

DBMS:-IT-214

Project :-Merit Mapper

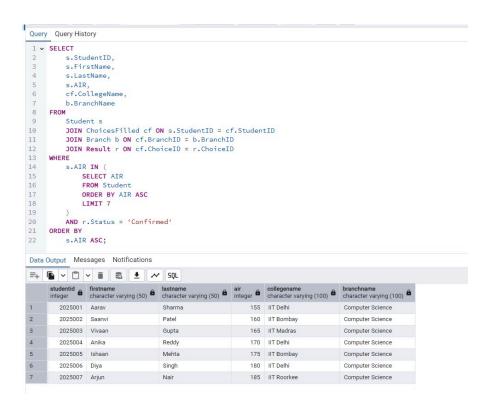
(Academic Year - 2025)

Group Members:-

Namra Kachhia - 202301129 Meet Jain - 202301073 Namra Sanandiya - 202301130 Shubh Raj - 202301125 Rishank Dhudhat - 202301068

QUERIES IN SQL

1. The top 7 rankers have secured admissions across various colleges and branches; the details of their allotted colleges and respective branches are as follows.



```
SELECT
s.StudentID,
s.FirstName,
s.LastName,
s.AIR,
cf.CollegeName,
b.BranchName
FROM
Student s
JOIN ChoicesFilled cf ON s.StudentID = cf.StudentID
JOIN Branch b ON cf.BranchID = b.BranchID
JOIN Result r ON cf.ChoiceID = r.ChoiceID
WHERE
s.AIR IN (
SELECT AIR
```

```
FROM Student
ORDER BY AIR ASC
LIMIT 7
)
AND r.Status = 'Confirmed'
ORDER BY
s.AIR ASC;
```

2. The cutoff ranks (categorywise) for each of top 5 IITs is as follows:

```
WITH AdmittedStudents AS (
  SELECT
    cf.CollegeName,
    s.Category,
    MAX(s.AIR) AS CutoffRank
  FROM
    Student s
    JOIN ChoicesFilled cf ON s.StudentID = cf.StudentID
    JOIN Result r ON cf.ChoiceID = r.ChoiceID
  WHERE
    cf.CollegeName IN (
      'IIT Madras',
      'IIT Delhi',
      'IIT Bombay',
      'IIT Kanpur',
      'IIT Kharagpur'
    AND r.Status = 'Confirmed'
    AND r.RoundID = (
      SELECT MAX(RoundID)
      FROM Result r2
      WHERE r2.ChoiceID = r.ChoiceID
    )
  GROUP BY
    cf.CollegeName,
    s.Category
SELECT
  CollegeName,
  Category,
  CutoffRank
FROM
  AdmittedStudents
ORDER BY
  CollegeName,
```

Category;

```
1 - WITH AdmittedStudents AS (
 2
          SELECT
 3
               cf.CollegeName,
 4
               s.Category,
 5
               MAX(s.AIR) AS CutoffRank
 6
          FROM
 7
               Student s
               JOIN ChoicesFilled cf ON s.StudentID = cf.StudentID
 8
               JOIN Result r ON cf.ChoiceID = r.ChoiceID
9
10
          WHERE
               cf.CollegeName IN (
11
12
                    'IIT Madras',
                    'IIT Delhi',
13
14
                    'IIT Bombay',
15
                    'IIT Kanpur',
16
                    'IIT Kharagpur'
17
18
               AND r.Status = 'Confirmed'
               AND r.RoundID = (
19
20
                    CELECT MAY (Daniel JTD)
Data Output Messages Notifications
=+
                                        SQL
                                                cutoffrank
      collegename
      character varying (100)
                            character varying (50)
                                                 integer
1
      IIT Bombay
                            General
                                                        175
2
      IIT Delhi
                            General
                                                        170
                            SC
3
      IIT Delhi
                                                        180
4
      IIT Kanpur
                            General
                                                       2200
5
      IIT Kharagpur
                                                       2350
                            General
      IIT Kharagpur
                            SC
                                                       2050
6
7
                                                       2300
      IIT Kharagpur
                            ST
8
      IIT Madras
                            General
                                                       165
9
      IIT Madras
                            ST
                                                       1900
```

