

Table of Contents

Members:	4
ABDULLAH JAVED (SP19-BCS-002)	4
HAMZA MUSHTAQ (SP19-BCS-007)	4
MUHAMMAD ADIL MEHMOOD (SP19-BCS-014)	4
SAIF UR REHMAN (SP19-BCS-021)	4
SYED HUZAIFA ABID (SP19-BCS-025)	4
ZULKIFIL REHMAN (SP19-BCS-027)	4
ADNAN KHURSHID (SP19-BCS-029)	4
AYESHA LATIF (SP19-BCS-030)	4
MUHAMMAD ADIL MEHMOOD (SP19-BCS-014)	4
Lab Number 6:	4
LAB Number 7:	8
Lab Number 8:	8
Lab Number 9:	10
Lab Number 10:	10
Lab Number 11:	11
Lab Number 12:	12
Lab Number 15:	12
SYED HUZAIFA ABID (SP19-BCS-025)	12
Lab Number 6:	12
Lab number 7:	15
LAB NUMBER 8:	15
`LAB: 9	17
LAB:10	17
LAB NUMBER 11:	17
LAB:12	19
LAB:13	19
LAB:14	19
AYESHA LATIF (SP19-BCS-030)	19
Lab Number 6:	19
Lab Number 7	23

Lab Number 8.....	25
Lab Number 9.....	26
Lab Number 10.....	26
Lab Number 11.....	27
Lab number 12.....	28
Lab Number 15.....	28
Lab Number 16.....	29
ADNAN KHURSHID (SP19-BCS-029)	29
Lab Number 6:	29
LAB Number 7:.....	33
Lab Number 8:.....	34
COMMON SOLUTION:	35
HAMZA MUSHTAQ (SP19-BCS-007)	42
LAB 6	42
LAB 7	46
LAB 8	46
ABDULLAH JAVED SP19-BCS-002	48
LAB 6	48
LAB 7	52
LAB 8	52
LAB 11	54
LAB 16	55
Zulkifil Rehman (SP19-BCS-027)	55
Lab 6:.....	55
Lab 7:.....	59
LAB 8:	59
`LAB: 9	61
LAB:10	61
LAB NUMBER 11:	62
LAB:12	63
LAB:13	63
LAB:14	63

LAB:15	63
LAB:16	63
SAIF UR REHMAN (SP19-BCS-021)	63
Lab 6	64
LAB 7:	68
Lab 8:	69
Lab Number 8:	71
Lab Number 9:	72
Lab Number 10:	72
Lab Number 11:	73
Lab Number 12:	74
Lab Number 15:	74
SYED HUZAIFA ABID (SP19-BCS-025)	75
Lab Number 6:	75
Lab number 7:	77
LAB NUMBER 8:	78
`LAB: 9	79
LAB:10	79
LAB NUMBER 11:	80
LAB:12	81
LAB:13	81
LAB:14	81

GROUP

Members:

ABDULLAH JAVED (SP19-BCS-002)
HAMZA MUSHTAQ (SP19-BCS-007)
MUHAMMAD ADIL MEHMOOD (SP19-BCS-014)
SAIF UR REHMAN (SP19-BCS-021)
SYED HUZAIFA ABID (SP19-BCS-025)
ZULKIFIL REHMAN (SP19-BCS-027)
ADNAN KHURSHID (SP19-BCS-029)
AYESHA LATIF (SP19-BCS-030)

MUHAMMAD ADIL MEHMOOD (SP19-BCS-014)

Lab Number 6:

create database DreamHome
use DreamHome

create table Branch (branchNo varchar(20) NOT NULL Primary Key, street
varchar(100) NOT NULL, city varchar(50) NOT NULL,
postcode varchar(20) NOT NULL);
create table Staff (staffNo varchar(20) NOT NULL PRIMARY KEY, fName
varchar(50) NOT NULL, IName varchar(50) NOT NULL,
position varchar(50) NOT NULL, sex varchar(1) NOT NULL, DOB DateTime NOT
NULL, salary DECIMAL NOT NULL,
branchNo varchar(20) NOT NULL References Branch(branchNo));

create table Client (clientNo varchar(20) NOT NULL PRIMARY KEY, fName
varchar(50) NOT NULL, IName varchar(50) NOT NULL,
telNo varchar(20) NOT NULL, prefType varchar(50) NOT NULL, maxRent
DECIMAL NOT NULL)

create table PrivateOwner (ownerNo varchar(20) NOT NULL PRIMARY KEY,
fName varchar(50) NOT NULL, IName varchar(50) NOT NULL,
[address] varchar(50) NOT NULL, telNo varchar(20) NOT NULL)

```
create table PropertyForRent (propertyNo varchar(20) NOT NULL PRIMARY
KEY, street varchar(100) NOT NULL, city varchar(50) NOT NULL,
postcode varchar(20) NOT NULL, type varchar(10) NOT NULL, rooms int NOT
NULL, rent DECIMAL NOT NULL,
ownerNo varchar(20) References PrivateOwner(ownerNo), staffNo varchar(20)
NOT NULL References Staff(staffNo),
branchNo varchar(20) NOT NULL References Branch(branchNo));
```

```
create table Viewing (clientNo varchar(20) NOT NULL References
Client(clientNo),
propertyNo varchar(20) NOT NULL References PropertyForRent(propertyNo),
viewDate DateTime NOT NULL, comment varchar(200) NOT NULL)
```

```
create table Registration(clientNo varchar(20) NOT NULL References
Client(clientNo),
branchNo varchar(20) NOT NULL References Branch(branchNo),staffNo
varchar(20) NOT NULL References Staff(staffNo),dateJoined DateTime NOT
NULL)
```

```
INSERT into Branch (branchNo, street, city, postcode)
VALUES
```

```
('AD1','3rd Street Satellite Town', 'SGD','40100'),
('AD2', '1st Block', 'FSD', '38000'),
('AD3', '4th Street Urdu bazar', 'SGD', '40100'),
('AD4','5th Block', 'FSD', '38000'),
('AD5','3rd Street Urdu bazar', 'SGD', '40100'),
('AD6','Sixth Road', 'RWP', '43600'),
('AD7','Saadaar', 'RWP', '43600'),
('AD8','Deput', 'RWP', '43600'),
('AD9','3rd street University Road', 'SGD', '40100'),
('AD10','2nd street Queens Chock', 'SGD', '40100');
```

```
insert into Staff (staffNo, fName, lName, position, sex, DOB, salary, branchNo)
VALUES ('AD01', 'Adil', 'Mehmood', 'Assistant', 'M', CAST(0x0000641000000000
AS DateTime), CAST(9000 AS Decimal(18, 0)), 'A001'),
('AD02', 'Abdullah', 'Javed', 'Manager', 'M',CAST(0x0000531200000000 AS
DateTime), CAST(18000 AS Decimal(18,0)), 'A002'),
```

```
( 'AD03', 'Hamza', 'Mushtaq', 'Assistant', 'M', CAST(0x000056D400000000 AS
DateTime), CAST(12000 AS Decimal(18,0)), 'A003'),
( 'AD04', 'Huzaifa', 'Abid', 'Assistant', 'M', CAST(0x0000C85800000000 AS
DateTime), CAST(24000 AS Decimal(18,0)), 'A004'),
( 'AD05', 'Ayesha', 'Latif', 'Assistant', 'F', CAST(0x0000CFF200000000 AS
DateTime), CAST(30000 AS Decimal(18,0)), 'A005'),
( 'AD06', 'Komal', 'Mushtaq', 'Assistant', 'F', CAST(0x00005D6000000000 AS
DateTime), CAST(9000 AS Decimal(18, 0)), 'A006'),
( 'AD07', 'Rafiya', 'Siddique', 'Assistant', 'F', CAST(0x00005D6000000000 AS
DateTime), CAST(9000 AS Decimal(18, 0)), 'A007'),
( 'AD08', 'Alina', 'Mukhtiar', 'Assistant', 'F', CAST(0x00005D6000000000 AS
DateTime), CAST(9000 AS Decimal(18, 0)), 'A008'),
( 'AD09', 'Kamran', 'Ali', 'Supervisor', 'M', CAST(0x00005D6000000000 AS
DateTime), CAST(9000 AS Decimal(18, 0)), 'A009'),
( 'AD010', 'Khurram', 'Shehzad', 'Supervisor', 'M', CAST(0x00005D6000000000
AS DateTime), CAST(9000 AS Decimal(18, 0)), 'A0010');
```

```
insert into client (clientNo, fName, lName, telNo, prefType, maxRent)
values ('AD001', 'Muhammad', 'Hamza', '0341-3487431', 'Apartment', '160000'),
( 'AD002', 'Muhammad', 'Ali', '0341-3412312', 'Apartment', '180000'),
( 'AD003', 'Asim', 'Azhar', '0347-2346553', 'House', '24000'),
( 'AD004', 'Adil', 'Mehmood', '0341-3123565', 'Apartment', '5000'),
( 'AD005', 'Atif', 'Aslam', '0320-3983493', 'House', '3000'),
( 'AD006', 'Touqeeb', 'Rehman', '0312-9817818', 'Room', '2000'),
( 'AD007', 'Haseeb', 'Khan', '0300-9182713', 'Room', '1400'),
( 'AD008', 'Sharjeel', 'Khan', '0344-3912399', 'House', '2000'),
( 'AD009', 'Ahmed', 'Shah', '0340-1908761', 'Apartment', '20000'),
( 'AD0010', 'Hamza', 'Javed', '0331-7096413', 'House', '2000');
```

```
insert into privateowner (ownerNo, fName, lName, address, telNO)
values('AD0001','Huzaifa','Abid','G-13', '0331-132326543'),
( 'AD0002','Hamza','Khalid','l#78 Supply', '0332-913268'),
( 'AD0003','Adeel','Waraich','l#79 l-10/2', '0330-978323223'),
( 'AD0004','Zeeshan','Akhtar','l#78 Mandia', '0336-248789'),
( 'AD0005','Asif','Niazi','l#85 Supply', '0344-12373466'),
( 'AD0006','Shan','Shahd','l#86 Supply', '0324-22145538'),
( 'AD0007','Hanzala','Maqsood','l#895 Cantt', '0314-7787672'),
```

```
('AD0008','Ahmed','Ali','I#55 Kalapul', '0304-5591231'),  
('AD0009','Zain','Farooq','I#986 Beer', '0334-322448123'),  
('AD00010','Ibrahim','Uziar','I#12 Cantt', '0314-91442234');
```

```
insert into propertyforrent ( propertyNo, street, city, postcode, type, rooms, rent,  
ownerNo, staffNo, branchNo)  
values ('AD101','I#38 G-13', 'ISB','8092','Room','1','12000','13456','AD01','AD1'),  
('AD102','I#78 Mandia', 'ABT','1278','Apartment','2','10000','19283','AD02','AD2'),  
('AD103','I#85 Mirpur', 'ISB','3987','Aparment','3','14000','23456','AD03','AD3'),  
('AD104','I#12 Cantt', 'ABT','2576','Room','1','8000','87362','AD04','AD4'),  
('AD105','I#78 Mandia', 'ISB','9087','Apartment','2','10000','12098','AD05','AD5'),  
('AD106','I#55 Kalapul', 'ABT','1265','Apartment','3','15000','90876','AD06','AD6'),  
('AD107','I#12 Cantt', 'ABT','3489','Apartment','4','18000','78635','AD07','AD7'),  
('AD108','I#86 Supply', 'ISB','1265','House','4','24000','17865','AD08','AD8'),  
('AD109','I#38 G-13', 'ISB','9087','House','3','22000','87268','AD09','AD9'),  
('AD1010','I#86 Supply',  
'ABT','5431','Apartment','2','14000','AD10','SR68','AD10');
```

```
insert into registration ( clientNo, branchNo,staffNo ,dateJoined )  
values ('AD1101','AD1','AD01','1999/12/24'),  
('AD1102','AD2','AD02','1991/11/18'),  
('AD1103','AD3','AD03','1994/04/12'),  
('AD1104','AD4','AD04','1989/01/07'),  
('AD1105','AD5','AD05','1995/07/29'),  
('AD1106','AD6','AD06','2000/08/19'),  
('AD1107','AD7','AD07','1996/11/01'),  
('AD1108','AD8','AD08','1986/04/12'),  
('AD1109','AD9','AD09','1990/10/05'),  
('AD11010','AD10','AD10','1990/05/14');
```

```
insert into viewing(clientNo, propertyNo, viewDate, comment)  
values('AD001','A110','2000/05/14','GOOD'),  
('AD002','B110','2001/11/21','GOOD'),  
('AD003','A111','2001/04/04','GOOD'),  
('AD004','C065','2000/01/01','GOOD'),  
('AD005','D124','2004/06/19','GOOD'),  
('AD006','G116','1999/08/02','GOOD'),
```

```
('AD007','A140','2005/07/09','GOOD'),  
( 'AD008','H180','2000/02/26','GOOD'),  
( 'AD009','A230','1997/10/12','GOOD'),  
( 'AD0010','B210','2003/12/24','GOOD');
```

Select distinct(city) from Branch order by city desc;

LAB Number 7:

Print the list of postcode without any repetition

Solution:

Select distinct(postcode) from Branch;

Print all fName from Staff without repetition

Solution:

SELECT distinct(fName) FROM Staff;

List all staff with renaming all its columns in results

Solution:

Select staffNo As MyStaffNo, fName As MyFirstName, lName As MyLastName, position As MyPosition, DOB As MYDOB, salary As MySalary, branchNo As MyBranchNO from Staff;

List all clients with re-naming all its columns to synonyms.

Solution:

Select clientNo As clientId, fName As firstName, lName As lastName, telNo As contactNo, prefType As priorityType, maxRent As totalRent from Client;

List all staff with a salary greater than 10,000.

Solution:

SELECT * FROM Staff WHERE salary > 10000;

List all managers and supervisors.

Solution:

SELECT * FROM Staff WHERE position = 'manager' OR position = 'supervisor';

Lab Number 8:

Perform all the examples in this lab.

Solution:

```
SELECT staffNo, fName, IName, salary FROM Staff ORDER BY salary DESC;
SELECT propertyNo, type, rooms, rent FROM PropertyForRent ORDER BY type;
SELECT propertyNo, type, rooms, rent FROM PropertyForRent ORDER BY type, rent DESC;
SELECT COUNT(DISTINCT propertyNo) AS myCount FROM Viewing WHERE viewDate
BETWEEN '1-May-04' AND '31-May-04';
SELECT COUNT(staffNo) AS myCount, SUM(salary) AS mySum FROM Staff WHERE position
= 'Manager';
SELECT MIN(salary) AS myMin, MAX(salary) AS myMax, AVG(salary) AS myAvg FROM Staff;
SELECT staffNo, COUNT(salary) FROM Staff; --shwoing error that no aggregate or group
clause
SELECT staffNo, fName, IName, position, salary FROM Staff WHERE salary > SOME
(SELECT salary FROM Staff WHERE branchNo = 'B003');
SELECT staffNo, fName, IName, position, salary FROM Staff WHERE salary > ALL (SELECT
salary FROM Staff WHERE branchNo = 'B003');
```

For DreamHome case study write at least 3 examples of each category for sorting, grouping and aggregate operations. Share your exercises as advised in the lab.

Sorting clauses

Solution:

```
SELECT staffNo, fName, IName, position FROM Staff ORDER BY fName ASC;
SELECT staffNo, fName, position, salary FROM Staff ORDER BY salary DESC;
SELECT fName, salary FROM Staff ORDER BY IName DESC;
```

Grouping clauses

Solution:

```
SELECT staffNo, fName, sex, salary FROM Staff WHERE position = 'Assistant' AND salary <
10000;
SELECT fName, position FROM Staff WHERE sex = 'M' AND position = 'Manager';
SELECT fName, IName, position FROM Staff WHERE (SELECT AVG(salary) FROM Staff) <
salary;
```

Aggregate clauses

Solution:

```
SELECT COUNT(DISTINCT(propertyNo)) AS myCount FROM Viewing WHERE viewDate
BETWEEN '1-May-00' AND '31-May-04';
```

```
SELECT clientNo, propertyNo AS ClientID, PropertyNo FROM Viewing WHERE viewDate  
BETWEEN '1-May-00' AND '31-May-04';  
SELECT clientNo, comment FROM Viewing WHERE viewDate BETWEEN '1-May-00' AND '31-  
May-04';
```

Lab Number 9:

```
select fName, lName, salary from staff where salary > (select salary from staff where lName  
= 'Bleech');
```

```
select first_name, last_name from employees where department = 'IT';
```

Lab Number 10:

```
Select first_name, last_name from employees where position = 'manager';
```

```
Select first_name, last_name, salary from employees where salary > (select  
AVG(salary) from employees);
```

```
SELECT first_name, last_name, salary from employees where department_name = 'IT' AND salary >  
(select AVG(salary) from employees);
```

```
select first_name, last_name, salary from employees where salary > (select salary from  
employees where last_name = 'Bell');
```

```
Select * from employees where salary = (select min(salary) from employees);
```

```
Select first_name, last_name, salary from employees where salary > (select  
avg(salary) from employees);
```

```
select first_name,last_name, salary from employees where salary > (select salary  
from employees where job_id = 'SH_CLERK') order by salary;
```

```
Select first_name, last_name from employees where position <> supervisors;
```

```
Select employee_ID, first_name, last_name, department from employees;
```

```
select employee_id, first_name from employees where salary > (select avg(salary)
from employees);
```

