**PRACTICAL -5**

**Aim:** To Study data communication using SQL functions

**Theoretical Description**:

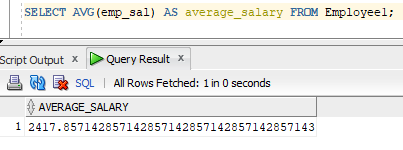
* **AVG(n)** – Returns the average of numeric values.
* **MIN(expr)** – Returns the minimum value from a column.
* \**COUNT(expr / )* – Returns the number of rows.
* **MAX(expr)** – Returns the maximum value from a column.
* **SUM(n)** – Returns the total sum of numeric values.
* **ABS(n)** – Returns the absolute value of n.
* **POWER(m, n)** – Returns m raised to the power of n.
* **ROUND(n, m)** – Rounds n to m decimal places.
* **SQRT(n)** – Returns the square root of n.
* **LOWER(char)** – Converts text to lowercase.
* **INITCAP(char)** – Capitalizes the first letter of each word.
* **UPPER(char)** – Converts text to uppercase.
* **SUBSTR(char, m, n)** – Extracts a substring from position m of length n.
* **LENGTH(word)** – Returns the length of a string.
* **LTRIM(char, set)** – Removes leading characters from a string.
* **RTRIM(char, set)** – Removes trailing characters from a string.
* **LPAD(char1, n, char2)** – Pads char1 on the left with char2 to make it n characters long.
* **RPAD(char1, n, char2)** – Pads char1 on the right with char2 to make it n characters long.
* **TO\_NUMBER(char)** – Converts a string to a number.
* **TO\_CHAR(n, fmt)** – Converts a number to a formatted string.
* **TO\_DATE(char, fmt)** – Converts a string into a date format.
* **ADD\_MONTHS(d, n)** – Adds n months to a given date d.
* **LAST\_DAY(d)** – Returns the last day of the month for a given date.
* **MONTHS\_BETWEEN(d1, d2)** – Finds the number of months between two dates.
* **NEXT\_DAY(date, char)** – Returns the next occurrence of a specified weekday.
* **UNION** – Combines unique results from two queries.
* **UNION ALL** – Combines results from two queries (including duplicates).
* **INTERSECT** – Returns common records from two queries.

**Aggregate Functions:**

**Query-1:** AVG (DISTINCT | ALL | n)

**SQL Statement:** SELECT AVG(emp\_sal) AS average\_salary FROM Employee1

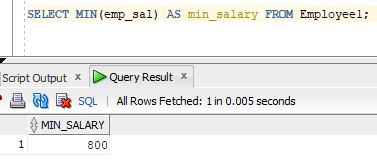
**Output:**

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**Query-2:** MIN (DISTINCT | ALL | expr)

**SQL Statement:** SELECT MIN(emp\_sal) AS min\_salary FROM Employee1;

**Output:**

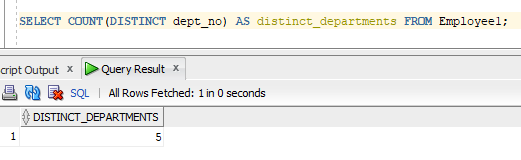
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**Query-3:** COUNT (DISTINCT | ALL | expr)

**SQL Statement:**

SELECT COUNT(DISTINCT dept\_no) AS distinct\_departments FROM Employee1;

**Output:**

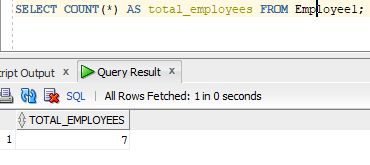


**Query-4:** COUNT (\*)

**SQL Statement:**

SELECT COUNT(\*) AS total\_employees FROM Employee1;

**Output:**

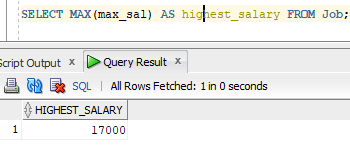
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**Query-5:** MAX (DISTINCT | ALL | expr)

**SQL Statement:**

SELECT MAX(max\_sal) AS highest\_salary FROM Job;

**Output:**

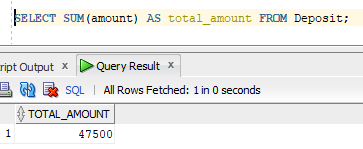
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**Query-6:** SUM (DISTINCT | ALL | n)

**SQL Statement:**

SELECT SUM(amount) AS total\_amount FROM Deposit;