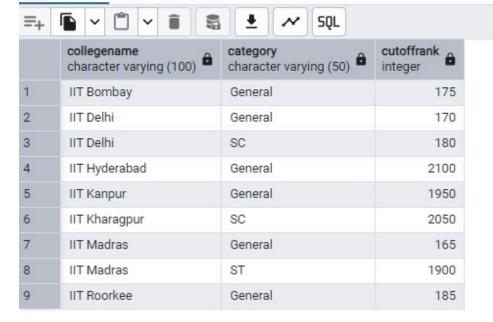
3) Cutoff ranks for CS(categorywise) in all IITs are as follows:

```
WITH AdmittedStudents AS (
  SELECT
    cf.CollegeName,
    s.Category,
    MAX(s.AIR) AS CutoffRank
  FROM
    Student s
    JOIN ChoicesFilled cf ON s.StudentID = cf.StudentID
    JOIN Branch b ON cf.BranchID = b.BranchID
    JOIN Result r ON cf.ChoiceID = r.ChoiceID
  WHERE
    b.BranchName = 'Computer Science'
    AND r.Status = 'Confirmed'
    AND r.RoundID = (
      SELECT MAX(RoundID)
      FROM Result r2
      WHERE r2.ChoiceID = r.ChoiceID
    )
  GROUP BY
    cf.CollegeName,
    s.Category
SELECT
  CollegeName,
  Category,
  CutoffRank
FROM
  AdmittedStudents
ORDER BY
  CollegeName,
  Category;
```

Query Query History

```
1 v WITH AdmittedStudents AS (
 2
         SELECT
 3
             cf.CollegeName,
 4
             s.Category,
 5
             MAX(s.AIR) AS CutoffRank
 6
         FROM
 7
             Student s
             JOIN ChoicesFilled cf ON s.StudentID = cf.StudentID
 8
             JOIN Branch b ON cf.BranchID = b.BranchID
 9
             JOIN Result r ON cf.ChoiceID = r.ChoiceID
10
11
         WHERE
             b.BranchName = 'Computer Science'
12
             AND r.Status = 'Confirmed'
13
             AND r.RoundID = (
14
15
                 SELECT MAX(RoundID)
16
                 FROM Result r2
17
                 WHERE r2.ChoiceID = r.ChoiceID
18
19
         GROUP BY
             -£ C-11---N---
20
```

Data Output Messages Notifications



4) The number of people that got their dream college:

Output: 17 Students

```
WITH FirstPreference AS (
  SELECT
    StudentID,
    CollegeName,
    ROW_NUMBER() OVER (PARTITION BY StudentID ORDER BY ChoiceID) AS PreferenceRank
  FROM
    ChoicesFilled
),
AdmittedStudents AS (
  SELECT
    cf.StudentID,
    cf.CollegeName AS AdmittedCollege
  FROM
    ChoicesFilled cf
    JOIN Result r ON cf.ChoiceID = r.ChoiceID
  WHERE
    r.Status = 'Confirmed'
    AND r.RoundID = (
      SELECT MAX(RoundID)
      FROM Result r2
      WHERE r2.ChoiceID = r.ChoiceID
    )
SELECT
  COUNT(DISTINCT a.StudentID) AS StudentsWithFirstPreference
FROM
  AdmittedStudents a
  JOIN FirstPreference fp ON a.StudentID = fp.StudentID
WHERE
  fp.PreferenceRank = 1
  AND a.AdmittedCollege = fp.CollegeName;
```

```
Query Query History
1 v WITH FirstPreference AS (
2
        SELECT
3
            StudentID,
4
            CollegeName,
            ROW_NUMBER() OVER (PARTITION BY StudentID ORDER BY ChoiceID) AS PreferenceRank
5
6
7
            ChoicesFilled
8
9
    AdmittedStudents AS (
10
       SELECT
11
            cf.StudentID,
12
            cf.CollegeName AS AdmittedCollege
       FROM
13
           ChoicesFilled cf
14
15
            JOIN Result r ON cf.ChoiceID = r.ChoiceID
16
      WHERE
17
            r.Status = 'Confirmed'
18
            AND r.RoundID = (
19
               SELECT MAX(RoundID)
20
                FROM Result r2
21
                WHERE r2.ChoiceID = r.ChoiceID
22
23
24
   SELECT
25
        COUNT(DISTINCT a.StudentID) AS StudentsWithFirstPreference
26
27
        AdmittedStudents a
28
        JOIN FirstPreference fp ON a.StudentID = fp.StudentID
29
30
        fp.PreferenceRank = 1
31
        AND a.AdmittedCollege = fp.CollegeName;
Data Output Messages Notifications
=+ □ ∨ □ ∨ ■ 3 ± № SQL
     studentswithfirstpreference
    bigint
```

