CSE 2003

DATABASE MANAGEMENT SYSTEM

Cyclesheet – 2

L11+L12 | SJT419

FALL SEMESTER 2020-21

by

SHARADINDU ADHIKARI

19BCE2105

PART A

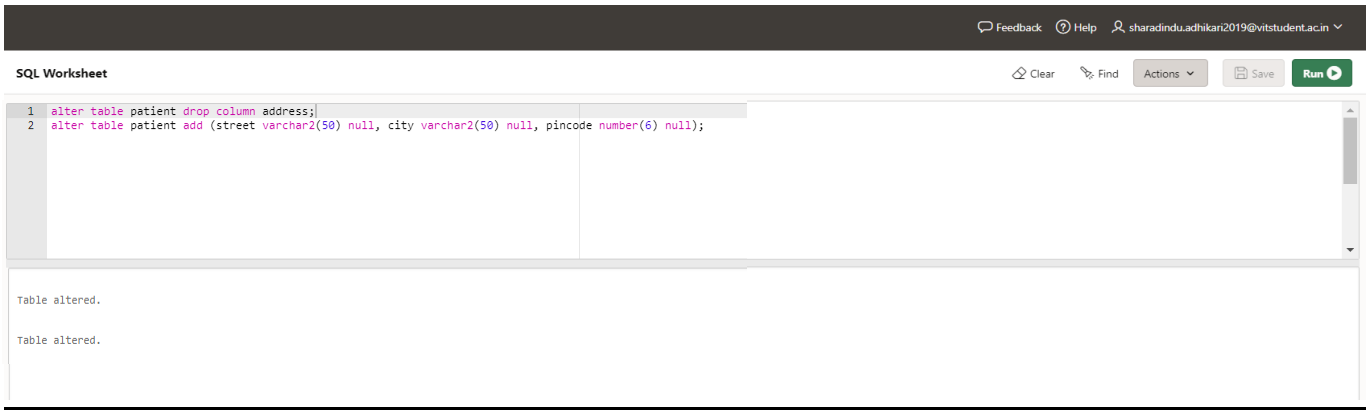
DDL Statements (ALTER, CONSTRAINT, etc.)

#1. Modify Hospital_Bill by adding an attribute consulting_physician and add foreign key constraint for that attribute. Use constraint name for foreign key constraint.

```
alter table hospital_bill
add consulting_physician char(5) check(consulting_physician like 'D%' and
length(consulting_physician) = 5);
alter table hospital_bill
add constraint FK_doctor
foreign key (consulting_physician) references doctor(doc_id);
```

#2. In Patient table, replace address with three attributes namely street, city and pincode.

```
alter table patient drop column address;
alter table patient add (street varchar2(50) null, city varchar2(50) null, pincode
number(6) null);
```



#3. Add an attribute Test_Time which can accept only two values "Before food" and "After food" with proper constraint name.

```
alter table patient
add test_time varchar2(30);
alter table patient
add constraint time_change check (test_time in ('before food', 'after food'));
```

#4. Remove the constraint only from test_time attribute.

```
alter table patient
drop constraint time_change;
```

#5. Drop address attribute from staff table and add attributes door_no, street, city, and pincode.

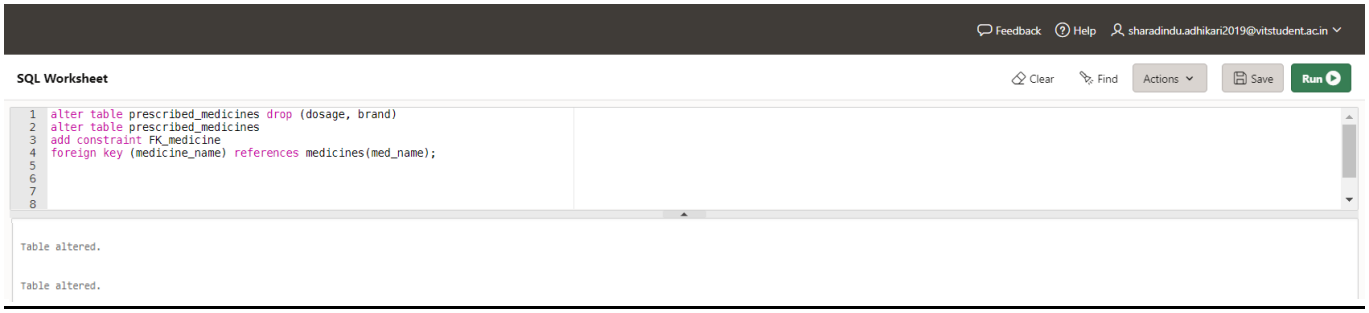
```
alter table staff
drop column address;
alter table staff add(door_no number(5), street varchar2(50), city varchar2(50),
pincode number(6));
```