Lab Number 11:

```
use dreamhome;
```

```
create table Abc (FName varchar(50) NOT NULL,familyName varchar (50) NOT NULL);
```

```
insert into Abc
```

```
values (Adil', 'Mehmood'),
```

```
('Daniyal', 'Khan),
```

```
('Adnan', 'Khurshid');
```

```
SELECT CONCAT("Hamza ", "Mushtaq ") AS ConcatenatedString;
```

```
SELECT LENGTH(Fname) AS LengthOfString from Abc;
```

```
select LOCATE("i", "Zulfi");
```

```
SELECT upper("Hamza");
```

```
SELECT lower("Hamza");
```

```
SELECT REPEAT(familyName, 3) from Abc;
```

```
SELECT STRCMP("hamza1", "hamza");
```

```
SELECT SUBSTR("Hamza", 4) AS ExtractString;
```

```
SELECT LEFT("Hamza", 5) AS ExtractString;
```

```
SELECT ASCII(FName) FROM Abc;
```

```
SELECT COT(6);
```

```
SELECT COS(2);
```

```
SELECT LOG(2);
```

```
SELECT SQUARE(64);
```

```
SELECT COUNT(Fname) AS NumberOfNames FROM Abc;
```

```
SELECT AVG(maxRent) AS AveragePrice FROM client;
```

SELECT MAX(maxRent) AS LargestPrice FROM client;

SELECT MIN(maxRent) AS SmallestPrice FROM client;

SELECT FLOOR(25.75) AS FloorValue;

SELECT CEILING(25.75) AS CeilValue;

Lab Number 12:

select sum(salary) from staff;

select COUNT(position) from staff;

select COUNT(DISTINCT position)from staff;

Lab Number 15:

update staff set fName='Adil', lName='Mehmood' where salary = '40000';

delete from branch where branchNo='C001';

update staff set salary='1000000' where salary=NULL;

update staff set salary=500000 where salary='10000';

insert into branch values('C011','Sultan street', 'ABT', '1101');

SYED HUZAIFA ABID (SP19-BCS-025)

Lab Number 6:

use dreamhome;

INSERT into branch (branchNo, street, city, postcode)

VALUES

('C001','I#38 G-13', 'ISB','8092'),

('C002', 'I#78 Supply', 'ABT', '1278'),

('C003', 'I#79 I-10/2', 'ISB', '3987'),

('C004', 'I#78 Mandia', 'ABT', '2576'),

('C005','I#85 Mirpur', 'ABT', '9087'),
('C006','I#86 Supply', 'ISB', '1265'),
('C007','I#895 Cantt', 'ABT', '3489'),
('C008','I#55 Kalapul', 'ABT', '9871'),
('C009','I#986 Beer', 'HAR', '9087'),
('C010','I#12 Cantt', 'HAV', '5431');

insert into staff (staffNo, fName, lName, position, sex, DOB, salary, branchNo)
values (' SG5', 'Mary', 'Howe', 'Assistant', 'F', '1988/08/23', 20000, 'C002'),
(' SL21', 'David', 'Ford', 'Assistant', 'M', '1987/11/9', 100000, 'C003'),
('SG37', 'Anna', 'Bleech', 'Supervisor', 'F', '1986/12/8', 90000, 'C003'),
('SA9', 'Susa', 'Brand', 'Receptionist', 'F', '1989/5/9', 120000, 'C003'),
('SG14', 'Joh', 'White', 'Manager', 'M', '1992/2/12', 100000, 'C004'),
('SL41', 'Julie', 'Lee', 'Assistant', 'F', '1990/8/3', 50000, 'C002'),
(' SR68', 'Akbar', 'Shoaib', 'Assistant Manager', 'M', '1996/9/8', 70000, 'C005'),
('SK32', 'Mahrukh', 'Khan', 'Customer Service', 'F', '1994/9/8', 60000, 'C010'),
('SB83', 'Ali', 'Hassan', 'Receptionist', 'M', '1991/4/6', 40000, 'C009'),
(' SP98', 'Hamid', 'Qazi', 'Security Guard', 'M', '1982/9/12', 10000, 'C007');

insert into client (clientNo, fName, lName, telNo, prefType, maxRent)
values ('1', 'Hamza', 'Muhstaq', '0341-3487431', 'Apartment', '16000'),
('2', 'Hamza', 'Abid', '0341-3412312', 'Apartment', '18000'),
('3', 'Imad', 'Ahmad', '0347-2346553', 'House', '24000'),
('4', 'Adil', 'Mehmood', '0341-3123565', 'Apartment', '15000'),
('5', 'Zullkif', 'Rehman', '0320-3983493', 'House', '30000'),
('6', 'Huzaifa', 'Abid', '0312-9817818', 'Room', '12000'),
('7', 'Haseeb', 'Khan', '0300-9182713', 'Room', '14000'),
('8', 'Sharjeel', 'Khan', '0344-3912399', 'House', '22000'),
('9', 'Ahmed', 'Shah', '0340-1908761', 'Apartment', '20000'),
('10', 'Hamza', 'Javed', '0331-7096413', 'House', '24000');

insert into privateowner (ownerNo, fName, lName, address, telNO)
values('13456','Huzaifa','Abid','G-13', '0331-1006543'),
('19283','Hamza','Abid', 'I#78 Supply', '0332-9123768'),

```
( '23456','Adeel','Khan', 'I#79 I-10/2', '0330-9786523'),
( '87362','Zeeshan','Saleem','I#78 Mandia', '0336-1238789'),
( '12098','Asif','Khan','I#85 Supply', '0344-1237686'),
( '90876','Shan','Ali','I#86 Supply', '0324-2214598'),
( '78635','Hanzala','Tahir','I#895 Cantt', '0314-9887672'),
( '17865','Ahmed','Hassan','I#55 Kalapul', '0304-9991231'),
( '87268','Zain','Asim','I#986 Beer', '0334-3228123'),
( '12876','Ibrahim','Saqib','I#12 Cantt', '0314-9122234');
```

```
insert into propertyforrent ( propertyNo, street, city, postcode, type, rooms,
rent, ownerNo, staffNo, branchNo)
```

```
values ('A110','I#38 G-13', 'ISB','8092','Room','1','12000','13456','SA9','C001'),
('B110','I#78 Mandia', 'ABT','1278','Apartment','2','10000','19283','SG14','C002'),
('A111','I#85 Mirpur', 'ISB','3987','Aparment','3','14000','23456','SG37','C003'),
('C065','I#12 Cantt', 'ABT','2576','Room','1','8000','87362','SG5','C004'),
('D124','I#78 Mandia', 'ISB','9087','Apartment','2','10000','12098','SL21','C005'),
('G116','I#55 Kalapul', 'ABT','1265','Apartment','3','15000','90876','SL41','C006'),
('A140','I#12 Cantt', 'ABT','3489','Apartment','4','18000','78635','SP98','C007'),
('H180','I#86 Supply', 'ISB','1265','House','4','24000','17865','SK32','C008'),
('A230','I#38 G-13', 'ISB','9087','House','3','22000','87268','SB83','C009'),
('H210','I#86 Supply', 'ABT','5431','Apartment','2','14000','12876','SR68','C010');
```

```
insert into registration ( clientNo, branchNo,staffNo ,dateJoined )
```

```
values ('1','C001','SG14','1999/12/24'),
('2','C002','SA9','1991/11/18'),
('3','C003','SG37','1994/04/12'),
('4','C004','SG5','1989/01/07'),
('5','C005','SL21','1995/07/29'),
('6','C006','SL41','2000/08/19'),
('7','C007','SP28','1996/11/01'),
('8','C008','SK32','1986/04/12'),
('9','C009','SB83','1990/10/05'),
('10','C010','SR68','1990/05/14');
```

```
insert into viewing(clientNo, propertyNo, viewDate, comment)
```

```
values('1','A110','2000/05/14','GOOD'),
```

```
('2','B110','2001/11/21','GOOD'),  
('3','A111','2001/04/04','GOOD'),  
('4','C065','2000/01/01','GOOD'),  
('5','D124','2004/06/19','GOOD'),  
('6','G116','1999/08/02','GOOD'),  
('7','A140','2005/07/09','GOOD'),  
('8','H180','2000/02/26','GOOD'),  
('9','A230','1997/10/12','GOOD'),  
('10','B210','2003/12/24','GOOD');
```

Lab number 7:

```
select distinct(postcode) from branch;
```

```
select distinct(fName) from staff;
```

```
select staffNo as ID,fName as FirstName, IName as LastName, position as  
Position, sex as Gender, DOB as DateofBirth, salary as Salary, branchNO as  
BranchNumber from staff;
```

```
select clientNo as ClientNumber, fName as FirstName, IName as LastName,  
telNo as TelliPhone, prefType as Preference, maxRent as MaximumRent from  
client;
```

```
select * from staff where salary > 20000;
```

```
select * from staff where position = 'manager' or position = 'supervisor';
```

LAB NUMBER 8:

-- Examples

```
SELECT staffNo, fName, IName, salary FROM staff ORDER BY salary DESC;
```

```
SELECT propertyNo, type, rooms, rent FROM propertyforrent ORDER BY type;
```

```

SELECT propertyNo, type, rooms, rent FROM propertyforrent ORDER BY type, rent DESC;

SELECT staffNo, COUNT(salary) FROM staff;

SELECT COUNT(*) AS myCount FROM propertyforrent WHERE rent <=10000;

SELECT COUNT(DISTINCT propertyNo) AS myCount FROM Viewing WHERE viewDate BETWEEN '1997-10-12' AND '2003-12-24';

SELECT COUNT(staffNo) AS myCount, SUM(salary) AS mySum FROM Staff WHERE position = 'Manager';

SELECT MIN(salary) AS myMin, MAX(salary) AS myMax, AVG(salary) AS myAvg FROM staff;

SELECT staffNo, COUNT(salary) FROM staff;

SELECT staffNo, fName, lName, position, salary FROM staff WHERE (SELECT AVG(salary) FROM staff) < salary;

SELECT staffNo, fName, lName, position, salary FROM staff WHERE salary > SOME (SELECT salary FROM staff WHERE branchNo = 'C003');

SELECT staffNo, fName, lName, position, salary FROM staff WHERE salary > ALL (SELECT salary FROM staff WHERE branchNo = 'C003');

```

-- Sorting

```

SELECT staffNo, fName, lName, salary FROM staff ORDER BY salary ASC;

SELECT salary FROM staff ORDER BY salary DESC;

SELECT salary FROM staff ORDER BY salary ASC;

```

-- Grouping

```

SELECT staffNo, fName, lName, sex, salary FROM Staff WHERE position = 'Receptionist' AND salary < 40000;

SELECT fName, lName, branchNo FROM Staff WHERE sex = 'M' AND position = 'Manager';

SELECT fName, lName, salary, position FROM Staff WHERE (SELECT AVG(salary) FROM Staff) < salary;

```

-- Aggregate

```

SELECT COUNT(DISTINCT(propertyNo)) AS myCount FROM Viewing WHERE viewDate BETWEEN '1999-08-02' AND '2004-06-19';

SELECT COUNT(salary) AS myCount FROM staff WHERE salary BETWEEN '20000' AND '60000';

```


SELECT clientNo, propertyNo AS ClientID, PropertyNo FROM Viewing WHERE viewDate BETWEEN '2001-04-04' AND '2004-06-19';

`LAB: 9

- **show tables;**
- **select fName, lName, salary from staff where salary > (select salary from staff where lName = 'Bleech');**
- **select first_name, last_name from employees where department = 'IT';**

LAB:10

- **Select first_name, last_name from employees where position = 'manager';**
- **Select first_name, last_name, salary from employees where salary > (select AVG(salary) from employees);**
- **SELECT first_name, last_name, salary from employees where department_name = 'IT' AND salary > (select AVG(salary) from employees);**
- **select first_name, last_name, salary from employees where salary > (select salary from employees where last_name = 'Bell');**
- **Select * from employees where salary = (select min(salary) from employees);**
- **Select first_name, last_name, salary from employees where salary > (select avg(salary) from employees);**
- **select first_name,last_name, salary from employees where salary > (select salary from employees where job_id = 'SH_CLERK') order by salary;**
- **Select first_name, last_name from employees where position <> supervisors;**
- **Select employee_ID, first_name, last_name, department from employees;**
- **select employee_id, first_name from employees where salary > (select avg(salary) from employees);**

LAB NUMBER 11:

use dreamhome;

```
create table Abc (FName varchar(50) NOT NULL,familyName varchar (50) NOT NULL);

insert into Abc

values ('Hamza', 'Mushtaq'),

('Imad', 'Ahmad'),

('Zulfi', 'Rehman');
```

-- CONCATINATION

```
SELECT CONCAT("Hamza ", "Mushtaq ") AS ConcatenatedString;
```

-- extra string funtions

```
SELECT LENGTH(Fname) AS LengthOfString from Abc;
```

```
select LOCATE("i", "Zulfi");
```

```
SELECT upper("Hamza");
```

```
SELECT lower("Hamza");
```

```
SELECT REPEAT(familyName, 3) from Abc;
```

```
SELECT STRCMP("hamza1", "hamza");
```

```
SELECT SUBSTR("Hamza", 4) AS ExtractString;
```

```
SELECT LEFT("Hamza", 5) AS ExtractString;
```

```
SELECT ASCII(FName) FROM Abc;
```

-- Maths function

```
SELECT COT(6);
```

```
SELECT COS(2);
```

```
SELECT LOG(2);
```

```
SELECT SQUARE(64);
```

```
SELECT COUNT(Fname) AS NumberOfNames FROM Abc;
```

```
SELECT AVG(maxRent) AS AveragePrice FROM client;
```

```
SELECT MAX(maxRent) AS LargestPrice FROM client;
```

```
SELECT MIN(maxRent) AS SmallestPrice FROM client;
```

SELECT FLOOR(25.75) AS FloorValue;

SELECT CEILING(25.75) AS CeilValue;

LAB:12

- **select sum(salary) from staff;**
- **select COUNT(position) from staff;**
- **select COUNT(DISTINCT position)from staff;**

LAB:13

LAB:14

LAB:15

1. update staff set fName='Huzaifa', lName='Abid' where salary = '40000';
2. delete from branch where branchNo='C001';
3. update staff set salary='1000000' where salary=NULL;
4. update staff set salary=500000 where salary='10000';
5. insert into branch values('C011','Arbab lane', 'isb', '9889');

LAB:16

1. create table supplier (supplier_id int(10) NOT NULL, supplier_name varchar(50) NOT NULL, address varchar(50));
2. alter table supplier add primary key (supplier_id);
3. create table Items (itemname varchar(255) NOT NULL, supplier_id int(10) NOT NULL, itemprice int(15) NOT NULL);
4. alter table Items ADD FOREIGN KEY (supplier_id) REFERENCES supplier(supplier_id);

AYESHA LATIF (SP19-BCS-030)

Lab Number 6:

Use dream home

Solution:

```
insert into staff (staffNo,fName,lName,position,sex,DOB,salary,branchNo
Values(' Sh4' 'saba','Howe' 'Assistant','F','1999/08/23',30000,'f002'),
('Sk21','julie', Ford','Assistant' 'M','1985/11/9',50000,'f003'),
('Sh37','Anna', 'Bleech', 'Supervisor','F','1987/12/8',80000,'f003'),
('Sh89','Sana','Brand' 'Receptionist','F','2000/5/9',100000,'f003'),
('Sk14', 'Jon', 'White', 'Manager', 'M', '1993/2/12', 300000, 'f004'),
('Sk41','Julie','Lee','Assistant', 'F','1988/3/12' 50000 'f002'),
('Sl68','Arham','Shoaib', 'Assistant Manager','M' '1996/9/8',70000,'f005'),
('SK92','Mushk','Khan','Customer Service','F','1994/9/8',60000,'f010'),
('Sh83', 'Ali', 'Hassan', 'Receptionist', 'M', '1991/4/6', 40000, 'f009'),
('So88', 'Hira', 'Qazi', 'Security Guard"M','1982/9/12',10000,'f007');
insert into client (clientNo, fName, lName, telNo, prefType, maxRent)
values ('11', 'kinza', 'Muhstaq','0341-3487431','house','16200'),
('12', 'Hina','saad', '0341-3443312','Apartment','12000'),
('13', 'Arham', 'latif', '0347-5646553', 'House','28000'),
('14', 'Ali', '', '0341-3123556', 'Apartment','1900'),
('15', 'Zoya', 'nawaz', '0324-3983493','house','20000'),
('16', 'Hira', 'mehmood', '0312-9854818', 'Room','14000'),
('17', 'Haseeb', 'muhshtaq', '0300-9452713', 'house','15000'),
('18', 'Sharjeel', 'Khan', '0344-3954399', 'House', '27000'),
```

('19', 'Ahmed', 'Shah', '0340-1905661', 'Apartment', '25000'),

('20', 'komal', 'Javed', '0331-7056413', 'House', '26000');

insert into privateowner (ownerNo, fName, lName, address, telNO)

values ('13346','ayesha','latif','f-12', '0331-1436543'),

('20283','Hafsa','Abid', 'I#78 cantt', '0332-91234568'),

('25456','Adil','Khan', 'I#79 cantt', '0330-9756565'),

('56362','Zanib','saqib','k#78 Mughal pura', '0336-12789'),

('11298','Asif','Kamal', 'k#30 h-1', '0344-1237686'),

('56876','Sara','Ali','L-20 maddar', '0324-2214598'),

('43635','Hina','mujahid','k#895 Cantt', '0314-98887672'),

('15665','Ahmed','Hassan','k#55 Kalapul', '0304-9991231'),

('85468','zoya','abid','k#986 Beer', '0334-3228123'),

('17876','ayesha','Saqib','k#12 Cantt', '0314-9122234')

insert into propertyforrent (propertyNo, street, city, postcode, type, rooms, rent, ownerNo, staffNo, branchNo)

values ('A1230','h#38 G-13', 'LHR','8092','Room','1','12000','13456','SA9','G001'),

('c110','h#78 Mandia', 'ABT','1278','Apartment','4','10000','19283','SG14','G002'),

('c411','h#85 ', 'ISB','3987','Aparment','3','14000','23456','SG37','G003'),

('f4365','h#12 Cantt', 'KAR','2576','Room','8','8000','87362','SGF5','G004'),

('Df44','k#78 Mandia', 'ABT','9087','Apartment','2','1000','12098','SLD21','G005'),

('f516','k#55 Kalapul', 'LHR','1265','Apartment','3','1500','90876','SLS41','G006'),
('f430','f#12 Cantt', 'SKP','3489','Apartment','4','1800','78635','SP9S8','G007'),
('H30','k#86 khan pur', 'SKP','1265','House','4','24000','17865','SKW32','C008'),
('u730','If#38 G-12', 'LHR','9087','House','3','22000','87268','SB8W3','H009'),
('d540','k#86 cantt', 'LHR','5431','Apartment','2','14000','12Q876','SR6W8','J010');

'insert into viewing(clientNo, propertyNo, viewDate, comment)

values('11','F110','2002/03/16','Good')

('12','LB00','2010/11/21','Good'),

('13','KG00','2003/04/05','Good'),

('14','HG04','2004/01/03','Good'),

('15','D012','2006/05/19','EXCELLENT'),

('16','GSW43','1999/03/04','V.Good'),

('17','Q2340','2001/02/04','Good'),

('18','J280','2007/02/23','Good'),

('19','C3430','1965/11/12','V.Good'),

('20','K710','2003/12/24','Good');

insert into registration (clientNo, branchNo,staffNo ,dateJoined)

values ('11','f002','Sh4','1998/11/20'),

('12','f003','Sk21','1992/10/12'),

('13','f003','Sh37','1989/04/15'),
('14','f003','Sh89','1991/11/17'),
('15','f004','Sk41','1986/10/29'),
('16','f002','sl68','2005/09/29'),
('17','f005','SK92','1995/10/05'),
('18','f010','Sh83','1987/03/22'),
('19','f007','So88','1990/10/05'),
('20','f006','so34','1990/05/14');

Lab Number 7

1.Print the list of postcode without any repetition

Solution:

Select distinct(postcod) from Branch;

2.Print all fName from Staff without repetition

Solution:

SELECT distinct(fName) FROM Staff;

3.List all staff with renaming all its columns in results

Solution:

Select staffNo As StaffNo, fName As FirstName, lName As LastName, position As Position, sex as Gender, salary As income, branchNo As BranchNO from Staff;

4.List all clients with re-naming all its columns to synonyms

Solution:

Select clientNo As clientId, fName As MYfirstName, lName As MYlastName, telNo As phonenumber, prefType As precedenceType, maxRent As MYtotalRent from Client;

5.List all staff with a salary greater than 10,000

Solution:

SELECT salary FROM Staff WHERE salary >10000;

6.List all managers and supervisors

Solution:

SELECT position FROM Staff WHERE position IN ('Manager', 'Supervisor');

Lab Number 8

Perform all the examples in this lab.

