

Lab exercise - 2

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Consider the tables given below:

DOCTOR		
DID	INT	Primary key
DNAME	VARCHAR(25)	
SPECIALIZATION	VARCHAR(20)	Default 'general'
AADHAR_NO	VARCHAR(12)	unique
CONSULTATION_FEE	NUMERIC(5,2)	Constraint C1 Check (Consultation_fee > 50)
CITY	VARCHAR(20)	

```
1 • ○ CREATE TABLE DOCTOR (
2     DID INT PRIMARY KEY,
3     DNAME VARCHAR(25),
4     SPECIALIZATION VARCHAR(20) DEFAULT 'general',
5     AADHAR_NO VARCHAR(12) UNIQUE,
6     CONSULTATION_FEE NUMERIC(5,2),
7     CITY VARCHAR(20),
8     CONSTRAINT C1 CHECK (CONSULTATION_FEE > 50)
9 );
10
11 • select * from DOCTOR
```

0%

21:11

Result Grid

Filter Rows:

Search

Edit:

Export/

DID	DNAME	SPECIALIZATION	AADHAR_NO	CONSULTATION_FEE	CITY
NULL	NULL	NULL	NULL	NULL	NULL

TREATMENT		
DID	INT	references doctor (DID) on delete cascade
PID	INT	references patient (PID) on delete set null
DIAGNOSIS	VARCHAR(30)	Not null
TREAT_ID	INT	
TREAT_DATE	DATE	

```

13 • CREATE TABLE TREATMENT (
14     DID INT,
15     PID INT,
16     DIAGNOSIS VARCHAR(30) NOT NULL,
17     TREAT_ID INT,
18     TREAT_DATE DATE,
19     CONSTRAINT fk_doctor FOREIGN KEY (DID) REFERENCES DOCTOR (DID) ON DELETE CASCADE,
20     CONSTRAINT fk_patient FOREIGN KEY (PID) REFERENCES PATIENT (PID) ON DELETE SET NULL
21 );
22 • select * from TREATMENT|

```

00% 24:22

Result Grid Filter Rows: Search Export:

DID	PID	DIAGNOSIS	TREAT_ID	TREAT_DATE
-----	-----	-----------	----------	------------

PATIENT		
PID	INT	Primary key
PNAME	VARCHAR(25)	
DATE_OF_BIRTH	DATE	
ADDRESS	VARCHAR(20)	

```

24 • CREATE TABLE PATIENT (
25     PID INT PRIMARY KEY,
26     PNAME VARCHAR(25),
27     DATE_OF_BIRTH DATE,
28     ADDRESS VARCHAR(20)
29 );
30 • select * from PATIENT|

```

00% 22:30

Result Grid Filter Rows: Search

PID	PNAME	DATE_OF_BIRTH	ADDRESS
NULL	NULL	NULL	NULL

a. Create the tables as per the instructions given and insert suitable data.

```
-- Insert data into DOCTOR table
INSERT INTO DOCTOR (DID, DNAME, SPECIALIZATION, AADHAR_NO, CONSULTATION_FEE, CITY)
VALUES
(1, 'Dr. Smith', 'Cardiology', '123456789012', 100.00, 'New York'),
(2, 'Dr. Johnson', 'Neurology', '234567890123', 120.00, 'Los Angeles'),
(3, 'Dr. Lee', 'Orthopedics', '345678901234', 90.00, 'Chicago');

-- Insert data into PATIENT table
INSERT INTO PATIENT (PID, PNAME, DATE_OF_BIRTH, ADDRESS)
VALUES
(101, 'John Doe', '1990-05-15', '123 Main St'),
(102, 'Jane Smith', '1985-08-20', '456 Oak St'),
(103, 'Alice Johnson', '1978-12-10', '789 Elm St');

-- Insert data into TREATMENT table
INSERT INTO TREATMENT (DID, PID, DIAGNOSIS, TREAT_ID, TREAT_DATE)
VALUES
(1, 101, 'Hypertension', 1, '2023-01-10'),
(2, 102, 'Migraine', 2, '2023-02-20'),
(3, 103, 'Fractured leg', 3, '2023-03-30');
```