#6. Create a table Medicines with schema medicines=(med_name, brand, dosage, manu_date, exp_date). Ensure that manu_date should not be later than exp_date. Create an appropriate constraint to ensure this.

```
create table medicines(
    med_name varchar2(50) not null,
    brand varchar2(20) not null,
    dosage varchar2(40) not null,
    manu_date date not null,
    exp_date date not null,
    constraint CHK check (manu_date < exp_date)
)
insert into medicines
with names as (
    select 'Aspirin', 'dabur', '3 times a day', '01NOV20', '14JAN22' from dual union
all
    select 'Combiflame', 'cipla', '2 times a day', '01NOV18', '01FEB20' from dual
union all
    select 'SHA256', 'sun pharma', '1 time a day', '01NOV17', '21JAN18' from dual
union all
    select 'SHA128', 'dr reddy lab', '2 times a day','01APR14', '11NOV14' from dual
union all
    select 'crocin', 'dr reddy lab', '3 times a day', '01APR15', '11MAR20' from dual
union all
    select 'SHA1', 'divi lab', '3 times a day', '01NOV18', '01AUG19' from dual
)
select * from names;
```

#7. Remove the attributes dosage and brand from Prescribed_Medicines and alter the medicine_name attribute as a foreign key referencing the new table Medicines.

```
alter table prescribed_medicines drop (dosage, brand)
alter table prescribed_medicines
add constraint FK_medicine
foreign key (medicine_name) references medicines(med_name);
```



#8. Create a view for doctors who are specialized in 'Cardiology' from Doctor table with attributes doc_id, doc_name and gender.

```
create view doctors_view as
select doc_id, doc_name, gender
from doctor
where specialist = 'Cardiology';
```

#9. Add an attribute No_of_staff in Department table and create a constraint with constraint name to make sure the number is >0.

```
alter table department
add no_of_staff number(5);
alter table department
add constraint cns_staff check (no_of_staff > 0);
```

#10. Add an attribute with In_Patient_prescription to store the Room_Type which can store the values "AC" and "Non-AC".

```
alter table in_patient_prescription
add room_type varchar2(30);
alter table in_patient_prescription
add constraint cks_room check (room_type in ('AC', 'NON-AC'));
```

PART B

SQL Queries with JOIN Operation

#1. Find the HOD of doctor 'Raghavan' (Hint: you need to join the tables DOCTOR and DEPARTMENT).

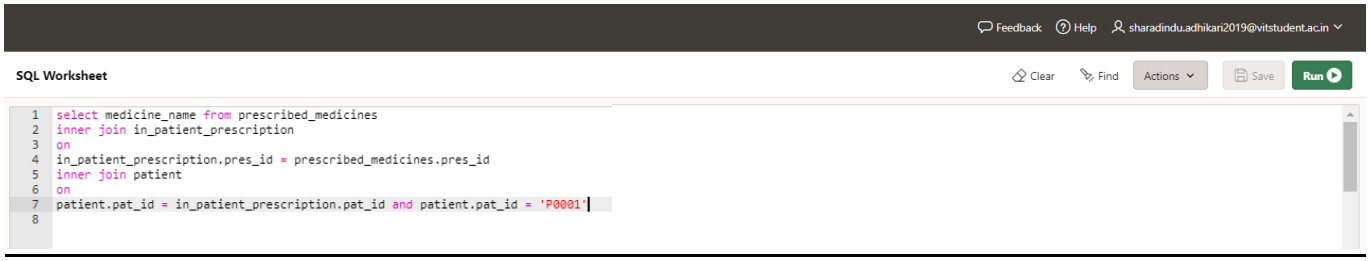
```
select hod,doc_name
from doctor,department
where doctor.dept_no=department.dept_no and doc_name='Raghavan';
```

#2. Find the list of all patients who were admitted in bed number '1010'.

```
select In_patient.pat_id,pat_name,bed_no
from patient,in_patient
where In_patient.pat_id=patient.pat_id and bed_no=1010;
```

#3. Display all the prescribed medicines of patient with Pat_ID 'P0001'.

```
select medicine_name from prescribed_medicines
inner join in_patient_prescription
on
in_patient_prescription.pres_id = prescribed_medicines.pres_id
inner join patient
on
patient.pat_id = in_patient_prescription.pat_id and patient.pat_id = 'P0001';
```

