Different Ways Of Representing History

Hanush M

Introduction

Keeping historical data in a database is important for organizations because it helps them:

- Follow rules and regulations (compliance/audit).
- Analyze and report data effectively.
- Recognize trends and track progress.
- Recover from mistakes or data loss.

In simple terms, maintaining historical data helps businesses work efficiently, make smart decisions, and ensure their data is safe and valuable in the long run.

Temporal Table

- A **temporal table** is a special type of table used to keep track of changes to data over time. It helps maintain historical records, so you can know not just the current state of data but also how it has evolved.
- Temporal tables store **historical data** alongside current data, allowing you to query data as it existed at any point in the past.
- The temporal table contains two important columns:
- **Effective From Date**: The date when the record became valid.
- **Effective To Date**: The date when the record stopped being valid

PatientID	Diagnosis	DateOfAdmission	Effective From Date	Effective To Date
1	Flu	2025-02-01	2025-02-01	NULL

PatientID	Diagnosis	DateOfAdmission	Effective From Date	Effective To Date
1	Flu	2025-02-01	2025-02-01	2025-02-15
1	Cold	2025-02-15	2025-02-15	NULL

PatientID	Diagnosis	DateOfAdmission	Effective From Date	Effective To Date
1	Flu	2025-02-01	2025-02-01	2025-02-15
1	Cold	2025-02-15	2025-02-15	2025-07-01
1	Pneumonia	2025-07-01	2025-07-01	NULL

Querying:

Current :

- SELECT * FROM MedicalRecords WHERE PatientID = 1 AND EffectiveToDate IS NULL;

Previous:

- SELECT * FROM MedicalRecords WHERE PatientID = 1 AND '2025-06-01' BETWEEN EffectiveFromDate AND EffectiveToDate;

History Table

- A **history table** is a way to store the most up-to-date information in one table (called the **main table**), while keeping older versions of the data in a separate table (called the **history table**).
- **Main Table**: This table only contains the latest, most recent record for each patient. When a patient's record is updated, the old version of the record is moved to the history table, and the new record is stored in the main table.
- **History Table**: This table keeps all the older versions of patient records, so you can track what changes happened over time. Each time a patient’s record is updated, the old record is copied here.

PatientID	Diagnosis	DateOfAdmission
1	Flu	2025-02-01

PatientID	Diagnosis	DateOfAdmission	ChangeDate

PatientID	Diagnosis	DateOfAdmission
1	Cold	2025-02-15

PatientID	Diagnosis	DateOfAdmission	ChangeDate
1	Flu	2025-02-01	2025-02-15