

GREYCAMPUS SQL PROJECT PART-1

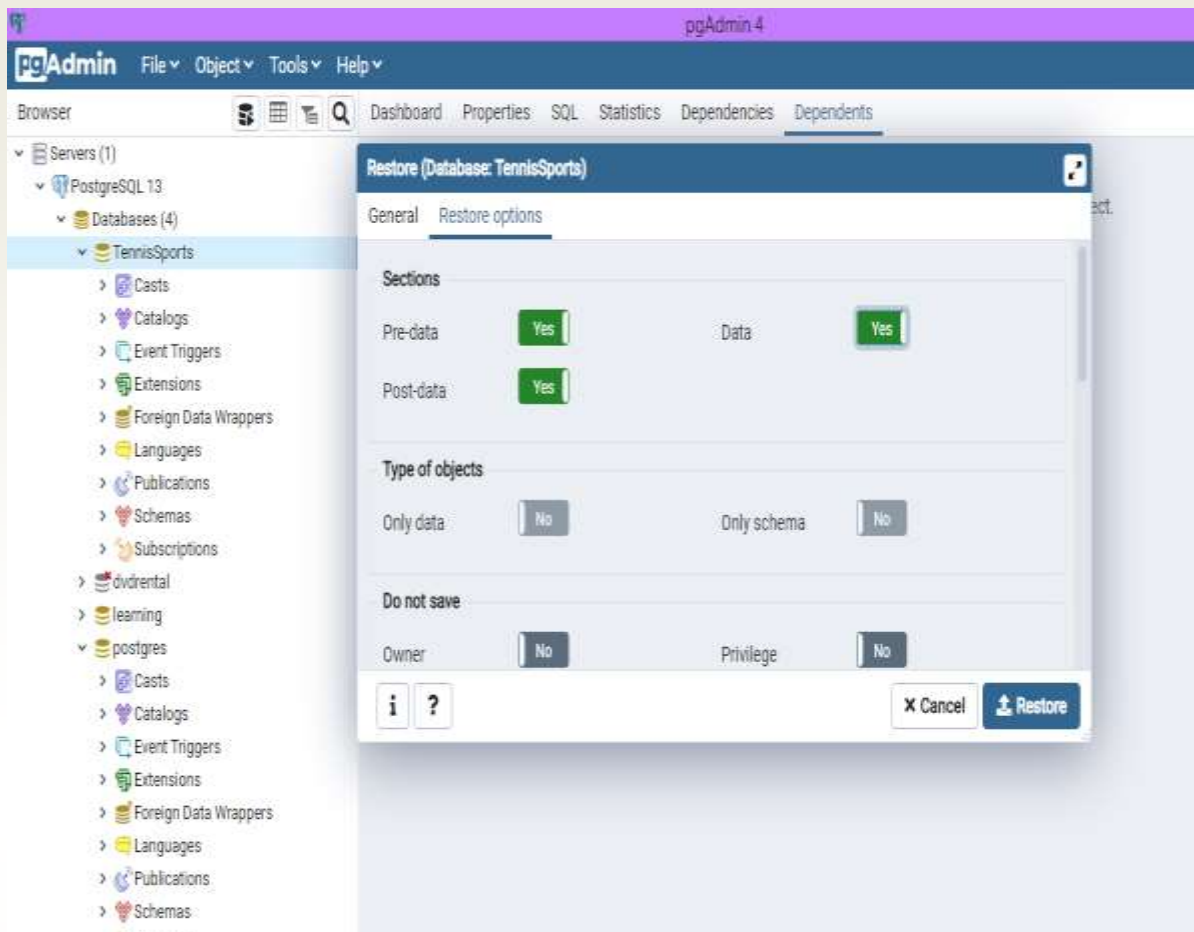
Name: Harsha Singh

Date: 27.04.2021

Description:

SQL QUERIES:

Create and restore the required project database from tar:

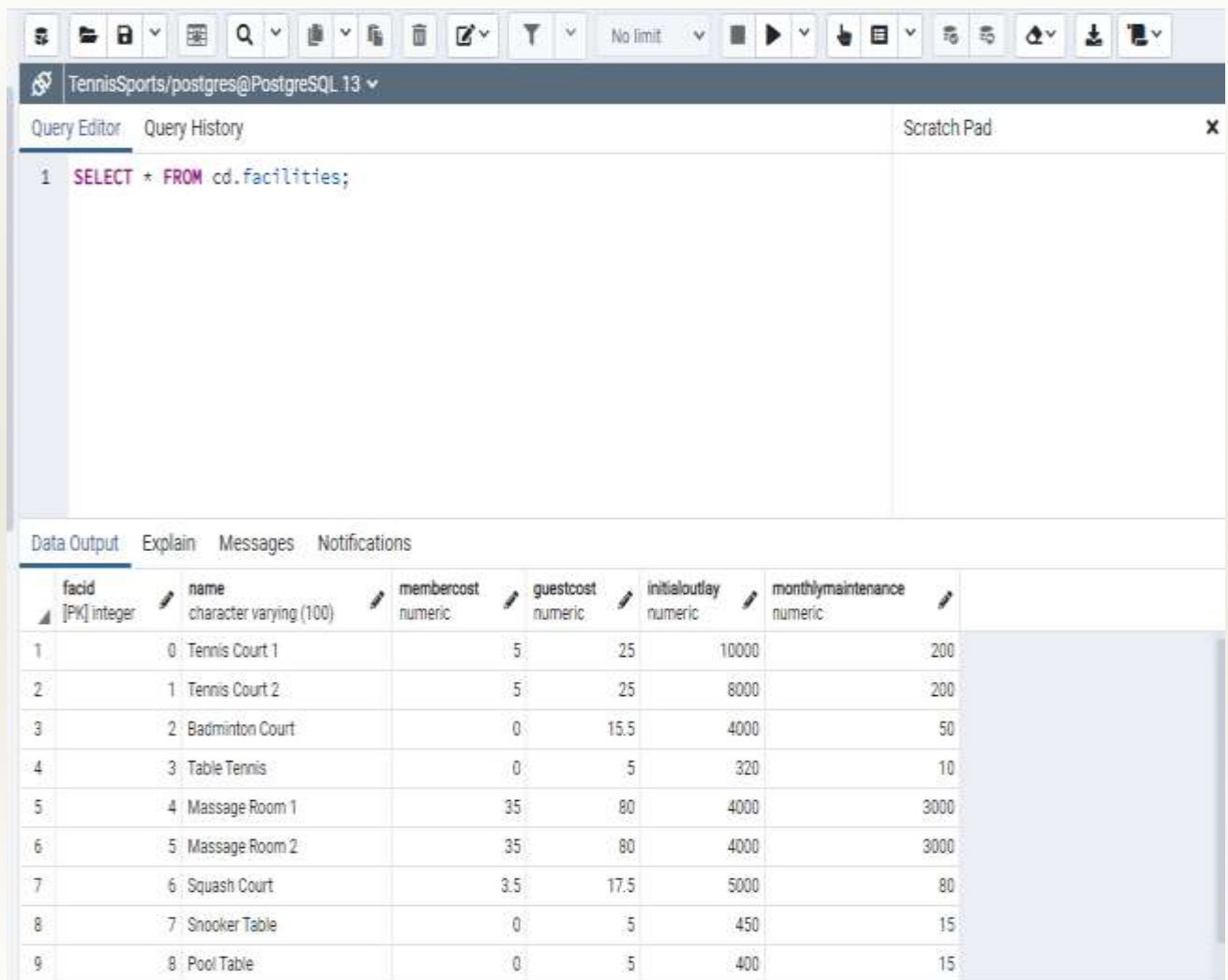


Use Case - 1

1. How can you retrieve all the information from the cd.facilities table?

Derived Output Result:

To select all information ie. all columns use *

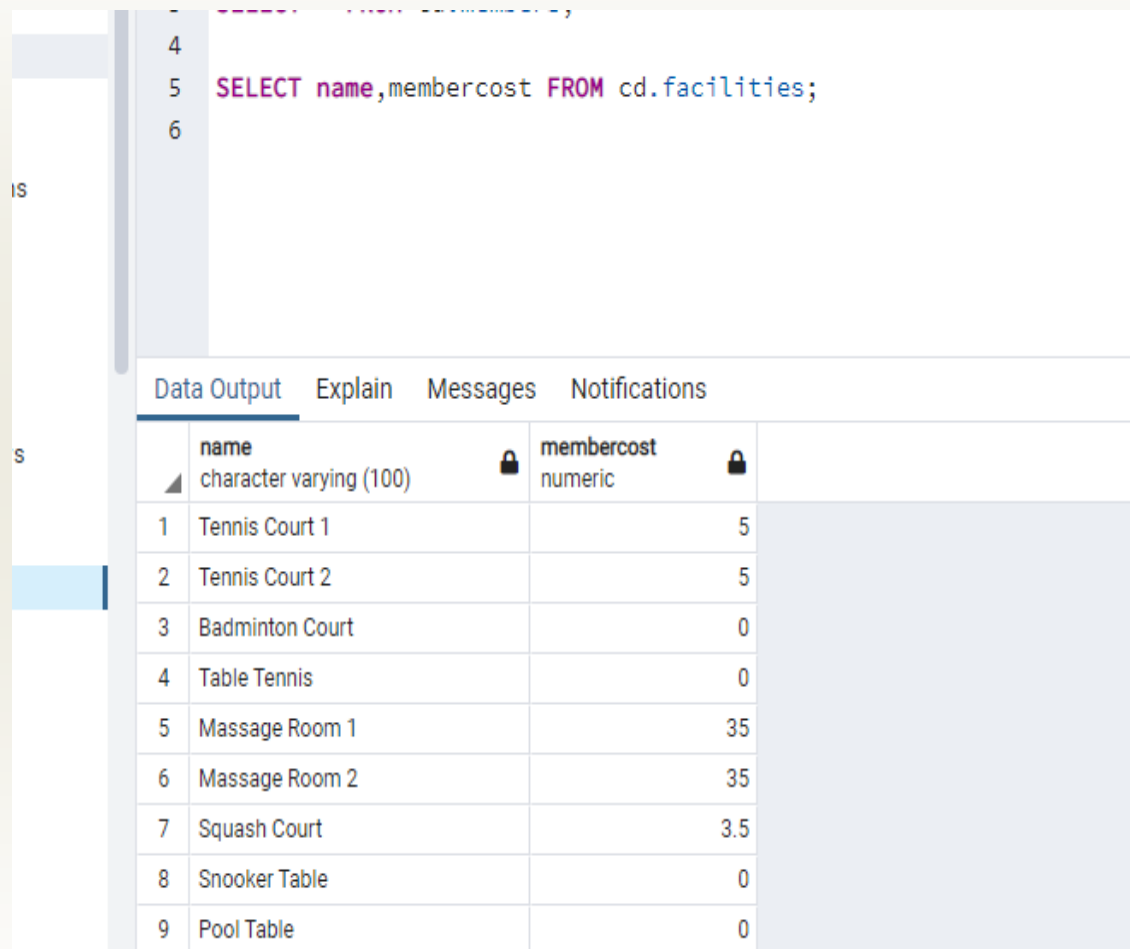


The screenshot shows a PostgreSQL query editor interface. The top toolbar contains various icons for file operations, search, and execution. The main window is titled 'TennisSports/postgres@PostgreSQL 13'. Below the title bar, there are tabs for 'Query Editor', 'Query History', and 'Scratch Pad'. The 'Query Editor' tab is active, displaying a single SQL query: `1 SELECT * FROM cd.facilities;`. Below the query editor, there are tabs for 'Data Output', 'Explain', 'Messages', and 'Notifications'. The 'Data Output' tab is active, showing a table of results. The table has 7 columns: 'facid' (integer), 'name' (character varying), 'membercost' (numeric), 'guestcost' (numeric), 'initialoutlay' (numeric), and 'monthlymaintenance' (numeric). The results are as follows:

facid	name	membercost	guestcost	initialoutlay	monthlymaintenance
0	Tennis Court 1	5	25	10000	200
1	Tennis Court 2	5	25	8000	200
2	Badminton Court	0	15.5	4000	50
3	Table Tennis	0	5	320	10
4	Massage Room 1	35	80	4000	3000
5	Massage Room 2	35	80	4000	3000
6	Squash Court	3.5	17.5	5000	80
7	Snooker Table	0	5	450	15
8	Pool Table	0	5	400	15

2. You want to print out a list of all of the facilities and their cost to members. How would you retrieve a list of only facility names and costs?

Derived Output Result:



The screenshot shows a database query interface. At the top, a SQL query is entered in a text area: `SELECT name,membercost FROM cd.facilities;`. Below the query area, there are tabs for 'Data Output', 'Explain', 'Messages', and 'Notifications'. The 'Data Output' tab is selected, displaying a table with two columns: 'name' (character varying (100)) and 'membercost' (numeric). The table contains 9 rows of data, numbered 1 through 9. The first two rows, 'Tennis Court 1' and 'Tennis Court 2', have a membercost of 5. The next three rows, 'Badminton Court', 'Table Tennis', and 'Massage Room 1', have a membercost of 0. The next two rows, 'Massage Room 2' and 'Squash Court', have a membercost of 35. The last two rows, 'Snooker Table' and 'Pool Table', have a membercost of 0.

	name character varying (100)	membercost numeric
1	Tennis Court 1	5
2	Tennis Court 2	5
3	Badminton Court	0
4	Table Tennis	0
5	Massage Room 1	35
6	Massage Room 2	35
7	Squash Court	3.5
8	Snooker Table	0
9	Pool Table	0

3. How can you produce a list of facilities that charge a fee to members?
- i. Expected Results should have just 5 rows:
- Derived Output Result:

```

4
5 SELECT * FROM cd.facilities
6 WHERE membercost != 0;
7

```

Data Output Explain Messages Notifications

	facid [PK] integer	name character varying (100)	membercost numeric	guestcost numeric	initialoutlay numeric	monthlymaintenance numeric
1	0	Tennis Court 1	5	25	10000	200
2	1	Tennis Court 2	5	25	8000	200
3	4	Massage Room 1	35	80	4000	3000
4	5	Massage Room 2	35	80	4000	3000
5	6	Squash Court	3.5	17.5	5000	80

✓ Successfully run. Total query runtime: 439 msec

4. How can you produce a list of facilities that charge a fee to members, and that fee is less than 1/50th of the monthly maintenance cost? Return the facid, facility name, member cost, and monthly maintenance of the facilities in question.

Expected Result is just two rows.

Derived Output Result: 2 rows.

Formula used: (member cost to be less than $1/50^{\text{th}}$ of the monthlymaintenance column)

```

7
8 SELECT facid,name,membercost,monthlymaintenance FROM cd.facilities
9 WHERE membercost!=0 AND membercost<((1.0/50.0)* monthlymaintenance);

```

Data Output	Explain	Messages	Notifications
facid [PK] integer	name character varying (100)	membercost numeric	monthlymaintenance numeric
1	4 Massage Room 1	35	3000
2	5 Massage Room 2	35	3000

5. How can you produce a list of all facilities with the word 'Tennis' in their name?

Expected Result is 3 rows

Derived Output Result:

```

10
11 SELECT * FROM cd.facilities
12 WHERE name LIKE '%Tennis%';

```

Data Output

Explain

Messages

Notifications

	<div>facid</div> <div>[PK] integer</div>	<div>name</div> <div>character varying (100)</div>	<div>membercost</div> <div>numeric</div>	<div>guestcost</div> <div>numeric</div>	<div>initialoutlay</div> <div>numeric</div>	<div>monthlymaintenance</div> <div>numeric</div>
1	0	Tennis Court 1	5	25	10000	200
2	1	Tennis Court 2	5	25	8000	200
3	3	Table Tennis	0	5	320	10

6. How can you retrieve the details of facilities with ID 1 and 5? Try to do it without using the OR operator.

Expected Result is 2 rows

Using IN operator instead of OR.

