DimLocation: SCD Type 1:

--- Create the example table

CREATE TABLE Location\_staging (

Location\_id INT PRIMARY KEY,

Location\_type NVARCHAR(50),

Neighborhood NVARCHAR(50),

Borough NVARCHAR(50),

Latitude DECIMAL(9, 6),

Longitude DECIMAL(9, 6),

);

--- Insert some values into staging table

INSERT INTO Location\_staging(Location\_id, Location\_type, Neighborhood, Borough, Latitude, Longitude)

VALUES

(1, 'Airbnb', 'Arochar','Staten Island',-74.084444, 40.594798),

(99999, 'Taxi Dropoff', NULL, NULL, -74.084444, 40.512123),

(99876, 'Taxi Pickup', NULL, NULL, -72.084444, 41.512123),

(26680,'Taxi Pickup', NULL, NULL, -78.979042, 48.744308)

A picture containing text, screenshot, font, line

Description automatically generated

SELECT \*

INTO DimLocation\_delta

FROM DimLocation;

SELECT \* FROM Loading\_staging;

-- Update existing records in DimLocation

UPDATE

DimLocation\_delta

SET

DimLocation\_delta.Location\_type = Location\_staging.Location\_type,

DimLocation\_delta.Neighborhood = Location\_staging.Neighborhood,

DimLocation\_delta.Borough = Location\_staging.Borough,

DimLocation\_delta.Longitude = Location\_staging.Longitude,

DimLocation\_delta.Latitude = Location\_staging.Latitude

FROM

DimLocation\_delta

INNER JOIN Location\_staging ON DimLocation\_delta.Location\_id = Location\_staging.Location\_id;

SET IDENTITY\_INSERT DimLocation\_delta ON;

-- Insert new records into DimLocation

INSERT INTO DimLocation\_delta (Location\_id, Location\_type, Neighborhood, Borough, Longitude, Latitude)

SELECT

Location\_id,

Location\_type,

Neighborhood,

Borough,

Longitude,

Latitude

FROM

Location\_staging

WHERE

Location\_id NOT IN (SELECT Location\_id FROM DimLocation\_delta);

-- Clean up

DROP TABLE Location\_staging;

DimTaxi: SCD Type 2

1. --- SCD Type 2
2. CREATE TABLE DimTaxi\_New (
3. Taxi\_id INT,
4. Id VARCHAR(50),
5. Passenger\_count INT,
6. Trip\_distance FLOAT,
7. Fare\_amount FLOAT,
8. Trip\_duration INT,
9. Effective\_date DATETIME,
10. End\_date DATETIME,
11. Is\_current BIT
12. );
13. --- Insert value
14. INSERT INTO DimTaxi\_New (Id, Passenger\_count, Trip\_duration, Effective\_date, End\_date, Is\_current)
15. VALUES
16. ('id0000001', 2, 600, '2022-04-25', NULL, 1), --- maintain
17. ('id5000003', 4, 1200, '2022-04-23', NULL, 1), --- new
18. ('id5000005', 5, 900, '2022-04-22', NULL, 1), --- new
19. ('id0000008', 1, 450, '2022-04-24', NULL, 1), --- maintain
20. ('id5000008', 1, 1500, '2022-04-26', NULL, 1); --- new
21. --- Update measures
22. UPDATE DimTaxi\_New
23. SET
24. Trip\_distance = CASE
25. WHEN t.Trip\_duration IS NOT NULL THEN t.Trip\_duration \* 0.2
26. ELSE 0
27. END,
28. Fare\_amount = CASE
29. WHEN t.Trip\_duration IS NOT NULL THEN t.trip\_duration \* 0.05 + 10
30. ELSE 0
31. END
32. FROM DimTaxi\_New t

-- Update records that already exist in the table

UPDATE DimTaxi

SET Is\_current = 0, End\_date = GETDATE()

WHERE Id IN ('id0000001', 'id0000008') AND Is\_current = 1;

-- Insert records into the table

INSERT INTO DimTaxi (Id, Passenger\_count, Trip\_distance, Fare\_amount, Trip\_duration, Effective\_date, End\_date, Is\_current)

VALUES

('id5000003', 4, 240, 70, 1200, '2022-04-23', NULL, 1),

('id5000005', 5, 180, 55, 900, '2022-04-22', NULL, 1),

('id5000008', 1, 300, 85, 1500, '2022-04-26', NULL, 1),

('id0000001', 2, 120, 40, 600, '2022-04-25', NULL, 1), --- update

('id0000008', 1, 90, 32.5, 450, '2022-04-24', NULL, 1); --- update

-- Update the new records to be current

UPDATE DimTaxi

SET Is\_current = 1, End\_date = NULL

1. WHERE Id IN ('id5000003', 'id5000005', 'id5000008');

DROP TABLE DimTaxi\_New;

A screenshot of a computer

Description automatically generated

A screenshot of a computer

Description automatically generated

A screenshot of a computer

Description automatically generated

A screenshot of a computer

Description automatically generated

DimAirbnb\_Host: SCD Type 3

1. --- Add a new column to store the effective date of the change
2. ALTER TABLE DimAirbnb\_Host
3. ADD Effective\_date DATETIME NULL;
4. --- Modify the existing Host\_name column to be nullable
5. ALTER TABLE DimAirbnb\_Host
6. ALTER COLUMN Host\_name VARCHAR(255) NULL;

-- Create a trigger to update the Host\_name\_prev and Effective\_date columns when Host\_name is updated

CREATE TRIGGER tr\_DimAirbnb\_Host\_Update

ON DimAirbnb\_Host

AFTER UPDATE

AS

BEGIN

IF UPDATE(Host\_name)

BEGIN

UPDATE DimAirbnb\_Host

SET Host\_name\_prev = CASE

WHEN DimAirbnb\_Host.Host\_name IS NULL THEN NULL

ELSE DELETED.Host\_name

END,

Effective\_date = GETDATE()

FROM DimAirbnb\_Host

INNER JOIN DELETED ON DimAirbnb\_Host.Listing\_host\_id = DELETED.Listing\_host\_id

END

END

-- Update an existing record

UPDATE DimAirbnb\_Host

SET Host\_name = 'John Wick'

WHERE Host\_id = 1;

-- Insert a new record

INSERT INTO DimAirbnb\_Host (Listing\_host\_id, Host\_name, Host\_name\_prev, airbnb\_id, Effective\_date)

VALUES (2571, 'Teedo Ruan', NULL, 1101224, GETDATE());

A screenshot of a computer screen

Description automatically generated with medium confidence

A screenshot of a computer screen

Description automatically generated with medium confidence

A screenshot of a computer

Description automatically generated with medium confidence

A screenshot of a computer

Description automatically generated

A screenshot of a table

Description automatically generated with low confidence