.branchNo = b.branchNo group by b.branchNo;

The screenshot shows the MySQL Workbench interface. The SQL editor contains the following query:

```
37
38 select
39   b.branchNo,
40   b.address,
41   b.postcode,
42   sum( DISTINCT b.salary) as 'sum of salary across all staff',
43   count(DISTINCT s.staffNo) as 'total staff hired',
44   count(DISTINCT p.address) as 'number of properties owned'
45 from branch b
46 join staff s on b.branchNo = s.branchNo
47 join propertyforrent p on p.branchNo = b.branchNo
48 group by b.branchNo;
```

The Results grid shows the following data:

branchNo	address	postcode	sum of salary across all staff	total staff hired	number of properties owned
BN003	56 Dover Drive Willston	Q4041	376000.00	4	2
BN006	163 Pain Street Enoggera	Q4041	176000.00	2	2
BN009	32 Chance Road Zillmere	Q4043	105000.00	1	1
BN012	22 Steer Road East Brisbane	Q4044	85000.00	1	1
BN015	16 Argon Street Cleveland	Q4045	81000.00	1	1

The bottom panel shows the table structure for 'propertyowner':

Column	Type
ownerNo	char(9) PK
fName	varchar(25)
lName	varchar(50)
address	varchar(50)
telNo	varchar(10)

## Task 4:

- a) Create a user with the name Jake with the password Jake123x.

CREATE USER if not exists 'Jake' identified by 'Jake123x'@localhost password expire;

- b) Grant the previously created user (Jake) access to update data in the Registration table.

GRANT update on assessment\_3b\_24s1\_dreamhome.registration

To 'Jake'@localhost;

- c) Create a view called ActiveClients with the given query:

SELECT c.clientNo, c.fName, c.lName, r.dateJoined

FROM Client c

INNER JOIN Registration r ON c.clientNo = r.clientNo;

Grant permission to select this view to Manav (submit both SQL statements).

CREATE VIEW ActiveClients as SELECT c.clientNo, c.fName, c.lName, r.dateJoined

FROM Client c

INNER JOIN Registration r ON c.clientNo = r.clientNo;

GRANT SELECT on assessment\_3b\_24s1\_dreamhome.ActiveClients To 'Jake'@localhost;

The screenshot shows the MySQL Workbench interface. The SQL Editor contains the following queries:

```
4
5 GRANT update on assessment_3b_24s1_dreamhome.registration To 'Manav'@localhost;
6 show GRANTS for 'Manav'@localhost;
7
8 CREATE VIEW ActiveClients
9 as SELECT c.clientNo, c.fName, c.lName, r.dateJoined
10 FROM Client c
11 INNER JOIN Registration r ON c.clientNo = r.clientNo;
12
13 GRANT SELECT on assessment_3b_24s1_dreamhome.ActiveClients To 'Manav'@localhost;
14 show GRANTS for 'Manav'@localhost;
15
```

The Results window shows the output of the queries:

Grants for Manav@localhost
GRANT USAGE ON *.* TO 'Manav'@localhost
GRANT SELECT ON `assessment_3b_24s1_dreamhome`.* TO 'Manav'@localhost
GRANT UPDATE ON `assessment_3b_24s1_dreamhome`.* TO 'Manav'@localhost

The Action Output window shows the execution details:

#	Time	Action	Message	Duration / Fetch
548	11:09:26	show GRANTS for 'Manav'@localhost	1 row(s) returned	0.000 sec / 0.000 sec
549	11:12:16	GRANT update on assessment_3b_24s1_dreamhome.registration To 'Manav'@localhost	0 row(s) affected	0.000 sec
550	11:12:20	show GRANTS for 'Manav'@localhost	2 row(s) returned	0.000 sec / 0.000 sec
551	11:15:00	CREATE VIEW ActiveClients as SELECT c.clientNo, c.fName, c.lName, r.dateJoined FROM Client c INNER JOIN Registration r ON c.clientNo = r.clientNo	0 row(s) affected	0.015 sec
552	11:16:17	GRANT SELECT on assessment_3b_24s1_dreamhome.ActiveClients To 'Manav'@localhost	0 row(s) affected	0.000 sec
553	11:16:42	show GRANTS for 'Manav'@localhost	3 row(s) returned	0.000 sec / 0.000 sec