

# Snowflake

Cloud Based Data-Warehousing

By Eric Poe



# What is Snowflake?

- **Snowflake is an analytical data warehouse service.**
- **Provided as a SaaS(Software as a Service)**
- **Fully hosted on their cloud storage.**



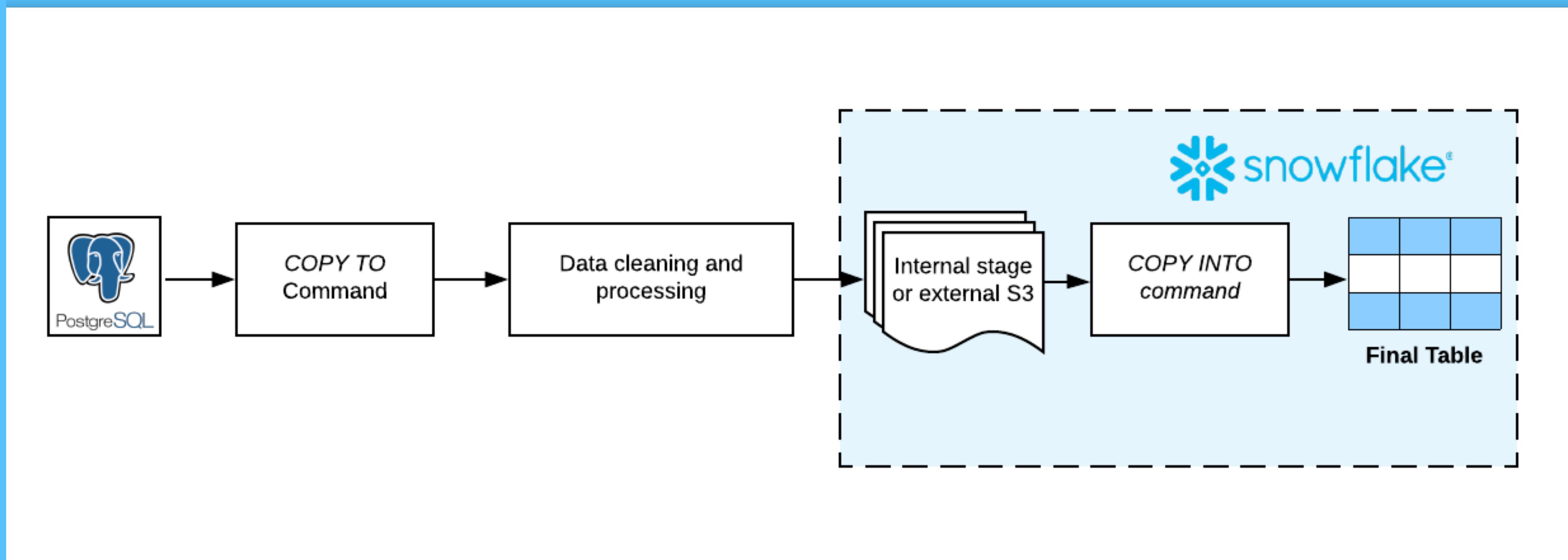
# What's it used for?

- Allows for storage of multiple databases that a business uses all from a cloud.
- Able to combine data tables from multiple departments for cross-examining
- Saves money on expenses that would have gone to a physical server.



