

Project Report
(DBMS)
DREAMHOME REAL ESTATE RENTALS

BY

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Project Idea:

The first branch office of DreamHome was opened in 1992 in a city called Glasgow in the UK. Since then, the Company has grown steadily and now has several offices in most of the main cities of the UK. However, the Company is now so large that more and more administrative staff are being employed to cope with the ever-increasing amount of paperwork.

Furthermore, the communication and sharing of information between offices, even in the same city, is poor.

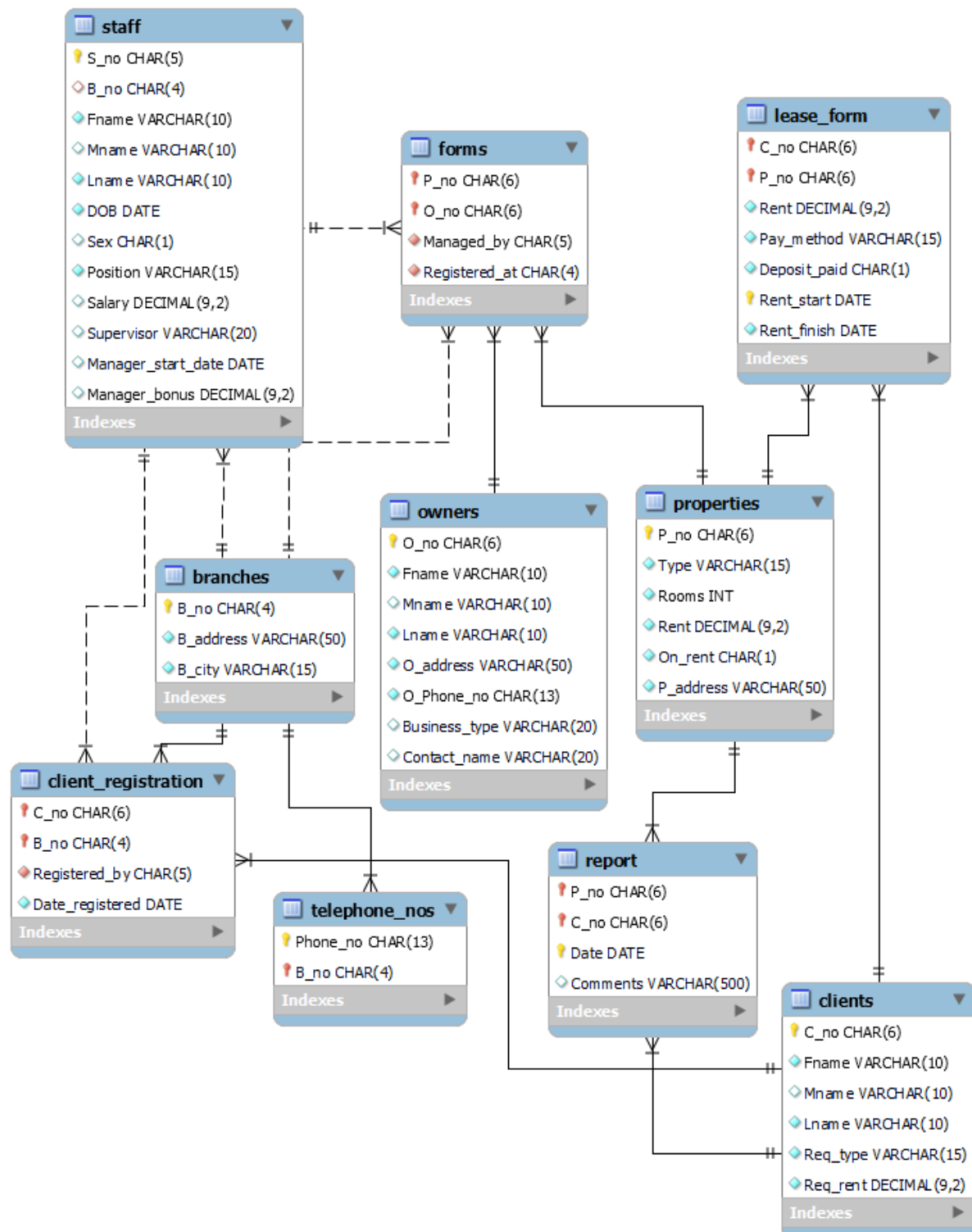
A database could help to solve the problem. Therefore, a database application is to be developed to support the running of DreamHome.