DID	DNAME	SPECIALIZATION	AADHAR_NO	CONSULTATION_FEE	CITY
1	Dr. Smith	Cardiology	123456789012	100.00	New York
2	Dr. Johnson	Neurology	234567890123	120.00	Los Angeles
3	Dr. Lee	Orthopedics	345678901234	90.00	Chicago
NULL	NULL	NULL	NULL	NULL	NULL

PID	PNAME	DATE_OF_BIRTH	ADDRESS
101	John Doe	1990-05-15	123 Main St
102	Jane Smith	1985-08-20	456 Oak St
103	Alice Johnson	1978-12-10	789 Elm St
NULL	NULL	NULL	NULL

DID	PID	DIAGNOSIS	TREAT_ID	TREAT_DATE
1	101	Hypertension	1	2023-01-10
2	102	Migraine	2	2023-02-20
3	103	Fractured leg	3	2023-03-30

DOCTOR 4PATIENT 5TREATMENT 6

DOCTOR 4PATIENT 5TREATMENT 6

9910:03:07INSERT INTO DOCTOR (DID, DNAME, SPECIALIZATION, AADHAR_NO, CONSULTATI...3 row(s) affectedRecords: 3 Duplicates: 0 Warnings...0.016 sec

10010:03:07INSERT INTO PATIENT (PID, PNAME, DATE_OF_BIRTH, ADDRESS) VALUES (101, J...3 row(s) affectedRecords: 3 Duplicates: 0 Warnings...0.0025 sec

10110:03:07INSERT INTO TREATMENT (DID, PID, DIAGNOSIS, TREAT_ID, TREAT_DATE) VALUE...3 row(s) affectedRecords: 3 Duplicates: 0 Warnings...0.0016 sec

b. Add a column called SPECIAL_FEE with datatype NUMERIC(5,2) to DOCTOR table

```
58 • ALTER TABLE DOCTOR ADD COLUMN SPECIAL_FEE NUMERIC(5,2);
59 • select * from DOCTOR;
```

100% 22:59

Result Grid Filter Rows: Search Edit: Export/Import:

DID	DNAME	SPECIALIZATION	AADHAR_NO	CONSULTATION_FEE	CITY	SPECIAL_FEE
1	Dr. Smith	Cardiology	123456789012	100.00	New York	NULL
2	Dr. Johnson	Neurology	234567890123	120.00	Los Angeles	NULL
3	Dr. Lee	Orthopedics	345678901234	90.00	Chicago	NULL
NULL	NULL	NULL	NULL	NULL	NULL	NULL

c. Add a check constraint to show that SPECIAL_FEE > CONSULTATION_FEE

```
61 • ALTER TABLE DOCTOR ADD CONSTRAINT C2 CHECK (SPECIAL_FEE > CONSULTATION_FEE);  
62 • select * from DOCTOR;
```

100% 25:59

Result Grid Filter Rows: Search Edit: Export/Import:

DID	DNAME	SPECIALIZATION	AADHAR_NO	CONSULTATION_FEE	CITY	SPECIAL_FEE
1	Dr. Smith	Cardiology	123456789012	100.00	New York	NULL
2	Dr. Johnson	Neurology	234567890123	120.00	Los Angeles	NULL
3	Dr. Lee	Orthopedics	345678901234	90.00	Chicago	NULL
NULL	NULL	NULL	NULL	NULL	NULL	NULL

d. Using alter command, Drop the constraint C1.

```
64 • ALTER TABLE DOCTOR DROP CONSTRAINT C1;  
65 • select * from DOCTOR;
```

00% 22:65

Result Grid Filter Rows: Search Edit: Export/Import:

DID	DNAME	SPECIALIZATION	AADHAR_NO	CONSULTATION_FEE	CITY	SPECIAL_FEE
1	Dr. Smith	Cardiology	123456789012	100.00	New York	NULL
2	Dr. Johnson	Neurology	234567890123	120.00	Los Angeles	NULL
3	Dr. Lee	Orthopedics	345678901234	90.00	Chicago	NULL
NULL	NULL	NULL	NULL	NULL	NULL	NULL

e. Add a column AADHAR_NUMBER to patient table with UNIQUE constraint.

```
67 • ALTER TABLE PATIENT ADD COLUMN AADHAR_NUMBER VARCHAR(12) UNIQUE;  
68 • select * from DOCTOR;
```

