Railway Management System

By Group 22:

202012085	GOR YASH ARAVINDKUMAR
202012086	SHIVAM GUPTA
202012087	BHAVSAR AAKASH DEEPAKKUMAR
202012088	BHAVIKA TAHILIANI
202018043	DARSHAN JAIN
202018044	CHAUDHARY MEET VASANTLAL

FUNCTIONAL REQUIREMENTS:

DOCUMENT LINK

ENTITY RELATIONSHIP DIAGRAM:

DOCUMENT LINK

RELATIONAL MODEL:

DOCUMENT LINK

SQL DDL MODEL:

DOCUMENT LINK

SQL DML MODEL:

DOCUMENT LINK

FUNCTIONAL REQUIREMENT - 1:

FR - 1

Query to retrieve train id that will transport parcel from source AHMEDABAD to destination GANDHINAGAR

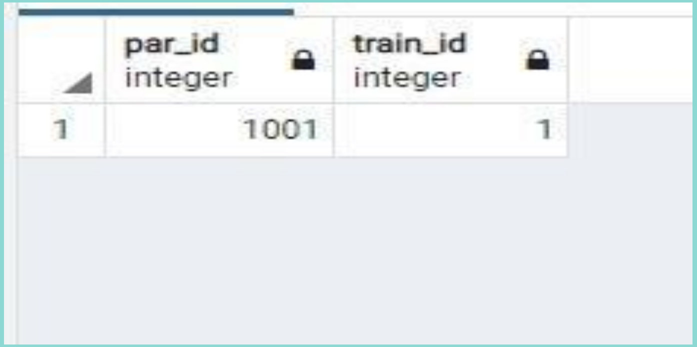
SQL query:

```
select pa.par_id, tr.train_id from parcel pa INNER JOIN station s ON s.sid = pa.sid
INNER JOIN train tr ON s.train_id = tr.train_id WHERE pa.source_t='Ahmedabad'
and pa.destination_t='Gandhinagar' AND tr.t_source='Ahmedabad' AND
tr.t_destination='Gandhinagar';
```

FUNCTIONAL REQUIREMENT - 1:

FR - 1

OUTPUT-



	par_id integer	train_id integer
1	1001	1

FUNCTIONAL REQUIREMENT - 2:

FR - 2

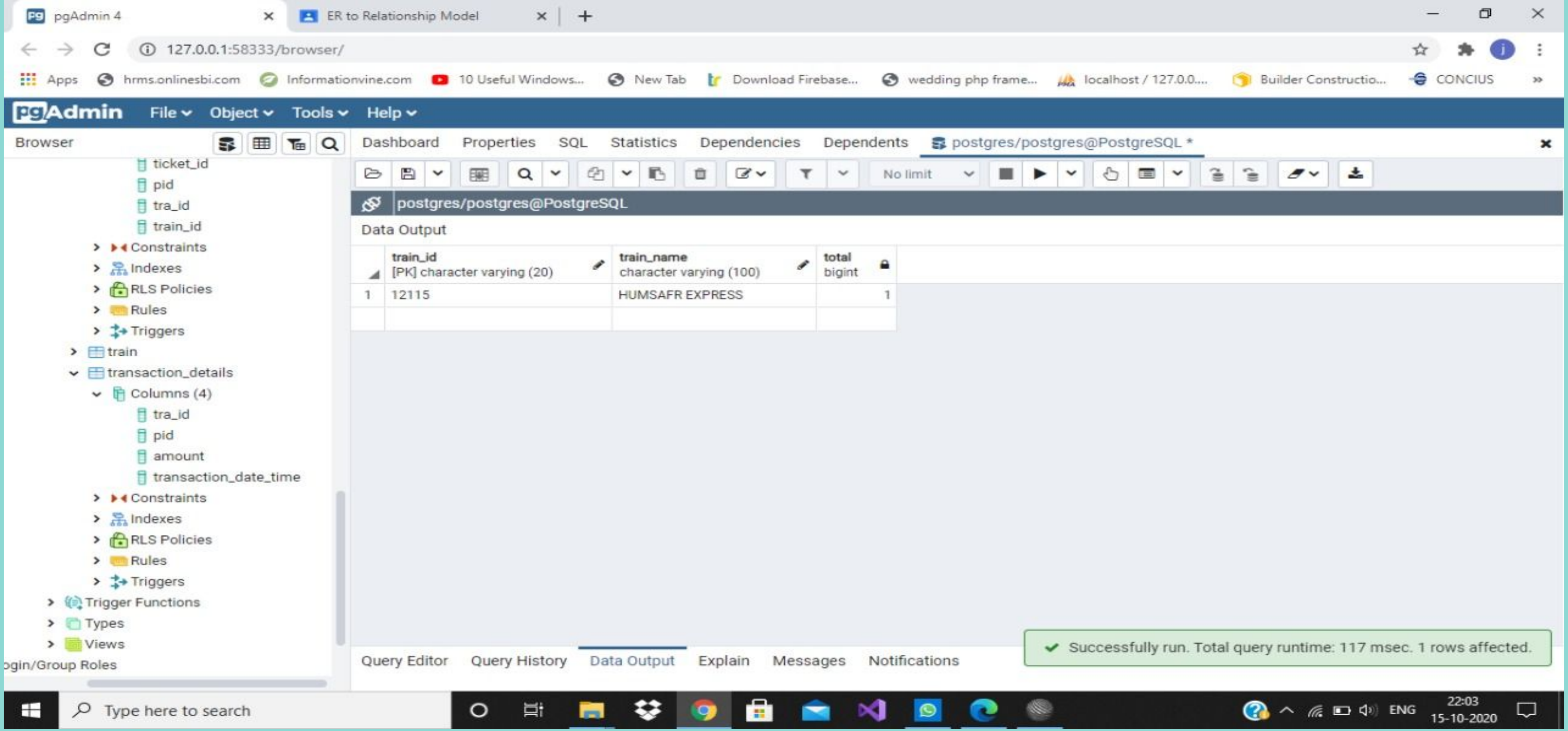
Count the number of tickets of train id 12115 and display the name of the train.