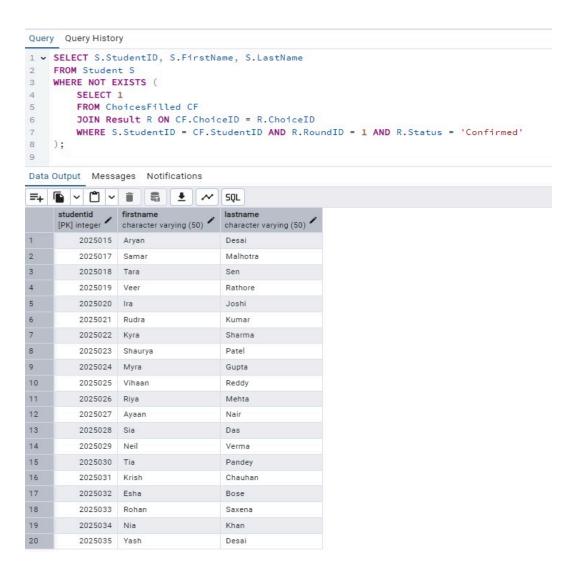
5) Percentage of students who got their college in their home state:

```
WITH AdmittedStudents AS (
  SELECT
    s.StudentID,
    s.State AS StudentState,
    c.State AS CollegeState
  FROM
    Student s
    JOIN ChoicesFilled cf ON s.StudentID = cf.StudentID
    JOIN Result r ON cf.ChoiceID = r.ChoiceID
    JOIN College c ON cf.CollegeName = c.CollegeName
  WHERE
    r.Status = 'Confirmed'
    AND r.RoundID = (
      SELECT MAX(RoundID)
      FROM Result r2
      WHERE r2.ChoiceID = r.ChoiceID
    )
HomeStateAdmissions AS (
  SELECT
    COUNT(DISTINCT StudentID) AS HomeStateCount
  FROM
    AdmittedStudents
  WHERE
    StudentState = CollegeState
TotalAdmitted AS (
  SELECT
    COUNT(DISTINCT StudentID) AS TotalAdmittedCount
    AdmittedStudents
SELECT
  hsa.HomeStateCount,
  ta.TotalAdmittedCount,
  ROUND(
    ((hsa.HomeStateCount::NUMERIC / ta.TotalAdmittedCount) * 100)::NUMERIC,
  ) AS HomeStatePercentage
  HomeStateAdmissions hsa,
  TotalAdmitted ta
WHERE
  ta.TotalAdmittedCount > 0;
```

Query History Query 1 - WITH AdmittedStudents AS (2 SELECT 3 s.StudentID, s. State AS StudentState, 4 c.State AS CollegeState 5 6 FROM Student s 7 JOIN ChoicesFilled cf ON s.StudentID = cf.StudentID 8 JOIN Result r ON cf.ChoiceID = r.ChoiceID 9 JOIN College c ON cf.CollegeName = c.CollegeName 10 11 WHERE r.Status = 'Confirmed' 12 AND r.RoundID = (13 SELECT MAX(RoundID) 14 FROM Result r2 15 WHERE r2.ChoiceID = r.ChoiceID 16) 17 18), HomeStateAdmissions AS (Data Output Messages Notifications SQL =+ totaladmittedcount homestatecount homestatepercentage bigint bigint numeric 1 3 25 12.00