The purpose of the Dream-home database system is to maintain the data that is used and generated to support the property rentals business for our clients and property owners and to facilitate the cooperation and sharing of information between branches.

This is done by using a GUI Python library called Tkinter which is connected to the backend i.e., the database managed using MySQL.

Conceptual Model1:

The below given E-R diagram shows the database schema:



Implementation Procedure:

The following queries were used to create the database -

```
create database DreamHome;
```

```
create table branches(B_no char(4), B_address varchar(50)not null unique,  
primary key(B_no));
```

```
create table telephone_nos(Phone_no char(13), B_no char(4), primary  
key(Phone_no, B_no), foreign key(B_no) references branches(B_no));
```

```
create table staff(S_no char(5), B_no char(4), Fname varchar(10) not null,  
Mname varchar(10), Lname varchar(10) not null, DOB date not null, Sex  
char(1), Position varchar(15) not null, Salary numeric(9,2), Supervisor  
varchar(20), Manager_start_date date, Manager_bonus numeric(9,2),  
primary key(S_no), foreign key(B_no) references branches(B_no));
```

```
create table properties(P_no char(6), Type varchar(15) not null, Rooms int  
not null, Rent numeric(9,2) not null, On_rent char(1) not null default 'N',  
P_address varchar(50) not null, primary key(P_no));
```

```
create table owners(O_no char(6), Fname varchar(10) not null, Mname  
varchar(10), Lname varchar(10) not null, O_address varchar(50) not null,  
O_Phone_no char(13) not null, Business_type varchar(20), Contact_name  
varchar(20), primary key(O_no));
```

```
create table forms(P_no char(6), O_no char(6), Managed_by char(5)not  
null, Registered_at char(4) not null, primary key(P_no, O_no), foreign  
key(P_no) references properties(P_no), foreign key(O_no) references  
owners(O_no), foreign key(Managed_by) references staff(S_no), foreign  
key(Registered_at) references branches(B_no));
```

```
create table clients(C_no char(6), Fname varchar(10) not null, Mname  
varchar(10), Lname varchar(10) not null, C_Phone_no char(13) not null,  
Req_type varchar(15) not null, Req_rent numeric(9,2) not null, primary  
key(C_no));
```

```
create table client_registration(C_no char(6), B_no char(4), Registered_by  
char(5) not null, Date_registered date not null, primary key(C_no, B_no));
```

```
create table report(P_no char(6), C_no char(6), Date date, Comments
varchar(500), primary key(P_no, C_no, Date), foreign key(P_no) references
properties(P_no), foreign key(C_no) references clients(C_no));
```

```
create table lease_form(C_no char(6), P_no char(6), Rent numeric(9,2) not
null, Pay_method varchar(15) not null, Deposit_paid char(1) not null,
Rent_start date, Rent_finish date not null, primary key(C_no, P_no,
Rent_start), foreign key(P_no) references properties(P_no), foreign
key(C_no) references clients(C_no));
```

The following values were test input values -

//Branches data

```
INSERT INTO branches VALUES
```

```
('B007','16 Argyll St, Dyce, Aberdeen'),
('B003','163 Main St, Patrick, Glasgow'),
('B005','22 Deer Rd , Sidcup, London'),
('B004','32 Manse Rd, Leigh, Bristol'),
('B002','56 Clover Dr, London');
```

//Telephone data

```
INSERT INTO telephone_nos VALUES
```

```
('0181-453-7992','B002'),
('0181-963-1030','B002'),
('0141-339-2178','B003'),
('0141-339-4439','B003'),
('0117-776-1114','B004'),
('0117-916-1170','B004'),
('0171-886-1212','B005'),
('0171-886-1214','B005'),
```

```
('0122-467-111','Boo7'),  
('0122-467-125','Boo7');
```

