Advance SQL

* (Superset ID - 6364580) Rishabh Shrivastav

**Exercise – 1: Ranking and Window Functions**

**Goal:** Use ROW\_NUMBER(), RANK(), DENSE\_RANK(), OVER(), and PARTITION BY.

**Scenario:** Find the top 3 most expensive products in each category using different ranking functions.

**Steps:**

**1.** Use ROW\_NUMBER() to assign a unique rank within each category.

**2.** Use RANK() and DENSE\_RANK() to compare how ties are handled.

**3.** Use PARTITION BY Category and ORDER BY Price DESC.

**Code –**

**a. row\_number\_query.sql**

1. WITH RowNumberRanked AS (
2. SELECT
3. ProductID,
4. ProductName,
5. Category,
6. Price,
7. ROW\_NUMBER() OVER (PARTITION BY Category ORDER BY Price DESC) AS RowNum
8. FROM Products
9. )
10. SELECT
11. ProductID,
12. ProductName,
13. Category,
14. Price,
15. RowNum
16. FROM RowNumberRanked
17. WHERE RowNum <= 3
18. ORDER BY Category, RowNum;

**Output –**

A screenshot of a computer

AI-generated content may be incorrect.

b. **rank\_query.sql**

ITH RankBased AS (

SELECT

ProductID,

ProductName,

Category,

Price,

RANK() OVER (PARTITION BY Category ORDER BY Price DESC) AS RankNum

FROM Products

)

SELECT

ProductID,

ProductName,

Category,

Price,

RankNum

FROM RankBased

WHERE RankNum <= 3

ORDER BY Category, RankNum;

**Output –**

A screenshot of a computer

AI-generated content may be incorrect.

**c. dense\_rank\_query.sql**

WITH DenseRanked AS (

SELECT

ProductID,

ProductName,

Category,

Price,

DENSE\_RANK() OVER (PARTITION BY Category ORDER BY Price DESC) AS DenseRankNum

FROM Products

)

SELECT

ProductID,

ProductName,

Category,

Price,

DenseRankNum

FROM DenseRanked

WHERE DenseRankNum <= 3

ORDER BY Category, DenseRankNum;

**Output –**

A screenshot of a computer

AI-generated content may be incorrect.

**Exercise – 2: Create a Stored Procedure**

**Goal:** Create a stored procedure to retrieve employee details by department.

**Steps:**

**1.** Define the stored procedure with a parameter for DepartmentID.

**2.** Write the SQL query to select employee details based on the DepartmentID.

**3.** Create a stored procedure named `sp\_InsertEmployee` with the following code:

CREATE PROCEDURE sp\_InsertEmployee

@FirstName VARCHAR(50),

@LastName VARCHAR(50),

@DepartmentID INT,

@Salary DECIMAL(10,2),

@JoinDate DATE

AS

BEGIN

INSERT INTO Employees (FirstName, LastName, DepartmentID, Salary, JoinDate)

VALUES (@FirstName, @LastName, @DepartmentID, @Salary, @JoinDate);

END;

**Code –**

**employee\_procedures.sql**

CREATE PROCEDURE sp\_GetEmployeesByDepartment

@DepartmentID INT

AS

BEGIN

SELECT

EmployeeID,

FirstName,

LastName,

DepartmentID,

Salary,

JoinDate

FROM Employees

WHERE DepartmentID = @DepartmentID;

END;

GO

CREATE PROCEDURE sp\_InsertEmployee

@FirstName VARCHAR(50),

@LastName VARCHAR(50),

@DepartmentID INT,

@Salary DECIMAL(10,2),

@JoinDate DATE

AS

BEGIN

INSERT INTO Employees (FirstName, LastName, DepartmentID, Salary, JoinDate)

VALUES (@FirstName, @LastName, @DepartmentID, @Salary, @JoinDate);

END;

GO

EXEC sp\_InsertEmployee

@FirstName = 'Aritra ',

@LastName = 'Das',

@DepartmentID = 3,

@Salary = 7200.00,

@JoinDate = '2025-06-28';

EXEC sp\_GetEmployeesByDepartment @DepartmentID = 3;

**Output -**

A screenshot of a computer

AI-generated content may be incorrect.

**Exercise – 3: Return data from a Stored Procedure**

**Goal:** Create a stored procedure that returns the total number of employees in a

department.

**Steps:**

**1.** Define the stored procedure with a parameter for DepartmentID.

**2.** Write the SQL query to count the number of employees in the specified department.

**3.** Save the stored procedure by executing the Stored procedure content.

**Code –**

**count\_employees\_by\_department.sql**

CREATE PROCEDURE sp\_CountEmployeesByDepartment

@DepartmentID INT

AS

BEGIN

SELECT

COUNT(\*) AS TotalEmployees

FROM

Employees

WHERE

DepartmentID = @DepartmentID;

END;

GO

EXEC sp\_CountEmployeesByDepartment @DepartmentID = 3;

**Output –**

A screenshot of a computer

AI-generated content may be incorrect.

Name – Rishabh Shrivastav

Roll Number – 22053972

Superset ID - 6364580

College – Kalinga Institute of Industrial Technology (KIIT), Bhubaneswar