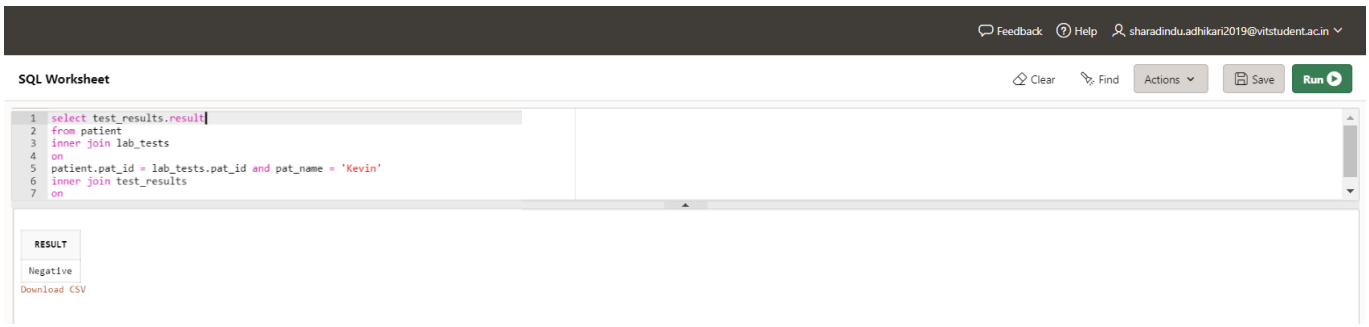


MEDICINE_NAME
crocin

Download CSV

#4. Display the test results of patient 'Kevin'.

```
select test_results.results
from patient
inner join lab_tests
on
patient.pat_id = lab_tests.pat_id and pat_name = 'Kevin'
inner join test_results
on
lab_tests.test_id = test_results.test_id;
```



#5. Display all bills of bill amount more than 10000 rupees and paid by the patient 'Mary'.

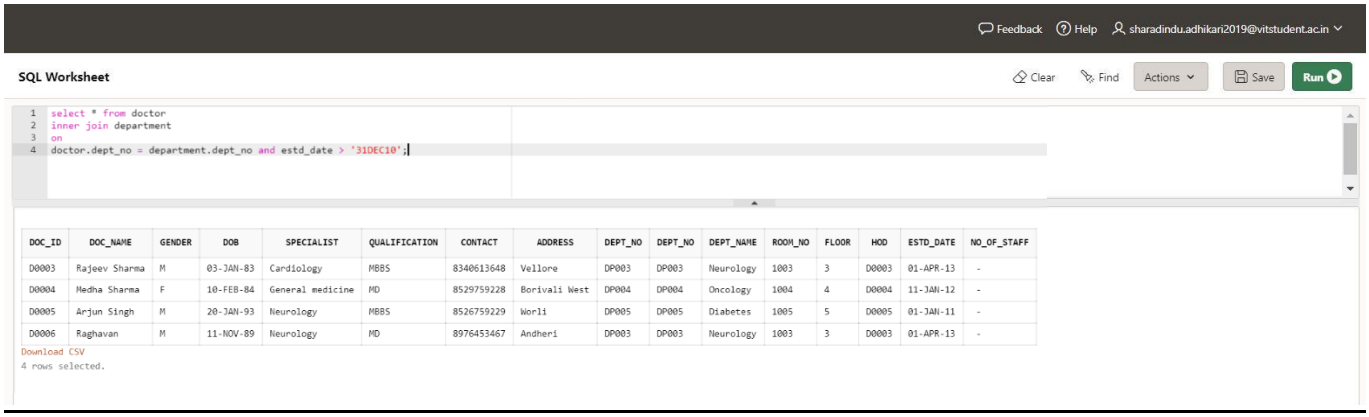
```
select * from hospital_bill
inner join patient
on
hospital_bill.pat_id = patient.pat_id and pat_name = 'Mary' and bill_amount > 10000;
```

#6. Find the category and address of the nurse who attended the patient with pat_no 'P0003'.

```
select staff_category, door_no, street, city, pincode from staff
inner join appointment
on
staff.staff_id = appointment.nurse_id and pat_id = 'P0003'
```

#7. Find the list of doctors who worked in the department which is started on or after '31-December-2010'.

```
select * from doctor
inner join department
on
doctor.dept_no = department.dept_no and estd_date > '31DEC10';
```

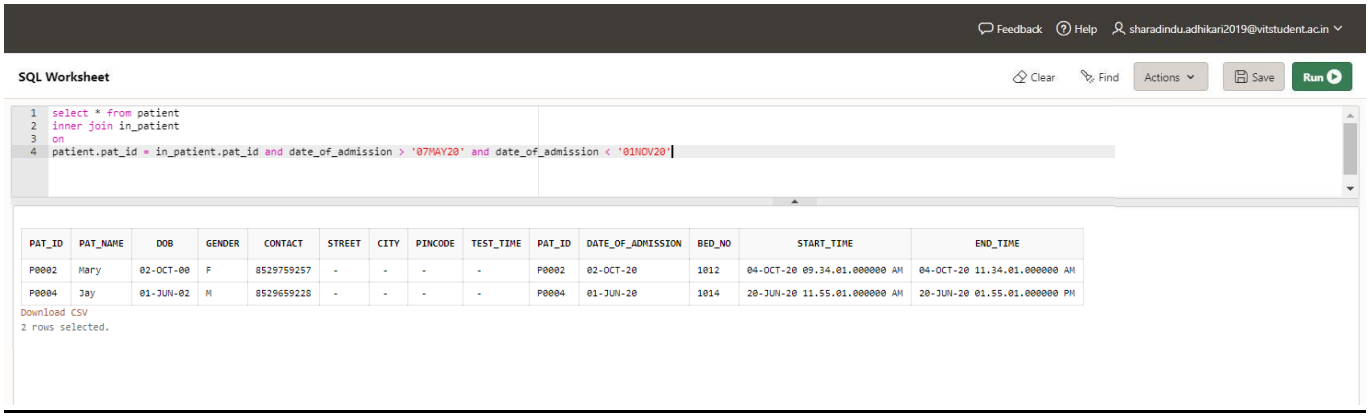


#8. Get the name of technicians who tests blood glucose level (urine test).

```
select staff_name from staff
inner join test_types
on
staff.staff_id = test_types.technician where Description='Urine test';
```