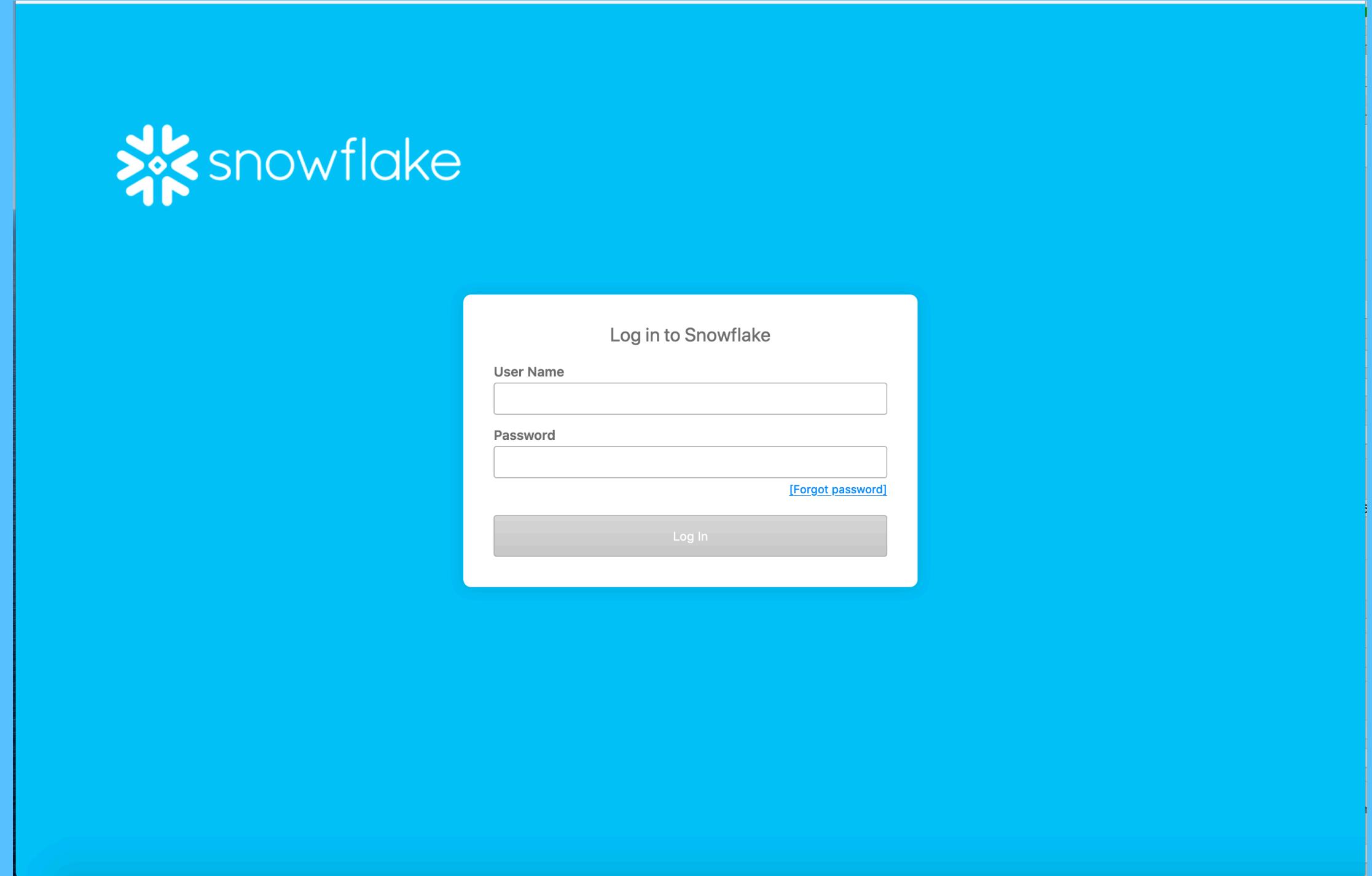
# ETL

- ETL stands for Extract, Transform, Load
- Is the main process for Snowflake for successfully transferring databases.



# How is it used?

- Main snowflake application is hosted and accessed online and has comprehensive interface.
- A command line interface is available for download which is more barebones



```
[→ ~ git:(master) ✘ snowsql -a cla63415.us-east-1 -u poe1993
[Password:
* SnowSQL * v1.2.10
Type SQL statements or !help
[poe1993#COMPUTE_WH@(no database).(no schema)>use SF_TUTS;
+-----+
| status
|-----|
| Statement executed successfully.
+-----+
1 Row(s) produced. Time Elapsed: 0.686s
poe1993#COMPUTE_WH@SF_TUTS.PUBLIC>
```

# Snowflake Worksheet

The screenshot shows the Snowflake Worksheet interface. At the top, there's a navigation bar with icons for back, forward, home, and search, followed by the URL <https://cla63415.us-east-1.snowflakecomputing.com/console#/internal/worksheet>. Below the URL is a message: "Enjoy your free trial! Visit our documentation to learn more about using Snowflake or contact our support team with any questions." The top menu includes "Databases", "Shares", "Data Marketplace", "Warehouses", "Worksheets" (which is selected), and "History". On the right side of the top bar, there are links for "Preview App", "Partner Connect", "Help", and user information "POE1993 SYSADMIN".