Solution

SELECT staffNo, fName, lName, salary FROM Staff ORDER BY salary DESC;

SELECT propertyNo, type, rooms, rent FROM PropertyForRent ORDER BY type;


```
SELECT propertyNo, type, rooms, rent FROM PropertyForRent ORDER BY  
type, rent DESC;
```

```
SELECT COUNT(DISTINCT propertyNo) AS myCount FROM Viewing  
WHERE viewDate BETWEEN '2004-12-2' AND '2005-12-5';
```

```
SELECT COUNT(staffNo) AS myCount, SUM(salary) AS mySum FROM Staff  
WHERE position = 'Manager';
```

```
SELECT MIN(salary) AS myMin, MAX(salary) AS myMax, AVG(salary) AS  
myAvg FROM Staff;
```

```
SELECT staffNo, COUNT(salary) FROM Staff;
```

```
SELECT staffNo, fName, lName, position, salary FROM Staff WHERE salary >  
SOME (SELECT salary FROM Staff WHERE branchNo = 'f004');
```

```
SELECT staffNo, fName, lName, position, salary FROM Staff WHERE salary >  
ALL (SELECT salary FROM Staff WHERE branchNo = 'f005');
```

For DreamHome case study write at least 3 examples of each category for
sorting, grouping and aggregate operations. Share your exercises as advised in
the lab.

Sorting clauses

```
SELECT staffNo, fName, lName, position FROM Staff ORDER BY fName ASC;
```

```
SELECT staffNo, fName, position, salary FROM Staff ORDER BY salary DESC;
```

```
SELECT fName, salary FROM Staff ORDER BY lName DESC;
```

Grouping clause

```
SELECT staffNo, fName, sex, salary FROM Staff WHERE position = 'Assistant'  
AND salary < 30000;
```

```
SELECT fName, position FROM Staff WHERE sex = 'F' AND position = 'Manager';
```

```
SELECT fName, lName, position FROM Staff WHERE (SELECT AVG(salary) FROM Staff) < salary;
```

Aggregate clauses

```
SELECT COUNT(DISTINCT(propertyNo)) AS myCount FROM Viewing WHERE viewDate BETWEEN '1999-03-04 ' AND '2004-01-03';
```

```
SELECT clientNo, propertyNo AS ClientID, PropertyNo FROM Viewing WHERE viewDate BETWEEN '2006-05-19 ' AND '2007-02-23';
```

```
SELECT clientNo, comment FROM Viewing WHERE viewDate BETWEEN '2002-03-16 ' AND '2010-11-21';
```

Lab number 9

show tables;

```
select fName, lName, salary from staff where salary > (select salary from staff where lName = 'saad'); select first_name, last_name from employees where department = 'IT';
```

Lab number 10

```
Select first_name, last_name from employees where position = 'supervisors';
```

```
Select first_name, last_name, salary from employees where salary > (select AVG(salary) from employees);
```

```
SELECT first_name, last_name, salary from employees where department_name = 'IT' AND salary > (select AVG(salary) from employees);
```

```
SELECT first_name, last_name, salary from employees where department_name = 'IT' AND salary > (select AVG(salary) from employees);
```

```
select first_name, last_name, salary from employees where salary > (select salary from employees where last_name = 'khan');
```

Select * from employees where salary = (select min(salary) from employees);

Select first_name, last_name, salary from employees where salary > (select avg(salary) from employees);

select first_name,last_name, salary from employees where salary > (select salary from employees where job_id = 'SH_CLERK') order by salary;

Select first_name, last_name from employees where position <> supervisors;

Select employee_ID, first_name, last_name, department from employees;

select employee_id, first_name from employees where salary > (select avg(salary) from employees);

Lab 11

use dreamhome;

create table Abc (FName varchar(50) NOT NULL,familyName varchar (50) NOT NULL);

insert into Abc

values ('ayesha', 'Kinza'),

('laraib', 'Ahmad'),

('muhammad Rehman', 'Sakina');

-- CONCATINATION

SELECT CONCAT("ayesha ", "kinza ") AS ConcatenatedString;

-- extra string funtions

SELECT LENGTH(Fname) AS LengthOfString from Abc;

select LOCATE("a", "ayesha");

SELECT upper("kinza");

```
SELECT lower("kinza");
SELECT REPEAT(familyName, 3) from Abc;
SELECT STRCMP("ayesha1", "ayesha");
SELECT SUBSTR("ayesha", 4) AS ExtractString;
SELECT LEFT("kinza", 5) AS ExtractString;
SELECT ASCII(FName) FROM Abc;
-- Maths function
SELECT COT(4);
SELECT COS(3);
SELECT SQUARE(81);
SELECT LOG(2);
SELECT COUNT(Fname) AS NumberOfNames FROM Abc;
SELECT AVG(maxRent) AS AveragePrice FROM client;
SELECT MAX(maxRent) AS LargestPrice FROM client;
SELECT MIN(maxRent) AS SmallestPrice FROM client;
SELECT FLOOR(26.54) AS FloorValue;
SELECT CEILING(15.45) AS CeilValue;
```

Lab number 12

```
select sum(salary) from staff;
select COUNT(position) from staff;
select COUNT(DISTINCT position)from staff;
```

Lab number 13

Lab number 14

Lab number 15

```
update staff set fName='ayesha', lName='Latif' where salary = '40000';
delete from branch where branchNo='f002';
update staff set salary='1000000' where salary=NULL;
```

```
update staff set salary=200000 where salary='10000';  
insert into branch values('c110','h#78 Mandia', 'ABT','1278');
```

Lab number 16

```
create table supplier (supplier_id int(10) NOT NULL, supplier_name varchar(50)  
NOT NULL, address varchar(50));
```

```
alter table supplier add primary key (supplier_id);
```

```
create table Items (itemname varchar(255) NOT NULL, supplier_id int(10) NOT  
NULL, itemprice int(15) NOT NULL);
```

```
alter table Items ADD FOREIGN KEY (supplier_id) REFERENCES  
supplier(supplier_id);
```

ADNAN KHURSHID (SP19-BCS-029)

Lab Number 6:

```
create database DreamHome  
use DreamHome
```

```
create table Branch (branchNo varchar(20) NOT NULL Primary Key, street  
varchar(100) NOT NULL, city varchar(50) NOT NULL,  
postcode varchar(20) NOT NULL);
```

```
create table Staff (staffNo varchar(20) NOT NULL PRIMARY KEY, fName  
varchar(50) NOT NULL, IName varchar(50) NOT NULL,  
position varchar(50) NOT NULL, sex varchar(1) NOT NULL, DOB DateTime NOT  
NULL, salary DECIMAL NOT NULL,  
branchNo varchar(20) NOT NULL References Branch(branchNo));
```

```
create table Client (clientNo varchar(20) NOT NULL PRIMARY KEY, fName  
varchar(50) NOT NULL, IName varchar(50) NOT NULL,
```

telNo varchar(20) NOT NULL, prefType varchar(50) NOT NULL, maxRent
DECIMAL NOT NULL)

create table PrivateOwner (ownerNo varchar(20) NOT NULL PRIMARY KEY,
fName varchar(50) NOT NULL, lName varchar(50) NOT NULL,
[address] varchar(50) NOT NULL, telNo varchar(20) NOT NULL)

create table PropertyForRent (propertyNo varchar(20) NOT NULL PRIMARY
KEY, street varchar(100) NOT NULL, city varchar(50) NOT NULL,
postcode varchar(20) NOT NULL, type varchar(10) NOT NULL, rooms int NOT
NULL, rent DECIMAL NOT NULL,
ownerNo varchar(20) References PrivateOwner(ownerNo), staffNo varchar(20)
NOT NULL References Staff(staffNo),
branchNo varchar(20) NOT NULL References Branch(branchNo));

create table Viewing (clientNo varchar(20) NOT NULL References
Client(clientNo),
propertyNo varchar(20) NOT NULL References PropertyForRent(propertyNo),
viewDate DateTime NOT NULL, comment varchar(200) NOT NULL);

create table Registration(clientNo varchar(20) NOT NULL References
Client(clientNo),
branchNo varchar(20) NOT NULL References Branch(branchNo), staffNo
varchar(20) NOT NULL References Staff(staffNo), dateJoined DateTime NOT
NULL)

INSERT into Branch (branchNo, street, city, postcode)
VALUES

('C1','3rd Street Satellite Town', 'SGD','40100'),
('C2', '1st Block', 'FSD', '38000'),
('C3', '4th Street Urdu bazar', 'SGD', '40100'),
('C4','5th Block', 'FSD', '38000'),
('C5','3rd Street Urdu bazar', 'SGD', '40100'),
('C6','Sixth Road', 'RWP', '43600'),
('C7','Saadaar', 'RWP', '43600'),
('C8','Deput', 'RWP', '43600'),
('C9','3rd street University Road', 'SGD', '40100'),

('C10','2nd street Queens Chock', 'SGD', '40100');

```
insert into Staff (staffNo, fName, lName, position, sex, DOB, salary, branchNo)
VALUES ('CD01', 'Adil', 'Mehmood', 'Assistant', 'M', CAST(0x0000641000000000 AS
AS DateTime), CAST(9000 AS Decimal(18, 0)), 'C1'),
('CD02', 'Abdullah', 'Javed', 'Manager', 'M', CAST(0x0000531200000000 AS
AS DateTime), CAST(18000 AS Decimal(18,0)), 'C2'),
('CD03', 'Hamza', 'Mushtaq', 'Assistant', 'M', CAST(0x000056D400000000 AS
AS DateTime), CAST(12000 AS Decimal(18,0)), 'C3'),
('CD04', 'Huzaifa', 'Abid', 'Assistant', 'M', CAST(0x0000C85800000000 AS
AS DateTime), CAST(24000 AS Decimal(18,0)), 'C4'),
('CD05', 'Ayesha', 'Latif', 'Assistant', 'F', CAST(0x0000CFF200000000 AS
AS DateTime), CAST(30000 AS Decimal(18,0)), 'C5'),
```

```
('CD06', 'Komal', 'Mushtaq', 'Assistant', 'F', CAST(0x00005D6000000000 AS
AS DateTime), CAST(9000 AS Decimal(18, 0)), 'C6'),
('CD07', 'Rafiya', 'Siddique', 'Assistant', 'F', CAST(0x00005D6000000000 AS
AS DateTime), CAST(9000 AS Decimal(18, 0)), 'C7'),
('CD08', 'Alina', 'Mukhtiar', 'Assistant', 'F', CAST(0x00005D6000000000 AS
AS DateTime), CAST(9000 AS Decimal(18, 0)), 'C8'),
('CD09', 'Kamran', 'Ali', 'Supervisor', 'M', CAST(0x00005D6000000000 AS
AS DateTime), CAST(9000 AS Decimal(18, 0)), 'C9'),
('CD010', 'Khurram', 'Shehzad', 'Supervisor', 'M', CAST(0x00005D6000000000
AS DateTime), CAST(9000 AS Decimal(18, 0)), 'C10');
```

```
insert into client (clientNo, fName, lName, telNo, prefType, maxRent)
values ('CD001', 'Muhammad', 'Hamza', '0341-3487431', 'Apartment', '160000'),
('CD002', 'Muhammad', 'Ali', '0341-3412312', 'Apartment', '180000'),
('CD003', 'Asim', 'Azhar', '0347-2346553', 'House', '24000'),
('CD004', 'Adil', 'Mehmood', '0341-3123565', 'Apartment', '5000'),
('CD005', 'Atif', 'Aslam', '0320-3983493', 'House', '3000'),
('CD006', 'Touqeeb', 'Rehman', '0312-9817818', 'Room', '2000'),
('CD007', 'Haseeb', 'Khan', '0300-9182713', 'Room', '1400'),
('CD008', 'Sharjeel', 'Khan', '0344-3912399', 'House', '2000'),
('CD009', 'Ahmed', 'Shah', '0340-1908761', 'Apartment', '20000'),
('CD0010', 'Hamza', 'Javed', '0331-7096413', 'House', '2000');
```

```

insert into privateowner (ownerNo, fName, lName, address, telNO)
values('CD0001','Huzaifa','Abid','G-13', '0331-132326543'),
('CD0002','Hamza','Khalid', 'I#78 Supply', '0332-913268'),
('CD0003','Adeel','Waraich', 'I#79 I-10/2', '0330-978323223'),
('CD0004','Zeeshan','Akhtar','I#78 Mandia', '0336-248789'),
('CD0005','Asif','Niazi','I#85 Supply', '0344-12373466'),
('CD0006','Shan','Shahd','I#86 Supply', '0324-22145538'),
('CD0007','Hanzala','Maqsood','I#895 Cantt', '0314-7787672'),
('CD0008','Ahmed','Ali','I#55 Kalapul', '0304-5591231'),
('CD0009','Zain','Farooq','I#986 Beer', '0334-322448123'),
('CD00010','Ibrahim','Uziar','I#12 Cantt', '0314-91442234');

```

```

insert into propertyforrent ( propertyNo, street, city, postcode, type, rooms, rent,
ownerNo, staffNo, branchNo)

```

```

values ('CD101','I#38 G-13', 'ISB','8092','Room','1','12000','CD0001','CD01','C1'),
('CD102','I#78 Mandia', 'ABT','1278','Apartment','2','10000','CD0002','CD02','C2'),
('CD103','I#85 Mirpur', 'ISB','3987','Aparment','3','14000','CD0003','CD03','C3'),
('CD104','I#12 Cantt', 'ABT','2576','Room','1','8000','CD0004','CD04','C4'),
('CD105','I#78 Mandia', 'ISB','9087','Apartment','2','10000','CD0005','CD05','C5'),
('CD106','I#55 Kalapul', 'ABT','1265','Apartment','3','15000','CD0006','CD06','C6'),
('CD107','I#12 Cantt', 'ABT','3489','Apartment','4','18000','CD0007','CD07','C7'),
('CD108','I#86 Supply', 'ISB','1265','House','4','24000','CD0008','CD08','C8'),
('CD109','I#38 G-13', 'ISB','9087','House','3','22000','CD0009','CD09','C9'),
('CD1010','I#86 Supply',
'ABT','5431','Apartment','2','334010','CD00010','CD010','C10');

```

```

insert into registration ( clientNo, branchNo,staffNo ,dateJoined )
values ('CD001','C1','CD01','1999/12/24'),
('CD002','C2','CD02','1991/11/18'),
('CD003','C3','CD03','1994/04/12'),
('CD004','C4','CD04','1989/01/07'),
('CD005','C5','CD05','1995/07/29'),
('CD006','C6','CD06','2000/08/19'),
('CD007','C7','CD07','1996/11/01'),
('CD008','C8','CD08','1986/04/12'),

```



```
('CD009','C9','CD09','1990/10/05'),  
('CD0010','C10','CD010','1990/05/14');
```

```
insert into viewing(clientNo, propertyNo, viewDate, comment)  
values('CD001','CD101','2000/05/14','GOOD'),  
('CD002','CD102','2001/11/21','GOOD'),  
('CD003','CD103','2001/04/04','GOOD'),  
('CD004','CD104','2000/01/01','GOOD'),  
('CD005','CD105','2004/06/19','GOOD'),  
('CD006','CD106','1999/08/02','GOOD'),  
('CD007','CD107','2005/07/09','GOOD'),  
('CD008','CD108','2000/02/26','GOOD'),  
('CD009','CD109','1997/10/12','GOOD'),  
('CD0010','CD1010','2003/12/24','GOOD');
```

LAB Number 7:

Print the list of postcode without any repetition

Solution:

```
Select distinct(postcode) from Branch;
```

Print all fName from Staff without repetition

Solution:

```
SELECT distinct(fName) FROM Staff;
```

List all staff with renaming all its columns in results

Solution:

```
Select staffNo As MyStaffNo, fName As MyFirstName, lName As MyLastName, position As  
MyPosition, DOB As MYDOB, salary As MySalary, branchNo As MyBranchNO from Staff;
```

List all clients with re-naming all its columns to synonyms.