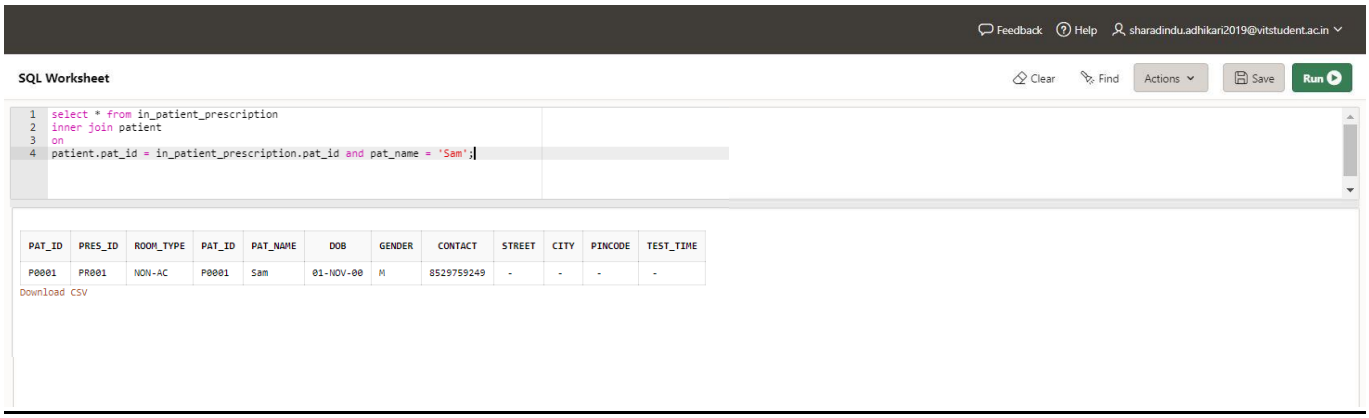
#9. Display the details of all patients who were hospitalized between '07-May-2020' and '01-Nov-2020'.

```
select * from patient
inner join in_patient
on
patient.pat_id = in_patient.pat_id and date_of_admission > '07MAY20' and
date_of_admission < '01NOV20';
```



#10. Display the in-patient prescription of the patient whose name is 'Sam'.

```
select * from in_patient_prescription
inner join patient
on
patient.pat_id = in_patient_prescription.pat_id and pat_name = 'Sam';
```



PART C

SQL Queries with AGGREGATE and CHAR functions

#1. Find the number of doctors who are working in the department 'DP001'.

```
select count(*) from doctor where dept_no = 'DP001';
```

#2. Count the number of male patients who are treated by the doctor with doctor id 'D0001'.

```
select count(*) from patient
inner join appointment
on
patient.pat_id = appointment.pat_id and patient.gender = 'M' and appointment.doc_id =
'D0001';
```

#3. Find the total bill paid by the patient 'Jay'.

```
select bill_amount from Hospital_bill
inner join Patient
on
patient.pat_id = Hospital_bill.pat_id and pat_name='Jay';
```

#4. Find the name and address of the patient who paid the highest bill of all patients.

```
select pat_name, street, city, pincode from patient
inner join hospital_bill
on
patient.pat_id = hospital_bill.pat_id
and
bill_amt = (select max(bill_amt) from hospital_bill);
```

#5. Get the specialization of doctors whose name start with the letter 'M'.

```
select specialist,doc_name from doctor where doc_name like 'M%';
```

#6. Find the all the patients details whose name is exactly 5 characters long.

```
select * from patient where length(pat_name)=5;
```

PAT_ID	PAT_NAME	DOB	GENDER	CONTACT	STREET	CITY	PINCODE	TEST_TIME
P0003	Kevin	03-APR-01	M	8340613668	-	-	-	-
P0005	Nancy	01-MAY-03	F	8526759234	-	-	-	-

Download CSV
2 rows selected.

#7. Display the department names in ascending order.

```
select Dept_name from department order by Dept_name;
```

DEPT_NAME
Cardiology
Diabetes
Intensive Care Unit
Neurology
Oncology

Download CSV
5 rows selected.

#8. Get the gender wise count of patients.