The main workspace is titled "New Worksheet". It features a sidebar on the left for "Find database objects" with a search bar "Starting with...". The sidebar lists databases: DEMO\_DB, SF\_TUTS, SNOWFLAKE\_SAMPLE\_DATA, and UTIL\_DB. Under SF\_TUTS, it shows INFORMATION\_SCHEMA, PUBLIC, and Tables: ALBUMS, BANDS (which is selected and highlighted in blue), and EMP\_BASIC. It also notes "No Views in this Schema".

The central area displays the "BANDS" table preview. It shows 5 rows and 2.0 KB of data. The table has 10 columns: ID, NAME, COUNTRYOFORIGIN, NUMBEROFMEMBERS, WEBSITE, STYLE, ISSIGNED, CONTACTNAME, and CONTACTPHONENUMBER. The Data Type for each column is listed: NUMBER(38,0), VARCHAR(16777216), VARCHAR(16777216), NUMBER(38,0), VARCHAR(16777216), VARCHAR(16777216), BOOLEAN, VARCHAR(16777216), and VARCHAR(16777216).

The bottom right of the preview area says "Query results will appear here." and there's a link "Open History".

# Database Page

The screenshot shows the Snowflake Database Page. At the top, there is a navigation bar with icons for back, forward, refresh, and home, followed by the URL <https://cla63415.us-east-1.snowflakecomputing.com/console#/data/databases>. Below the URL is a message: "Enjoy your free trial! Visit our documentation to learn more about using Snowflake or contact our support team with any questions." The main menu includes Databases (selected), Shares, Data Marketplace, Warehouses, Worksheets, History, Preview App, Partner Connect, Help, and a user account for POE1993 (SYSADMIN). A search bar at the top says "Search Databases" and shows "4 databases". Below the search bar is a table with the following data:

Database	Origin	Creation Time	Owner	Comment
SF_TUTS		11/12/2020, 3:24 AM	SYSADMIN	
SNOWFLAKE_SAMPLE_DATA	SFC_SAMPLES.SA...	11/11/2020, 3:56 AM	ACCOUNTADMIN	TPC-H, OpenWeatherMap, etc
DEMO_DB		11/11/2020, 3:56 AM	SYSADMIN	demo database
UTIL_DB		11/11/2020, 3:56 AM	SYSADMIN	utility database

# Example Database

The screenshot shows the Snowflake Data Browser interface. The top navigation bar includes links for Databases, Shares, Data Marketplace, Warehouses, Worksheets, History, Preview App, Partner Connect, Help, and user POE1993/SYSADMIN. The URL in the address bar is https://cla63415.us-east-1.snowflakecomputing.com/console#/data/tables/detail?databaseName=SF\_TUTS&schemaName=PUBLIC&tableName=BANDS. A message at the top says "Enjoy your free trial! Visit our documentation to learn more about using Snowflake or contact our support team with any questions."

The breadcrumb navigation shows the path: Databases > SF\_TUTS > BANDS (PUBLIC). The status bar indicates "Last refreshed 4:44:16 AM".

The main content area displays the schema for the BANDS table:

Column Name	Ordinal ▲	Type	Nullable	Default	Comment
ID	1	NUMBER(38,0)	false	NULL	
NAME	2	VARCHAR(16777216)	false	NULL	
COUNTRYOFORIGIN	3	VARCHAR(16777216)	false	NULL	
NUMBEROFCMEMBERS	4	NUMBER(38,0)	true	NULL	
WEBSITE	5	VARCHAR(16777216)	true	NULL	
STYLE	6	VARCHAR(16777216)	true	NULL	
ISSIGNED	7	BOOLEAN	true	NULL	
CONTACTNAME	8	VARCHAR(16777216)	true	NULL	
CONTACTPHONENUMBER	9	VARCHAR(16777216)	true	NULL	