Derived Output Result:

```
14 --Id is 1 or 5, Without OR operator usage
15 SELECT * FROM cd.facilities
16 WHERE facid IN (1,5);
```

	facid [PK] integer	name character varying (100)	membercost numeric	guestcost numeric	initialoutlay numeric	monthlymaintenance numeric
1	1	Tennis Court 2	5	25	8000	200
2	5	Massage Room 2	35	80	4000	3000

7. How can you produce a list of members who joined after the start of September 2012? Return the memid, surname, firstname, and joindate of the members in question.
- Expected Result is 10 rows

Derived Output Result:

After start of September 2012 Implies, all who joined post 1st September 2012 (exclusive)

```

17
18 SELECT memid,surname,firstname,joindate FROM cd.members
19 WHERE joindate > '2012-09-01';
20

```

Data Output Explain Messages Notifications

	memid [PK] integer	surname character varying (200)	firstname character varying (200)	joindate timestamp without time zone	
1	24	Sarwin	Ramnaresh	2012-09-01 08:44:42	
2	26	Jones	Douglas	2012-09-02 18:43:05	
3	27	Rumney	Henrietta	2012-09-05 08:42:35	
4	28	Farrell	David	2012-09-15 08:22:05	
5	29	Worthington-Smyth	Henry	2012-09-17 12:27:15	
6	30	Purview	Millicent	2012-09-18 19:04:01	
7	33	Tupperware	Hyacinth	2012-09-18 19:32:05	
8	35	Hunt	John	2012-09-19 11:32:45	
9	36	Crumpet	Erica	2012-09-22 08:36:38	
10	37	Smith	Darren	2012-09-22 08:36:38	

✓ Successfully run. Total query runtime: 276 msec. 10

8. How can you produce an ordered list of the first 10 surnames in the members table? The list must not contain duplicates.

Expected Result should be 10 rows if you include GUEST as a last name

Derived Output Result:

20

21 SELECT DISTINCT surname FROM cd.members

22 ORDER BY surname

23 LIMIT 10;

24

25

Data Output

Explain

Messages

Notifications

▲

surname

character varying (200)

🔒

1	Bader
2	Baker
3	Boothe
4	Butters
5	Coplin
6	Crumpet
7	Dare
8	Farrell
9	Genting
10	GUEST

9. You'd like to get the signup date of your last member. How can you retrieve this information?

- i. Expected Result
- ii. 2012-09-26 18:08:45

Using the max function

Derived Output Result: 2012-09-26 18:08:45


```
25 SELECT MAX(joindate) AS Last_Member_SignUp_Date FROM cd.members;
26
27
```

	Data Output	Explain	Messages	Notifications
	last_member_signup_date timestamp without time zone			
1	2012-09-26 18:08:45			

✓ Successfully run. Total query runtime: 221 ms

10. Produce a count of the number of facilities that have a cost to guests of 10 or more.

- i. Expected Result
- ii. 6

Derived Output Result: 6

```

27
28 SELECT COUNT(*) AS Num_Of_Guests_Cost_Greater_Than_10 FROM cd.facilities
29 WHERE guestcost>=10;
30
31

```

Data Output Explain Messages Notifications

	num_of_guests_cost_greater_than_10	
	bigint	
1		6

11. Produce a list of the total number of slots booked per facility in the month of September 2012. Produce an output table consisting of facility id and slots, sorted by the number of slots.

Expected Result is 9 rows

Derived Output Result: 9 rows

```

40 SELECT b.facid,SUM(b.slots) AS "Total Slots"
41 FROM cd.bookings b
42 WHERE b.starttime >= '2012-09-01'
43 GROUP BY b.facid
44 ORDER BY "Total Slots";
45

```

Data Output Explain Messages Notifications

	facid integer	Total Slots bigint
1	5	122
2	3	422
3	7	426
4	8	471
5	6	540
6	2	570
7	1	588
8	0	591
9	4	648

In a scenario when the facid is not referenced during table creation, we have to use Inner join to be sure the facilities maintained in the database are the one's in booking and not any redundancies.