Solution:

```
Select clientNo As clientId, fName As firstName, lName As lastName, telNo As contactNo,  
prefType As priorityType, maxRent As totalRent from Client;
```

List all staff with a salary greater than 10,000.

Solution:

```
SELECT * FROM Staff WHERE salary > 10000;
```

List all managers and supervisors.

Solution:

```
SELECT * FROM Staff WHERE position = 'manager' OR position = 'supervisor';
```

Lab Number 8:

Perform all the examples in this lab.

Solution:

```
SELECT staffNo, fName, IName, salary FROM Staff ORDER BY salary DESC;
SELECT propertyNo, type, rooms, rent FROM PropertyForRent ORDER BY type;
SELECT propertyNo, type, rooms, rent FROM PropertyForRent ORDER BY type, rent DESC;
SELECT COUNT(DISTINCT propertyNo) AS myCount FROM Viewing WHERE viewDate
BETWEEN '1-May-04' AND '31-May-04';
SELECT COUNT(staffNo) AS myCount, SUM(salary) AS mySum FROM Staff WHERE position
= 'Manager';
SELECT MIN(salary) AS myMin, MAX(salary) AS myMax, AVG(salary) AS myAvg FROM Staff;
SELECT staffNo, COUNT(salary) FROM Staff; --shwoing error that no aggregate or group
clause
SELECT staffNo, fName, IName, position, salary FROM Staff WHERE salary > SOME
(SELECT salary FROM Staff WHERE branchNo = 'B003');
SELECT staffNo, fName, IName, position, salary FROM Staff WHERE salary > ALL (SELECT
salary FROM Staff WHERE branchNo = 'B003');
```

For DreamHome case study write at least 3 examples of each category for sorting, grouping and aggregate operations. Share your exercises as advised in the lab.

Sorting clauses

Solution:

```
SELECT staffNo, fName, IName, position FROM Staff ORDER BY fName ASC;
SELECT staffNo, fName, position, salary FROM Staff ORDER BY salary DESC;
SELECT fName, salary FROM Staff ORDER BY IName DESC;
```

Grouping clauses

Solution:

```
SELECT staffNo, fName, sex, salary FROM Staff WHERE position = 'Assistant' AND salary <
10000;
SELECT fName, position FROM Staff WHERE sex = 'M' AND position = 'Manager';
```

```
SELECT fName, lName, position FROM Staff WHERE (SELECT AVG(salary) FROM Staff) < salary;
```

Aggregate clauses

Solution:

```
SELECT COUNT(DISTINCT(propertyNo)) AS myCount FROM Viewing WHERE viewDate BETWEEN '1-May-00' AND '31-May-04';
```

```
SELECT clientNo, propertyNo AS ClientID, PropertyNo FROM Viewing WHERE viewDate BETWEEN '1-May-00' AND '31-May-04';
```

```
SELECT clientNo, comment FROM Viewing WHERE viewDate BETWEEN '1-May-00' AND '31-May-04';
```

COMMON SOLUTION:

```
create database DreamHome;
```

```
use DreamHome;
```

```
--creating branch table
```

```
create table Branch (branchNo varchar(20) NOT NULL Primary Key, street varchar(100) NOT NULL, city varchar(50) NOT NULL,
```

```
postcode varchar(20) NOT NULL);
```

```
--creating staff table
```

```
create table Staff (staffNo varchar(20) NOT NULL PRIMARY KEY, fName varchar(50) NOT NULL, lName varchar(50) NOT NULL,
```

```
position varchar(50) NOT NULL, sex varchar(1) NOT NULL, DOB DateTime NOT NULL, salary DECIMAL NOT NULL,
```

branchNo varchar(20) NOT NULL References Branch(branchNo));

--creating client table

create table Client (clientNo varchar(20) NOT NULL PRIMARY KEY, fName
varchar(50) NOT NULL, IName varchar(50) NOT NULL,

telNo varchar(20) NOT NULL, prefType varchar(50) NOT NULL, maxRent
DECIMAL NOT NULL);

--creating privateowner table

create table PrivateOwner (ownerNo varchar(20) NOT NULL PRIMARY KEY,
fName varchar(50) NOT NULL, IName varchar(50) NOT NULL,

[address] varchar(50) NOT NULL, telNo varchar(20) NOT NULL);

--creating PropertyForRent table

create table PropertyForRent (propertyNo varchar(20) NOT NULL PRIMARY
KEY, street varchar(100) NOT NULL, city varchar(50) NOT NULL,

postcode varchar(20) NOT NULL, type varchar(10) NOT NULL, rooms int NOT
NULL, rent DECIMAL NOT NULL,

ownerNo varchar(20) References PrivateOwner(ownerNo), staffNo varchar(20)
NOT NULL References Staff(staffNo),
branchNo varchar(20) NOT NULL References Branch(branchNo));

--creating viewing table

create table Viewing (clientNo varchar(20) NOT NULL References
Client(clientNo),

propertyNo varchar(20) NOT NULL References PropertyForRent(propertyNo),
viewDate DateTime NOT NULL, comment varchar(200) NOT NULL)

--creating registration table

```
create table Registration(clientNo varchar(20) NOT NULL References
Client(clientNo),
branchNo varchar(20) NOT NULL References Branch(branchNo),staffNo
varchar(20) NOT NULL References Staff(staffNo),dateJoined DateTime NOT
NULL);
```

--inserting data into branch table

```
INSERT into Branch (branchNo, street, city, postcode)
```

```
VALUES
```

```
('C001','I#38 G-13', 'ISB', '8092'),
('C002', 'I#78 Supply', 'ABT', '1278'),
('C003', 'I#79 I-10/2', 'ISB', '3987'),
('C004','I#78 Mandia', 'ABT', '2576'),
('C005','I#85 Mirpur', 'ABT', '9087'),
('C006','I#86 Supply', 'ISB', '1265'),
('C007','I#895 Cantt', 'ABT', '3489'),
('C008','I#55 Kalapul', 'ABT', '9871'),
('C009','I#986 Beer', 'HAR', '9087'),
('C010','I#12 Cantt', 'HAV', '5431'),
('A001','3rd Street Satellite Town', 'SGD', '40100'),
('A002', '1st Block', 'FSD', '38000'),
('A003', '4th Street Urdu bazar', 'SGD', '40100'),
('A004','5th Block', 'FSD', '38000'),
('A005','3rd Street Urdu bazar', 'SGD', '40100'),
('A006','Sixth Road', 'RWP', '43600'),
('A007','Saadaar', 'RWP', '43600'),
('A008','Deput', 'RWP', '43600'),
('A009','3rd street University Road', 'SGD', '40100'),
('A010','2nd street Queens Chock', 'SGD', '40100'),
('f002','H#38 G-13', 'ISB', '8092'),
('f089', 'L-20 maddar ', 'ABT', '1278'),
('f003', 'k#308 h-1', 'LHR', '3987'),
('f004','k#980 Mirpur', 'LHR', '2576'),
('f005','I#85 kott', 'ABT', '9087'),
('f006','k#986 Beer', 'ISB', '1265'),
('f007','k#5895 Kahan pour', 'LHR', '3489'),
```

('f008',' K#806 Mughal Pura', 'ABT', '9871');

--inserting data into staff table

```
insert into Staff (staffNo, fName, lName, position, sex, DOB, salary, branchNo)
VALUES ('AD0001', 'Adil', 'Mehmood', 'Assistant', 'M',
CAST(0x0000641000000000 AS DateTime), CAST(9000 AS Decimal(18, 0)),
'A001'),
('AD0002', 'Abdullah', 'Javed', 'Manager', 'M', CAST(0x0000531200000000 AS
DateTime), CAST(18000 AS Decimal(18,0)), 'A002'),
('AD0003', 'Hamza', 'Mushtaq', 'Assistant', 'M', CAST(0x000056D400000000 AS
DateTime), CAST(12000 AS Decimal(18,0)), 'A003'),
('AD0004', 'Huzaiifa', 'Abid', 'Assistant', 'M', CAST(0x0000C85800000000 AS
DateTime), CAST(24000 AS Decimal(18,0)), 'A004'),
('AD0005', 'Ayesha', 'Latif', 'Assistant', 'F', CAST(0x0000CFF200000000 AS
DateTime), CAST(30000 AS Decimal(18,0)), 'A005'),
('AD0006', 'Komal', 'Mushtaq', 'Assistant', 'F', CAST(0x00005D6000000000 AS
DateTime), CAST(9000 AS Decimal(18, 0)), 'A006'),
('AD0007', 'Rafiya', 'Siddique', 'Assistant', 'F', CAST(0x00005D6000000000 AS
DateTime), CAST(9000 AS Decimal(18, 0)), 'A007'),
('AD0008', 'Alina', 'Mukhtiar', 'Assistant', 'F', CAST(0x00005D6000000000 AS
DateTime), CAST(9000 AS Decimal(18, 0)), 'A008'),
('AD0009', 'Kamran', 'Ali', 'Supervisor', 'M', CAST(0x00005D6000000000 AS
DateTime), CAST(9000 AS Decimal(18, 0)), 'A009'),
('AD00010', 'Khurram', 'Shehzad', 'Supervisor', 'M', CAST(0x00005D6000000000
AS DateTime), CAST(9000 AS Decimal(18, 0)), 'A0010')
('SG5', 'Mary', 'Howe', 'Assistant', 'F', '1988/08/23', 20000, 'C002'),
('SL21', 'David', 'Ford', 'Assistant', 'M', '1987/11/9', 100000, 'C003'),
('SG37', 'Anna', 'Bleech', 'Supervisor', 'F', '1986/12/8', 90000, 'C003'),
('SA9', 'Susa', 'Brand', 'Receptionist', 'F', '1989/5/9', 120000, 'C003'),
('SG14', 'Joh', 'White', 'Manager', 'M', '1992/2/12', 100000, 'C004'),
('SL41', 'Julie', 'Lee', 'Assistant', 'F', '1990/8/3', 50000, 'C002'),
('SR68', 'Akbar', 'Shoaib', 'Assistant Manager', 'M', '1996/9/8', 70000, 'C005'),
('SK32', 'Mahrukh', 'Khan', 'Customer Service', 'F', '1994/9/8', 60000, 'C010'),
('SB83', 'Ali', 'Hassan', 'Receptionist', 'M', '1991/4/6', 40000, 'C009'),
(' SP98', 'Hamid', 'Qazi', 'Security Guard', 'M', '1982/9/12', 10000, 'C007'),
('Sh4', 'Saba', 'Howe', 'Assistant', 'F', '1999/08/23', 30000, 'f002'),
('Sk21', 'Julie', 'Ford', 'Assistant', 'M', '1985/11/9', 50000, 'f003'),
```

```
( 'Sh37', 'Anna', 'Bleech', 'Supervisor', 'F', '1987/12/8', 80000, 'f003'),
( 'Sh89', 'Sana', 'Brand', 'Receptionist', 'F', '2000/5/9', 100000, 'f003'),
( 'Sk14', 'Jon', 'White', 'Manager', 'M', '1993/2/12', 300000, 'f004'),
( 'Sk41', 'Julie', 'Lee', 'Assistant', 'F', '1988/3', 50000, 'f002'),
( 'Sl68', 'Arham', 'Saqib', 'Assistant Manager', 'M', '1996/9/8', 70000, 'f005'),
( 'SK92', 'Mushk', 'Khan', 'Customer Service', 'F', '1994/9/8', 60000, 'f010'),
( 'Sh83', 'Ali', 'Hassan', 'Receptionist', 'M', '1991/4/6', 40000, 'f009'),
( 'So88', 'Hira', 'Qazi', 'Security Guard', 'M', '1982/9/12', 10000, 'f007');
```

--inserting into client table

```
insert into client (clientNo, fName, lName, telNo, prefType, maxRent)
values ('AD001', 'Muhammad', 'Hamza', '0341-3487431', 'Apartment', '160000'),
( 'AD002', 'Muhammad', 'Ali', '0341-3412312', 'Apartment', '180000'),
( 'AD003', 'Asim', 'Azhar', '0347-2346553', 'House', '24000'),
( 'AD004', 'Adil', 'Mehmood', '0341-3123565', 'Apartment', '5000'),
( 'AD005', 'Atif', 'Aslam', '0320-3983493', 'House', '3000'),
( 'AD006', 'Touqeeb', 'Rehman', '0312-9817818', 'Room', '2000'),
( 'AD007', 'Haseeb', 'Khan', '0300-9182713', 'Room', '1400'),
( 'AD008', 'Sharjeel', 'Khan', '0344-3912399', 'House', '2000'),
( 'AD009', 'Ahmed', 'Shah', '0340-1908761', 'Apartment', '20000'),
( 'AD0010', 'Hamza', 'Javed', '0331-7096413', 'House', '2000')
( '1', 'Hamza', 'Muhstaq', '0341-3487431', 'Apartment', '16000'),
( '2', 'Hamza', 'Abid', '0341-3412312', 'Apartment', '18000'),
( '3', 'Imad', 'Ahmad', '0347-2346553', 'House', '24000'),
( '4', 'Adil', 'Mehmood', '0341-3123565', 'Apartment', '15000'),
( '5', 'Zullkif', 'Rehman', '0320-3983493', 'House', '30000'),
( '6', 'Huzaifa', 'Abid', '0312-9817818', 'Room', '12000'),
( '7', 'Haseeb', 'Khan', '0300-9182713', 'Room', '14000'),
( '8', 'Sharjeel', 'Khan', '0344-3912399', 'House', '22000'),
( '9', 'Ahmed', 'Shah', '0340-1908761', 'Apartment', '20000'),
( '10', 'Hamza', 'Javed', '0331-7096413', 'House', '24000');
```

--inserting into privateowner table

```
insert into privateowner (ownerNo, fName, lName, address, telNO)
values ('AD0001', 'Huzaifa', 'Abid', 'G-13', '0331-132326543'),
( 'AD0002', 'Hamza', 'Khalid', 'I#78 Supply', '0332-913268'),
( 'AD0003', 'Adeel', 'Waraich', 'I#79 I-10/2', '0330-978323223'),
```

('AD0004','Zeeshan','Akhtar','l#78 Mandia', '0336-248789'),
 ('AD0005','Asif','Niazi','l#85 Supply', '0344-12373466'),
 ('AD0006','Shan','Shahd','l#86 Supply', '0324-22145538'),
 ('AD0007','Hanzala','Maqsood','l#895 Cantt', '0314-7787672'),
 ('AD0008','Ahmed','Ali','l#55 Kalapul', '0304-5591231'),
 ('AD0009','Zain','Farooq','l#986 Beer', '0334-322448123'),
 ('AD00010','Ibrahim','Uziar','l#12 Cantt', '0314-91442234')
 ('13346','ayasha','latif','f-12', '0331-1436543'),
 ('20283','Hafsa','Abid', 'l#78 cantt', '0332-91234568'),
 ('25456','Adil','Khan', 'l#79 cantt', '0330-9756565'),
 ('56362','Zanib','saqib','k#78 Mughal Pura', '0336-12789'),
 ('11298','Asif','Kamal', 'k#30 h-1', '0344-1237686'),
 ('56876','Sara','Ali','L-20 maddar', '0324-2214598'),
 ('43635','Hina','mujahid','k#895 Cantt', '0314-98887672'),
 ('15665','Ahmed','Hassan','k#55 Kalapul', '0304-9991231'),
 ('85468','zoya','abid','k#986 Beer', '0334-3228123'),
 ('17876','ayasha','Saqib','k#12 Cantt', '0314-9122234');

--inserting into propertyforrent table

insert into propertyforrent (propertyNo, street, city, postcode, type, rooms, rent, ownerNo, staffNo, branchNo)

values ('AD101','l#38 G-13', 'ISB','8092','Room','1','12000','13456','AD01','AD1'),
 ('AD102','l#78 Mandia', 'ABT','1278','Apartment','2','10000','19283','AD02','AD2'),
 ('AD103','l#85 Mirpur', 'ISB','3987','Aparment','3','14000','23456','AD03','AD3'),
 ('AD104','l#12 Cantt', 'ABT','2576','Room','1','8000','87362','AD04','AD4'),
 ('AD105','l#78 Mandia', 'ISB','9087','Apartment','2','10000','12098','AD05','AD5'),
 ('AD106','l#55 Kalapul', 'ABT','1265','Apartment','3','15000','90876','AD06','AD6'),
 ('AD107','l#12 Cantt', 'ABT','3489','Apartment','4','18000','78635','AD07','AD7'),
 ('AD108','l#86 Supply', 'ISB','1265','House','4','24000','17865','AD08','AD8'),
 ('AD109','l#38 G-13', 'ISB','9087','House','3','22000','87268','AD09','AD9'),
 ('AD1010','l#86 Supply',
 'ABT','5431','Apartment','2','14000','AD10','SR68','AD10'),
 ('A110','l#38 G-13', 'ISB','8092','Room','1','12000','13456','SA9','C001'),
 ('B110','l#78 Mandia', 'ABT','1278','Apartment','2','10000','19283','SG14','C002'),
 ('A111','l#85 Mirpur', 'ISB','3987','Aparment','3','14000','23456','SG37','C003'),
 ('C065','l#12 Cantt', 'ABT','2576','Room','1','8000','87362','SG5','C004'),
 ('D124','l#78 Mandia', 'ISB','9087','Apartment','2','10000','12098','SL21','C005'),


```
('G116','I#55 Kalapul', 'ABT','1265','Apartment','3','15000','90876','SL41','C006'),
('A140','I#12 Cantt', 'ABT','3489','Apartment','4','18000','78635','SP98','C007'),
('H180','I#86 Supply', 'ISB','1265','House','4','24000','17865','SK32','C008'),
('A230','I#38 G-13', 'ISB','9087','House','3','22000','87268','SB83','C009'),
('H210','I#86 Supply', 'ABT','5431','Apartment','2','14000','12876','SR68','C010');
```