//Staff data

```
INSERT INTO staff VALUES
```

```
('S0001','Boo5','John','A','White','1945-10-  
01','M','Manager',300000.00,'Susan Brand','2010-06-10',5000.00),  
('S0002','Boo3','Ann',NULL,'Beech','1960-11-  
10','F','Assistant',120000.00,NULL,NULL,NULL),  
('S0003','Boo3','David','M','Ford','1958-03-24','M','Deputy',18000.00,'Susan  
Brand','2010-06-10',5000.00),  
('S0004','Boo7','Mary',NULL,'Howe','1970-02-  
19','F','Assistant',90000.00,NULL,NULL,NULL),  
('S0005','Boo3','Susan',NULL,'Brand','1940-06-  
03','F','Manager',24000.00,NULL,NULL,NULL),  
('S0006','Boo5','Julie','S','Lee','1965-06-13','F','Assistant',12000.00,'John A  
White','2012-12-25',20000.00),  
('S0007','Boo4','G',NULL,'Prashant','2002-09-  
17','M','Manager',850000.00,NULL,NULL,NULL),  
('S0008','Boo5','Heth','T','Koorma','2002-09-  
17','M','Manager',95000.00,NULL,NULL,NULL),  
('S0009','Boo7','Rohan',NULL,'Singh','2002-12-  
17','M','Deputy',85000.00,NULL,NULL,NULL),  
('S0010','Boo5','Hello',NULL,'GP','2002-09-  
17','M','Assistant',85420.00,NULL,NULL,NULL),  
('S0011','Boo4','Hector','M','Bosco','2001-07-14','M','Deputy',85400.00,'G  
Prashant','2012-10-04',6000.00),  
('S0012','Boo5','Don',NULL,'Poulose','2002-09-02','M','Deputy',72000.00,'G  
Prashant','2012-10-04',6000.00),
```

```
('S0013','B005','James',NULL,'Cameroon','1980-12-14','M','Supervisor',85000.00,'Ann Beech',NULL,NULL),  
('S0014','B003','David',NULL,'Brewster','1998-12-03','M','Manager',85000.00,'John A White','2023-05-03',6000.00);
```

// Properties data

```
INSERT INTO properties VALUES  
('P00001','House',6,650.00,'N','16 Holhead, Dee, Aberdeen'),  
('P00002','Flat',4,400.00,'N','6 Argyll St, Kilburn, London'),  
('P00003','Flat',3,350.00,'Y','6 Lawrence St, Patrick, Glasgow'),  
('P00004','Flat',3,375.00,'Y','2 Manor Rd, Glasgow'),  
('P00005','House',5,600.00,'Y','18 Dale Rd, Hyndland, Glasgow'),  
('P00006','Flat',4,450.00,'Y','5 Novar Dr, Hyndland, Glasgow'),  
('P00007','House',8,1250.00,'N','e.fwkjklfwjewl'),  
('P00008','House',8,1250.00,'N','klkfrlkek;ka'),  
('P00009','House',8,1000.00,'N','457 AB, Aberdeen'),  
('P00010','House',7,600.00,'N','123 AX, Glasgow');
```

// Owners data

```
INSERT INTO owners VALUES  
('O00001','Joe','C','Keogh','2 Fergus Dr, Banchory, Aberdeen AB27SX','01224-861212',NULL,NULL),  
('O00002','Carol',NULL,'Farrel','6 Achray St, Glasgow G32 9DX','0141-357-7419','Landlord',NULL),  
('O00003','Tina','E','Murphy','63 Well St, Shawlands, Glasgow G42','0141-943-1728',NULL,NULL),  
('O00004','Tony',NULL,'Shaw','12 Park Pl, Hillhead, Glasgow G4 0QR','0141-225-7025','Contractor',NULL);
```

//Forms data

```
INSERT INTO forms VALUES
('P00001','O00001','S0004','B007'),
('P00002','O00002','S0006','B005'),
('P00003','O00003','S0001','B003'),
('P00004','O00004','S0002','B003'),
('P00005','O00002','S0002','B003'),
('P00006','O00004','S0003','B003'),
('P00007','O00003','S0006','B005'),
('P00008','O00004','S0003','B003'),
('P00009','O00001','S0008','B005'),
('P00010','O00002','S0003','B003');
```

