DBMS

LAB GROUP - 3
Team ID – 305

QUERIES

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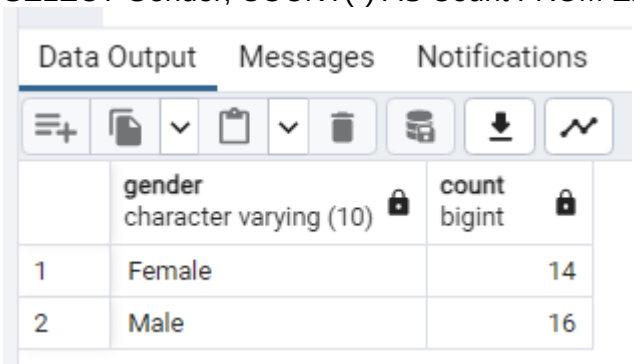
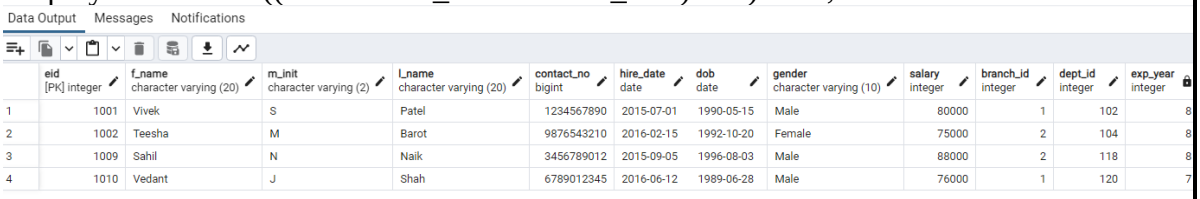
1. Counting the number of employees in each gender category.
   - SELECT Gender, COUNT(*) AS Count FROM Employee GROUP BY Gender;



Data Output | Messages | Notifications

	gender character varying (10)	count bigint
1	Female	14
2	Male	16

2. List of all employees whose experience is more than 25.
   - SELECT Employee.*,((CURRENT_DATE - hire_date)/365) AS exp_year FROM Employee WHERE ((CURRENT_DATE - hire_date)/365) >= 7;



Data Output | Messages | Notifications

	eid [PK] integer	f_name character varying (20)	m_init character varying (2)	l_name character varying (20)	contact_no bigint	hire_date date	dob date	gender character varying (10)	salary integer	branch_id integer	dept_id integer	exp_year integer
1	1001	Vivek	S	Patel	1234567890	2015-07-01	1990-05-15	Male	80000	1	102	8
2	1002	Teesha	M	Barot	9876543210	2016-02-15	1992-10-20	Female	75000	2	104	8
3	1009	Sahil	N	Naik	3456789012	2015-09-05	1996-08-03	Male	88000	2	118	8
4	1010	Vedant	J	Shah	6789012345	2016-06-12	1989-06-28	Male	76000	1	120	7

3. Find the maximum salary for the employee's name with maximum salary.
   - SELECT f_name, salary AS Max_Salary FROM Employee where salary in (select max(salary) from Employee);

Data Output | Messages | Notifications

	f_name character varying (20)	max_salary integer
1	Harshali	100000

4. List all details of the Employees they hired between 1990 to 2016.
   - SELECT * FROM Employee WHERE EXTRACT(YEAR FROM Hire_Date) >= 1990 AND EXTRACT(YEAR FROM Hire_Date) <=2016;

Data Output | Messages | Notifications

	eid [PK] integer	f_name character varying (20)	m_init character varying (2)	l_name character varying (20)	contact_no bigint	hire_date date	dob date	gender character varying (10)	salary integer	branch_id integer	dept_id integer
1	1001	Vivek	S	Patel	1234567890	2015-07-01	1990-05-15	Male	80000	1	1
2	1002	Teesha	M	Barot	9876543210	2016-02-15	1992-10-20	Female	75000	2	1
3	1009	Sahil	N	Naik	3456789012	2015-09-05	1996-08-03	Male	88000	2	1
4	1010	Vedant	J	Shah	6789012345	2016-06-12	1989-06-28	Male	76000	1	1