--inserting into registration

```
insert into registration ( clientNo, branchNo,staffNo ,dateJoined )
```

```
values ('AD1101','AD1','AD01','1999/12/24'),
```

```
('AD1102','AD2','AD02','1991/11/18'),
```

```
('AD1103','AD3','AD03','1994/04/12'),
```

```
('AD1104','AD4','AD04','1989/01/07'),
```

```
('AD1105','AD5','AD05','1995/07/29'),
```

```
('AD1106','AD6','AD06','2000/08/19'),
```

```
('AD1107','AD7','AD07','1996/11/01'),
```

```
('AD1108','AD8','AD08','1986/04/12'),
```

```
('AD1109','AD9','AD09','1990/10/05'),
```

```
('AD11010','AD10','AD10','1990/05/14'),
```

```
('1','C001','SG14','1999/12/24'),
```

```
('2','C002','SA9','1991/11/18'),
```

```
('3','C003','SG37','1994/04/12'),
```

```
('4','C004','SG5','1989/01/07'),
```

```
('5','C005','SL21','1995/07/29'),
```

```
('6','C006','SL41','2000/08/19'),
```

```
('7','C007','SP28','1996/11/01'),
```

```
('8','C008','SK32','1986/04/12'),
```

```
('9','C009','SB83','1990/10/05'),
```

```
('10','C010','SR68','1990/05/14');
```

--inserting into viewing

```
insert into viewing(clientNo, propertyNo, viewDate, comment)
```

```
values('AD001','A110','2000/05/14','GOOD'),
```

```
('AD002','B110','2001/11/21','GOOD'),
```

```
('AD003','A111','2001/04/04','GOOD'),
```

```
('AD004','C065','2000/01/01','GOOD'),
```

```
('AD005','D124','2004/06/19','GOOD'),
```

```
('AD006','G116','1999/08/02','GOOD'),
```

('AD007','A140','2005/07/09','GOOD'),
('AD008','H180','2000/02/26','GOOD'),
('AD009','A230','1997/10/12','GOOD'),
('AD0010','B210','2003/12/24','GOOD'),
('1','A110','2000/05/14','GOOD'),
('2','B110','2001/11/21','GOOD'),
('3','A111','2001/04/04','GOOD'),
('4','C065','2000/01/01','GOOD'),
('5','D124','2004/06/19','GOOD'),
('6','G116','1999/08/02','GOOD'),
('7','A140','2005/07/09','GOOD'),
('8','H180','2000/02/26','GOOD'),
('9','A230','1997/10/12','GOOD'),
('10','B210','2003/12/24','GOOD');

Select distinct(city) from Branch order by city desc;

HAMZA MUSHTAQ (SP19-BCS-007)

LAB 6

use dreamhome;

INSERT into branch (branchNo, street, city, postcode)

VALUES

('C011','I#38 BYPASS', 'ISB','8092'),
('C012', 'I#78 HASSAN ROAD', 'ABT', '1278'),
('C013', 'I#79 G-10/2', 'ISB', '3987'),
('C014','I#78 MANILA ROAD', 'ABT', '2576'),
('C015','I#85 CANTT', 'ABT', '9087'),

('C016','I#86 I-9/2', 'ISB', '1265'),
('C017','I#895 I-8/4', 'ISB', '3489'),
('C018','I#55 G-8/4', 'ISB', '9871'),
('C019','I#986 MANDI ROAD', 'HAR', '9087'),
('C020','I#12 F-8/2', 'ISB', '5431');

insert into staff (staffNo, fName, lName, position, sex, DOB, salary, branchNo)
values ('SA49', 'Alex', 'Howe', 'Assistant', 'F', '1988/08/23', 20000, 'C002'),
('SJ14', 'Daeis', 'Ford', 'Assistant', 'M', '1987/11/9', 100000, 'C003'),
('SK37', 'Annabelis', 'Bleech', 'Supervisor', 'F', '1986/12/8', 90000, 'C003'),
('SL5', 'Sushab', 'Brand', 'Receptionist', 'F', '1989/5/9', 120000, 'C003'),
('SS21', 'Johnny', 'White', 'Manager', 'M', '1992/2/12', 100000, 'C004'),
('SB41', 'Judie', 'Lee', 'Assistant', 'F', '1990/8/3', 50000, 'C002'),
('SM98', 'Ahmed', 'Shoaib', 'Assistant Manager', 'M', '1996/9/8', 70000, 'C005'),
('SL32', 'Meerukh', 'Khan', 'Customer Service', 'F', '1994/9/8', 60000, 'C010'),
('SE83', 'Hamza', 'Hassan', 'Receptionist', 'M', '1991/4/6', 40000, 'C009'),
('SX68', 'Hammas', 'Qazi', 'Security Guard', 'M', '1982/9/12', 10000, 'C007');

insert into client (clientNo, fName, lName, telNo, prefType, maxRent)
values ('1', 'Hamza', 'Khalid', '0341-3412312', 'Apartment', '18000'),
('2', 'Hamid', 'Muhstaq', '0341-3412312', 'Apartment', '18000'),
('3', 'Imdadullah', 'Ahmad', '0347-2346553', 'House', '24000'),
('4', 'Ameer', 'Mehmood', '0341-3123565', 'Apartment', '15000'),
('5', 'Zumeer', 'Rehman', '0320-3983493', 'House', '30000'),
('6', 'Humsa', 'Abid', '0312-9817818', 'Room', '12000'),

('7', 'Hafeez', 'Khan', '0300-9182713', 'Room', '14000'),
('8', 'Sher', 'Khan', '0344-3912399', 'House', '22000'),
('9', 'Ahmaz', 'Shah', '0340-1908761', 'Apartment', '20000'),
('10', 'Hamis', 'Kiyani', '0331-7096413', 'House', '24000');

insert into privateowner (ownerNo, fName, lName, address, telNO)

values('13456','Zeeshan','Abid','G-13', '0331-1006543'),
('19283','Shakeel','Abid', 'I#78 Supply', '0332-9123768'),
('23456','Adnan','Khan', 'I#79 I-10/2', '0330-9786523'),
('87362','Ahmed','Saleem','I#78 Mandia', '0336-1238789'),
('12098','Asfi','Khan','I#85 Supply', '0344-1237686'),
('90876','Shanawaz','Ali','I#86 Supply', '0324-2214598'),
('78635','Haneez','Tahir','I#895 Cantt', '0314-9887672'),
('17865','Ahmer','Hassan','I#55 Kalapul', '0304-9991231'),
('87268','Zagyam','Asim','I#986 Beer', '0334-3228123'),
('12876','Ibrar','Saqib','I#12 Cantt', '0314-9122234');

insert into propertyforrent (propertyNo, street, city, postcode, type, rooms, rent, ownerNo, staffNo, branchNo)

values ('A110','I#38 H-13', 'ISB','8092','Room','1','12000','13456','SA9','C001'),
('B110','I#78 Cantt', 'ABT','1278','Apartment','2','10000','19283','SG14','C002'),
('A111','I#85 I-9/3', 'ISB','3987','Aparment','3','14000','23456','SG37','C003'),
('C065','I#12 Gurdawara', 'ABT','2576','Room','1','8000','87362','SG5','C004'),
('D124','I#78 Kalapull', 'ISB','9087','Apartment','2','10000','12098','SL21','C005'),
('G116','I#55 Nawasher',
'ABT','1265','Apartment','3','15000','90876','SL41','C006'),

('A140','I#12 Supply', 'ABT','3489','Apartment','4','18000','78635','SP98','C007'),
('H180','I#86 PMA Road', 'ISB','1265','House','4','24000','17865','SK32','C008'),
('A230','I#38 F-8/3', 'ISB','9087','House','3','22000','87268','SB83','C009'),
('H210','I#86 Adda', 'ABT','5431','Apartment','2','14000','12876','SR68','C010');

insert into registration (clientNo, branchNo,staffNo ,dateJoined)

values ('1','C001','SG14','1999/12/24'),

('2','C002','GA9','1991/11/18'),

('3','C003','HG37','1994/04/12'),

('4','C004','IG5','1989/01/07'),

('5','C005','JL21','1995/07/29'),

('6','C006','KL41','2000/08/19'),

('7','C007','BP28','1996/11/01'),

('8','C008','DK32','1986/04/12'),

('9','C009','YB83','1990/10/05'),

('10','C010','LR68','1990/05/14');

insert into viewing(clientNo, propertyNo, viewDate, comment)

values('1','Y110','2000/05/14','GOOD'),

('2','H110','2001/11/21','GOOD'),

('3','U111','2001/04/04','GOOD'),

('4','K065','2000/01/01','GOOD'),

('5','S124','2004/06/19','AVERAGE'),

('6','C116','1999/08/02','SATISFACTORY'),

('7','I140','2005/07/09','GOOD'),

```
('8','L180','2000/02/26','AVERAGE'),  
(9,'S230','1997/10/12','GOOD'),  
(10,'L210','2003/12/24','GOOD');
```

LAB 7

```
select distinct(postcode) from branch;
```

```
select distinct(fName) from staff;
```

```
select staffNo as ID,fName as FirstName, lName as LastName, position as  
Position, sex as Gender, DOB as DateofBirth, salary as Salary, branchNO as  
BranchNumber from staff;
```

```
select clientNo as ClientNumber, fName as FirstName, lName as LastName, telNo  
as TelliPhone, prefType as Preference, maxRent as MaximumRent from client;
```

```
select * from staff where salary > 7630;
```

```
select * from staff where position = 'manager' or position = 'manager';
```

LAB 8

-- Few examples for better understanding the concepts of sorting, grouping and aggregating.

```
SELECT staffNo, fName, lName, salary FROM staff ORDER BY salary DESC;
```

```
SELECT propertyNo, type, rooms, rent FROM propertyforrent ORDER BY type;
```

```
SELECT propertyNo, type, rooms, rent FROM propertyforrent ORDER BY type,  
rent DESC;
```

```
SELECT staffNo, COUNT(salary) FROM staff;
```

```
SELECT COUNT(*) AS myCount FROM propertyforrent WHERE rent <=55000;
```

```
SELECT COUNT(DISTINCT propertyNo) AS myCount FROM Viewing  
WHERE viewDate BETWEEN '2001-03-03' AND '2012-02-02';
```

```
SELECT COUNT(staffNo) AS myCount, SUM(salary) AS mySum FROM Staff  
WHERE position = 'Manager';
```

```
SELECT MIN(salary) AS myMin, MAX(salary) AS myMax, AVG(salary) AS  
myAvg FROM staff;
```

```
SELECT staffNo, COUNT(salary) FROM staff;
```

```
SELECT staffNo, fName, lName, position, salary FROM staff WHERE (SELECT  
AVG(salary) FROM staff) > salary;
```

```
SELECT staffNo, fName, lName, position, salary FROM staff WHERE salary >  
SOME (SELECT salary FROM staff WHERE branchNo = 'C003');
```

```
SELECT staffNo, fName, lName, position, salary FROM staff WHERE salary >  
ALL (SELECT salary FROM staff WHERE branchNo = 'C003');
```

-- Aggregate

```
SELECT COUNT(DISTINCT(propertyNo)) AS myCount FROM Viewing  
WHERE viewDate BETWEEN '2003-05-02' AND '2004-03-19';
```

```
SELECT COUNT(salary) AS myCount FROM staff WHERE salary BETWEEN  
'12000' AND '55000';
```

```
SELECT clientNo, propertyNo AS ClientID, PropertyNo FROM Viewing  
WHERE viewDate BETWEEN '1997-04-04' AND '2004-06-19';
```

-- Grouping

```
SELECT staffNo, fName, lName, sex, salary FROM Staff WHERE position =  
'Receptionist' AND salary < 32000;
```

```
SELECT fName, lName, branchNo FROM Staff WHERE sex = 'M' AND position =  
'Manager';
```

```
SELECT fName, lName, salary, position FROM Staff WHERE (SELECT  
AVG(salary) FROM Staff) < salary;
```

-- *Sorting*

SELECT staffNo, fName, lName, salary FROM staff ORDER BY salary ASC;

SELECT salary FROM staff ORDER BY salary DESC;

SELECT salary FROM staff ORDER BY salary ASC;

ABDULLAH JAVED SP19-BCS-002

LAB 6

-- 1. Create Database

create database DreamHome

-- 2. Set My Working Database in Query Editor

use DreamHome

-- 3. Create Tables

-- Branch

create table Branch (branchNo varchar(20) NOT NULL Primary Key, street varchar(100) NOT NULL, city varchar(50) NOT NULL, postcode varchar(20) NOT NULL);

-- Staff

create table Staff (staffNo varchar(20) NOT NULL PRIMARY KEY, fName varchar(50) NOT NULL, lName varchar(50) NOT NULL, position varchar(50) NOT NULL, sex varchar(1) NOT NULL, DOB DateTime NOT NULL, salary DECIMAL NOT NULL, branchNo varchar(20) NOT NULL References Branch(branchNo));

-- Client

create table Client (clientNo varchar(20) NOT NULL PRIMARY KEY, fName varchar(50) NOT NULL, lName varchar(50) NOT NULL, telNo varchar(20) NOT NULL, prefType varchar(50) NOT NULL, maxRent DECIMAL NOT NULL)

-- PrivateOwner


```
create table PrivateOwner (ownerNo varchar(20) NOT NULL PRIMARY KEY, fName
varchar(50) NOT NULL, lName varchar(50) NOT NULL,
[address] varchar(50) NOT NULL, telNo varchar(20) NOT NULL)
```

-- PropertyForRent

```
create table PropertyForRent (propertyNo varchar(20) NOT NULL PRIMARY KEY,
street varchar(100) NOT NULL, city varchar(50) NOT NULL,
postcode varchar(20) NOT NULL, type varchar(10) NOT NULL, rooms int NOT NULL,
rent DECIMAL NOT NULL,
ownerNo varchar(20) References PrivateOwner(ownerNo), staffNo varchar(20) NOT
NULL References Staff(staffNo),
branchNo varchar(20) NOT NULL References Branch(branchNo));
```

-- Viewing

```
create table Viewing (clientNo varchar(20) NOT NULL References Client(clientNo),
propertyNo varchar(20) NOT NULL References PropertyForRent(propertyNo),
viewDate DateTime NOT NULL, comment varchar(200) NOT NULL)
```

-- Registration

```
create table Registration(clientNo varchar(20) NOT NULL References Client(clientNo),
branchNo varchar(20) NOT NULL References Branch(branchNo),staffNo varchar(20)
NOT NULL References Staff(staffNo),dateJoined DateTime NOT NULL)
```

-- 4. Add Sample Data

-- 4.1 Single Row Example

```
INSERT into Branch (branchNo, street, city, postcode) VALUES ('AB0', 'H#79 I-10/2',
'ISB', '52000');
```

-- 4.2 Multiple Rows Example

```
INSERT into Branch(branchNo, street, city, postcode)
VALUES
('AB1', 'H#114 iqbal park', 'SGD', '40100'),
('AB2', 'H#32 COLONY', 'RWP', '54900'),
('AB3','H#71 SHAHEEN PARK', 'FSD', '48800'),
('AB4', 'H#18 ABDULLAH TOWN', 'JHG', '32400'),
('AB5', 'H#12 REHMAN TOWN', 'ISB', '32300'),
('AB6', 'H#42 REHAN TOWN', 'SGD', '40100'),
('AB7', 'H#40 ADIL TOWN ', 'FSD', '23500'),
```

('AB8', 'H#70 ASAD PARK', 'DIK', '43560'),
('AB9', 'H#12 REMANABAD', 'RWP', '78800'),
('AB10', 'H#230 NEW CANTT', 'PSW', '34987')

insert into Staff (staffNo, fName, lName, position, sex, DOB, salary, branchNo)
VALUES

('AB21', 'Steve', 'Jobs', 'Director', 'M', CAST(03161998 AS DateTime), CAST(1000000
AS Decimal(10, 0)), 'AB505'),
('AB22', 'Bill', 'Gates', 'Assistant', 'M', CAST(16121998 AS DateTime), CAST(1000000
AS Decimal(10, 0)), 'AB570'),
('AB23', 'Annie', 'Thomson', 'Manager', 'F', CAST(16121998 AS DateTime),
CAST(1000000 AS Decimal(10, 0)), 'AB320'),
('AB24', 'Sand', 'Wood', 'Assistant', 'M', CAST(16121998 AS DateTime), CAST(1000000
AS Decimal(10, 0)), 'AB200'),
('AB25', 'John', 'Duo', 'Director', 'M', CAST(16121998 AS DateTime), CAST(1000000
AS Decimal(10, 0)), 'AB571'),
('AB26', 'Penzy', 'Werth', 'Supervisor', 'F', CAST(16121998 AS DateTime),
CAST(1000000 AS Decimal(10, 0)), 'AB230'),
('AB27', 'Rozi', 'Mith', 'Manager', 'F', CAST(16121998 AS DateTime), CAST(1000000
AS Decimal(10, 0)), 'AB231'),
('AB28', 'Bint', 'Lamo', 'Manager', 'F', CAST(16121998 AS DateTime), CAST(1000000
AS Decimal(10, 0)), 'AB123'),
('AB29', 'Ender', 'Genero', 'Manager', 'F', CAST(16121998 AS DateTime),
CAST(1000000 AS Decimal(10, 0)), 'AB576'),
('AB30', 'Lord', 'Curzen', 'Assistant', 'M', CAST(16121998 AS DateTime),
CAST(1000000 AS Decimal(10, 0)), 'AB340')

insert into Client (clientNo, fName, lName, prefType, telNo, maxRent)
VALUES ('AB11', 'Armed', 'Goar', 'social media', '03001234567', '20000'),
('AB12', 'Mint', 'Margaret', 'online', '03201234567', '18000'),
('AB13', 'Randi', 'Otan', 'social media', '03101234567', '13000'),
('AB14', 'Gorge', 'Bush', 'call', '03111234567', '30000'),
('AB15', 'Donald', 'Trump', 'Media', '03021234567', '50000'),
('AB16', 'Helry', 'Klinton', 'social media', '03001234567', '160000'),
('AB17', 'Lord', 'Curzen', 'network', '03031234567', '45000'),
('AB18', 'Real', 'Mont', 'Media', '03001234567', '34000'),