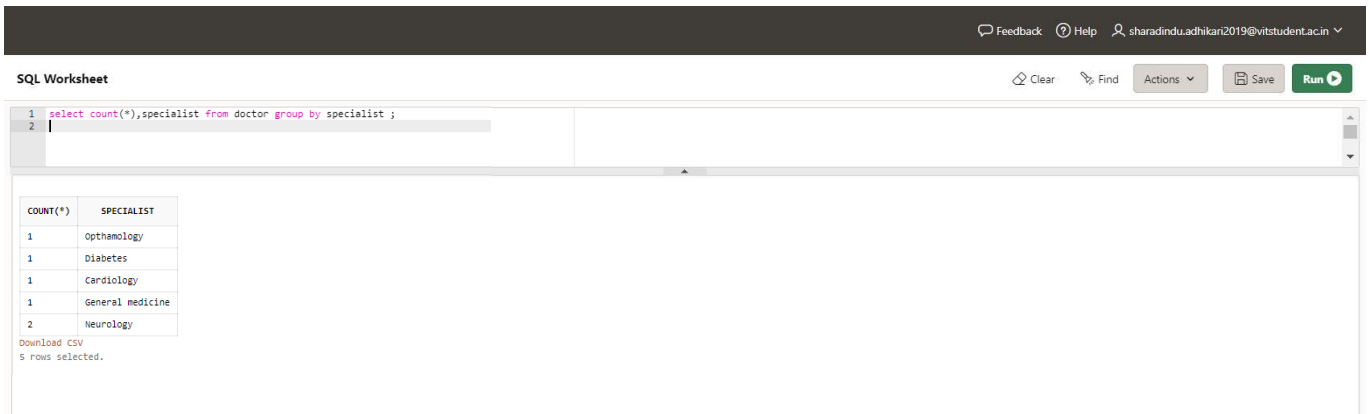
```
select count(*),gender from patient group by gender;
```

COUNT(*)	GENDER
3	M
2	F

Download CSV
2 rows selected.

#9. Get the count of doctors for each specialization.

```
select count(*),specialist from doctor group by specialist;
```



COUNT(*)	SPECIALIST
1	Opthamology
1	Diabetes
1	Cardiology
1	General medicine
2	Neurology

Download CSV
5 rows selected.

#10. Get the total number tests conducted in any particular date.

```
select count(*),date_ from Lab_tests group by date_ ;
```

PART D

SQL Queries – Nested Subqueries

#1. All of the queries in "SQL queries with JOIN operation" section can be tried with subqueries concept.

#1.1. Find the HOD of doctor 'Raghavan'.

```
select doc_name from doctor
where
doc_id = (select hod from department where dept_no = (select dept_no from doctor
where doc_name = 'Raghavan'));
```

#1.2. Find the list of all patients who were admitted in bed number '1011'.

```
select * from patient
where
pat_id in(select pat_id from in_patient where Bed_no=1010)
```

#1.3. Display all the prescribed medicines of patient with Pat_ID 'P0001'.

```
select * from prescribed_medicines
where
pres_id = (select pres_id from in_patient_prescription where pat_id = 'P0001');
```

PRES_ID	MEDICINE_NAME
PR001	crocin

Download CSV

#1.4. Display the test results of patient 'Kevin'.

```
select result from test_results
where
test_id = (select test_id from lab_tests where pat_id = (select pat_id from patient
where pat_name = 'Kevin'));
```

#1.5. Display all bills of bill amount more than 10000 rupees and paid by the patient 'Mary'.

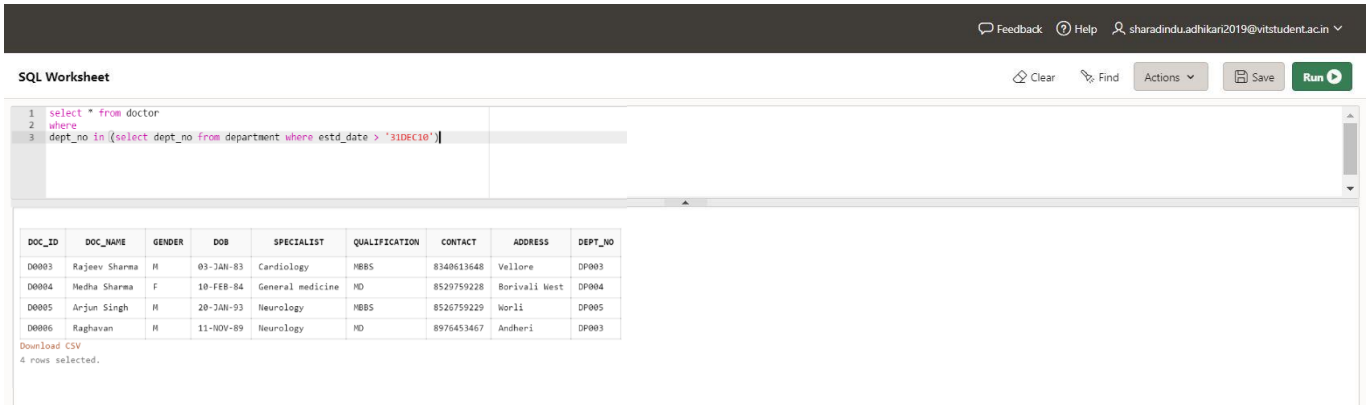
```
select * from hospital_bill
where
bill_amt > 10000 and pat_id = (select pat_id from patient where pat_name = 'Mary')
```