**Output:**

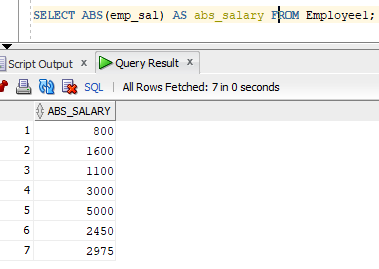
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**Query-7:** Numeric Functions:ABS(n)

**SQL Statement:**

SELECT ABS(emp\_sal) AS abs\_salary FROM Employee1;

**Output:**

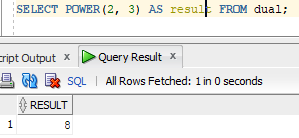


**Query-8:** POWER(m, n)

**SQL Statement:**

SELECT POWER(2, 3) AS result FROM dual;.

**Output:**

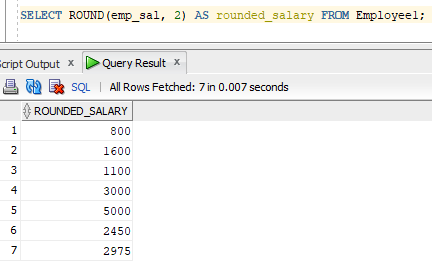


**Query-9:** ROUND(n, m)

**SQL Statement:**

SELECT ROUND(emp\_sal, 2) AS rounded\_salary FROM Employee1;

**Output:**

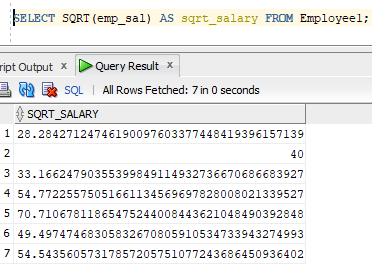
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**Query-10:** SQRT(n)

**SQL Statement:**

SELECT SQRT(emp\_sal) AS sqrt\_salary FROM Employee1;

**Output:**

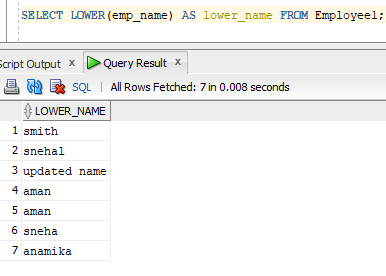
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**Query-11:** String Functions: LOWER(char)

**SQL Statement:**

SELECT LOWER(emp\_name) AS lower\_name FROM Employee1;

**Output:**

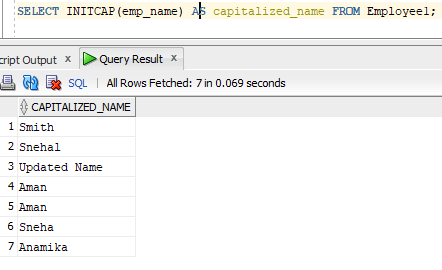
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**Query-12:** INITCAP(char)

**SQL Statement:**

SELECT INITCAP(emp\_name) AS capitalized\_name FROM Employee1;

**Output:**

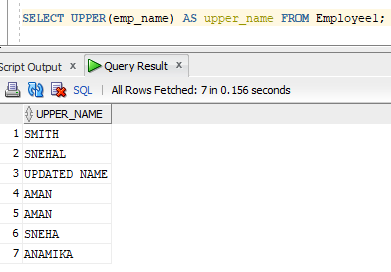


**Query-13:** UPPER(char)

**SQL Statement:**

SELECT UPPER(emp\_name) AS upper\_name FROM Employee1;

**Output:**

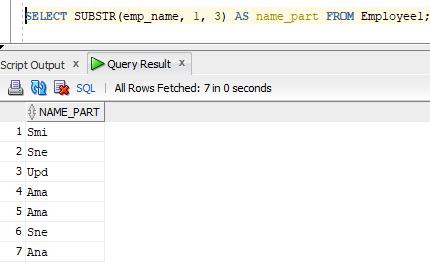
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**Query-14:** SUBSTR(char, m [, n])

**SQL Statement:**

SELECT SUBSTR(emp\_name, 1, 3) AS name\_part FROM Employee1;

**Output:**

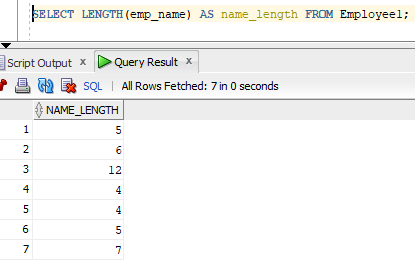
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**Query-15:** LENGTH(word)