('AB19', 'Anthony', 'Broad', 'social media', '03041234567', '78000'),
('AB20', 'Tom', 'Cruze', 'social media', '03001234567', '20000')

```
insert into PrivateOwner (ownerNo , fName , lName , [address], telNo)
VALUES ('AB31', 'Orthor', 'Due', 'lahore', '03001234567'),
('AB32', 'Triple', 'H', 'rawalpindi', '03201234567'),
('AB33', 'Randi', 'Otan', 'islamabad', '03101234567'),
('AB34', 'Gorge', 'Bush', 'sargodha', '03111234567'),
('AB35', 'Donald', 'Trump', 'faislabad', '03021234567'),
('AB36', 'Helry', 'Klinton', 'karachi', '03001234567'),
('AB37', 'Lord', 'Curzen', 'jhang', '03031234567'),
('AB38', 'Real', 'Mont', 'taxila', '03001234567'),
('AB39', 'Anthony', 'Broad', 'abbotabad', '03041234567'),
('AB40', 'Tom', 'Cruze', 'murree', '03001234567')
```

```
insert into propertyforrent ( propertyNo, street, city, postcode, type, rooms, rent,
ownerNo, staffNo, branchNo)
```

```
values ('AB41','St#114', 'SGD','40100','4','house','13000','42372','AB001','AB1'),
('AB42','St#114', 'RWP','38900','Apartment','2','10000','45678','AB002','AB2'),
('AB43','St#03', 'ISB','45600','Aparment','3','14000','42347','AB003','AB3'),
('AB44','St#14', 'KAR','12567','Room','1','8000','87362','AB004','AB4'),
('AB45','St#11', 'FSD','35900','Apartment','2','10000','12098','AB005','AB5'),
('AB46','St#18', 'PSW','23800','Apartment','3','15000','90876','AB006','AB6'),
('AB47','St#42', 'LHR','41750','Apartment','4','18000','78635','AB007','AB7'),
('AB48','St#56', 'JHG','28600','House','4','24000','17865','AB008','AB8'),
('AB49','St#32', 'MUL','67700','House','3','22000','87268','AB009','AB9'),
('AB50','St#21', 'SGD','40100','Apartment','2','21000','42300','AB010','AB10');
```

```
INSERT INTO Viewing(clientNo, propertyNo, viewDate, comment)
Values('AB51','AB111','2000/05/14','GOOD'),
('AB52','AB222','2000/12/12','GOOD'),
('AB53','AB333','2001/04/04','GOOD'),
('AB54','AB444','2002/01/01','GOOD'),
('AB55','AB555','2003/06/19','GOOD'),
('AB56','AB666','1998/08/02','GOOD'),
('AB57','AB777','2004/07/09','GOOD'),
```

```
('AB58','AB888','2005/02/26','GOOD'),  
('AB59','AB999','1999/10/12','GOOD'),  
('AB60','AB000','2006/12/24','GOOD');
```

```
insert into registration ( clientNo, branchNo,staffNo ,dateJoined )
```

```
values ('AB61','AB1','AB01','1998/12/12'),
```

```
('AB62','AB2','AB02','1999/11/18'),  
('AB63','AB3','AB03','1994/04/12'),  
('AB64','AB4','AB04','1989/01/07'),  
('AB65','AB5','AB05','1996/07/29'),  
('AB66','AB6','AB06','2001/08/19'),  
('AB67','AB7','AB07','1997/11/01'),  
('AB68','AB8','AB08','1986/04/12'),  
('AB69','AB9','AB09','2002/10/05'),  
('AB70','AB10','AB010','2000/05/14');
```

```
Select distinct(city) from Branch order by city desc;
```

LAB 7

```
select distinct(postcode) from branch;
```

```
select distinct(fName) from staff;
```

```
select staffNo as ID,fName as FirstName, lName as LastName, position as Position, sex  
as Gender, DOB as DateofBirth, salary as Salary, branchNO as BranchNumber from  
staff;
```

```
select clientNo as ClientNumber, fName as FirstName, lName as LastName, telNo as  
TelliPhone, prefType as Preference, maxRent as MaximumRent from client;
```

```
select * from staff where salary > 13000;
```

```
select * from staff where position = 'DIRECTOR' or position = 'MANAGER';
```

LAB 8

```
SELECT staffNo, fName, lName, salary FROM staff ORDER BY Staffno DESC;
```

```
SELECT propertyNo, type, rooms, rent FROM propertyforrent ORDER BY rooms;
```

```
SELECT propertyNo, type, rooms, rent FROM propertyforrent ORDER BY rooms, type;
```

```
SELECT staffNo, COUNT(salary) FROM staffname;
```

```
SELECT COUNT(*) AS myCount FROM propertyforrent WHERE rent <=12000;
```

```
SELECT COUNT(DISTINCT propertyNo) AS myCount FROM Viewing WHERE viewDate BETWEEN '1998-12-16' AND '2004-12-23';
```

```
SELECT COUNT(staffNo) AS myCount, SUM(salary) AS mySum FROM Staff WHERE position = 'director';
```

```
SELECT MIN(salary) AS myMin, MAX(salary) AS myMax, AVG(salary) AS myAvg FROM staff;
```

```
SELECT staffNo, COUNT(salary) FROM staff;
```

```
SELECT staffNo, fName, lName, position, salary FROM staff WHERE (SELECT AVG(salary) FROM staff) < salary;
```

```
SELECT staffNo, fName, lName, position, salary FROM staff WHERE salary > SOME (SELECT salary FROM staff WHERE branchNo = 'AB02');
```

```
SELECT staffNo, fName, lName, position, salary FROM staff WHERE salary > ALL (SELECT salary FROM staff WHERE branchNo = 'AB01');
```

-- Sorting

```
SELECT staffNo, fName, lName, salary FROM staff ORDER BY salary ASC;
```

```
SELECT salary FROM staff ORDER BY salary DESC;
```

```
SELECT salary FROM staff ORDER BY salary ASC;
```

-- Grouping

```
SELECT staffNo, fName, lName, sex, salary FROM Staff WHERE position = 'Receptionist' AND salary < 10000;
```

```
SELECT fName, lName, branchNo FROM Staff WHERE sex = 'F' AND position = 'Manager';
```

```
SELECT fName, lName, salary, position FROM Staff WHERE (SELECT AVG(salary) FROM Staff) < salary;
```

-- Aggregate

```
SELECT COUNT(DISTINCT(propertyNo)) AS myCount FROM Viewing WHERE viewDate BETWEEN '2000-01-01' AND '2005-05-20';
```

```
SELECT COUNT(salary) AS myCount FROM staff WHERE salary BETWEEN '12000' AND '80000';
```

```
SELECT clientNo, propertyNo AS ClientID, PropertyNo FROM Viewing WHERE viewDate BETWEEN '2000-02-16' AND '2005-12-16';
```

LAB 11

```
create table AAASSS (FNAME varchar(50)NOT NULL, Familyname Varchar NOT NULL);
```

```
INSERT INTO AAASSS
```

```
VALUES ('ABDULLAH','JAVED'),
```

```
('ADIL','MEHMOOD'),
```

```
('TALHA','JAWAD')
```

```
--CONCATINATION
```

```
SELECT CONCAT('ABDULLAH','Javed')
```

```
AS Concantenatedstring;
```

```
--extra string functions
```

```
SELECT LEN ("Familyname") AS
```

```
LENGTHOFSTRING FROM AAASSS;
```

```
SELECT LEN('ABDULLAH');
```

```
SELECT upper('TALHA');
```

```
SELECT lower('TALHA');
```

```
SELECT REVERSE('HALLUDBA');
```

```
SELECT STR('12');
```

```
SELECT SUBSTRING('ABDULLAHJAVED', 1, 3) AS ExtractString;
```

```
SELECT REPLICATE('TALHA JAWAD ', 5);
```

```
SELECT LEFT('TALHA JAWAD', 3) AS ExtractString;
```

```
SELECT 'TALHA' + 'JAWAD';
```

```
SELECT ASCII('H')
```

```
-- Maths function
```

```
SELECT COT(90);
```

```
SELECT COS(45);
```

```
SELECT LOG(4);
```

```
SELECT SQUARE(12);
```

```

SELECT COUNT('42');

SELECT AVG(MA) AS AveragePrice FROM client;

SELECT MAX(maxRent) AS LargestPrice FROM client;

SELECT MIN(maxRent) AS SmallestPrice FROM client;

SELECT FLOOR(22.05) AS FloorValue;

SELECT CEILING(42.72) AS CeilValue;

```

LAB 16

```

CREATE DATABASE patient;
USE patient;
create table suppliers(supplier_id varchar(10) unique not null,supplier_name varchar(50)
not null,address varchar(50));
create table items(itemname varchar(20),supplierid varchar(10) not null,itemprice int);
insert into suppliers values(570,'Abdullah','SGD');
insert into suppliers values(571,'Ahmad','LHR');
insert into suppliers values(572,'Ali','RWP');
SELECT * FROM suppliers;
insert into items values('blood storage bag',111,250);
insert into items values('injection',222,50);
insert into items values('bandage',333,120);
select * from items;

```

Zulkifil Rehman (SP19-BCS-027)

Lab 6:

```

use dreamhome;

INSERT into branch (branchNo, street, city, postcode)

VALUES

('C001','I#38 G-13', 'ISB','8092'),

('C002', 'I#78 Suply', 'ABT', '1278'),

```

('C003', 'I#79 I-10/2', 'ISB', '3987'),
('C004', 'I#78 Mania', 'ABT', '2576'),
('C005', 'I#85 Mirpur', 'ABT', '9087'),
('C006', 'I#86 Suply', 'ISB', '1265'),
('C007', 'I#895 Cantt', 'ABT', '3489'),
('C008', 'I#55 Kalapul', 'ABT', '9871'),
('C009', 'I#986 Beer', 'HAR', '9087'),
('C010', 'I#12 Cantt', 'HAV', '5431');

insert into staff (staffNo, fName, lName, position, sex, DOB, salary, branchNo)
values (' SG5', 'Mary', 'Howe', 'Assistant', 'F', '1988/08/23', 20000, 'C002'),
(' SL21', 'Da', 'Ford', 'Assistant', 'M', '1987/11/9', 100000, 'C003'),
('SG37', 'Anna', 'Bleech', 'Supervisor', 'F', '1986/12/8', 90000, 'C003'),
('SA9', 'Susa', 'Brand', 'Receptionist', 'F', '1989/5/9', 120000, 'C003'),
('SG14', 'Joh', 'White', 'Manager', 'M', '1992/2/12', 100000, 'C004'),
('SL41', 'Julie', 'Lee', 'Assistant', 'F', '1990/8/3', 50000, 'C002'),
(' SR68', 'Akbar', 'Shoaib', 'Assistant Manager', 'M', '1996/9/8', 70000, 'C005'),
('SK32', 'Mahrukh', 'Khan', 'Customer Service', 'F', '1994/9/8', 60000, 'C010'),
('SB83', 'Ali', 'Hassan', 'Receptionist', 'M', '1991/4/6', 40000, 'C009'),
(' SP98', 'Hamid', 'Qazi', 'Security Guard', 'M', '1982/9/12', 10000, 'C007');

insert into client (clientNo, fName, lName, telNo, prefType, maxRent)
values ('1', 'Hamza', 'Muhstaq', '0341-3487431', 'Apartment', '16000'),
('2', 'Hamza', 'Abid', '0341-3412312', 'Apartment', '18000'),

('3', 'Imad', 'Ahmad', '0347-2346553', 'House', '24000'),
('4', 'Adil', 'Mehmood', '0341-3123565', 'Apartment', '15000'),
('5', 'Zullkif', 'Rehman', '0320-3983493', 'House', '30000'),
('6', 'Huzaifa', 'Abid', '0312-9817818', 'Room', '12000'),
('7', 'Haseeb', 'Khan', '0300-9182713', 'Room', '14000'),
('8', 'Sharjeel', 'Khan', '0344-3912399', 'House', '22000'),
('9', 'Ahmed', 'Shah', '0340-1908761', 'Apartment', '20000'),
('10', 'Hamza', 'Javed', '0331-7096413', 'House', '24000');

insert into privateowner (ownerNo, fName, lName, address, telNO)

values('13456','Huzaifa','Abid','G-13', '0331-1006543'),
('19283','Hamza','Abid', 'I#78 Supply', '0332-9123768'),
('23456','Adeel','Khan', 'I#79 I-10/2', '0330-9786523'),
('87362','Zeeshan','Saleem','I#78 Mandia', '0336-1238789'),
('12098','Asif','Khan','I#85 Supply', '0344-1237686'),
('90876','Shan','Ali','I#86 Supply', '0324-2214598'),
('78635','Hanzala','Tahir','I#895 Cantt', '0314-9887672'),
('17865','Ahmed','Hassan','I#55 Kalapul', '0304-9991231'),
('87268','Zain','Asim','I#986 Beer', '0334-3228123'),
('12876','Ibrahim','Saqib','I#12 Cantt', '0314-9122234');

insert into propertyforrent (propertyNo, street, city, postcode, type, rooms,
rent, ownerNo, staffNo, branchNo)

values ('A110','I#38 G-13', 'ISB','8092','Room','1','12000','13456','SA9','C001'),
('B110','I#78 Mandia', 'ABT','1278','Apartment','2','10000','19283','SG14','C002'),
('A111','I#85 Mirpur', 'ISB','3987','Aparment','3','14000','23456','SG37','C003'),

('C065','I#12 Cantt', 'ABT','2576','Room','1','8000','87362','SG5','C004'),
('D124','I#78 Mandia', 'ISB','9087','Apartment','2','10000','12098','SL21','C005'),
('G116','I#55 Kalapul', 'ABT','1265','Apartment','3','15000','90876','SL41','C006'),
('A140','I#12 Cantt', 'ABT','3489','Apartment','4','18000','78635','SP98','C007'),
('H180','I#86 Supply', 'ISB','1265','House','4','24000','17865','SK32','C008'),
('A230','I#38 G-13', 'ISB','9087','House','3','22000','87268','SB83','C009'),
('H210','I#86 Supply', 'ABT','5431','Apartment','2','14000','12876','SR68','C010');

insert into registration (clientNo, branchNo,staffNo ,dateJoined)

values ('1','C001','SG14','1999/12/24'),
('2','C002','SA9','1991/11/18'),
('3','C003','SG37','1994/04/12'),
('4','C004','SG5','1989/01/07'),
('5','C005','SL21','1995/07/29'),
('6','C006','SL41','2000/08/19'),
('7','C007','SP28','1996/11/01'),
('8','C008','SK32','1986/04/12'),
('9','C009','SB83','1990/10/05'),
('10','C010','SR68','1990/05/14');

insert into viewing(clientNo, propertyNo, viewDate, comment)

values('1','A110','2000/05/14','GOOD'),
('2','B110','2001/11/21','GOOD'),
('3','A111','2001/04/04','GOOD'),
('4','C065','2000/01/01','GOOD'),
('5','D124','2004/06/19','GOOD'),
('6','G116','1999/08/02','GOOD'),

```
('7','A140','2005/07/09','GOOD'),  
('8','H180','2000/02/26','GOOD'),  
('9','A230','1997/10/12','GOOD'),  
('10','B210','2003/12/24','GOOD');
```

Lab 7:

```
select distinct(postcode) from branch;
```

```
select distinct(fName) from staff;
```

```
select staffNo as ID,fName as FirstName, lName as LastName, position as Position, sex as  
Gender, DOB as DateofBirth, salary as Salary, branchNO as BranchNumber from staff;
```

```
select clientNo as ClientNumber, fName as FirstName, lName as LastName, telNo as  
TelliPhone, prefType as Preference, maxRent as MaximumRent from client;
```

```
select * from staff where salary > 20000;
```

```
select * from staff where position = 'manager' or position = 'supervisor';
```

LAB 8:

-- Examples

```
SELECT staffNo, fName, lName, salary FROM staff ORDER BY salary DESC;
```

```
SELECT propertyNo, type, rooms, rent FROM propertyforrent ORDER BY type;
```

```
SELECT propertyNo, type, rooms, rent FROM propertyforrent ORDER BY type, rent DESC;
```

```
SELECT staffNo, COUNT(salary) FROM staff;
```

```
SELECT COUNT(*) AS myCount FROM propertyforrent WHERE rent <=10000;
```

```
SELECT COUNT(DISTINCT propertyNo) AS myCount FROM Viewing WHERE viewDate  
BETWEEN '1997-10-12' AND '2003-12-24';
```

```
SELECT COUNT(staffNo) AS myCount, SUM(salary) AS mySum FROM Staff WHERE position =  
'Manager';
```

```
SELECT MIN(salary) AS myMin, MAX(salary) AS myMax, AVG(salary) AS myAvg FROM  
staff;
```

```
SELECT staffNo, COUNT(salary) FROM staff;
```

```
SELECT staffNo, fName, lName, position, salary FROM staff WHERE (SELECT AVG(salary)  
FROM staff) < salary;
```

```
SELECT staffNo, fName, lName, position, salary FROM staff WHERE salary > SOME (SELECT  
salary FROM staff WHERE branchNo = 'C003');
```

```
SELECT staffNo, fName, lName, position, salary FROM staff WHERE salary > ALL (SELECT  
salary FROM staff WHERE branchNo = 'C003');
```

-- Sorting

```
SELECT staffNo, fName, lName, salary FROM staff ORDER BY salary ASC;
```

```
SELECT salary FROM staff ORDER BY salary DESC;
```

```
SELECT salary FROM staff ORDER BY salary ASC;
```