//Clients data

```
INSERT INTO clients VALUES
('C00001','John',NULL,'Kay','0171-774-5632','Flat',425.00),
('C00002','Aline',NULL,'Stewart','0141-848-1825','Flat',350.00),
('C00003','Mike','S','Ritchie','01475-392178','House',750.00),
('C00004','Mary','M','Tregear','01224-196720','Flat',600.00),
('C00005','Heth','T','Koorma','0125-456-8088','House',900.00),
('C00006','G','', 'Prashant','1234-568-8214','House',1650.00),
('C00007','abc','', 'xyz','2892-457-1023','House',1000.00),
('C00008','G','', 'Prashant','5263-145-2002','House',850.00);
```

//Client registration data

```
INSERT INTO client_registration VALUES
```



```
('C00001','B005','S0006','2013-01-02'),  
( 'C00002','B003','S0002','2012-04-11'),  
( 'C00003','B003','S0002','2011-10-16'),  
( 'C00004','B007','S0004','2012-03-12'),  
( 'C00005','B005','S0060','2012-12-25'),  
( 'C00006','B007','S0004','2012-03-18'),  
( 'C00007','B003','S0005','2012-10-15'),  
( 'C00008','B003','S0003','2023-05-03');
```

//Reports data


```
INSERT INTO report VALUES  
( 'P00001','C00002','2013-05-24','too small'),  
( 'P00001','C00004','2013-05-14','no dining room'),  
( 'P00003','C00001','2013-04-20','too remote'),  
( 'P00003','C00002','2013-05-26','No issues, clean and tidy'),  
( 'P00004','C00002','2013-04-28',NULL);
```

//Lease form data

```
INSERT INTO lease_form VALUES  
( 'C00001','P00005',600.00,'Cheque','Y','2023-05-12','2023-12-25'),  
( 'C00003','P00001',600.00,'Cash','Y','2023-04-12','2023-07-12'),  
( 'C00003','P00004',300.00,'Cash','N','2023-05-14','2023-09-13');
```

The following are the UI windows created through Tkinter –

DreamHome Rental Services



DreamHome

Rental Services Pvt Ltd.

Staff registration

List of Staff

Property Registration


Client Registration

Property Listing

Lease Form

View Feedback

Staff Registration



DreamHome Staff Registration Form

Staff No

S0015

Full Name

Gender

DOB

Position

Salary

Branch Number

Branch Address

Telephone number(s)

Enter Details where applicable

Supervisor Name

Manager Start Date


Manager Bonus

Clear

Back

Next

Staff Listing



DreamHome Staff Listing

Branch City

Branch No

Telephone number(s)

Branch Address

Staff Number	Name	Position

Property Registration



DreamHome Property Registration Form

Property Number

Type
Rooms

Rent

Address

Owner Number

Person/Business Name

Address

Tele No

Enter Details where applicable


Type of Business

Contact Name

Managed by Staff

Registered at branch

Property Listing



DreamHome
Property Listing

Branch City

Get Branches

Branch No

Telephone number(s)


Branch Address

Property No	Address	Type	Rooms	Rent
-------------	---------	------	-------	------

Back

Get List

Lease Form



DreamHome
Lease Form

Client No

Full Name

Property Number

Property Address

Enter payment details

Monthly Rent

Payment method

Deposit Paid(Y or N)

Rent Start

Rent_Finish


Duration

Clear

Back

Next

Staff Registration



DreamHome Property Viewing Report

Property Number

Get Details

Property Address

Type


Rent

Client no.	Name	Date	Comments
------------	------	------	----------

Back

Get Comments

Client Registration



DreamHome Client Registration Form

Client Number

Full Name

Tele No

Enter Property Requirements

Type

Max Rent

Branch Number

Branch Address

Registered By

Date Registered

Clear

Back

Next

Query Results:

Queries required by Branch -

a) List the details of branches in a given city.

ANS: SELECT B_no, B_address

FROM branches

WHERE B_address LIKE '%London%';

B_no	B_address
B005	22 Deer Rd , Sidcup, London
B002	56 Clover Dr, London
NULL	NULL

(b) Identify the total number of branches in each city.