100% 22:68

Result Grid Filter Rows: Search Edit: Export/Import:

DID	DNAME	SPECIALIZATION	AADHAR_NO	CONSULTATION_FEE	CITY	SPECIAL_FEE
1	Dr. Smith	Cardiology	123456789012	100.00	New York	NULL
2	Dr. Johnson	Neurology	234567890123	120.00	Los Angeles	NULL
3	Dr. Lee	Orthopedics	345678901234	90.00	Chicago	NULL
NULL	NULL	NULL	NULL	NULL	NULL	NULL

f. Add NOT NULL constraint to the DATE_OF_BIRTH column of PATIENT table.

```

70 • ALTER TABLE PATIENT MODIFY COLUMN DATE_OF_BIRTH DATE NOT NULL;
71 • SELECT * FROM PATIENT;
72

```

100% 1:72

Result Grid Filter Rows: Search Edit: Export/Import:

PID	PNAME	DATE_OF_BIRTH	ADDRESS	AADHAR_NUMBER
101	John Doe	1990-05-15	123 Main St	NULL
102	Jane Smith	1985-08-20	456 Oak St	NULL
103	Alice Johnson	1978-12-10	789 Elm St	NULL
NULL	NULL	NULL	NULL	NULL

g. Add constraint CON1 UNIQUE(TREAT_ID, TREAT_DATE) in table TREATMENT

```

73 • ALTER TABLE TREATMENT ADD CONSTRAINT CON1 UNIQUE(TREAT_ID, TREAT_DATE);
74 • SELECT * FROM TREATMENT;
75

```

100% 1:75

Result Grid Filter Rows: Search Export:

DID	PID	DIAGNOSIS	TREAT_ID	TREAT_DATE
1	101	Hypertension	1	2023-01-10
2	102	Migraine	2	2023-02-20
3	103	Fractured leg	3	2023-03-30

h. Insert suitable data to the table TREATMENT.

```

76 • INSERT INTO TREATMENT (DID, PID, DIAGNOSIS, TREAT_ID, TREAT_DATE)
77 VALUES
78 (1, 101, 'Fever', 4, '2023-04-05'),
79 (2, 102, 'Allergy', 5, '2023-04-10'),
80 (3, 103, 'Headache', 6, '2023-04-15');
81 • SELECT * FROM TREATMENT;
82

```

00% 1:82

Result Grid Filter Rows: Search Export:

DID	PID	DIAGNOSIS	TREAT_ID	TREAT_DATE
1	101	Hypertension	1	2023-01-10
2	102	Migraine	2	2023-02-20
3	103	Fractured leg	3	2023-03-30
1	101	Fever	4	2023-04-05
2	102	Allergy	5	2023-04-10
3	103	Headache	6	2023-04-15

i. Delete a doctor from DOCTOR table to see the cascade result.

```

83 • DELETE FROM DOCTOR WHERE DID = 1;
84 • SELECT * FROM DOCTOR;
85

```

100% 1:85

Result Grid Filter Rows: Search Edit: Export/Import:

DID	DNAME	SPECIALIZATION	AADHAR_NO	CONSULTATION_FEE	CITY	SPECIAL_FEE
2	Dr. Johnson	Neurology	234567890123	120.00	Los Angeles	NULL
3	Dr. Lee	Orthopedics	345678901234	90.00	Chicago	NULL
NULL	NULL	NULL	NULL	NULL	NULL	NULL

j. Display the name of the doctors whose consultation fees are even.

```
86 • SELECT DNAME FROM DOCTOR WHERE CONSULTATION_FEE % 2 = 0;
87 • SELECT * FROM DOCTOR;
88
```

100% 1:88

Result Grid Filter Rows: Search Edit: Export/Import:

	DID	DN...	SPECIALIZATION	AADHAR_NO	CONSULTATION_FEE	CITY	SPECIAL_FEE
	2	Dr....	Neurology	234567890123	120.00	Los Angeles	NULL
	3	Dr....	Orthopedics	345678901234	90.00	Chicago	NULL
	NULL	NULL	NULL	NULL	NULL	NULL	NULL

k. Find the doctors whose name starts with 'K' and ends with 'n'

```
108 • SELECT * FROM DOCTOR WHERE DNAME LIKE 'K%n';
109
110
```