#1.6. Find the category and address of the nurse who attended the patient with pat_no 'P0002'.

```
select staff_category, door_no, street, city, pincode from staff
where
staff_id = (select nurse_id from appointment where pat_id = 'P0002');
```

#1.7. Find the list of doctors who worked in the department which is started on or after '31-December-2010'.

```
select * from doctor
where
dept_no in (select dept_no from department where estd_date > '31DEC10')
```



DOC_ID	DOC_NAME	GENDER	DOB	SPECIALIST	QUALIFICATION	CONTACT	ADDRESS	DEPT_NO
D0003	Rajeev Sharma	M	03-JAN-83	Cardiology	MBBS	8340613648	Vellore	DP003
D0004	Medha Sharma	F	10-FEB-84	General medicine	MD	8529759228	Borivali West	DP004
D0005	Arjun Singh	M	20-JAN-93	Neurology	MBBS	8526759229	Worli	DP005
D0006	Raghavan	M	11-NOV-89	Neurology	MD	8976453467	Andheri	DP003

Download CSV
4 rows selected.

#1.8. Get the name of technicians who tests blood glucose level (urine test).

```
select staff_name from staff
where
staff_id in (select technician from test_types where description = 'Urine test')
```

STAFF_NAME
Joe

Download CSV

#1.9. Display the details of all patients who were hospitalized between '07-May-2020' and '01-Nov-2020'.

```
select * from patient
where
pat_id in (select pat_id from in_patient where date_of_admission > '07MAY20' and
date_of_admission < '01NOV20')
```

PAT_ID	PAT_NAME	DOB	GENDER	CONTACT	STREET	CITY	PINCODE	TEST_TIME
P0002	Mary	02-OCT-00	F	8529759257	Marine Drive	Mumbai	645342	-
P0004	Jay	01-JUN-02	M	8529659228	-	-	-	-

Download CSV
2 rows selected.

#1.10. Display the in-patient prescription of the patient whose name is 'Sam'.

```
select * from in_patient_prescription
where
pat_id=(select pat_id from patient where pat_name='Sam'
```

#2. Display the list of doctors who are working in the department with more number of doctors using sub-query and IN operator.

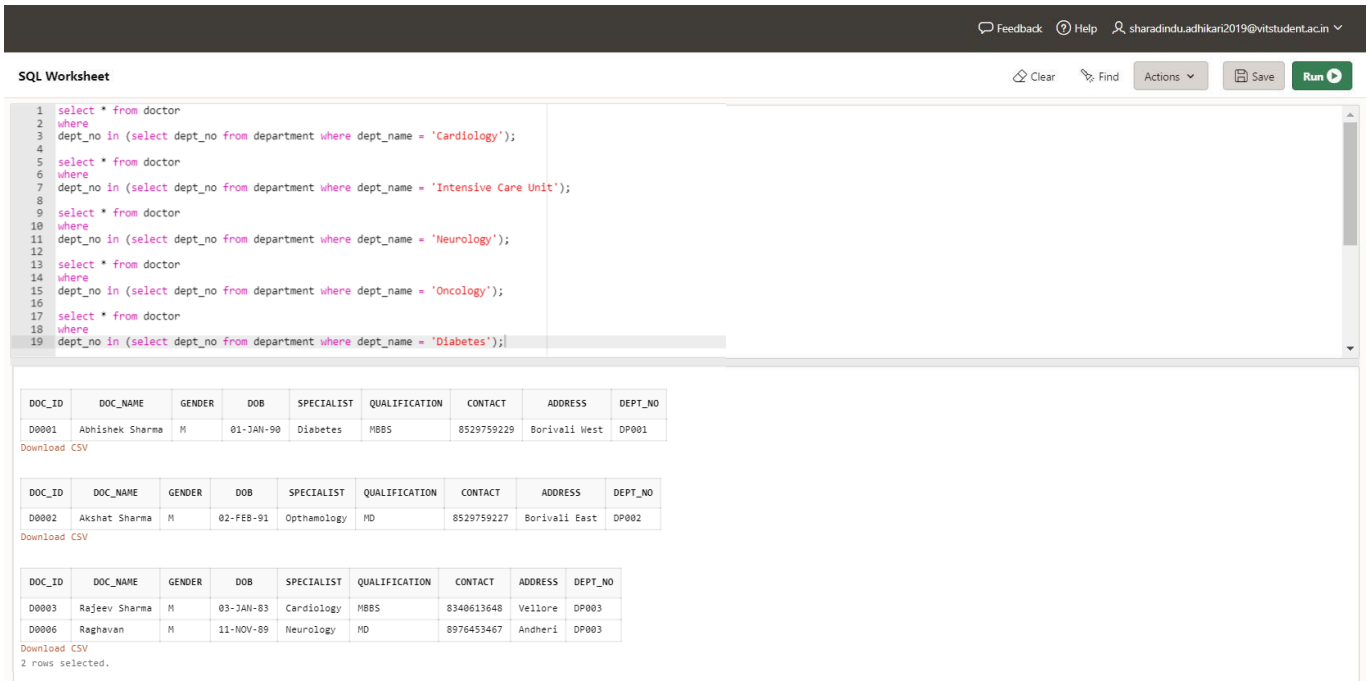
```
select * from doctor
where
dept_no in (select dept_no from department where dept_name = 'Cardiology');

select * from doctor
where
dept_no in (select dept_no from department where dept_name = 'Intensive Care Unit');

select * from doctor
where
dept_no in (select dept_no from department where dept_name = 'Neurology');

select * from doctor
where
dept_no in (select dept_no from department where dept_name = 'Oncology');

select * from doctor
where
dept_no in (select dept_no from department where dept_name = 'Diabetes');
```