ANS: SELECT SUBSTRING_INDEX(B_address, ',', 1) AS city, COUNT(*) AS num_branches

FROM branches

GROUP BY city;

city	num_branches
16 Argyll St	1
163 Main St	1
22 Deer Rd	1
32 Manse Rd	1
56 Clover Dr	1

(c) List the name, position, and salary of staff at a given branch, ordered by staff name.

ANS: SELECT CONCAT(Fname, ' ', IFNULL(Mname, ''), ' ', Lname) AS name, Position, Salary

FROM staff

WHERE B_no = 'B007'

ORDER BY name;

name	Position	Salary
Mary Howe	Assistant	90000.00
Rohan Singh	Deputy	85000.00

(d) Identify the total number of staff and the sum of their salaries.

ANS: SELECT COUNT(*) AS num_staff, SUM(Salary) AS total_salary
FROM staff;

num_staff	total_salary
14	2006820.00

(e) Identify the total number of staff in each position at branches in Glasgow.

Ans: Select branches.B_address, staff.Position, Count(*) As Total_staff
From branches
Join staff on staff.B_no = branches.B_no
Where branches.B_address LIKE '%Glasgow%'
GROUP BY branches.B_address, staff.Position;

B_address	Position	Total_staff
163 Main St, Patrick, Glasgow	Assistant	1
163 Main St, Patrick, Glasgow	Deputy	1
163 Main St, Patrick, Glasgow	Manager	2

(f) List the name of each Manager at each branch, ordered by branch address.

Ans: SELECT branches.B_address, CONCAT(staff.Fname, ' ', staff.Lname) AS Manager_name
FROM branches
JOIN staff ON staff.B_no = branches.B_no
WHERE staff.Position = 'Manager'
ORDER BY branches.B_address;

B_address	Manager_name
163 Main St, Patrick, Glasgow	Susan Brand
163 Main St, Patrick, Glasgow	David Brewster
22 Deer Rd , Sidcup, London	John White
22 Deer Rd , Sidcup, London	Heth Koorma
32 Manse Rd, Leigh, Bristol	G Prashant

(g) List the names of staff supervised by a named Supervisor.

ANS: SELECT Fname

FROM staff

WHERE Supervisor like '%Susan%';

Fname
John
David

(h) List the property number, address, type, and rent of all properties in Glasgow, ordered by rental

amount.

Ans: SELECT properties.P_no, properties.P_address, Type, Rent

FROM properties

JOIN forms ON properties.P_no = forms.P_no

JOIN branches ON forms.Registered_at = branches.B_no

WHERE branches.B_address like '%Glasgow%'

ORDER BY Rent;

Result Grid				
		Filter Rows:		
		Export:		
P_no	P_address	Type	Rent	
P00003	6 Lawrence St, Patrick, Glasgow	Flat	350.00	
P00004	2 Manor Rd, Glasgow	Flat	375.00	
P00006	5 Novar Dr, Hyndland, Glasgow	Flat	450.00	
P00005	18 Dale Rd, Hyndland, Glasgow	House	600.00	
P00010	123 AX. Glasgow	House	600.00	

(i) List the details of properties for rent managed by a named member of staff.

ANS: SELECT properties.P_no, properties.Type, properties.Rooms,
properties.Rent

FROM properties

JOIN forms ON properties.P_no = forms.P_no

JOIN staff ON forms.Managed_by = staff.S_no

WHERE staff.Lname = 'White'

AND properties.on_rent = 'Y';

P_no	Type	Rooms	Rent
P00003	Flat	3	350.00

(j) Identify the total number of properties assigned to each member of staff at a given branch.

ANS: s.S_no, s.Fname, s.Lname, COUNT(*) AS total_properties

FROM staff s JOIN forms f ON s.S_no = f.Managed_by

JOIN properties p ON f.P_no = p.P_no

WHERE f.Registered_at = 'Boo3'

GROUP BY s.S_no;

S_no	Fname	Lname	total_properties
S0001	John	White	1
S0002	Ann	Beech	2
S0003	David	Ford	3

(k) List the details of properties provided by business owners at a given branch.