100% 69:98

Result Grid Filter Rows: Search Edit: Export/Import:

	DID	DN...	SPECIALIZATION	AADHAR_NO	CONSULTATION_FEE	CITY	SPECIAL_FEE
	122	Kevin	Ophthalmology	234568390124	80.00	Los Angeles	NULL
	NULL	NULL	NULL	NULL	NULL	NULL	NULL

l. Find the patients whose name starts with 'A' and is followed by 2 characters only.

```
110 • SELECT * FROM PATIENT WHERE PNAME LIKE 'A__';
111
```

100% 1:111

Result Grid Filter Rows: Search Edit: Export/Import:

	PID	PNAME	DATE_OF_BIRTH	ADDRESS	AADHAR_NUMBER
	108	Amy	1992-06-05	321 Pine St	NULL
	NULL	NULL	NULL	NULL	NULL

m. Find the doctors whose name starts with 'J' or 'L'

116 • **SELECT * FROM DOCTOR WHERE DNAME LIKE 'J%' OR DNAME LIKE 'L%';**

100% 38:115

Result Grid Filter Rows: Search Edit: Export/Import:

DID	DN...	SPECIALIZATION	AADHAR_NO	CONSULTATION_FEE	CITY	SPECIAL_FEE
104	Laura	Pediatrics	456789124346	100.00	San Francisco	NULL
105	John	Psychiatry	567890343457	65.00	Boston	NULL
NULL	NULL	NULL	NULL	NULL	NULL	NULL

n. Find the doctors whose specialization is 'E.N.T' and consultation fee is more than 60

122 • **SELECT * FROM DOCTOR WHERE SPECIALIZATION = 'E.N.T' AND CONSULTATION_FEE > 60;**
123

100% 58:121

Result Grid Filter Rows: Search Edit: Export/Import:

DID	DN...	SPECIALIZATION	AADHAR_NO	CONSULTATION_FEE	CITY	SPECIAL_FEE
204	DA...	E.N.T	456189124346	100.00	San Francisco	NULL
205	zugen	E.N.T	567390343457	65.00	Boston	NULL

o. Find the doctors whose consultation fee is between 50 and 100

124 • **SELECT * FROM DOCTOR WHERE CONSULTATION_FEE BETWEEN 50 AND 100;**
125

100% 1:125

Result Grid Filter Rows: Search Edit: Export/Import:

DID	DN...	SPECIALIZATION	AADHAR_NO	CONSULTATION_FEE	CITY	SPECIAL_FEE
3	Dr....	Orthopedics	345678901234	90.00	Chicago	NULL
11	Dr....	Dermatology	123456789111	70.00	New York	NULL
12	Dr....	Ophthalmology	234567890124	80.00	Los Angeles	NULL
13	Dr....	Gynecology	345678901235	90.00	Chicago	NULL
14	Dr....	Pediatrics	456789012346	100.00	San Francisco	NULL
15	Dr....	Psychiatry	567890123457	65.00	Boston	NULL
104	Laura	Pediatrics	456789124346	100.00	San Francisco	NULL
105	John	Psychiatry	567890343457	65.00	Boston	NULL
111	Sarah	Dermatology	123456892111	70.00	New York	NULL
122	Kevin	Ophthalmology	234568390124	80.00	Los Angeles	NULL
133	Emily	Gynecology	345678902135	90.00	Chicago	NULL

p. Arrange the doctors in the descending order of name as well as city.