DOC_ID	DOC_NAME	GENDER	DOB	SPECIALIST	QUALIFICATION	CONTACT	ADDRESS	DEPT_NO
D0004	Medha Sharma	F	10-FEB-84	General medicine	MD	8529759228	Borivali West	DP004

Download CSV

DOC_ID	DOC_NAME	GENDER	DOB	SPECIALIST	QUALIFICATION	CONTACT	ADDRESS	DEPT_NO
D0005	Arjun Singh	M	20-JAN-93	Neurology	MBBS	8526759229	Worli	DP005

Download CSV

#3. Find the name and id of all patients who are older than all the doctors in the entire 'cardiology' department. Use subqueries and ALL operator.

```
insert into patient(pat_id, pat_name, dob, gender, contact, street, city, pincode)
values ('P0006', 'Julian', '21MAY80', 'M', 8523259234, 'Nariman Point', 'Mumbai',
'763552');
select pat_id, pat_name, dob from patient
where
dob < all ( select dob from doctor where specialist = 'Cardiology' )
```

#4. Find the prescription ids of all prescription that included a medicine from the brand 'Dr. Reddy Lab' using nested subqueries.

```
select pres_id from prescribed_medicines
where
medicine_name in (select med_name from medicines where med_brand = 'dr reddy lab')
```

#5. Find the list of patients who paid their bill through either 'credit card' or 'debit card' using subquery.

```
select * from patient
where
pat_id in (select pat_id from hospital_bill where payment_type = 'credit card' or
payment_type = 'debit card')
```

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SQL Worksheet

Clear Find Actions Save Run

```
1  select * from patient
2  where
3  pat_id in (select pat_id from hospital_bill where payment_type = 'credit card' or payment_type = 'debit card')
```

PAT_ID	PAT_NAME	DOB	GENDER	CONTACT	STREET	CITY	PINCODE	TEST_TIME
P0002	Mary	02-OCT-00	F	8529759257	Marine Drive	Mumbai	645342	-
P0003	Kevin	03-APR-01	M	8340613668	-	-	-	-
P0005	Nancy	01-MAY-03	F	8526759234	-	-	-	-

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3 rows selected.

SCHEMA:

Live SQL

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Schema

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Schema: My Schema

Sort By: Name

Options: Primary Objects / Primary and Subordinate

Reset Search

APPOINTMENT Table Status: Valid Created 2 minutes ago	DEPARTMENT Table Status: Valid Created 3 minutes ago	DOCTOR Table Status: Valid Created 3 minutes ago
DOCTORS_VIEW View Status: Valid Created 98 seconds ago	HOSPITAL_BILL Table Status: Valid Created 2 minutes ago	IN_PATIENT Table Status: Valid Created 3 minutes ago
IN_PATIENT_PRESCRIPTION Table Status: Valid Created 2 minutes ago	LAB_TESTS Table Status: Valid Created 2 minutes ago	MEDICINES Table Status: Valid Created 101 seconds ago
PATIENT Table Status: Valid Created 2 minutes ago	PRESCRIBED_MEDICINES Table Status: Valid Created 2 minutes ago	PRESCRIPTION Table Status: Valid Created 2 minutes ago
STAFF Table Status: Valid Created 3 minutes ago	TEST_RESULTS Table Status: Valid Created 2 minutes ago	TEST_TYPES Table Status: Valid Created 2 minutes ago