ANS: SELECT p.P_no, p.Type, p.Rooms, p.Rent, o.Fname, o.Lname,
o.O_address, o.O_Phone_no

FROM properties p JOIN forms f ON p.P_no = f.P_no

JOIN owners o ON f.O_no = o.O_no

WHERE f.Registered_at = 'Bo05' AND o.Business_type IS NOT NULL;

P_no	Type	Rooms	Rent	Fname	Lname	O_address	O_Phone_no
P00002	Flat	4	400.00	Carol	Farrel	6 Achray St, Glasgow G32 9DX	0141-357-7419

(l) Identify the total number of properties of each type at all branches.

ANS: SELECT Type, COUNT(*) AS total_properties

FROM properties

GROUP BY Type;

Type	total_properties
House	6
Flat	4

(m) Identify the details of private property owners that provide more than one property for rent.

ANS: SELECT o.O_no, o.Fname, o.Mname, o.Lname, o.O_address,
o.O_Phone_no, COUNT(*) AS total_properties

FROM owners o JOIN forms f ON o.O_no = f.O_no

WHERE o.Business_type IS NULL

GROUP BY o.O_no

HAVING COUNT(*) > 1;

O_no	Fname	Mname	Lname	O_address	O_Phone_no	total_properties
O00001	Joe	C	Keogh	2 Fergus Dr, Banchory, Aberdeen AB2 7SX	01224-861212	2
O00003	Tina	E	Murphy	63 Well St, Shawlands, Glasgow G42	0141-943-1728	2

(n) Identify flats with at least three rooms and with a monthly rent no higher than £500 in Aberdeen.

ANS: SELECT P_no, Rooms, Rent, P_address

FROM properties

WHERE Type = 'Flat' AND Rooms >= 3 AND Rent <= 500 AND P_address LIKE '%Aberdeen%';

P_no	Rooms	Rent	P_address
P00011	6	450.00	19 Hollister, Dee, Aberdeen
NULL	NULL	NULL	NULL

(o) List the number, name, and telephone number of clients and their property preferences at a given branch.

ANS: SELECT c.C_no, CONCAT(c.Fname, ' ', c.Lname) AS Name, cr.B_no, p.Type, p.Rooms, p.Rent

FROM clients c JOIN lease_form lf ON lf.C_no = c.C_no

JOIN properties p ON p.P_no = lf.P_no

JOIN forms f ON f.P_no = p.P_no

JOIN client_registration cr ON cr.C_no = c.C_no

WHERE cr.B_no = 'B003';

C_no	Name	B_no	Type	Rooms	Rent
C00003	Mike Ritchie	B003	House	6	650.00
C00003	Mike Ritchie	B003	Flat	3	375.00

(p) Identify the properties that have been advertised more than the average number of times.

ANS: SELECT p.P_no, p.Type, COUNT(*) AS Ad_Count

FROM properties p

JOIN forms f ON f.P_no = p.P_no

GROUP BY p.P_no

HAVING COUNT(*) >= (SELECT AVG(Ad_Count) FROM

(SELECT COUNT(*) AS Ad_Count FROM forms

GROUP BY P_no) AS T);

P_no	Type	Ad_Count
P00003	Flat	1
P00004	Flat	1
P00005	House	1
P00006	Flat	1
P00008	House	1
P00010	House	1
P00002	Flat	1
P00007	House	1
P00009	House	1
P00001	House	1

(q) List the details of leases due to expire next month at a given branch.

```

SELECT lf.C_no, lf.P_no, lf.Rent_start, lf.Rent_finish,
c.Fname, c.Mname, c.Lname, p.Type, p.P_address
FROM lease_form lf
JOIN clients c ON c.C_no = lf.C_no
JOIN properties p ON p.P_no = lf.P_no
JOIN forms f ON f.P_no = p.P_no AND
f.Registered_at = 'Boo3'
WHERE lf.Rent_finish BETWEEN
DATE_FORMAT(NOW(), '%Y-%m-%d') AND
LAST_DAY(DATE_ADD(NOW(), INTERVAL 1 MONTH));