5. Count the total number of branches.
   - SELECT COUNT(*) AS Total_Branches FROM Branch;

Data Output | Messages | Notifications

	total_branches bigint
1	7

6. Count branches in a specific city.
   - SELECT City, COUNT(*) AS Num_Branches FROM Branch GROUP BY City;

Data Output | Messages | Notifications

	city character varying (20)	num_branches bigint
1	Thiruvananthapuram	1
2	Mysore	1
3	Jaipur	1
4	Sriharikota	1
5	Bangalore	2
6	Ahmedabad	1

7. Select employees who have more than one email.

- SELECT Eid, COUNT(*) AS email_count FROM Emp_Email GROUP BY Eid HAVING COUNT(*) > 1;

Data Output | Messages | Notifications

	eid integer	email_count bigint
1	1018	2
2	1028	2
3	1019	2
4	1002	2
5	1023	2
6	1022	2
7	1020	2
8	1006	2
9	1017	2
10	1005	2

Total rows: 20 of 20 Query complete 00:

8. Select employee IDs along with their degrees and institute names sorted by year of passing in ascending order.
   - SELECT Eid, Degree, Institute_name FROM Emp_Education ORDER BY Year_of_passing ASC;

Data Output | Messages | Notifications

	eid [PK] integer	degree character varying (40)	institute_name [PK] text
1	1023	B.Sc in Spacecraft Engineering	IIT-Mandi
2	1021	M.Tech in Remote Sensing and GIS	Gujarat University
3	1020	M.Tech in Remote Sensing and GIS	SDSC
4	1028	M.Sc in Aerospace Engineering	DU
5	1001	B.Sc in Aerospace Engineering	DA-IICT
6	1009	M.Sc in Aerospace Engineering	DA-IICT
7	1010	M.Tech in Mechanical Engineering	VIT-Vellore
8	1030	M.Tech in Mechanical Engineering	IIIT-Hydrabad
9	1012	BE in Electronics and Communication	BITS-Goa
10	1002	B.Tech in Mechanical Engineering	IIT-Bombay

Total rows: 30 of 30 Query complete 00:00:00.093

9. Select employees who graduated in or after the year 2017.
   - SELECT Eid, Institute_name, Year_of_passing FROM Emp_Education WHERE Year_of_passing >= 2017;

Data Output | Messages | Notifications

	eid [PK] integer	institute_name [PK] text	year_of_passing integer
1	1005	VIT-Bhopal	2017
2	1006	IIT-Bombay	2018
3	1007	IIIT-Delhi	2018
4	1008	DA-IICT	2019
5	1013	LMNIT-Jaipur	2018
6	1014	VIT-Bhopal	2018
7	1015	D.Y. Patil Institute of Technology	2020
8	1017	Gujarat University	2017
9	1018	Best School	2019
10	1019	D.Y. Patil Institute of Technology	2020

10. Select employees who obtained degrees from IITs
    - SELECT Eid, Institute_name, Year_of_passing, Degree FROM Emp_Education WHERE Institute_name LIKE '%IIT%';

Data Output | Messages | Notifications

	eid [PK] integer	institute_name [PK] text	year_of_passing integer	degree character varying (40)
1	1002	IIT-Bombay	2014	B.Tech in Mechanical Engineering
2	1003	IIT-Madras	2016	B.Sc in Physics
3	1004	IIIT-Delhi	2015	BE in Electronics and Communication
4	1006	IIT-Bombay	2018	B.Tech in Computer Science
5	1007	IIIT-Delhi	2018	B.Sc in Mathematics
6	1011	IIT-Madras	2016	B.Sc in Physics
7	1023	IIT-Mandi	2008	B.Sc in Spacecraft Engineering
8	1026	IIT-Mandi	2017	M.Tech in Computer Science
9	1027	IIIT-Hydrabad	2016	B.Sc in Satellite Navigation
10	1030	IIIT-Hydrabad	2013	M.Tech in Mechanical Engineering

