Day 21
Summary Functions in SQL

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Summary Functions

- **Summary functions** produce a statistical summary of the entire table or view listed in the **FROM** clause or for each group specified in a **GROUP BY** clause.
- Can be used to perform an initial **EDA** on the given dataset

Count ()

The **COUNT()** function returns the number of rows that matches a specified criterion

```
SELECT COUNT(column_name)
FROM table_name
WHERE condition;
```

Range:min() & max()

- The MIN() function returns the smallest value of the selected column.
- The MAX() function returns the largest value of the selected column.

```sql
SELECT MIN(column_name), MAX(column_name)
FROM table_name
WHERE condition;
```

AVG()

The **AVG()** function returns the average value of a numeric column.

```
SELECT AVG(column_name)
FROM table_name
WHERE condition;
```

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Standard Deviation

The standard deviation shows how much variation exists from the average or mean.

- **STDDEV( )** – This function is used to compute statistical standard deviation from sample data.
- **STDDEVP( )** – This function is used to compute statistical standard deviation for an entire population data.

```
SELECT STDDEV(column_name)
MAX(column_name)
FROM table_name
WHERE condition;
```

Use Case Example :

Problem Statement: Summary of payment details by each customer.

Query :

```sql
SELECT
    customerNumber,
    count(amount) AS No_of_payments,
    min(amount) AS Min_amount,
    max(amount) AS Max_amount,
    ROUND(avg(amount),2) AS AVG_amount,
    ROUND(stddev(amount),2) AS std_dev
FROM
    payments
GROUP BY
    customerNumber;
```

Output :

customerNumber	No_of_payments	Min_amount	Max_amount	AVG_amount	std_dev
119	3	19501.82	49523.67	38983.23	13790.90
121	4	1491.38	50218.95	26056.20	18219.69
124	9	11044.30	111654.40	64909.80	30614.01
128	4	7466.32	33820.62	18984.44	10608.05
129	3	16537.85	26248.78	22236.85	4140.07
131	3	22292.62	50025.35	35879.98	11328.71
141	13	20009.53	120166.58	55056.84	29945.22
144	2	7674.94	36005.71	21840.33	14165.38
145	4	4710.73	53959.21	26861.63	17793.35
146	3	39712.10	49614.72	43435.12	4400.12
148	4	2611.84	105743.00	39062.76	42032.04
151	4	20314.44	58841.35	44478.49	15933.36
157	2	35152.12	63357.13	49254.63	14102.50
161	4	2434.25	50743.65	26136.31	19398.94
166	3	22474.17	44160.92	35140.19	9221.17

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