126 • **SELECT * FROM DOCTOR ORDER BY DNAME DESC, CITY DESC;**

127

100% 1:127

Result Grid Filter Rows: Search Edit: Export/Import:

DID	DN...	SPECIALIZATION	AADHAR_NO	CONSULTATION_FEE	CITY	SPECIAL_FEE
205	zugen	E.N.T	567390343457	65.00	Boston	NULL
111	Sarah	Dermatology	123456892111	70.00	New York	NULL
144	Rob...	Pediatrics	456789024346	100.00	San Francisco	NULL
155	Mic...	Psychiatry	567890323457	65.00	Boston	NULL
104	Laura	Pediatrics	456789124346	100.00	San Francisco	NULL
122	Kevin	Ophthalmology	234568390124	80.00	Los Angeles	NULL
105	John	Psychiatry	567890343457	65.00	Boston	NULL
133	Emily	Gynecology	345678902135	90.00	Chicago	NULL
11	Dr....	Dermatology	123456789111	70.00	New York	NULL
14	Dr....	Pediatrics	456789012346	100.00	San Francisco	NULL
15	Dr....	Psychiatry	567890123457	65.00	Boston	NULL

q. List the specialization of doctors without duplicate values.

128 • **SELECT DISTINCT SPECIALIZATION FROM DOCTOR;**

129

100% 1:129

Result Grid Filter Rows: Search Export:

SPECIALIZATION
Neurology
Orthopedics
Dermatology
Ophthalmology
Gynecology
Pediatrics
Psychiatry
E.N.T

r. Find the total number of doctors.

130 • **SELECT COUNT(*) AS TotalDoctors FROM DOCTOR;**

131

100% 1:131

Result Grid Filter Rows: Search Export:

TotalD...
16

s. Find the number of doctors with 'E.N.T' specialization.

```
132 • SELECT COUNT(*) AS ENT_Doctors FROM DOCTOR WHERE SPECIALIZATION = 'E.N.T';
133
```

100% 1:133

Result Grid Filter Rows: Search Export:

ENT_Doctors
2

t. Find the number of patients who were treated by a doctor with ID = 1;

```
SELECT COUNT(*) AS PatientsTreated FROM TREATMENT WHERE DID = 1;
```

100% 1:117

Result Grid Filter Rows: Search Export:

PatientsTreated
0

u. Find the doctors specialized in 'E.N.T', 'Cardiac', 'Paediatrics' (Use IN)

```
132 • SELECT * FROM DOCTOR WHERE SPECIALIZATION IN ('E.N.T', 'Cardiac', 'Paediatrics');
133
134
```

100% 1:133

Result Grid Filter Rows: Search Edit: Export/Import:

DID	DNAME	SPECIALIZA...	AADHAR_NO	CONSULTATION_FEE	CITY	SPECIAL_FEE
204	DAVID	E.N.T	456189124346	100.00	San Francisco	NULL
205	zugen	E.N.T	567390343457	65.00	Boston	NULL
NULL	NULL	NULL	NULL	NULL	NULL	NULL

v. Find the average consultation fee, maximum consultation fee and minimum consultation fee of doctors.

```
134 • SELECT
135     AVG(CONSULTATION_FEE) AS Average_Consultation_Fee,
136     MAX(CONSULTATION_FEE) AS Maximum_Consultation_Fee,
137     MIN(CONSULTATION_FEE) AS Minimum_Consultation_Fee
138 FROM DOCTOR;
139
```

100% 1:139

Result Grid Filter Rows: Search Export:

Average_Consultation_F...	Maximum_Consultation_F...	Minimum_Consultation_F...
84.375000	120.00	65.00

w. Find the sum of special fee of doctors with 'Paediatrics' specialization.

```
145 • SELECT SUM(SPECIAL_FEE) AS Total_Special_Fee FROM DOCTOR WHERE SPECIALIZATION = 'Paediatrics';
```

100% 1:146

Result Grid Filter Rows: Search Export:

Total_Special_Fee

x. Display the name of doctors under a column with heading 'DOCTOR_NAME' instead of DNAME which is the name of your column.

```
147 • SELECT DNAME AS DOCTOR_NAME FROM DOCTOR;
```

```
148
```

```
149
```

```
150
```

100% 28:147

Result Grid Filter Rows: Search Export:

DOCTOR_NAME
Dr. Johnson
Dr. Lee
Dr. Sarah
Dr. Kevin
Dr. Emily
Dr. Robert
Dr. Michelle
Laura
John
Sarah
Kevin

y. Display the total fee i.e. special fee + consultation fee, for each doctor. (Use heading 'TOTAL_FEE')

```
149 • SELECT
150     DNAME,
151     CONSULTATION_FEE + IFNULL(SPECIAL_FEE, 0) AS TOTAL_FEE
152 FROM DOCTOR;
153
```