11. Select the institute names along with the count of employees who obtained degrees from each institute.
    - SELECT Institute_name, COUNT(DISTINCT Eid) AS employee_count FROM Emp_Education GROUP BY Institute_name;

Data Output | Messages | Notifications

	institute_name text	employee_count bigint
1	AB School	1
2	Best School	1
3	BITS-Goa	1
4	D.Y. Patil Institute of Technology	2
5	DA-IICT	3
6	DU	1
7	Gujarat University	2
8	IIIT-Delhi	2
9	IIIT-Hydrabad	2
10	IIT-Bombay	2

12. Select the top 5 most common degrees obtained by employees.
    - SELECT Degree, COUNT(*) AS degree_count FROM Emp_Education GROUP BY Degree ORDER BY degree_count DESC LIMIT 5;

Data Output | Messages | Notifications

	degree character varying (40)	degree_count bigint
1	B.Sc in Physics	3
2	M.Tech in Mechanical Engineering	3
3	BE in Electronics and Communication	2
4	M.Tech in Remote Sensing and GIS	2
5	B.Sc in Spacecraft Engineering	2

13. Select visitors who visited in the year 2023.
    - SELECT * FROM Visitors WHERE Date_of_visit >= '2023-01-01' AND Date_of_visit <= '2023-12-31';

Data Output | Messages | Notifications

	branch_id [PK] integer	date_of_visit [PK] date	visitor_name text	contact_no bigint	organization text	purpose text
1	6	2023-11-05	Jay Shah	4567890123	RoboSpace Systems	Discussion on Robotics in Space
2	7	2023-12-10	Harsh Kapoor	7890123456	WeatherTech Ltd.	Weather Monitoring Solutions Presentation
3	1	2023-01-15	Raj Mehta	1234567890	Debris Solutions	Cleanup Technology Proposal
4	1	2023-02-20	Harshit Kapadiya	8901234567	SpacePolicy Institute	Policy Development Workshop
5	3	2023-03-25	Akshit Iyer	2345678901	Exploration Technologies	Exploration Equipment Demo

14. Select visitors from an Organization = 'SpaceTech Inc.'
    - SELECT * FROM Visitors WHERE Organization = 'SpaceTech Inc.';

Data Output | Messages | Notifications

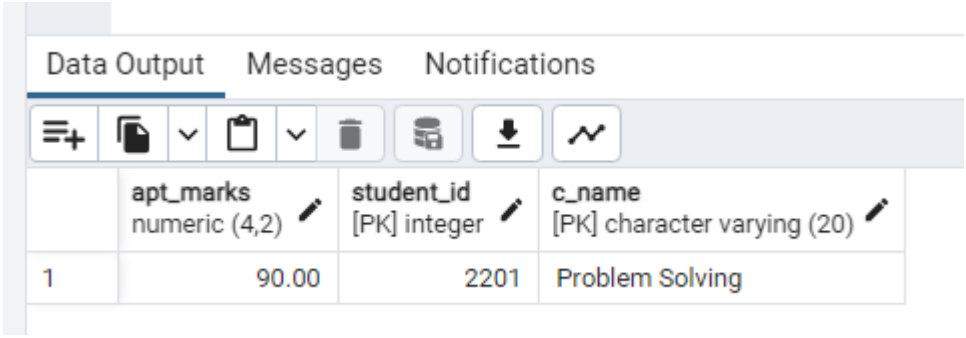
	branch_id [PK] integer	date_of_visit [PK] date	visitor_name text	contact_no bigint	organization text	purpose text
1	1	2024-01-10	John Smith	1234567890	SpaceTech Inc.	Meeting with Department Heads

15. Select the total number of visitors for each branch.
    - SELECT Branch_id, COUNT(*) AS total_visitors FROM Visitors GROUP BY Branch_id;

Data Output | Messages | Notifications

	branch_id integer	total_visitors bigint
1	3	3
2	5	1
3	4	2
4	6	2
5	2	2
6	7	2
7	1	3