-- Grouping

```
SELECT staffNo, fName, lName, sex, salary FROM Staff WHERE position = 'Receptionist' AND  
salary < 40000;
```

```
SELECT fName, lName, branchNo FROM Staff WHERE sex = 'M' AND position = 'Manager';
```

```
SELECT fName, lName, salary, position FROM Staff WHERE (SELECT AVG(salary) FROM  
Staff) < salary;
```

-- Aggregate

```
SELECT COUNT(DISTINCT(propertyNo)) AS myCount FROM Viewing WHERE viewDate  
BETWEEN '1999-08-02' AND '2004-06-19';
```

```
SELECT COUNT(salary) AS myCount FROM staff WHERE salary BETWEEN '20000' AND  
'60000';
```

```
SELECT clientNo, propertyNo AS ClientID, PropertyNo FROM Viewing WHERE viewDate  
BETWEEN '2001-04-04' AND '2004-06-19';
```

`LAB: 9

- show tables;
- select fName, lName, salary from staff where salary > (select salary from staff where lName = 'Bleech');
- select first_name, last_name from employees where department = 'IT';

LAB:10

1. Select first_name, last_name from employees where position = 'manager';
2. Select first_name, last_name, salary from employees where salary > (select AVG(salary) from employees);
3. SELECT first_name, last_name, salary from employees where department_name = 'IT' AND salary > (select AVG(salary) from employees);
4. select first_name, last_name, salary from employees where salary > (select salary from employees where last_name = 'Bell');
5. Select * from employees where salary = (select min(salary) from employees);
6. Select first_name, last_name, salary from employees where salary > (select avg(salary) from employees);
7. select first_name,last_name, salary from employees where salary > (select salary from employees where job_id = 'SH_CLERK') order by salary;
8. Select first_name, last_name from employees where position <> supervisors;
9. Select employee_ID, first_name, last_name, department from employees;
- 10.select employee_id, first_name from employees where salary > (select avg(salary) from employees);

LAB NUMBER 11:

```
use dreamhome;
```

```
create table zull (FName varchar(50) NOT NULL,familyName varchar (50) NOT NULL);
```

```
insert into zull
```

```
values ('abid', 'Mushtaq'),
```

```
('saif ', 'Ahmad'),
```

```
('Zulfi', 'Rehman');
```

```
-- CONCATINATION
```

```
SELECT CONCAT("abid ", "Mushtaq ") AS ConcatenatedString;
```

```
-- extra string funtions
```

```
SELECT LENGTH(Fname) AS LengthOfString from Abc;
```

```
select LOCATE("i", "Zulfi");
```

```
SELECT upper("abid");
```

```
SELECT lower("abid");
```

```
SELECT REPEAT(familyName, 3) from xyz;
```

```
SELECT STRCMP("abid1", "abid");
```

```
SELECT SUBSTR("abid", 4) AS ExtractString;
```

```
SELECT LEFT("abid", 5) AS ExtractString;
```

```
SELECT ASCII(FName) FROM xyz ;
```

```
-- Maths function
```

```
SELECT COT(6);
```

```
SELECT COS(2);
```

```
SELECT LOG(2);
```

```
SELECT SQUARE(64);
```

```
SELECT COUNT(Fname) AS NumberOfNames FROM xyz;
```

```
SELECT AVG(maxRent) AS AveragePrice FROM client;
```

SELECT MAX(maxRent) AS LargestPrice FROM client;

SELECT MIN(maxRent) AS SmallestPrice FROM client;

SELECT FLOOR(25.75) AS FloorValue;

SELECT CEILING(25.75) AS CeilValue;

LAB:12

- **select sum(salary) from staff;**
- **select COUNT(position) from staff;**
- **select COUNT(DISTINCT position)from staff;**

LAB:13

LAB:14

LAB:15

- **update staff set fName='Zulkifil ', lName='abc' where salary = '40000';**
- **delete from branch where branchNo='C001';**
- **update staff set salary='1000000' where salary=NULL;**
- **update staff set salary=500000 where salary='10000';**
- **insert into branch values('C011','Sultan street', 'ABT', '1101');**

LAB:16

- **create table supplier (supplier_id int(10) NOT NULL, supplier_name varchar(50) NOT NULL, address varchar(50));**
- **alter table supplier add primary key (supplier_id);**
- **create table Items (itemname varchar(255) NOT NULL, supplier_id int(10) NOT NULL, itemprice int(15) NOT NULL);**
- **alter table Items ADD FOREIGN KEY (supplier_id) REFERENCES supplier(supplier_id);**

Lab 6

create database DreamHome

use DreamHome

```
create table Branch (branchNo varchar(20) NOT NULL Primary Key, street  
varchar(100) NOT NULL, city varchar(50) NOT NULL,  
postcode varchar(20) NOT NULL);
```

```
create table Staff (staffNo varchar(20) NOT NULL PRIMARY KEY, fName  
varchar(50) NOT NULL, IName varchar(50) NOT NULL,  
position varchar(50) NOT NULL, sex varchar(1) NOT NULL, DOB DateTime NOT  
NULL, salary DECIMAL NOT NULL,  
branchNo varchar(20) NOT NULL References Branch(branchNo));
```

```
create table Client (clientNo varchar(20) NOT NULL PRIMARY KEY, fName  
varchar(50) NOT NULL, IName varchar(50) NOT NULL,  
telNo varchar(20) NOT NULL, prefType varchar(50) NOT NULL, maxRent  
DECIMAL NOT NULL)
```

```
create table PrivateOwner (ownerNo varchar(20) NOT NULL PRIMARY KEY,  
fName varchar(50) NOT NULL, IName varchar(50) NOT NULL,  
[address] varchar(50) NOT NULL, telNo varchar(20) NOT NULL)
```

```
create table PropertyForRent (propertyNo varchar(20) NOT NULL PRIMARY  
KEY, street varchar(100) NOT NULL, city varchar(50) NOT NULL,  
postcode varchar(20) NOT NULL, type varchar(10) NOT NULL, rooms int NOT  
NULL, rent DECIMAL NOT NULL,  
ownerNo varchar(20) References PrivateOwner(ownerNo), staffNo varchar(20)  
NOT NULL References Staff(staffNo),  
branchNo varchar(20) NOT NULL References Branch(branchNo));
```



```
create table Viewing (clientNo varchar(20) NOT NULL References
Client(clientNo),
propertyNo varchar(20) NOT NULL References PropertyForRent(propertyNo),
viewDate DateTime NOT NULL, comment varchar(200) NOT NULL)
```

```
create table Registration(clientNo varchar(20) NOT NULL References
Client(clientNo),
branchNo varchar(20) NOT NULL References Branch(branchNo),staffNo
varchar(20) NOT NULL References Staff(staffNo),dateJoined DateTime NOT
NULL)
```

```
INSERT into Branch (branchNo, street, city, postcode)
```

```
VALUES
```

```
('AD1','3rd Street Satellite Town', 'SGD', '40100'),
```

```
('AD2', '1st Block', 'FSD', '38000'),
```

```
('AD3', '4th Street Urdu bazar', 'SGD', '40100'),
```

```
('AD4','5th Block', 'FSD', '38000'),
```

```
('AD5','3rd Street Urdu bazar', 'SGD', '40100'),
```

```
('AD6','Sixth Road', 'RWP', '43600'),
```

```
('AD7','Saadaar', 'RWP', '43600'),
```

```
('AD8','Deput', 'RWP', '43600'),
```

```
('AD9','3rd street University Road', 'SGD', '40100'),
```

```
('AD10','2nd street Queens Chock', 'SGD', '40100');
```

```
insert into Staff (staffNo, fName, lName, position, sex, DOB, salary, branchNo)
```

```
VALUES ('AD01', 'Adil', 'Mehmood', 'Assistant', 'M', CAST(0x0000641000000000
AS DateTime), CAST(9000 AS Decimal(18, 0)), 'A001'),
```

```
('AD02', 'Abdullah', 'Javed', 'Manager', 'M',CAST(0x0000531200000000 AS
DateTime), CAST(18000 AS Decimal(18,0)), 'A002'),
```

('AD03', 'Hamza', 'Mushtaq', 'Assistant', 'M', CAST(0x000056D400000000 AS
 DateTime), CAST(12000 AS Decimal(18,0)), 'A003'),
 ('AD04', 'Huzaifa', 'Abid', 'Assistant', 'M', CAST(0x0000C85800000000 AS
 DateTime), CAST(24000 AS Decimal(18,0)), 'A004'),
 ('AD05', 'Ayesha', 'Latif', 'Assistant', 'F', CAST(0x0000CFF200000000 AS
 DateTime), CAST(30000 AS Decimal(18,0)), 'A005'),
 ('AD06', 'Komal', 'Mushtaq', 'Assistant', 'F', CAST(0x00005D6000000000 AS
 DateTime), CAST(9000 AS Decimal(18, 0)), 'A006'),
 ('AD07', 'Rafiya', 'Siddique', 'Assistant', 'F', CAST(0x00005D6000000000 AS
 DateTime), CAST(9000 AS Decimal(18, 0)), 'A007'),
 ('AD08', 'Alina', 'Mukhtiar', 'Assistant', 'F', CAST(0x00005D6000000000 AS
 DateTime), CAST(9000 AS Decimal(18, 0)), 'A008'),
 ('AD09', 'Kamran', 'Ali', 'Supervisor', 'M', CAST(0x00005D6000000000 AS
 DateTime), CAST(9000 AS Decimal(18, 0)), 'A009'),
 ('AD010', 'Khurram', 'Shehzad', 'Supervisor', 'M', CAST(0x00005D6000000000
 AS DateTime), CAST(9000 AS Decimal(18, 0)), 'A0010');

insert into client (clientNo, fName, lName, telNo, prefType, maxRent)
 values ('AD001', 'Muhammad', 'Hamza', '0341-3487431', 'Apartment', '160000'),
 ('AD002', 'Muhammad', 'Ali', '0341-3412312', 'Apartment', '180000'),
 ('AD003', 'Asim', 'Azhar', '0347-2346553', 'House', '24000'),
 ('AD004', 'Adil', 'Mehmood', '0341-3123565', 'Apartment', '5000'),
 ('AD005', 'Atif', 'Aslam', '0320-3983493', 'House', '3000'),
 ('AD006', 'Touqeeb', 'Rehman', '0312-9817818', 'Room', '2000'),
 ('AD007', 'Haseeb', 'Khan', '0300-9182713', 'Room', '1400'),
 ('AD008', 'Sharjeel', 'Khan', '0344-3912399', 'House', '2000'),
 ('AD009', 'Ahmed', 'Shah', '0340-1908761', 'Apartment', '20000'),
 ('AD0010', 'Hamza', 'Javed', '0331-7096413', 'House', '2000');

insert into privateowner (ownerNo, fName, lName, address, telNO)

```

values('AD0001','Huzaifa','Abid','G-13', '0331-132326543'),
('AD0002','Hamza','Khalid', 'I#78 Supply', '0332-913268'),
('AD0003','Adeel','Waraich', 'I#79 I-10/2', '0330-978323223'),
('AD0004','Zeeshan','Akhtar','I#78 Mandia', '0336-248789'),
('AD0005','Asif','Niazi','I#85 Supply', '0344-12373466'),
('AD0006','Shan','Shahd','I#86 Supply', '0324-22145538'),
('AD0007','Hanzala','Maqsood','I#895 Cantt', '0314-7787672'),
('AD0008','Ahmed','Ali','I#55 Kalapul', '0304-5591231'),
('AD0009','Zain','Farooq','I#986 Beer', '0334-322448123'),
('AD00010','Ibrahim','Uziar','I#12 Cantt', '0314-91442234');

```

```

insert into propertyforrent ( propertyNo, street, city, postcode, type, rooms, rent,
ownerNo, staffNo, branchNo)

```

```

values ('AD101','I#38 G-13', 'ISB','8092','Room','1','12000','13456','AD01','AD1'),
('AD102','I#78 Mandia', 'ABT','1278','Apartment','2','10000','19283','AD02','AD2'),
('AD103','I#85 Mirpur', 'ISB','3987','Aparment','3','14000','23456','AD03','AD3'),
('AD104','I#12 Cantt', 'ABT','2576','Room','1','8000','87362','AD04','AD4'),
('AD105','I#78 Mandia', 'ISB','9087','Apartment','2','10000','12098','AD05','AD5'),
('AD106','I#55 Kalapul', 'ABT','1265','Apartment','3','15000','90876','AD06','AD6'),
('AD107','I#12 Cantt', 'ABT','3489','Apartment','4','18000','78635','AD07','AD7'),
('AD108','I#86 Supply', 'ISB','1265','House','4','24000','17865','AD08','AD8'),
('AD109','I#38 G-13', 'ISB','9087','House','3','22000','87268','AD09','AD9'),
('AD1010','I#86 Supply',
'ABT','5431','Apartment','2','14000','AD10','SR68','AD10');

```

```

insert into registration ( clientNo, branchNo,staffNo ,dateJoined )

```

```

values ('AD1101','AD1','AD01','1999/12/24'),
('AD1102','AD2','AD02','1991/11/18'),

```

```
("AD1103",'AD3','AD03','1994/04/12'),  
("AD1104",'AD4','AD04','1989/01/07'),  
("AD1105",'AD5','AD05','1995/07/29'),  
("AD1106",'AD6','AD06','2000/08/19'),  
("AD1107",'AD7','AD07','1996/11/01'),  
("AD1108",'AD8','AD08','1986/04/12'),  
("AD1109",'AD9','AD09','1990/10/05'),  
("AD11010",'AD10','AD10','1990/05/14');
```

```
insert into viewing(clientNo, propertyNo, viewDate, comment)  
values('AD001','A110','2000/05/14','GOOD'),  
('AD002','B110','2001/11/21','GOOD'),  
('AD003','A111','2001/04/04','GOOD'),  
('AD004','C065','2000/01/01','GOOD'),  
('AD005','D124','2004/06/19','GOOD'),  
('AD006','G116','1999/08/02','GOOD'),  
('AD007','A140','2005/07/09','GOOD'),  
('AD008','H180','2000/02/26','GOOD'),  
('AD009','A230','1997/10/12','GOOD'),  
('AD0010','B210','2003/12/24','GOOD');
```

Select distinct(city) from Branch order by city desc;

LAB 7:

Print the list of postcode without any repetition

Solution:

Select distinct(postcode) from Branch;

Print all fName from Staff without repetition

Solution:

```
SELECT distinct(fName) FROM Staff;
```

List all staff with renaming all its columns in results

Solution:

```
Select staffNo As MyStaffNo, fName As MyFirstName, IName As MyLastName, position As MyPosition, DOB As MYDOB, salary As MySalary, branchNo As MyBranchNO from Staff;
```

List all clients with re-naming all its columns to synonyms.

Solution:

```
Select clientNo As clientId, fName As firstName, IName As lastName, telNo As contactNo, prefType As priorityType, maxRent As totalRent from Client;
```

List all staff with a salary greater than 10,000.

Solution:

```
SELECT * FROM Staff WHERE salary > 10000;
```

List all managers and supervisors.

Solution:

```
SELECT * FROM Staff WHERE position = 'manager' OR position = 'supervisor';
```

Lab 8:

Perform all the examples in this lab.

Solution:

```
SELECT staffNo, fName, IName, salary FROM Staff ORDER BY salary DESC;
```

```
SELECT propertyNo, type, rooms, rent FROM PropertyForRent ORDER BY type;
```

SELECT propertyNo, type, rooms, rent FROM PropertyForRent ORDER BY type, rent DESC;

SELECT COUNT(DISTINCT propertyNo) AS myCount FROM Viewing WHERE viewDate BETWEEN '1-May-04' AND '31-May-04';

SELECT COUNT(staffNo) AS myCount, SUM(salary) AS mySum FROM Staff WHERE position = 'Manager';

SELECT MIN(salary) AS myMin, MAX(salary) AS myMax, AVG(salary) AS myAvg FROM Staff;

SELECT staffNo, COUNT(salary) FROM Staff; --showing error that no aggregate or group clause

SELECT staffNo, fName, lName, position, salary FROM Staff WHERE salary > SOME (SELECT salary FROM Staff WHERE branchNo = 'B003');

SELECT staffNo, fName, lName, position, salary FROM Staff WHERE salary > ALL (SELECT salary FROM Staff WHERE branchNo = 'B003');

For DreamHome case study write at least 3 examples of each category for sorting, grouping and aggregate operations. Share your exercises as advised in the lab.

Sorting clauses

Solution:

SELECT staffNo, fName, lName, position FROM Staff ORDER BY fName ASC;

SELECT staffNo, fName, position, salary FROM Staff ORDER BY salary DESC;

SELECT fName, salary FROM Staff ORDER BY lName DESC;

Grouping clauses

Solution:

SELECT staffNo, fName, sex, salary FROM Staff WHERE position = 'Assistant' AND salary < 10000;

SELECT fName, position FROM Staff WHERE sex = 'M' AND position = 'Manager';

SELECT fName, lName, position FROM Staff WHERE (SELECT AVG(salary) FROM Staff) < salary;

Aggregate clauses

Solution:

SELECT COUNT(DISTINCT(propertyNo)) AS myCount FROM Viewing WHERE viewDate BETWEEN '1-May-00' AND '31-May-04';

```
SELECT clientNo, propertyNo AS ClientID, PropertyNo FROM Viewing WHERE viewDate  
BETWEEN '1-May-00' AND '31-May-04';
```

```
SELECT clientNo, comment FROM Viewing WHERE viewDate BETWEEN '1-May-00' AND '31-  
May-04';
```

Lab Number 8:

Perform all the examples in this lab.