**SQL Statement:**

SELECT LENGTH(emp\_name) AS name\_length FROM Employee1;

**Output:**

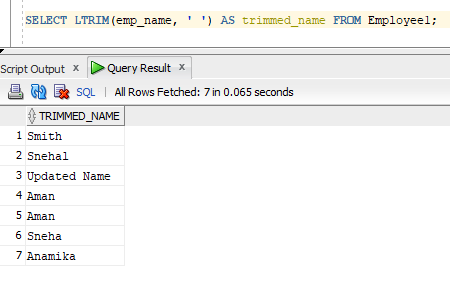
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**Query-16:** LTRIM(char [, set])

**SQL Statement:**

SELECT LTRIM(emp\_name, ' ') AS trimmed\_name FROM Employee1;

**Output:**

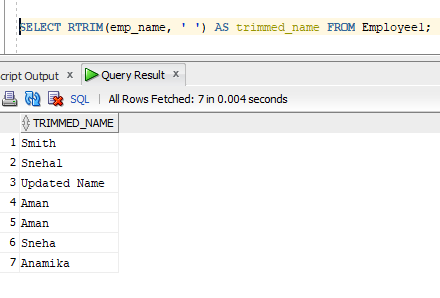
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**Query-17:** RTRIM(char [, set])

**SQL Statement:**

SELECT RTRIM(emp\_name, ' ') AS trimmed\_name FROM Employee1;

**Output:**

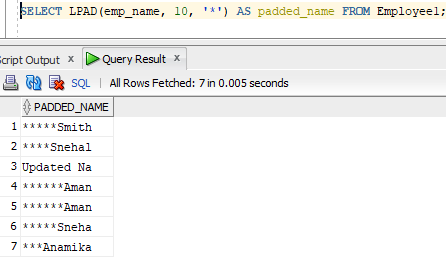
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**Query-18:** LPAD(char1, n [, char2])

**SQL Statement:**

SELECT LPAD(emp\_name, 10, '\*') AS padded\_name FROM Employee1;

**Output:**

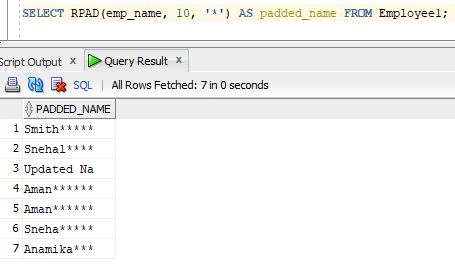
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**Query-19:** RPAD(char1, n [, char2])

**SQL Statement:**

SELECT RPAD(emp\_name, 10, '\*') AS padded\_name FROM Employee1;

**Output:**

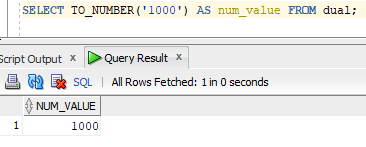
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**Query-20: Conversion Functions:**TO\_NUMBER(char)

**SQL Statement:**

SELECT TO\_NUMBER('1000') AS num\_value FROM dual;

**Output:**

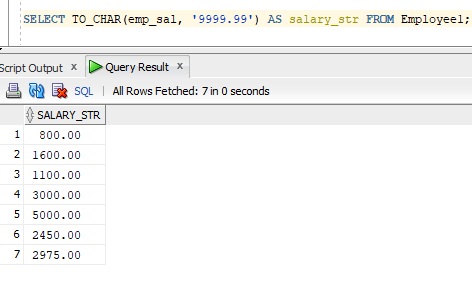
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**Query-21:** TO\_CHAR(n [, fmt])

**SQL Statement:**

SELECT TO\_CHAR(emp\_sal, '9999.99') AS salary\_str FROM Employee1;

**Output:**

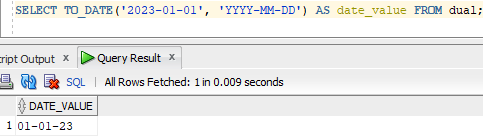
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**Query-22:** Date Conversion Functions: TO\_DATE (char [, fmt])

**SQL Statement:**

SELECT TO\_DATE('2023-01-01', 'YYYY-MM-DD') AS date\_value FROM dual;