# DataWarehouse Page

The screenshot shows the Snowflake DataWarehouse Page. At the top, there is a navigation bar with icons for back, forward, home, and search, along with the URL <https://cla63415.us-east-1.snowflakecomputing.com/console#/warehouses>. Below the URL is a message: "Enjoy your free trial! Visit our documentation to learn more about using Snowflake or contact our support team with any questions." The main menu includes Databases, Shares, Data Marketplace, Warehouses (which is selected), Worksheets, History, Preview App, Partner Connect, Help, and a user account for POE1993 (SYSADMIN). The title of the page is "Warehouses". A sub-header says "Manage your warehouses from this page. To operate on your data, you need to create one or more warehouses." Below this are several buttons: Create..., Configure..., Suspend..., Resume..., Drop..., and Transfer Ownership. A table lists two warehouses:

Status	Warehouse Name	Size	Runn...	Que...	Auto Suspe...	Auto Resume	Created On	Resumed On	Owner	Comment
Suspended	SF_TUTS_WH	X-Small	0	0	3 minutes	Yes	11/12/2020, 3:41:50...	11/12/2020, 6:40:56...	SYSADMIN	
Suspended	COMPUTE_WH	X-Small	0	0	10 minutes	Yes	11/11/2020, 3:57:57 ...	11/12/2020, 6:28:57...	SYSADMIN	

# History Page

Screenshot of the Snowflake History Page (https://cla63415.us-east-1.snowflakecomputing.com/console#/monitoring/queries) showing query history for user POE1993.

The page includes a navigation bar with links to Databases, Shares, Data Marketplace, Warehouses, Worksheets, and History. It also features a Preview App, Partner Connect, Help, and user information for POE1993 (SYSADMIN).

Filter options at the top allow users to hide filters, view SQL, or abort queries. A note indicates the data was last updated at 4:20:12 AM.

The main table displays the following columns:

Status	Query ID	SQL Text	User	Warehouse	Size	Session ID	Start Time	End Time	Total Duration	Bytes Scanned	Client Info	Row
This data was last updated at 4:20:12 AM. Press  at the top right to get the latest data. <a href="#">Close</a>												
✓	0198384d...	DESC TABLE "SF_TU..."	POE1993	COMPUTE_...		2070562324...	11/12/2020, 8:01...	11/12/2020, 8:01...	100ms		Snowflake UI 202011...	
✓	0198384d...	SHOW FILE FORMAT...	POE1993	COMPUTE_...		2070562324...	11/12/2020, 8:01...	11/12/2020, 8:01...	132ms		Snowflake UI 202011...	
✓	0198384d...	SHOW STAGES IN "S..."	POE1993	COMPUTE_...		2070562324...	11/12/2020, 8:01...	11/12/2020, 8:01...	924ms		Snowflake UI 202011...	
✓	019837fc-...	select * from bands;	POE1993	SF_TUTS_WH	X-Small	207056236...	11/12/2020, 6:4...	11/12/2020, 6:4...	590ms	2KB	Snowflake UI 202011...	
✓	019837fc-...	COPY INTO "SF_TUT..."	POE1993	COMPUTE_...	X-Small	2070562324...	11/12/2020, 6:4...	11/12/2020, 6:4...	3.6s	1.5KB	Snowflake UI 202011...	
✓	019837fc-...	PUT 'file:///largeband...	POE1993	COMPUTE_...		2070562324...	11/12/2020, 6:4...	11/12/2020, 6:4...	100ms		Snowflake UI 202011...	
✓	019837fc-...	DESC TABLE "SF_TU..."	POE1993	COMPUTE_...		2070562324...	11/12/2020, 6:4...	11/12/2020, 6:4...	190ms		Snowflake UI 202011...	
✓	019837fc-...	SHOW FILE FORMAT...	POE1993	COMPUTE_...		2070562324...	11/12/2020, 6:4...	11/12/2020, 6:4...	305ms		Snowflake UI 202011...	
✓	019837fc-...	SHOW STAGES IN "S..."	POE1993	COMPUTE_...		2070562324...	11/12/2020, 6:4...	11/12/2020, 6:4...	95ms		Snowflake UI 202011...	
✗	019837fc-...	COPY INTO "SF_TUT..."	POE1993	COMPUTE_...	X-Small	2070562324...	11/12/2020, 6:4...	11/12/2020, 6:4...	1.0s	1.5KB	Snowflake UI 202011...	
✓	019837fc-...	PUT 'file:///largeband...	POE1993	COMPUTE_...		2070562324...	11/12/2020, 6:4...	11/12/2020, 6:4...	117ms		Snowflake UI 202011...	
✓	019837fb-...	DESC TABLE "SF_TU..."	POE1993	COMPUTE_...		2070562324...	11/12/2020, 6:3...	11/12/2020, 6:3...	65ms		Snowflake UI 202011...	
✓	019837fb-...	SHOW FILE FORMAT...	POE1993	COMPUTE_...		2070562324...	11/12/2020, 6:3...	11/12/2020, 6:3...	65ms		Snowflake UI 202011...	
✓	019837fb-...	SHOW STAGES IN "S..."	POE1993	COMPUTE_...		2070562324...	11/12/2020, 6:3...	11/12/2020, 6:3...	61ms		Snowflake UI 202011...	
✓	019837fb-...	COPY INTO "SF_TUT..."	POE1993	COMPUTE_...	X-Small	2070562324...	11/12/2020, 6:3...	11/12/2020, 6:3...	1.6s	1.5KB	Snowflake UI 202011...	
✓	019837fb-...	PUT 'file:///employee...	POE1993	COMPUTE_...		2070562324...	11/12/2020, 6:3...	11/12/2020, 6:3...	97ms		Snowflake UI 202011...	