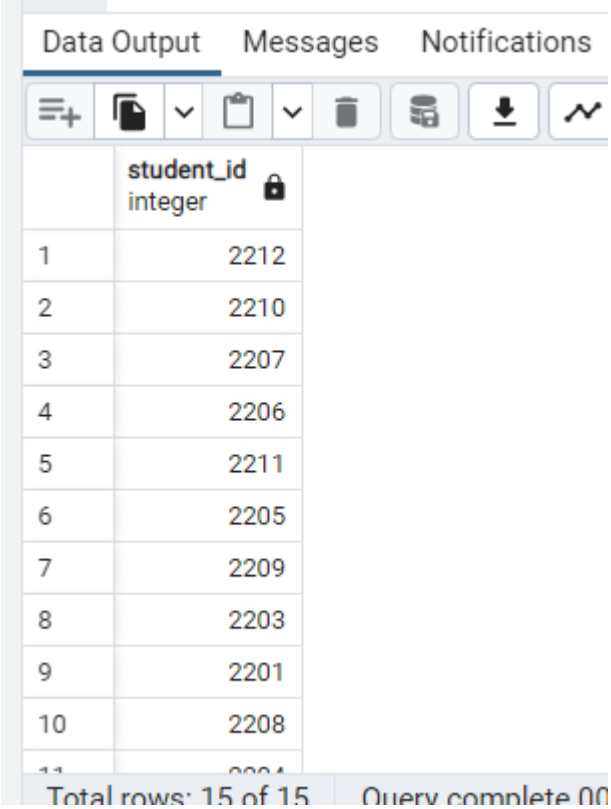
16. Select students who met the criteria for 'Problem Solving' but not for 'Communication'.
    - SELECT * FROM Eligibility WHERE c_name = 'Problem Solving' AND student_id NOT IN (SELECT student_id FROM Eligibility WHERE c_name = 'Communication');



Data Output | Messages | Notifications

	apt_marks numeric (4,2)	student_id [PK] integer	c_name [PK] character varying (20)
1	90.00	2201	Problem Solving

17. Select students who met the criteria for at least 5 different categories.
    - SELECT student_id FROM (SELECT student_id, COUNT(*) AS num_criteria FROM Eligibility GROUP BY student_id) AS subquery WHERE num_criteria >= 5;



Data Output | Messages | Notifications

	student_id integer
1	2212
2	2210
3	2207
4	2206
5	2211
6	2205
7	2209
8	2203
9	2201
10	2208

Total rows: 15 of 15 | Query complete 00

18. Select the average marks for each criteria.
    - SELECT c_name, AVG(apt_marks) AS avg_marks FROM Eligibility GROUP BY c_name;

Data Output | Messages | Notifications

	c_name character varying (20)	avg_marks numeric
1	Technical Skills	87.7727272727272727
2	Innovation	87.9166666666666667
3	Analytical Thinking	88.1666666666666667
4	Creativity	87.5000000000000000
5	Time Management	88.5000000000000000
6	Teamwork	87.6923076923076923
7	Problem Solving	88.7500000000000000
8	Decision Making	88.0416666666666667
9	Experience	88.1428571428571429
10	Communication	87.9166666666666667

19. Select students who met the criteria for at least 2 categories with marks greater than 90.

```
SELECT student_id
    FROM (
        SELECT student_id, COUNT(*) AS num_criteria
      FROM Eligibility
       WHERE apt_marks > 90
      GROUP BY student_id
     ) AS subquery
    WHERE num_criteria >= 2;
```

Data Output | Messages | Notifications

	student_id integer	num_criteria bigint
1	2201	2

20. Select project names and their results for projects that are ongoing

```
SELECT p_name, Result
    FROM Projects
WHERE Result = 'Ongoing';
```

Data Output | Messages | Notifications

	p_name character varying (30)	result character varying (10)
1	Chandrayaan-2	Ongoing
2	GSAT-7	Ongoing

21. Select project names, start dates, and estimated end dates for projects that have estimated end dates later than their actual end dates

```
SELECT p_name, Start_date, Estimated_End_Date
    FROM Projects
WHERE Estimated_End_Date > End_Date;
```

