

Slowly Changing Dimensions

Learning Objectives

- ▶ Slowly Changing Dimensions (SCD)
- ▶ SCD Types
- ▶ SCD vs. Delta Time Travel

Slowly Changing Dimensions

- ▶ Slowly Changing Dimensions (SCD)
- ▶ Data management concept that determines how tables handle data which change over time
- ▶ Whether you want to overwrite values or retain their history

SCD Types

- ▶ **Type 0:** No changes allowed
 - ▶ Static/Append only
- ▶ **Type 1:** Overwrite
 - ▶ No history retained (use Delta Time Travel if needed)
- ▶ **Type 2:** Add new row for each change and mark the old as obsolete
 - ▶ Retains the full history of values.

SCD Type 1

Product ID	Product Name	Price
1	Product A	10
2	Product B	20
3	Product C	30

SCD Type 1

Product ID	Product Name	Price
1	Product A	50
2	Product B	20
3	Product C	70

SCD Type 2


Product ID	Product Name	Price	Current	Effective Date	End Date
1	Product A	10	True	2023-01-01	NULL
2	Product B	20	True	2023-01-01	NULL
3	Product C	30	True	2023-01-01	NULL

SCD Type 2

Product ID	Product Name	Price	Current	Effective Date	End Date
1	Product A	10	False	2023-01-01	2023-02-25
2	Product B	20	True	2023-01-01	NULL
3	Product C	30	False	2023-01-01	2023-02-28
1	Product A	50	True	2023-02-25	NULL
3	Product C	70	True	2023-02-28	NULL

SCD Type 2

Product ID	Product Name	Price	Current	Effective Date	End Date
1	Product A	10	False	2023-01-01	2023-02-25
2	Product B	20	True	2023-01-01	NULL
3	Product C	30	False	2023-01-01	2023-02-28
1	Product A	50	True	2023-02-25	NULL
3	Product C	70	True	2023-02-28	NULL



SCD Type 2 vs. Delta Time Travel

- ▶ Can we use Delta Time Travel as SCD Type 2 ?
- ▶ Delta Time Travel is not a long-term versioning solution