```

C_no	P_no	Rent_start	Rent_finish	Fname	Mname	Lname	Type	P_address
C00003	P00010	2023-01-12	2023-06-05	Mike	S	Ritchie	House	123 AX, Glasgow

(r) List the total number of leases with rental periods that are less than one year at branches in London.

```

ANS: SELECT COUNT(*) as total_leases
FROM lease_form
JOIN (properties join forms on properties.P_no = forms.P_no) ON
lease_form.P_no = properties.P_no
JOIN branches ON forms.Registered_at = branches.B_no

```

WHERE branches.B_address LIKE '%London%'
AND DATEDIFF(Rent_finish, Rent_start) < 365;

total_leases
1

(s) List the total possible daily rental for property at each branch, ordered by branch number.

ANS: SELECT branches.B_no, branches.B_address,
SUM(properties.Rent) AS total_daily_rental
FROM branches
JOIN (properties join forms on properties.P_no = forms.P_no) ON
branches.B_no = forms.Registered_at
GROUP BY branches.B_no, branches.B_address
ORDER BY branches.B_no;

B_no	B_address	total_daily_rental
B003	163 Main St, Patrick, Glasgow	3625.00
B005	22 Deer Rd , Sidcup, London	2650.00
B007	16 Argyll St, Dyce, Aberdeen	650.00

Queries required by Staff –

(a) List details of staff supervised by a named Supervisor at the branch.

ANS: select *

from staff

where Supervisor like 'Susan Brand';

S_no	B_no	Fname	Mname	Lname	DOB	Sex	Position	Salary	Supervisor	Manager_start_d...	Manager_bonus
S0001	B005	John	A	White	1945-10-01	M	Manager	300000.00	Susan Brand	2010-06-10	5000.00
S0003	B003	David	M	Ford	1958-03-24	M	Deputy	18000.00	Susan Brand	2010-06-10	5000.00
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

(b)List details of all Assistants alphabetically by name at the branch.

ANS: select *

from staff

where Position = 'Assistant'

order by Fname, Mname, Lname;

S_no	B_no	Fname	Mname	Lname	DOB	Sex	Position	Salary	Supervisor	Manager_start_d...	Manager_bonus
S0002	B003	Ann	NULL	Beech	1960-11-10	F	Assistant	120000.00	NULL	NULL	NULL
S0010	B005	Hello	NULL	GP	2002-09-17	M	Assistant	85420.00	NULL	NULL	NULL
S0006	B005	Julie	S	Lee	1965-06-13	F	Assistant	12000.00	John A White	2012-12-25	20000.00
S0004	B007	Mary	NULL	Howe	1970-02-19	F	Assistant	90000.00	NULL	NULL	NULL
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

(c) List the details of property (including the rental deposit) available for rent at the branch, along with the owner's details.

ANS: select properties.P_no, Type, Rooms, Rent, P_address,

owners.O_no, Fname, Mname, Lname, O_address,

O_Phone_no, Business_type, Contact_name

from properties inner join forms on properties.P_no = forms.P_no

inner join owners on owners.O_no = forms.O_no

where On_rent = 'N';

P_no	Type	Rooms	Rent	P_address	O_no	Fname	Mname	Lname	O_address	O_Phone_no	Business_type	Contact_name
P00001	House	6	650.00	16 Holthead, Dee, Aberdeen	O00001	Joe	C	Keogh	2 Fergus Dr, Banchory, Aberdeen AB2 7SX	01224-861212	NULL	NULL
P00002	Flat	4	400.00	6 Argyll St, Kilburn, London	O00002	Carol	NULL	Farrel	6 Achray St, Glasgow G32 9DX	0141-357-7419	Landlord	NULL
P00007	House	8	1250.00	e.fwkjklfwjewl	O00003	Tina	E	Murphy	63 Well St, Shawlands, Glasgow G42	0141-943-1728	NULL	NULL
P00008	House	8	1250.00	klkfrlkek;ka	O00004	Tony	NULL	Shaw	12 Park Pl, Hillhead, Glasgow G4 0QR	0141-225-7025	Contractor	NULL
P00009	House	8	1000.00	457 AB, Aberdeen	O00001	Joe	C	Keogh	2 Fergus Dr, Banchory, Aberdeen AB2 7SX	01224-861212	NULL	NULL
P00010	House	7	600.00	123 AX, Glasgow	O00002	Carol	NULL	Farrel	6 Achray St, Glasgow G32 9DX	0141-357-7419	Landlord	NULL

(d) List the details of properties managed by a named member of staff at the branch.