Data Output | Messages | Notifications

	p_name character varying (30)	start_date date	estimated_end_date date
1	PSLV-C51/Amazonia-1	2021-02-28	2022-03-28
2	GSAT-30	2020-01-17	2022-02-12
3	GSAT-11	2009-12-05	2015-12-05

22. Select project names and their department IDs for projects that ended in success.

```
SELECT p_name, Dept_id
    FROM Projects
WHERE Result = 'Success';
```

Data Output | Messages | Notifications

	p_name character varying (30)	dept_id integer
1	Mars Orbiter Mission	101
2	Chandrayaan-1	104
3	Mangalyaan	108
4	GSAT-30	109
5	RISAT-2BR1	111
6	IRNSS-1I	102
7	EMISAT	105
8	RISAT-2B	107
9	GSAT-11	108
10	GSAT-29	110

23. Select project names, start dates, and end dates for projects that lasted for more than 1500 days.

```
SELECT p_name, Start_date, End_Date
    FROM Projects
WHERE End_Date - Start_date > 1500;
```

Data Output | Messages | Notifications

	p_name character varying (30)	start_date date	end_date date
1	GSAT-6A	2011-03-29	2023-03-29
2	EMISAT	2013-04-01	2019-04-01
3	GSAT-7A	2000-12-19	2005-12-19
4	GSAT-11	2009-12-05	2014-12-05

24. Select project names and their department IDs for projects that started before Chandrayaan-2 and ended after Mangalyaan.

```
SELECT p_name, Dept_id
    FROM Projects
WHERE Start_date < (SELECT Start_date FROM Projects WHERE p_name
= 'Chandrayaan-2')
    AND End_Date > (SELECT End_Date FROM Projects WHERE p_name =
'Mangalyaan');
```

Data Output | Messages | Notifications

	p_name character varying (30)	dept_id integer
1	IRNSS-1I	102
2	GSAT-6A	104
3	EMISAT	105
4	RISAT-2B	107
5	GSAT-29	110

25. Calculate the total government funding received by all departments.

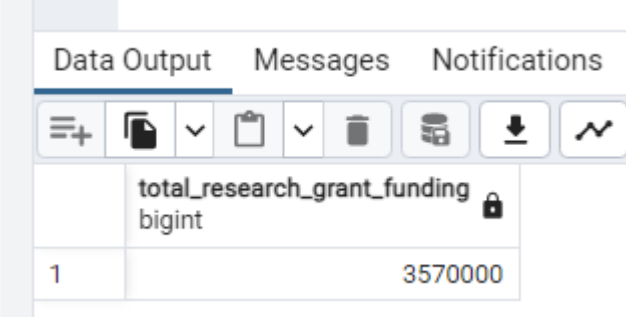
```
SELECT SUM(Gov_amount) AS Avg_Government_Funding FROM Funding;
```

Data Output | Messages | Notifications

	avg_government_funding bigint
1	7430000

26. Find the total government funding received by all departments for research grants.

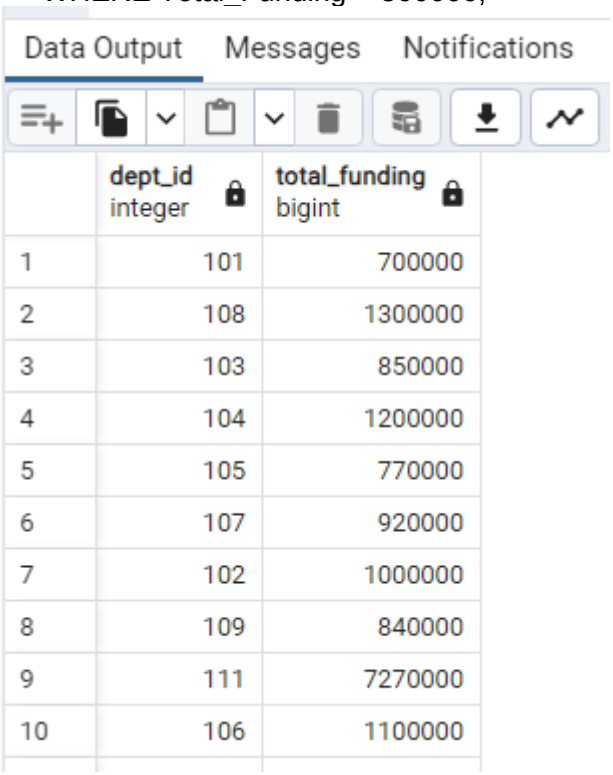
- SELECT SUM(Gov_amount) AS Total_Research_Grant_Funding
  FROM Funding
  WHERE Funding_type = 'Research Grant';



