Advanced Constructs - CTEs & Views

Agenda:

In today's session, we'll cover essential topics, including:-

- Problem Statement
- Ad-hoc Reporting
- Common Table Expression (CTE)
- Advantages of CTEs
- Views
- When to use CTE vs. View?
- Facebook's interview question

Summary of Previous Lecture:

A new table, "**datetime_demo**," is created to demonstrate working with datetime data types.

Datetime Format:

- It specifies how date and time values are represented, allowing for proper parsing and extraction.
- Common format symbols include
  - `%Y` is a 4-digit year,
  - `%m` is a 2-digit month,
  - `%d` is a 2-digit day,
  - `%I` is the hour,
  - `%M` represents the minutes, and
  - `%p` indicates there is an AM/PM
- Conversion between formats is possible using functions like PARSE_DATETIME().

PARSE_DATE():

- PARSE_DATE() is used to convert a string representation of a date into a proper date format.
- Syntax: PARSE_DATE(format_string, date_string)
- Example: `PARSE_DATE("%Y-%m-%d", "2019-11-02")`

EXTRACT():

- EXTRACT() is used to retrieve specific components (e.g., year, month, hour) from datetime values.

- Syntax: EXTRACT(part FROM datetime_expression)
- Example: `EXTRACT(year FROM market_start_datetime)`

DATE():

- DATE() extracts the date portion from datetime values.
- Syntax: DATE(datetime_expression)
- Example: `DATE(market_start_datetime)`

TIME():

- TIME() extracts the time portion from datetime values.
- Syntax: TIME(datetime_expression)
- Example: `TIME(market_start_datetime)`

DATE_ADD():

- DATE_ADD() adds a specified time interval to a DATE value.
- Syntax: DATE_ADD(datetime_expression, INTERVAL value date_part),
- Example: `DATE_ADD(market_start_datetime, INTERVAL 30 MINUTE)`

DATE_SUB():

- DATE_SUB() subtracts a specified time interval from a DATE value.
- Syntax: DATE_SUB(datetime_expression, INTERVAL value date_part)
- Example: `DATE_SUB(market_start_datetime, INTERVAL 30 MINUTE)`

DATE_DIFF():

- DATE_DIFF() calculates the difference between two dates in a specified interval.
- Syntax: DATE_DIFF(end_date, start_date, date_part)
- Example: `DATE_DIFF(last_market, first_market, DAY)`

CURRENT_DATE()

- The CURDATE() function returns the current date.
- The date is returned as "YYYY-MM-DD" (string) or as YYYYMMDD (numeric).