100% 1:153

Result Grid Filter Rows: Search Export:

DNAME	TOTAL_FEE
Dr. Johnson	120.00
Dr. Lee	90.00
Dr. Sarah	70.00
Dr. Kevin	80.00
Dr. Emily	90.00
Dr. Robert	100.00
Dr. Michelle	65.00
Laura	100.00
John	65.00
Sarah	70.00
Kevin	80.00




z. Find the number of doctors with no adhar number given. (i.e. is null).

```
154 • SELECT COUNT(*) AS Doctors_With_No_Aadhar_Number
155 FROM DOCTOR
156 WHERE AADHAR_NO IS NULL;
157
```

100%	1:157
Result Grid   Filter Rows: <input type="text" value="Search"/> Export: 	
Doctors_With_No_Aadhar_Num...	
0	

aa. Find the number of doctors with adhar number given. (i.e. is not null)

```
158 • SELECT COUNT(*) AS Doctors_With_Aadhar_Number
159 FROM DOCTOR
160 WHERE AADHAR_NO IS NOT NULL;
161
```

100%	1:161
Result Grid   Filter Rows: <input type="text" value="Search"/> Export: 	
Doctors_With_Aadhar_Num...	
18	

bb. Find the doctors whose CONSULTATION FEE is greater than 100 and SPECIALIZATION is Cardiac or coming from Kollam.

```
162 • SELECT *
163 FROM DOCTOR
164 WHERE CONSULTATION_FEE > 100
165 AND (SPECIALIZATION = 'Cardiac' OR CITY = 'Kollam');
166
```

100%

32:160

Result Grid

Filter Rows:

Edit:

Export/Import:

DID	DNAME	SPECIALIZATION	AADHAR_NO	CONSULTATION_FEE	CITY	SPECIAL_FEE
NULL	NULL	NULL	NULL	NULL	NULL	NULL

cc. Find the result of the query: select * from doctor order by 3;

```

167 • SELECT *
168 FROM DOCTOR
169 ORDER BY 3;

```

100% 1:166

Result Grid Filter Rows: Search Edit: Export/Import:

DID	DNAME	SPECIALIZATION	AADHAR_NO	CONSULTATION_FEE	CITY	SPECIAL_FEE
11	Dr. Sarah	Dermatology	123456789111	70.00	New York	NULL
111	Sarah	Dermatology	123456892111	70.00	New York	NULL
204	DAVID	E.N.T	456189124346	100.00	San Francisco	NULL
205	zuken	E.N.T	567390343457	65.00	Boston	NULL
13	Dr. Emily	Gynecology	345678901235	90.00	Chicago	NULL
133	Emily	Gynecology	345678902135	90.00	Chicago	NULL
2	Dr. Johnson	Neurology	234567890123	120.00	Los Angeles	NULL
12	Dr. Kevin	Ophthalmology	234567890124	80.00	Los Angeles	NULL
122	Kevin	Ophthalmology	234568390124	80.00	Los Angeles	NULL
3	Dr. Lee	Orthopedics	345678901234	90.00	Chicago	NULL
304	BERG	Paediatrics	456189124316	100.00	San Francisco	NULL

dd. Concatenate the name of the doctor with the specialization he/she is having. (e.g. Reghu is specialized in E.N.T.)

```

171 • SELECT CONCAT(DNAME, ' is specialized in ', SPECIALIZATION) AS Doctor_Specialization
172 FROM DOCTOR;
173

```

100% 1:173

Result Grid Filter Rows: Search Export:

Doctor_Specialization
Dr. Johnson is specialized in Neurology
Dr. Lee is specialized in Orthopedics
Dr. Sarah is specialized in Dermatology
Dr. Kevin is specialized in Ophthalmology
Dr. Emily is specialized in Gynecology
Dr. Robert is specialized in Pediatrics
Dr. Michelle is specialized in Psychiatry
Laura is specialized in Pediatrics
John is specialized in Psychiatry
Sarah is specialized in Dermatology
Kevin is specialized in Ophthalmology