ANS: select properties.P_no, Type, Rooms, Rent, P_address

from properties inner join forms on properties.P_no = forms.P_no

where Managed_by = (select S_no from staff where Fname like 'Heth');

P_no	Type	Rooms	Rent	P_address
P00009	House	8	1000.00	457 AB, Aberdeen

(e) List the clients registering at the branch and the names of the members of staff who registered the clients.

ANS: select C_no, Fname as Registered_by

from client_registration inner join staff on Registered_by = staff.S_no

where client_registration.B_no = 'B003';

C_no	Registered_by
C00002	Ann
C00003	Ann
C00007	Susan
C00008	David

(f) Identify properties located in Glasgow with rents no higher than £450.

ANS. select * from properties where p_address like "%Glasgow" and rent <= 450;

	P_no	Type	Rooms	Rent	On_rent	P_address
▶	P00003	Flat	3	350.00	Y	6 Lawrence St, Patrick, Glasgow
	P00004	Flat	3	375.00	Y	2 Manor Rd, Glasgow
	P00006	Flat	4	450.00	Y	5 Novar Dr, Hyndland, Glasgow
•	NULL	NULL	NULL	NULL	NULL	NULL

(g) Identify the name and telephone number of an owner of a given property.

ANS. select case

when mname is not null then concat (fname, ' ', mname, ' ', lname)

else concat (fname, ' ', lname) end as Full_Name, o_phone_no

from forms left outer join owners on forms.o_no = owners.o_no

where p_no = 'P00006';

	Full_Name	o_phone_no
▶	Tony Shaw	0141-225-7025

(h) List the details of comments made by clients viewing a given property.

ANS. select * from report where p_no = 'P00001';

	P_no	C_no	Date	Comments
▶	P00001	C00002	2013-05-24	too small
	P00001	C00004	2013-05-14	no dining room
•	NULL	NULL	NULL	NULL

(i) Display the names and phone numbers of clients who have viewed a given property but not supplied comments.

ANS. select concat(fname, ' ', ifnull(mname, ''), ' ', lname) as Client_Name ,
c_phone_no

from report right outer join clients on clients.c_no = report.c_no
where date is not null and comments is null;

	Client_Name	c_phone_no
▶	Aline Stewart	0141-848-1825

(j) Display the details of a lease between a named client and a given property.

ANS. select lease_form.*

from lease_form right outer join clients on clients.c_no = lease_form.c_no
where

case when mname is not null then concat (fname, ' ', mname, ' ',
lname) else concat (fname, ' ', lname) end like "John Kay" and p_no =
'P00005';

	C_no	P_no	Rent	Pay_method	Deposit_paid	Rent_start	Rent_finish
▶	C00001	P00005	600.00	Cheque	Y	2023-05-12	2023-12-25

(k) Identify the leases due to expire next month at the branch.

ANS. select * from lease_form

where

period_diff(extract(year_month from rent_start), extract(year_month
from rent_finish)) = 1;

	C_no	P_no	Rent	Pay_method	Deposit_paid	Rent_start	Rent_finish
*	NULL	NULL	NULL	NULL	NULL	NULL	NULL

(l) List the details of properties that have not been rented out for more than three months.

ANS. select properties.* from lease_form

left join properties on properties.p_no = lease_form.p_no

where period_diff(extract(year_month from rent_finish),
extract(year_month from rent_start)) > 3;

	P_no	Type	Rooms	Rent	On_rent	P_address
▶	P00001	House	6	650.00	N	16 Holhead, Dee, Aberdeen

(m) Produce a list of clients whose preferences match a particular property.

ANS. select case

when mname is not null then concat (fname, ' ', mname, ' ',
lname) else concat (fname, ' ', lname) end as Client_Name

from lease_form natural join clients where p_no = 'P00001';

	Client_Name
▶	Mike S Ritchie