Assignment -12

1. Implement a Real-Time Analytics Pipeline Using Streams and Tasks

Steps:

Set up a stream to capture data changes in a source table.

Create a task that processes the stream and inserts the changes into a target table.

Create a real-time dashboard using a BI tool (Tableau, Power BI) connected to Snowflake.

```
CREATE OR REPLACE STREAM my_stream ON TABLE flights;

CREATE OR REPLACE TASK my_task
WAREHOUSE = compute_wh
SCHEDULE = '1 MINUTE'
AS
INSERT INTO target_table (SELECT * FROM my_stream WHERE METADATA$ACTION = 'INSERT');


insert into flights values ('india','Dubai',10);

select * from my_stream;

show tasks;
```

```
INSERT INTO flights VALUES ('india', 'Tokyo', 13);
INSERT INTO flights VALUES ('india', 'New York', 14);
INSERT INTO flights VALUES ('india', 'Sydney', 15);
INSERT INTO flights VALUES ('india', 'Berlin', 16);

select * from my_stream;
```

Results | Chart

	DEST_COUNTRY_NAME	ORIGIN_COUNTRY_NAME	COUNT	METADATA$ACTION	METADATA$ISUPDATE
1	india	Sydney	15	INSERT	FALSE

2. Demonstrate Time Travel with a Dataset

Steps:

Use Time Travel to query historical data (e.g., from a week ago).

```
SELECT *
FROM EMPLOYEES
AT (TIMESTAMP => CURRENT_TIMESTAMP() - INTERVAL '1 DAY');
```

ID	NAME	AGE	SALARY
null	null	null	null
null	null	null	null
1	Jhon	30	50000
2	Alice	25	60000

As I updated the table by inserting more rows 1 day ago, this is the time travel output.

Perform operations like recovering deleted rows or comparing data states.

```
SELECT *
FROM EMPLOYEES
MINUS
SELECT *
FROM EMPLOYEES AT (TIMESTAMP => CURRENT_TIMESTAMP() - INTERVAL '1 DAY');
```

ID	NAME	AGE	SALARY
3	Ali	43	null
4	Kenzo	54	10000000
6	Pranshi	55	null
5	Daisy	44	4500000

So clearly we can see the all the inserted rows that are new to the table compared to 1 day ago.