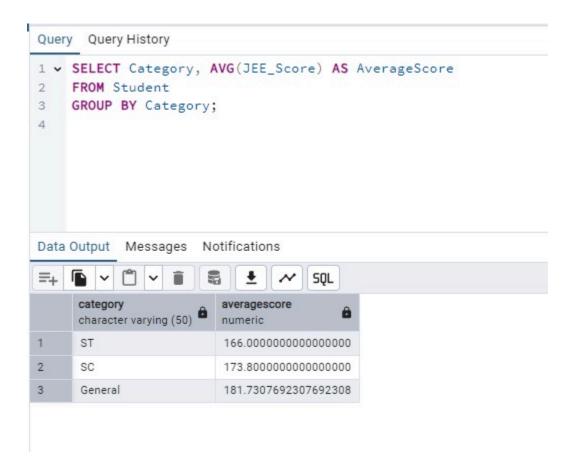
6) Students who did not get any seat in Round 1.

```
SELECT S.StudentID, S.FirstName, S.LastName
FROM Student S
WHERE NOT EXISTS (
    SELECT 1
    FROM ChoicesFilled CF
    JOIN Result R ON CF.ChoiceID = R.ChoiceID
    WHERE S.StudentID = CF.StudentID AND R.RoundID = 1 AND R.Status = 'Confirmed'
);
```



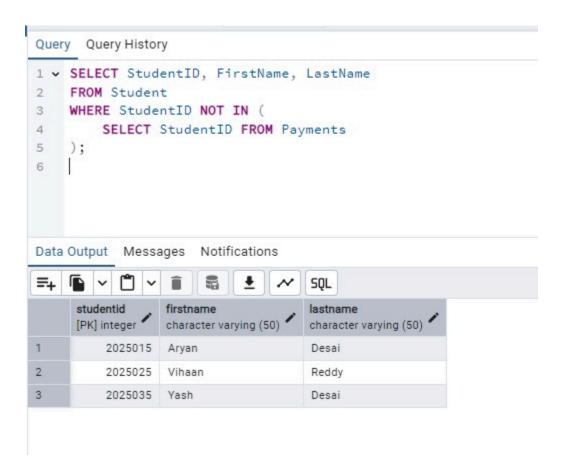
7) Average JEE score by category:

SELECT Category, AVG(JEE_Score) AS AverageScore FROM Student GROUP BY Category;



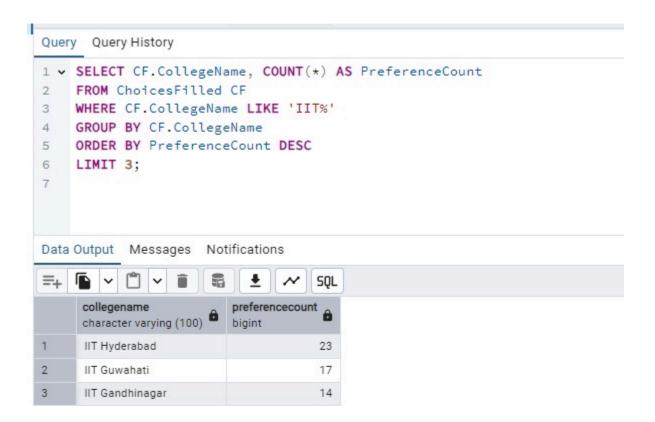
8) Students who did not pay the registration fees and got out of the admission process:

```
SELECT StudentID, FirstName, LastName FROM Student
WHERE StudentID NOT IN (
SELECT StudentID FROM Payments
);
```



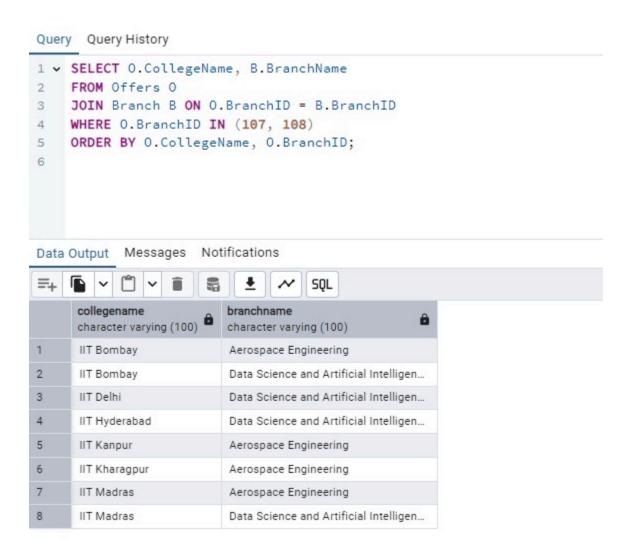
9) Top 3 IITs with most no. of preference:

SELECT CF.CollegeName, COUNT(*) AS PreferenceCount FROM ChoicesFilled CF
WHERE CF.CollegeName LIKE 'IIT%'
GROUP BY CF.CollegeName
ORDER BY PreferenceCount DESC
LIMIT 3;