Data Output | Messages | Notifications

	total_research_grant_funding bigint
1	3570000

27. Find departments that received more than 500,000/- in total funding (government + private)
    - SELECT Dept_id, Total_Funding
      FROM (
      SELECT Dept_id, SUM(Gov_amount + Pvt_amount) AS Total_Funding
      FROM Funding
      GROUP BY Dept_id
) AS Total_Funding
      WHERE Total_Funding > 500000;



Data Output | Messages | Notifications

	dept_id integer	total_funding bigint
1	101	700000
2	108	1300000
3	103	850000
4	104	1200000
5	105	770000
6	107	920000
7	102	1000000
8	109	840000
9	111	7270000
10	106	1100000

28. Retrieve the project names along with their respective departments.
    - SELECT p.p_name, d.Dept_name, pm.Project_manager_name
      FROM Projects p
      JOIN Project_manager pm ON p.Dept_id = pm.Dept_id
      JOIN Department d ON p.Dept_id = d.Dept_id;

Data Output | Messages | Notifications

	p_name character varying (30)	dept_name character varying (255)
1	Mars Orbiter Mission	Scientific Research and Inspection Department
2	Chandrayaan-1	Remote Sensing
3	Mangalyaan	Satellite Navigation
4	Chandrayaan-2	Spacecraft Systems
5	PSLV-C51/Amazonia-1	Ground Station Operations
6	GSAT-30	Space Robotics
7	RISAT-2BR1	Computer Science Department
8	IRNSS-1I	Innovation and Inspection Division
9	GSAT-6A	Remote Sensing
10	EMISAT	Mission Planning

29. Calculate the total government funding received by each department along with the number of projects managed by the respective project manager.

- SELECT f.Dept_id, SUM(f.Gov_amount)
  AS Total_Government_Funding,pm.No_of_Project_managed
  FROM Funding f JOIN Project_manager pm ON f.Dept_id = pm.Dept_id
  GROUP BY f.Dept_id;

Data Output | Messages | Notifications

	dept_id integer	total_government_funding bigint	no_of_project_managed integer
1	110	700000	2
2	102	700000	5
3	104	800000	3
4	106	750000	4
5	111	670000	3
6	107	650000	2
7	105	550000	3
8	101	500000	6
9	103	600000	7
10	108	850000	5

Total rows: 11 of 11 | Query complete 00:00:00.063

30. Find the ongoing projects (i.e., Result is 'Ongoing') along with the corresponding department names.

- SELECT p.p_name, d.Dept_name
  FROM Projects p
  JOIN Department d ON p.Dept_id = d.Dept_id
  WHERE p.Result = 'Ongoing';

Data Output | Messages | Notifications

	p_name character varying (30)	dept_name character varying (255)
1	GSAT-7	Scientific Research and Inspection Department
2	Chandrayaan-2	Spacecraft Systems

31. Find the branch with the highest number of visitors along with the count of visitors
    - SELECT b.Branch_id, b.B_name, COUNT(v.Visitor_name) AS Visitor_Count
      FROM Branch b
      LEFT JOIN Visitors v ON b.Branch_id = v.Branch_id
      GROUP BY b.Branch_id, b.B_name
      ORDER BY Visitor_Count DESC
      LIMIT 1;

Data Output | Messages | Notifications

	branch_id [PK] integer	b_name character varying (30)	visitor_count bigint
1	1	Spaceport Unit	3