Query Editor

Query History

Scratch Pad

30

31

32

33

34

35

36

37

38

39

```

SELECT f.facid,SUM(b.slots) AS "Total Slots"
FROM cd.facilities AS f
INNER JOIN cd.bookings b
ON f.facid=b.facid
WHERE b.starttime >= '2012-09-01'
GROUP BY f.facid
ORDER BY "Total Slots";

```

Data Output

Explain

Messages

Notifications

	<div>facid</div> <div>[PK] integer</div>	<div>Total Slots</div> <div>bigint</div>	
1	5	122	
2	3	422	
3	7	426	
4	8	471	
5	6	540	
6	2	570	
7	1	588	
8	0	591	
9	4	648	

Both ways give same results, implies database reference constraints maintained intact.

12. Produce a list of facilities with more than 1000 slots booked.
Produce an output table consisting of facility id and total slots,
sorted by facility id.

Expected Result is 5 rows

Derived Output Result: 5 rows

```

46
47 SELECT b.facid,SUM(b.slots) AS "Total Slots"
48 FROM cd.bookings b
49 GROUP BY b.facid
50 HAVING SUM(b.slots)>1000
51 ORDER BY b.facid;

```

Data Output Explain Messages Notifications

	facid integer	Total Slots bigint
1	0	1320
2	1	1278
3	2	1209
4	4	1404
5	6	1104

✓ Successfully run. Total query runtime: 25

13 . How can you produce a list of the start times for bookings for tennis courts, for the date '2012-09-21'? Return a list of start time and facility name pairings, ordered by the time.

Expected Result is 12 rows

Derived Output Result: 12

```

52
53 SELECT b.starttime,f.name
54 FROM cd.facilities AS f
55 INNER JOIN cd.bookings b
56 ON f.facid=b.facid
57 WHERE b.starttime::date = date '2012-09-21' AND f.name LIKE '%Tennis Court%'
58 ORDER BY b.starttime;
59

```

Data Output Explain Messages Notifications

	starttime timestamp without time zone	name character varying (100)
1	2012-09-21 08:00:00	Tennis Court 1
2	2012-09-21 08:00:00	Tennis Court 2
3	2012-09-21 09:30:00	Tennis Court 1
4	2012-09-21 10:00:00	Tennis Court 2
5	2012-09-21 11:30:00	Tennis Court 2
6	2012-09-21 12:00:00	Tennis Court 1
7	2012-09-21 13:30:00	Tennis Court 1
8	2012-09-21 14:00:00	Tennis Court 2
9	2012-09-21 15:30:00	Tennis Court 1
10	2012-09-21 16:00:00	Tennis Court 2
11	2012-09-21 17:00:00	Tennis Court 1
12	2012-09-21 18:00:00	Tennis Court 2

14. How can you produce a list of the start times for bookings by members named 'David Farrell'?

Expected result is 34 rows of timestamp

Derived Output Result: 34 rows

```
60
61 SELECT b.starttime
62 FROM cd.bookings AS b
63 INNER JOIN cd.facilities AS f
64 ON f.facid=b.facid
65 INNER JOIN cd.members AS m
66 ON m.memid=b.memid
67 WHERE m.firstname||' '||m.surname='David Farrell';
```

Data Output Explain Messages Notifications

	starttime	
	timestamp without time zone	🔒
1	2012-09-18 09:00:00	
2	2012-09-18 17:30:00	
3	2012-09-18 13:30:00	
4	2012-09-18 20:00:00	
5	2012-09-19 09:30:00	
6	2012-09-19 15:00:00	
7	2012-09-19 12:00:00	
8	2012-09-20 15:30:00	
9	2012-09-20 11:00:00	

✓ Successfully run. Total query runtime: 280 msec. 34 rows affected.