SQL QUERY:

```
select tr.train_id, tr.train_name, (Select COUNT(tc.ticket_id) from ticket tc where
tc.train_id = tr.train_id)
as Total from train tr where tr.train_id = '12115';
```

FUNCTIONAL REQUIREMENT - 2:

FR - 2 OUTPUT



postgres/postgres@PostgreSQL

Data Output

	train_id [PK] character varying (20)	train_name character varying (100)	total bigint
1	12115	HUMSAFR EXPRESS	1

✓ Successfully run. Total query runtime: 117 msec. 1 rows affected.

FUNCTIONAL REQUIREMENT - 3:

FR - 3

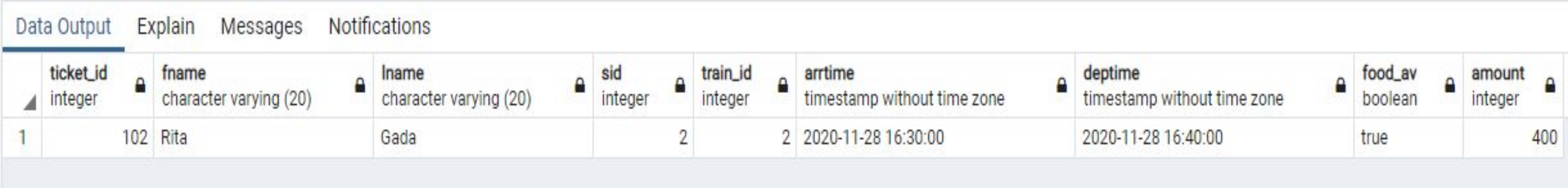
Retrieve passenger name and ticket details of passenger with the help of transaction details table and train table and arrival and departure time of train.

SQL QUERY:

```
select tc.ticket_id,pa.fname, pa.lname, pa.sid, tc.train_id, ad.arrtime, ad.deptime,
st.food_av,tran.amount from passenger pa JOIN ticket tc ON pa.pid = tc.pid  JOIN
station st ON st.sid = pa.sid JOIN arr_dept ad ON st.sid = ad.sid JOIN train tr ON
tr.train_id = ad.train_id JOIN transaction_details tran ON tran.tra_id = tc.tra_id
WHERE pa.pid = 2;
```

FUNCTIONAL REQUIREMENT - 3:

FR - 3 OUTPUT



	ticket_id	fname	lname	sid	train_id	arrtime	deptime	food_av	amount
	integer	character varying (20)	character varying (20)	integer	integer	timestamp without time zone	timestamp without time zone	boolean	integer
1	102	Rita	Gada	2	2	2020-11-28 16:30:00	2020-11-28 16:40:00	true	400

FUNCTIONAL REQUIREMENT - 4:

FR - 4

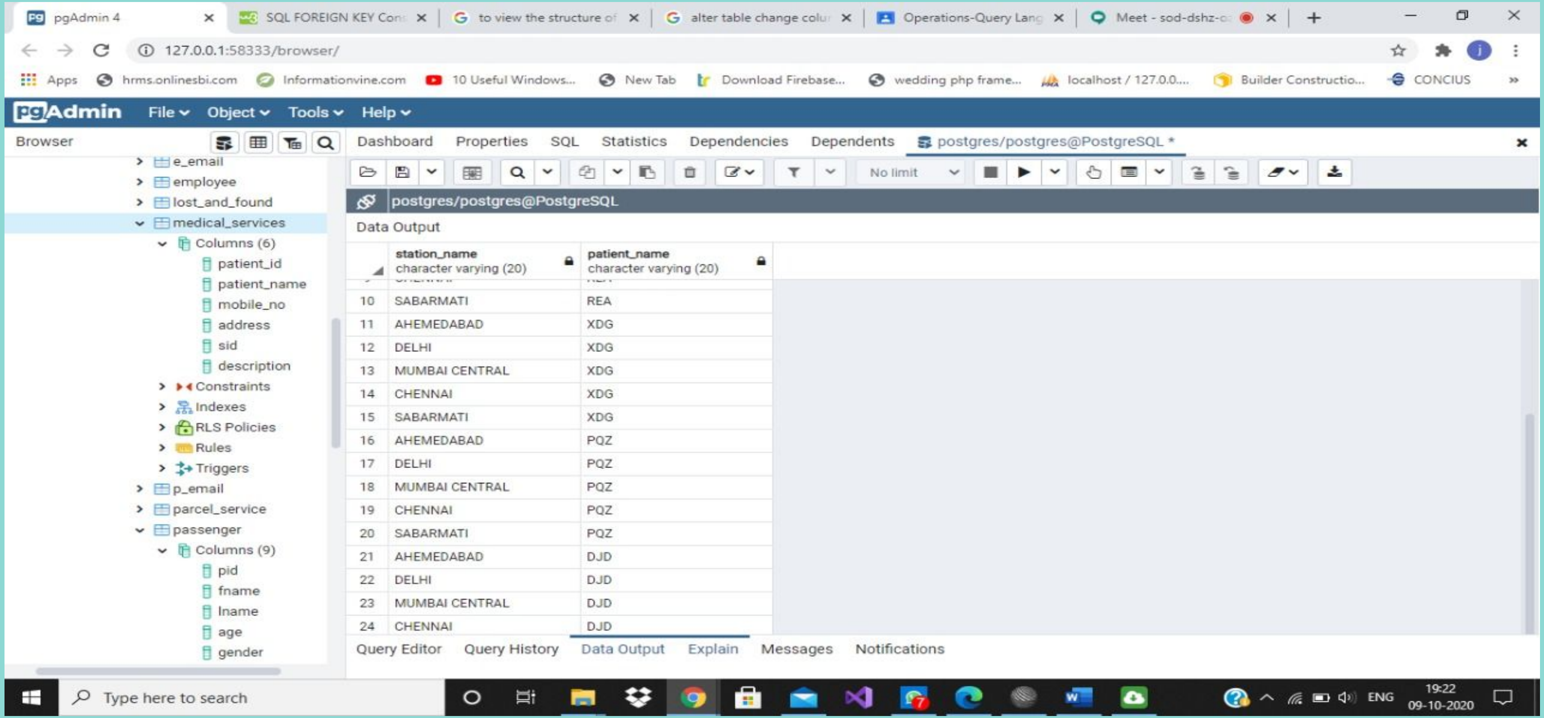
Retrieve all the station names where patients are suffering from covid 19.

SQL Query:

```
select station.station_name,medical_services.patient_name from
station,medical_services INNER JOIN station s on s.sid = medical_services.sid
where medical_services.description like '%COVID%';
```

FUNCTIONAL REQUIREMENT - 4:

FR - 4 OUTPUT



	station_name character varying (20)	patient_name character varying (20)
10	SABARMATI	REA
11	AHEMEDABAD	XDG
12	DELHI	XDG
13	MUMBAI CENTRAL	XDG
14	CHENNAI	XDG
15	SABARMATI	XDG
16	AHEMEDABAD	PQZ
17	DELHI	PQZ
18	MUMBAI CENTRAL	PQZ
19	CHENNAI	PQZ
20	SABARMATI	PQZ
21	AHEMEDABAD	DJD
22	DELHI	DJD
23	MUMBAI CENTRAL	DJD
24	CHENNAI	DJD

FUNCTIONAL REQUIREMENT - 5:

FR - 5

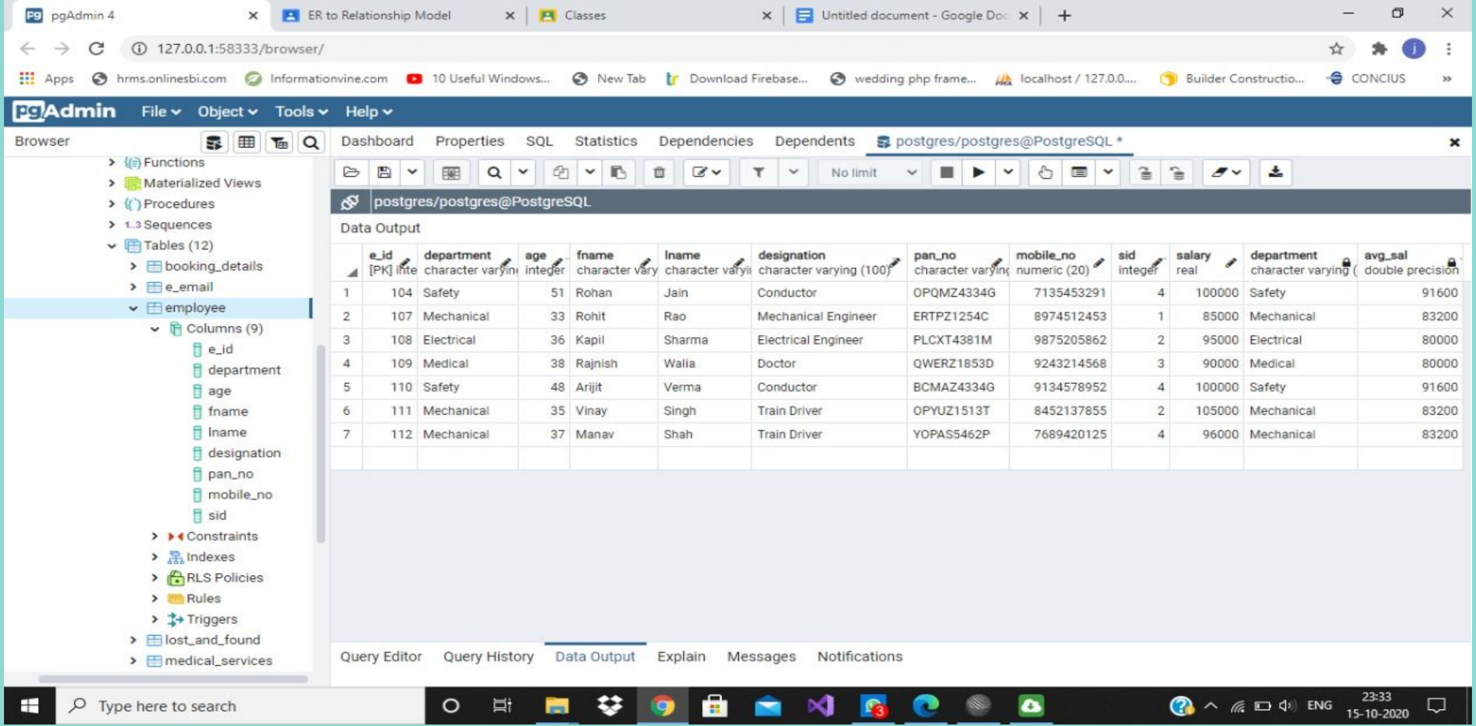
Find out employees of departments who draw more salary then average salary of all employees of that department.

SQL Query:

```
SELECT * FROM employee AS e JOIN ( SELECT department, AVG(salary) AS
avg_sal FROM employee GROUP BY department ORDER BY department
) AS department_avg_sal
ON (e.department = department_avg_sal.department)
WHERE e.salary > department_avg_sal.avg_sal;
```

FUNCTIONAL REQUIREMENT - 5:

FR - 5 OUTPUT



postgres/postgres@PostgreSQL

Data Output

	e_id [PK] inte	department character varyin	age integer	fname character vary	lname character varyi	designation character varying (100)	pan_no character varying	mobile_no numeric (20)	sid integer	salary real	department character varying (	avg_sal double precision
1	104	Safety	51	Rohan	Jain	Conductor	OPQMZ4334G	7135453291	4	100000	Safety	91600
2	107	Mechanical	33	Rohit	Rao	Mechanical Engineer	ERTPZ1254C	8974512453	1	85000	Mechanical	83200
3	108	Electrical	36	Kapil	Sharma	Electrical Engineer	PLCXT4381M	9875205862	2	95000	Electrical	80000
4	109	Medical	38	Rajnish	Walia	Doctor	QWERZ1853D	9243214568	3	90000	Medical	80000
5	110	Safety	48	Arijit	Verma	Conductor	BCMAZ4334G	9134578952	4	100000	Safety	91600
6	111	Mechanical	35	Vinay	Singh	Train Driver	OPYUZ1513T	8452137855	2	105000	Mechanical	83200
7	112	Mechanical	37	Manav	Shah	Train Driver	YOPAS5462P	7689420125	4	96000	Mechanical	83200

CONCLUSION:

- In our project Railway management system we have stored all the information about the Trains scheduled and the users booking tickets.
- This database is helpful for the applications which facilitate passengers to book the train tickets and check the details of trains like seat availability, scheduled time and location.
- Even we have the records of station availability details like food, waiting room.
- Services provides by station are also stored such as parcel , medical and lost and found services.
- We have also covered the employees working at railway their departments and designations.
- It avoids inconvenience of going to railway station for each and every query they get, We had considered the most important requirements only.

THANK YOU