PART E

SQL Queries using other functions

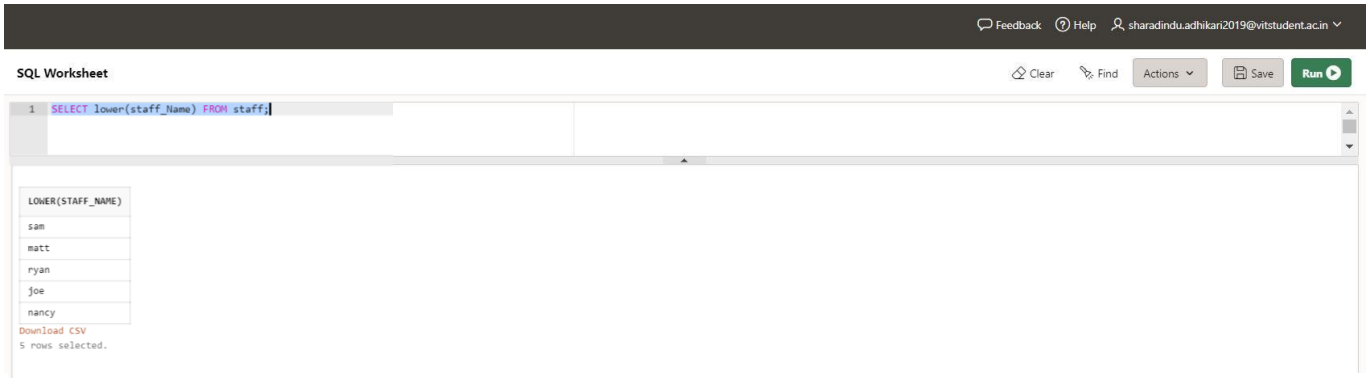
#1. DATE functions:

```
select add_months(date_of_admission, 2) from in_patient where pat_id = 'P0003';
```

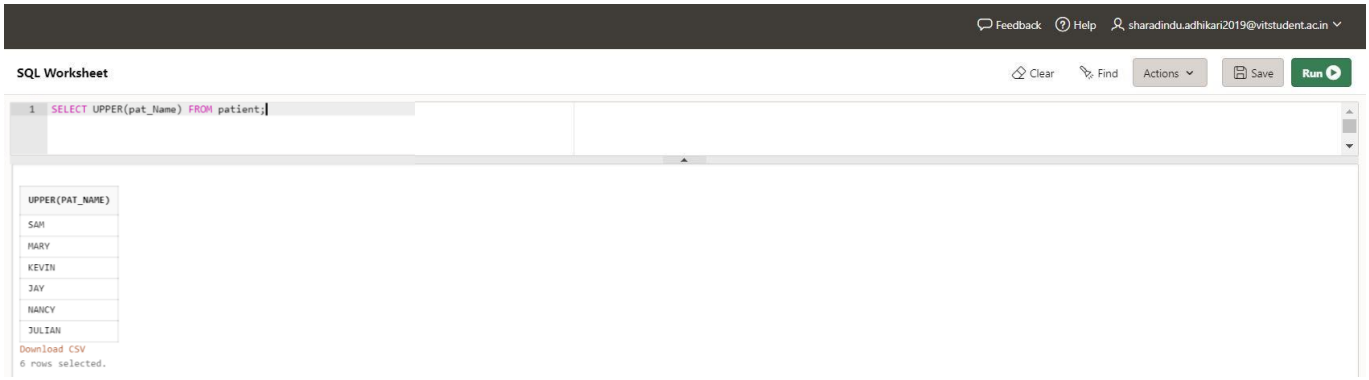

```
select next_day(date_of_admission, 2) from in_patient where pat_id = 'P0003';
```

#2. CHAR functions:

```
SELECT lower(staff_Name) FROM staff;
```

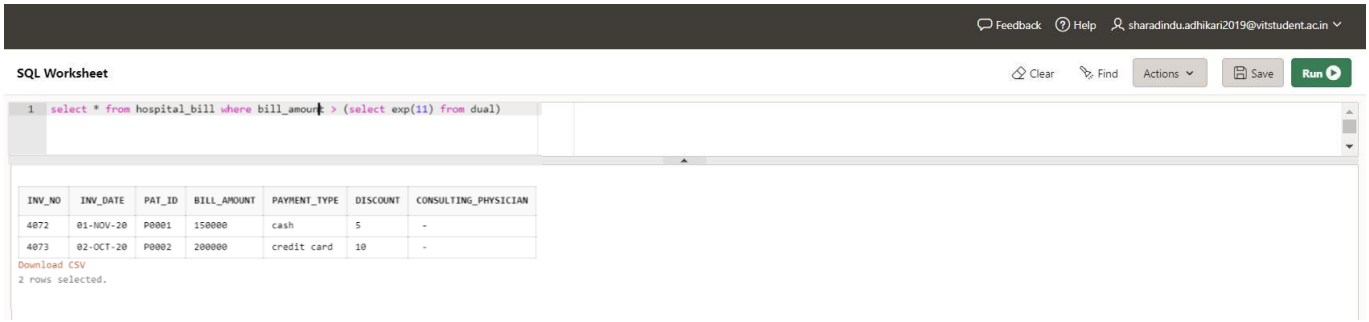


```
SELECT UPPER(pat_Name) FROM patient;
```



#3. NUMERIC functions:

```
select * from hospital_bill where bill_amt > (select exp(11) from dual)
```




```
select sqrt(bill_amt) from hospital_bill;
```

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END