Solution:

```
SELECT staffNo, fName, IName, salary FROM Staff ORDER BY salary DESC;  
SELECT propertyNo, type, rooms, rent FROM PropertyForRent ORDER BY type;  
SELECT propertyNo, type, rooms, rent FROM PropertyForRent ORDER BY type, rent DESC;  
SELECT COUNT(DISTINCT propertyNo) AS myCount FROM Viewing WHERE viewDate  
BETWEEN '1-May-04' AND '31-May-04';  
SELECT COUNT(staffNo) AS myCount, SUM(salary) AS mySum FROM Staff WHERE position  
= 'Manager';  
SELECT MIN(salary) AS myMin, MAX(salary) AS myMax, AVG(salary) AS myAvg FROM Staff;  
SELECT staffNo, COUNT(salary) FROM Staff; --shwoing error that no aggregate or group  
clause  
SELECT staffNo, fName, IName, position, salary FROM Staff WHERE salary > SOME  
(SELECT salary FROM Staff WHERE branchNo = 'B003');  
SELECT staffNo, fName, IName, position, salary FROM Staff WHERE salary > ALL (SELECT  
salary FROM Staff WHERE branchNo = 'B003');
```

For DreamHome case study write at least 3 examples of each category for
sorting, grouping and aggregate operations. Share your exercises as advised in
the lab.

Sorting clauses

Solution:

```
SELECT staffNo, fName, IName, position FROM Staff ORDER BY fName ASC;  
SELECT staffNo, fName, position, salary FROM Staff ORDER BY salary DESC;  
SELECT fName, salary FROM Staff ORDER BY IName DESC;
```

Grouping clauses

Solution:

```
SELECT staffNo, fName, sex, salary FROM Staff WHERE position = 'Assistant' AND salary <  
10000;
```

```
SELECT fName, position FROM Staff WHERE sex = 'M' AND position = 'Manager';  
SELECT fName, lName, position FROM Staff WHERE (SELECT AVG(salary) FROM Staff) <  
salary;
```

Aggregate clauses

Solution:

```
SELECT COUNT(DISTINCT(propertyNo)) AS myCount FROM Viewing WHERE viewDate  
BETWEEN '1-May-00' AND '31-May-04';  
SELECT clientNo, propertyNo AS ClientID, PropertyNo FROM Viewing WHERE viewDate  
BETWEEN '1-May-00' AND '31-May-04';  
SELECT clientNo, comment FROM Viewing WHERE viewDate BETWEEN '1-May-00' AND '31-  
May-04';
```

Lab Number 9:

```
select fName, lName, salary from staff where salary > (select salary from staff where lName  
= 'Bleech');
```

```
select first_name, last_name from employees where department = 'IT';
```

Lab Number 10:

```
Select first_name, last_name from employees where position = 'manager';
```

```
Select first_name, last_name, salary from employees where salary > (select  
AVG(salary) from employees);
```

```
SELECT first_name, last_name, salary from employees where department_name = 'IT' AND salary >  
(select AVG(salary) from employees);
```

```
select first_name, last_name, salary from employees where salary > (select salary from  
employees where last_name = 'Bell');
```

```
Select * from employees where salary = (select min(salary) from employees);
```

```
Select first_name, last_name, salary from employees where salary > (select  
avg(salary) from employees);
```


select first_name,last_name, salary from employees where salary > (select salary from employees where job_id = 'SH_CLERK') order by salary;

Select first_name, last_name from employees where position <> supervisors;

Select employee_ID, first_name, last_name, department from employees;

select employee_id, first_name from employees where salary > (select avg(salary) from employees);

Lab Number 11:

use dreamhome;

create table Abc (FName varchar(50) NOT NULL,familyName varchar (50) NOT NULL);

insert into Abc

values (Adil', 'Mehmood'),

('Daniyal', 'Khan),

('Adnan', 'Khurshid');

SELECT CONCAT("Hamza ", "Mushtaq ") AS ConcatenatedString;

SELECT LENGTH(Fname) AS LengthOfString from Abc;

select LOCATE("i", "Zulfi");

SELECT upper("Hamza");

SELECT lower("Hamza");

SELECT REPEAT(familyName, 3) from Abc;

SELECT STRCMP("hamza1", "hamza");

SELECT SUBSTR("Hamza", 4) AS ExtractString;

SELECT LEFT("Hamza", 5) AS ExtractString;

SELECT ASCII(FName) FROM Abc;

```
SELECT COT(6);  
SELECT COS(2);  
SELECT LOG(2);  
SELECT SQUARE(64);  
SELECT COUNT(Fname) AS NumberOfNames FROM Abc;  
SELECT AVG(maxRent) AS AveragePrice FROM client;  
SELECT MAX(maxRent) AS LargestPrice FROM client;  
SELECT MIN(maxRent) AS SmallestPrice FROM client;  
SELECT FLOOR(25.75) AS FloorValue;  
SELECT CEILING(25.75) AS CeilValue;
```

Lab Number 12:

```
select sum(salary) from staff;  
select COUNT(position) from staff;  
select COUNT(DISTINCT position)from staff;
```

Lab Number 15:

```
update staff set fName='Adil', lName='Mehmood' where salary = '40000';  
delete from branch where branchNo='C001';  
update staff set salary='1000000' where salary=NULL;  
update staff set salary=500000 where salary='10000';  
insert into branch values('C011','Sultan street', 'ABT', '1101');
```

SYED HUZAIFA ABID (SP19-BCS-025)

Lab Number 6:

use dreamhome;

INSERT into branch (branchNo, street, city, postcode)

VALUES

('C001','I#38 G-13', 'ISB', '8092'),
('C002','I#78 Supply', 'ABT', '1278'),
('C003','I#79 I-10/2', 'ISB', '3987'),
('C004','I#78 Mandia', 'ABT', '2576'),
('C005','I#85 Mirpur', 'ABT', '9087'),
('C006','I#86 Supply', 'ISB', '1265'),
('C007','I#895 Cantt', 'ABT', '3489'),
('C008','I#55 Kalapul', 'ABT', '9871'),
('C009','I#986 Beer', 'HAR', '9087'),
('C010','I#12 Cantt', 'HAV', '5431');

insert into staff (staffNo, fName, lName, position, sex, DOB, salary, branchNo)

values (' SG5', 'Mary', 'Howe', 'Assistant', 'F', '1988/08/23', 20000, 'C002'),
(' SL21', 'David', 'Ford', 'Assistant', 'M', '1987/11/9', 100000, 'C003'),
('SG37', 'Anna', 'Bleech', 'Supervisor', 'F', '1986/12/8', 90000, 'C003'),
('SA9', 'Susa', 'Brand', 'Receptionist', 'F', '1989/5/9', 120000, 'C003'),
('SG14', 'Joh', 'White', 'Manager', 'M', '1992/2/12', 100000, 'C004'),
('SL41', 'Julie', 'Lee', 'Assistant', 'F', '1990/8/3', 50000, 'C002'),
(' SR68', 'Akbar', 'Shoaib', 'Assistant Manager', 'M', '1996/9/8', 70000, 'C005'),
('SK32', 'Mahrukh', 'Khan', 'Customer Service', 'F', '1994/9/8', 60000, 'C010'),
('SB83', 'Ali', 'Hassan', 'Receptionist', 'M', '1991/4/6', 40000, 'C009'),
(' SP98', 'Hamid', 'Qazi', 'Security Guard', 'M', '1982/9/12', 10000, 'C007');

insert into client (clientNo, fName, lName, telNo, prefType, maxRent)

values ('1', 'Hamza', 'Muhstaq', '0341-3487431', 'Apartment', '16000'),
('2', 'Hamza', 'Abid', '0341-3412312', 'Apartment', '18000'),
('3', 'Imad', 'Ahmad', '0347-2346553', 'House', '24000'),
('4', 'Adil', 'Mehmood', '0341-3123565', 'Apartment', '15000'),
('5', 'Zullkif', 'Rehman', '0320-3983493', 'House', '30000'),

('6', 'Huzaifa', 'Abid', '0312-9817818', 'Room', '12000'),
 ('7', 'Haseeb', 'Khan', '0300-9182713', 'Room', '14000'),
 ('8', 'Sharjeel', 'Khan', '0344-3912399', 'House', '22000'),
 ('9', 'Ahmed', 'Shah', '0340-1908761', 'Apartment', '20000'),
 ('10', 'Hamza', 'Javed', '0331-7096413', 'House', '24000');

insert into privateowner (ownerNo, fName, lName, address, telNO)

values('13456','Huzaifa','Abid','G-13', '0331-1006543'),
 ('19283','Hamza','Abid', 'I#78 Supply', '0332-9123768'),
 ('23456','Adeel','Khan', 'I#79 I-10/2', '0330-9786523'),
 ('87362','Zeeshan','Saleem','I#78 Mandia', '0336-1238789'),
 ('12098','Asif','Khan','I#85 Supply', '0344-1237686'),
 ('90876','Shan','Ali','I#86 Supply', '0324-2214598'),
 ('78635','Hanzala','Tahir','I#895 Cantt', '0314-9887672'),
 ('17865','Ahmed','Hassan','I#55 Kalapul', '0304-9991231'),
 ('87268','Zain','Asim','I#986 Beer', '0334-3228123'),
 ('12876','Ibrahim','Saqib','I#12 Cantt', '0314-9122234');

insert into propertyforrent (propertyNo, street, city, postcode, type, rooms,
 rent, ownerNo, staffNo, branchNo)

values ('A110','I#38 G-13', 'ISB','8092','Room','1','12000','13456','SA9','C001'),
 ('B110','I#78 Mandia', 'ABT','1278','Apartment','2','10000','19283','SG14','C002'),
 ('A111','I#85 Mirpur', 'ISB','3987','Aparment','3','14000','23456','SG37','C003'),
 ('C065','I#12 Cantt', 'ABT','2576','Room','1','8000','87362','SG5','C004'),
 ('D124','I#78 Mandia', 'ISB','9087','Apartment','2','10000','12098','SL21','C005'),
 ('G116','I#55 Kalapul', 'ABT','1265','Apartment','3','15000','90876','SL41','C006'),
 ('A140','I#12 Cantt', 'ABT','3489','Apartment','4','18000','78635','SP98','C007'),
 ('H180','I#86 Supply', 'ISB','1265','House','4','24000','17865','SK32','C008'),
 ('A230','I#38 G-13', 'ISB','9087','House','3','22000','87268','SB83','C009'),
 ('H210','I#86 Supply', 'ABT','5431','Apartment','2','14000','12876','SR68','C010');

insert into registration (clientNo, branchNo,staffNo ,dateJoined)

values ('1','C001','SG14','1999/12/24'),
 ('2','C002','SA9','1991/11/18'),
 ('3','C003','SG37','1994/04/12'),

```
('4','C004','SG5','1989/01/07'),  
('5','C005','SL21','1995/07/29'),  
('6','C006','SL41','2000/08/19'),  
('7','C007','SP28','1996/11/01'),  
('8','C008','SK32','1986/04/12'),  
('9','C009','SB83','1990/10/05'),  
('10','C010','SR68','1990/05/14');
```

```
insert into viewing(clientNo, propertyNo, viewDate, comment)  
values('1','A110','2000/05/14','GOOD'),  
('2','B110','2001/11/21','GOOD'),  
('3','A111','2001/04/04','GOOD'),  
('4','C065','2000/01/01','GOOD'),  
('5','D124','2004/06/19','GOOD'),  
('6','G116','1999/08/02','GOOD'),  
('7','A140','2005/07/09','GOOD'),  
('8','H180','2000/02/26','GOOD'),  
('9','A230','1997/10/12','GOOD'),  
('10','B210','2003/12/24','GOOD');
```

Lab number 7:

```
select distinct(postcode) from branch;
```

```
select distinct(fName) from staff;
```

```
select staffNo as ID,fName as FirstName, lName as LastName, position as  
Position, sex as Gender, DOB as DateofBirth, salary as Salary, branchNO as  
BranchNumber from staff;
```

```
select clientNo as ClientNumber, fName as FirstName, lName as LastName,  
telNo as TelliPhone, prefType as Preference, maxRent as MaximumRent from  
client;
```

```
select * from staff where salary > 20000;
```

```
select * from staff where position = 'manager' or position = 'supervisor';
```

LAB NUMBER 8:

-- Examples

```
SELECT staffNo, fName, IName, salary FROM staff ORDER BY salary DESC;
```

```
SELECT propertyNo, type, rooms, rent FROM propertyforrent ORDER BY type;
```

```
SELECT propertyNo, type, rooms, rent FROM propertyforrent ORDER BY type, rent DESC;
```

```
SELECT staffNo, COUNT(salary) FROM staff;
```

```
SELECT COUNT(*) AS myCount FROM propertyforrent WHERE rent <=10000;
```

```
SELECT COUNT(DISTINCT propertyNo) AS myCount FROM Viewing WHERE viewDate BETWEEN '1997-10-12' AND '2003-12-24';
```

```
SELECT COUNT(staffNo) AS myCount, SUM(salary) AS mySum FROM Staff WHERE position = 'Manager';
```

```
SELECT MIN(salary) AS myMin, MAX(salary) AS myMax, AVG(salary) AS myAvg FROM staff;
```

```
SELECT staffNo, COUNT(salary) FROM staff;
```

```
SELECT staffNo, fName, IName, position, salary FROM staff WHERE (SELECT AVG(salary) FROM staff) < salary;
```

```
SELECT staffNo, fName, IName, position, salary FROM staff WHERE salary > SOME (SELECT salary FROM staff WHERE branchNo = 'C003');
```

```
SELECT staffNo, fName, IName, position, salary FROM staff WHERE salary > ALL (SELECT salary FROM staff WHERE branchNo = 'C003');
```

-- Sorting

```
SELECT staffNo, fName, IName, salary FROM staff ORDER BY salary ASC;
```

```
SELECT salary FROM staff ORDER BY salary DESC;
```

```
SELECT salary FROM staff ORDER BY salary ASC;
```

-- Grouping

```
SELECT staffNo, fName, lName, sex, salary FROM Staff WHERE position = 'Receptionist' AND salary < 40000;
```

```
SELECT fName, lName, branchNo FROM Staff WHERE sex = 'M' AND position = 'Manager';
```

```
SELECT fName, lName, salary, position FROM Staff WHERE (SELECT AVG(salary) FROM Staff) < salary;
```

-- Aggregate

```
SELECT COUNT(DISTINCT(propertyNo)) AS myCount FROM Viewing WHERE viewDate BETWEEN '1999-08-02' AND '2004-06-19';
```

```
SELECT COUNT(salary) AS myCount FROM staff WHERE salary BETWEEN '20000' AND '60000';
```

```
SELECT clientNo, propertyNo AS ClientID, PropertyNo FROM Viewing WHERE viewDate BETWEEN '2001-04-04' AND '2004-06-19';
```

`LAB: 9

- **show tables;**
- **select fName, lName, salary from staff where salary > (select salary from staff where lName = 'Bleech');**
- **select first_name, last_name from employees where department = 'IT';**

LAB:10

- **Select first_name, last_name from employees where position = 'manager';**
- **Select first_name, last_name, salary from employees where salary > (select AVG(salary) from employees);**
- **SELECT first_name, last_name, salary from employees where department_name = 'IT' AND salary > (select AVG(salary) from employees);**
- **select first_name, last_name, salary from employees where salary > (select salary from employees where last_name = 'Bell');**
- **Select * from employees where salary = (select min(salary) from employees);**
- **Select first_name, last_name, salary from employees where salary > (select avg(salary) from employees);**

- **select first_name,last_name, salary from employees where salary > (select salary from employees where job_id = 'SH_CLERK') order by salary;**
- **Select first_name, last_name from employees where position <> supervisors;**
- **Select employee_ID, first_name, last_name, department from employees;**
- **select employee_id, first_name from employees where salary > (select avg(salary) from employees);**

LAB NUMBER 11:

```
use dreamhome;
```

```
create table Abc (FName varchar(50) NOT NULL,familyName varchar (50) NOT NULL);
```

```
insert into Abc
```

```
values ('Hamza', 'Mushtaq'),
```

```
('Imad', 'Ahmad'),
```

```
('Zulfi', 'Rehman');
```

```
-- CONCATINATION
```

```
SELECT CONCAT("Hamza ", "Mushtaq ") AS ConcatenatedString;
```

```
-- extra string funtions
```

```
SELECT LENGTH(Fname) AS LengthOfString from Abc;
```

```
select LOCATE("i", "Zulfi");
```

```
SELECT upper("Hamza");
```

```
SELECT lower("Hamza");
```

```
SELECT REPEAT(familyName, 3) from Abc;
```

```
SELECT STRCMP("hamza1", "hamza");
```

```
SELECT SUBSTR("Hamza", 4) AS ExtractString;
```

```
SELECT LEFT("Hamza", 5) AS ExtractString;
```

```
SELECT ASCII(FName) FROM Abc;
```


-- Maths function

SELECT COT(6);

SELECT COS(2);

SELECT LOG(2);

SELECT SQUARE(64);

SELECT COUNT(Fname) AS NumberOfNames FROM Abc;

SELECT AVG(maxRent) AS AveragePrice FROM client;

SELECT MAX(maxRent) AS LargestPrice FROM client;

SELECT MIN(maxRent) AS SmallestPrice FROM client;

SELECT FLOOR(25.75) AS FloorValue;

SELECT CEILING(25.75) AS CeilValue;

LAB:12

- **select sum(salary) from staff;**
- **select COUNT(position) from staff;**
- **select COUNT(DISTINCT position)from staff;**

LAB:13

LAB:14

LAB:15

6. update staff set fName='Huzaifa', lName='Abid' where salary = '40000';
7. delete from branch where branchNo='C001';
8. update staff set salary='1000000' where salary=NULL;
9. update staff set salary=500000 where salary='10000';
- 10.insert into branch values('C011','Arbab lane', 'isb', '9889');

LAB:16

5. create table supplier (supplier_id int(10) NOT NULL, supplier_name varchar(50) NOT NULL, address varchar(50));
6. alter table supplier add primary key (supplier_id);
7. create table Items (itemname varchar(255) NOT NULL, supplier_id int(10) NOT NULL, itemprice int(15) NOT NULL);
8. alter table Items ADD FOREIGN KEY (supplier_id) REFERENCES supplier(supplier_id);