10) Colleges which provide Aerospace Engineering or Data Science and Artificial Intelligence

SELECT O.CollegeName, B.BranchName FROM Offers O JOIN Branch B ON O.BranchID = B.BranchID WHERE O.BranchID IN (107, 108) ORDER BY O.CollegeName, O.BranchID;



11) Category-Wise Round-Wise Closing Rank per IIT and Branch:

```
WITH AllottedStudents AS (
  SELECT
    S.StudentID,
    S.AIR,
    S.Category,
    R.RoundID,
    CF.CollegeName,
    CF.BranchID
  FROM Student S
  JOIN ChoicesFilled CF ON S.StudentID = CF.StudentID
  JOIN Result R ON CF.ChoiceID = R.ChoiceID
  WHERE R.Status = 'Confirmed'
),
IITsOnly AS (
  SELECT *
  FROM AllottedStudents
  WHERE CollegeName LIKE 'IIT%'
),
MaxRanks AS (
  SELECT
    CollegeName,
    BranchID,
    Category,
    RoundID,
    MAX(AIR) AS ClosingRank
  FROM IITsOnly
  GROUP BY CollegeName, BranchID, Category, RoundID
SELECT
  M.CollegeName,
  C.Address AS CollegeAddress,
  B.BranchName,
  M.Category,
  M.RoundID,
  M.ClosingRank
FROM MaxRanks M
JOIN College C ON M.CollegeName = C.CollegeName
JOIN Branch B ON M.BranchID = B.BranchID
ORDER BY M.CollegeName, M.BranchID, M.Category, M.RoundID;
```

Query Query History JOIN ChoicesFilled CF ON S.StudentID = CF.StudentID JOIN Result R ON CF.ChoiceID = R.ChoiceID 11 12 WHERE R.St 13), 14 IITsOnly AS (15 SELECT * WHERE R.Status = 'Confirmed' 16 FROM AllottedStudents WHERE CollegeName LIKE 'IIT%'

Data Output Messages Notifications

	collegename character varying (100)	collegeaddress text	branchname character varying (100)	category character varying (50)	roundid integer	closingrank integer
1	IIT Bombay	Powai	Computer Science	General	1	175
2	IIT Delhi	Hauz Khas	Computer Science	General	1	170
3	IIT Delhi	Hauz Khas	Computer Science	SC	1	180
4	IIT Gandhinagar	Palaj	Civil Engineering	SC	3	3050
5	IIT Gandhinagar	Palaj	Chemical Engineering	General	2	2650
6	IIT Gandhinagar	Palaj	Chemical Engineering	SC	2	2800
7	IIT Guwahati	Amingaon	Electrical Engineering	General	2	2400
8	IIT Guwahati	Amingaon	Electrical Engineering	ST	3	2900
9	IIT Guwahati	Amingaon	Chemical Engineering	General	3	2850
10	IIT Hyderabad	Kandi	Computer Science	General	1	2100
11	IIT Hyderabad	Kandi	Electrical Engineering	sc	2	2450
12	IIT Hyderabad	Kandi	Civil Engineering	General	3	3150
13	IIT Kanpur	Kalyanpur	Computer Science	General	1	1950
14	IIT Kanpur	Kalyanpur	Electrical Engineering	General	1	2200
15	IIT Kanpur	Kalyanpur	Electronics and Communication Engineeri	General	1	2000
16	IIT Kharagpur	Kharagpur	Computer Science	SC	1	2050
17	IIT Kharagpur	Kharagpur	Mechanical Engineering	General	3	2350
18	IIT Kharagpur	Kharagpur	Electrical Engineering	General	1	2150
19	IIT Kharagpur	Kharagpur	Electrical Engineering	ST	1	2300
20	IIT Madras	Sardar Patel Ro	Computer Science	General	1	165
21	IIT Madras	Sardar Patel Ro	Computer Science	ST	1	1900
22	IIT Roorkee	Roorkee Campus	Computer Science	General	1	185

12) For each reason for the calls made to the help desk, the total number of calls for that reason is displayed :

SELECT Call_for AS Reason, COUNT(*) AS NumberOfCalls FROM Calls GROUP BY Call_for ORDER BY NumberOfCalls DESC;