32. Calculate the total number of expositions.
    - SELECT COUNT(*) AS Total_Expositions FROM Exposition;

Data Output | Messages | Notifications

	total_expositions bigint
1	15

33. Find the latest exposition held.
    - SELECT * FROM Exposition ORDER BY Date DESC LIMIT 1;

Data Output | Messages | Notifications

	expo_id [PK] integer	title text	place character varying (80)	date date	speaker_name character varying (100)	audience_type character varying (45)
1	213	Space Tourism: Bridging the Gap	International Aerospace Expo	20216-07-25	Dr. Ankit Gupta	Industry Professionals

34. Select departments with the highest number of enrolled students.
    - SELECT Dept_id, COUNT(student_id) AS student_count
      FROM Human_resources
      GROUP BY Dept_id
      HAVING COUNT(student_id) = (

```
        SELECT MAX(count_students)
        FROM (
            SELECT COUNT(student_id) AS count_students
            FROM Human_resources
            GROUP BY Dept_id
            ) AS max_students
);
```

Data Output | Messages | Notifications

	dept_id integer	student_count bigint
1	105	6
2	103	6

35. Select departments where no student is enrolled for any criteria.

```
SELECT Dept_id
FROM Human_resources
GROUP BY Dept_id
HAVING COUNT(student_id) = 0;
```

Data Output | Messages | Notifications

	dept_id integer

36. Find the project manager(s) managing the maximum number of projects and their department names

```
SELECT pm.Dept_id, d.Dept_name, pm.No_of_project_managed
FROM Project_manager pm
INNER JOIN Department d ON pm.Dept_id = d.Dept_id
WHERE pm.No_of_project_managed = (
SELECT MAX(No_of_project_managed) FROM Project_manager);
```

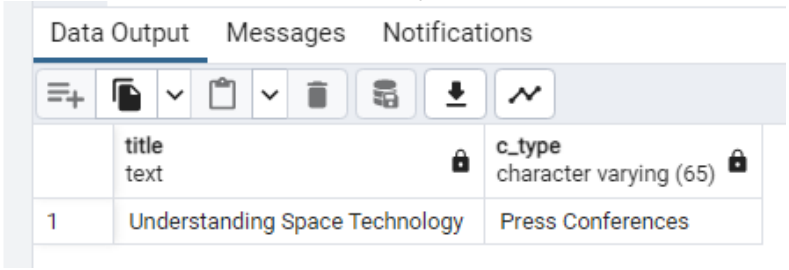
Data Output | Messages | Notifications

	dept_id integer	dept_name character varying (255)	no_of_project_managed integer
1	103	Spacecraft Systems	7
2	109	Space Robotics	7

37. Retrieve the exposition titles and the corresponding public communication types for expositions held after a certain date

```
SELECT e.Title, pc.c_type
FROM Exposition e
INNER JOIN Connect_by cb ON e.Expo_id = cb.Expo_id
INNER JOIN Public_communication pc ON cb.Dept_id = pc.Dept_id
```

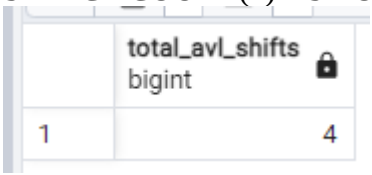
WHERE e.Date > '2022-01-01';



Data Output | Messages | Notifications

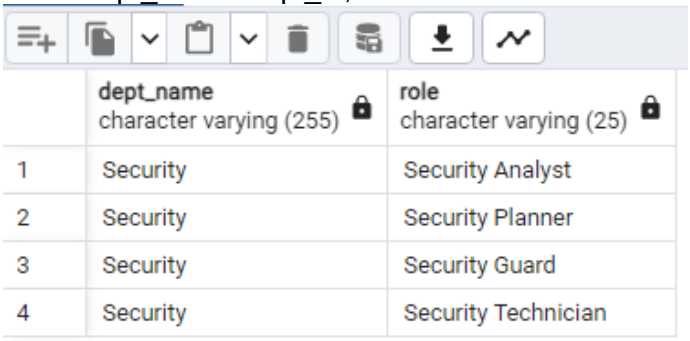
	title text	c_type character varying (65)
1	Understanding Space Technology	Press Conferences