**Output:**

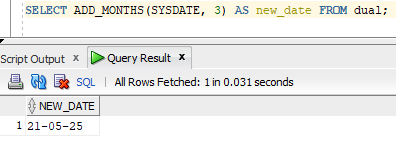
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**Query-23:** DATE Functions: ADD\_MONTHS(d, n)

**SQL Statement:**

SELECT ADD\_MONTHS(SYSDATE, 3) AS new\_date FROM dual;

**Output:**

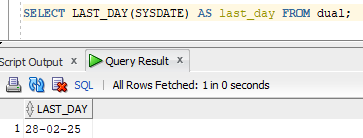
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**Query-24:** LAST\_DAY(d)

**SQL Statement:**

SELECT LAST\_DAY(SYSDATE) AS last\_day FROM dual;

**Output:**

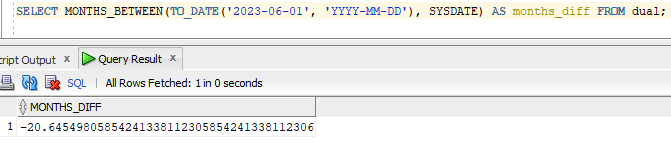
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**Query-25:** MONTHS\_BETWEEN(d1, d2)

**SQL Statement:**

SELECT MONTHS\_BETWEEN(TO\_DATE('2023-06-01', 'YYYY-MM-DD'), SYSDATE) AS months\_diff FROM dual;

**Output:**

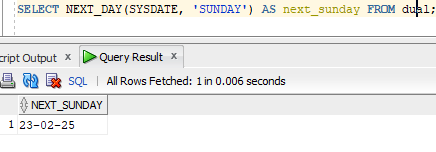
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**Query-26:** NEXT\_DAY(date, char)

**SQL Statement:**

SELECT NEXT\_DAY(SYSDATE, 'SUNDAY') AS next\_sunday FROM dual;

**Output:**

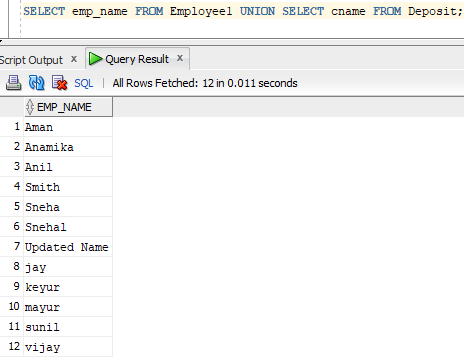
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**Query-27:** UNION

**SQL Statement:**

SELECT emp\_name FROM Employee1 UNION SELECT cname FROM Deposit;

**Output:**

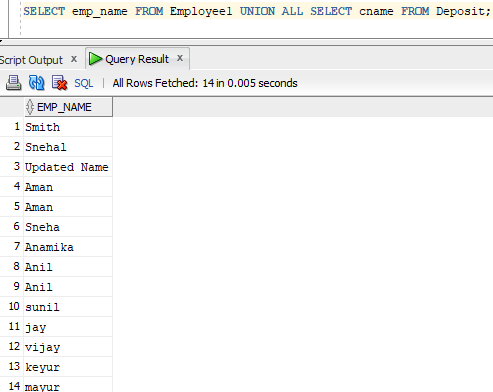
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**Query-28:** UNION ALL

**SQL Statement:**

SELECT emp\_name FROM Employee1 UNION ALL SELECT cname FROM Deposit;

**Output:**

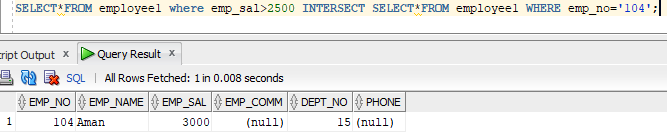
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**Query-29:** INTERSECTION

**SQL Statement:**

SELECT FROM employeel where emp\_sal>2500 INTERSECT SELECT FROM employeel WHERE emp\_no='104';

**Output:**

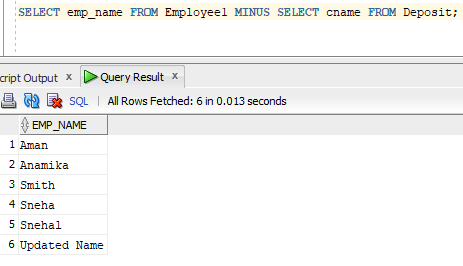
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**Query-30:** MINUS

**SQL Statement:**

SELECT emp\_name FROM Employee1 MINUS SELECT cname FROM Deposit;

**Output:**

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