38. Retrieve the total food service shifts.
    - SELECT COUNT(*) AS TOTAL_AVL_SHIFTS from food_service;



	total_avl_shifts bigint
1	4

39. Retrieve the names of all security roles along with the department names they belong to.
    - SELECT D.Dept_name, S.Role FROM Security S JOIN Department D ON S.Dept_id = D.Dept_id;



	dept_name character varying (255)	role character varying (25)
1	Security	Security Analyst
2	Security	Security Planner
3	Security	Security Guard
4	Security	Security Technician

40. Fetch the human resource skills along with the department names.
    - SELECT D.Dept_name, H.c_name FROM Human_resources H JOIN Department D ON H.Dept_id = D.Dept_id;

	hr_id [PK] integer	student_id integer	c_name character varying (20)	dept_id integer
1	262	2201	Experience	101
2	263	2201	Education	101
3	264	2201	Teamwork	101
4	265	2201	Problem Solving	101
5	266	2203	Experience	102
6	267	2203	Education	102
7	268	2203	Teamwork	102
8	269	2203	Problem Solving	102
9	270	2208	Education	103
10	271	2208	Technical Skills	103

41. Fetch the number of projects involved by each researcher along with their technical skills and their respective departments:
    - SELECT r.No_of_Projects_involved, t.Tech_skill, d.Dept_name FROM Researcher r INNER JOIN Department d ON r.Dept_id = d.Dept_id INNER JOIN Technician t ON r.Dept_id = t.Dept_id;

	no_of_projects_involved integer	tech_skill text	dept_name character varying (255)
1	10	Electronics, Aerospace Engineering	Scientific Research and Inspection Department
2	5	Propulsion Systems, Fluid Mechanics	Innovation and Inspection Division
3	7	Mechanical Engineering, Systems Engineering	Spacecraft Systems
4	8	Remote Sensing, GIS	Remote Sensing
5	3	Project Management, Orbital Mechanics	Mission Planning
6	4	Telecommunications, Networking	Ground Station Operations
7	2	Robotics, Satellite Communications	Astrophysics Research
8	2	Navigation, Geology	Satellite Navigation
9	3	Mechatronics, AI	Space Robotics
10	1	Meteorology, Solar Physics	Space Weather Research

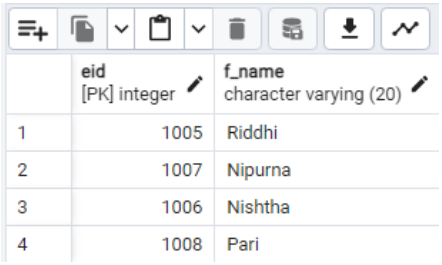
42. Find employees who are not managers but earn more than their managers.
    - SELECT e.Eid, e.F_name, e.L_name, e.Salary AS Employee_Salary, m.Eid AS Manager_ID, m.F_name AS Manager_FirstName, m.L_name AS Manager_LastName, m.Salary AS Manager_Salar
      FROM Employee
      JOIN Employee m ON e.super_eno = m.Eid
      WHERE e.Salary >= m.Salary
      AND e.Eid NOT IN (SELECT manager_id FROM DEPARTMENT);

Data Output Messages Notifications

	eid [PK] integer	f_name character varying (20)	l_name character varying (20)	employee_salary integer	manager_id integer	manager_firstname character varying (20)	manager_lastname character varying (20)	manager_salary integer
1	1022	Robert	Taylor	92000	1011	Manan	Pareek	91000

43. Find employees who are not managers but report to other employees (Super_enos).

- SELECT eid,f_name
  FROM Employee WHERE
  eid NOT IN (SELECT MANAGER_ID FROM DEPARTMENT)
  AND
  eid IN (SELECT super_eno FROM EMPLOYEE WHERE super_eno IS NOT NULL) ;



	eid [PK] integer	f_name character varying (20)
1	1005	Riddhi
2	1007	Nipurna
3	1006	Nishtha
4	1008	Pari