# Postgres Extract

```
poe1993@tmp:SuncoastRecords> COPY (SELECT * FROM "Bands" WHERE "NumberofMembers" > 3) TO '/Users/poe1993/Documents/largeband_db.csv' WITH CSV HEADER;  
COPY 3  
Time: 0.007s  
poe1993@tmp:SuncoastRecords>
```

[F2] Smart Completion: ON [F3] Multiline: OFF [F4] Emacs-mode

## Example Snowflake Load

The screenshot shows the Snowflake web interface. In the top navigation bar, the URL is https://cla63415.us-east-1.snowflakecomputing.com/console#/data/tables/detail?databaseName=SF\_TUTS&schemaName=BANDS&table\_name=BANDS. The user is logged in as POE1993 with SYSADMIN privileges. The main view shows the 'Tables' tab selected for the 'BANDS' table in the 'SF\_TUTS' database. A modal dialog titled 'Load Data' is open over the table's schema information. The 'Source Files' tab is selected. The dialog asks 'From where do you want to load files?' and provides two options: 'Load files from your computer' (selected) and 'Load files from external stage'. Under 'Load files from your computer', there is a 'Select Files...' button which has 'largeband\_db.csv (text/csv) - 250B, last modified:' listed. At the bottom of the dialog are 'Cancel', 'Back', and 'Next' buttons.

# Example Worksheet Query

The screenshot shows the Snowflake Worksheet interface. The top navigation bar includes tabs for 'sql-intro/queries.sql at master', 'Worksheet - New Worksheet (1)', 'Step 5. Query the Loaded Data', 'Using SnowSQL — Snowflake', 'Summary of Data Types — Sno...', and 'how old is snowflake - Google'. The main workspace displays a query in the 'Worksheets' tab:

```
1 INSERT INTO bands VALUES
2 (1, 'Dance With the Dead', 'USA', 2, 'https://dancewiththedead.bandcamp.com'
3 , 'Synthwave', False, 'Eric Poe', '813-943-8123');
```

The results section shows the output of the query:

Row	number of rows inserted
1	1

# Example Worksheet Query 2

The screenshot shows the Snowflake Worksheet interface. At the top, there's a navigation bar with icons for Databases, Shares, Data Marketplace, Warehouses, Worksheets (selected), and History. On the right, it shows the user POE1993 (SYSADMIN) and various connection details. Below the navigation bar, the main area has tabs for New Worksheet and a preview of the current query results.

In the main workspace, a single query is listed:

```
1 UPDATE albums SET "BandId" = 1 WHERE Title = 'Near Dark';
```

Below the query, the Results tab is selected, showing the execution details:

- Query ID: [Query ID](#)
- SQL: [SQL](#)
- Time: 2.58s
- Rows: 1 rows

There are also buttons for Filter result... and Columns.

The results table has two columns: Row and number of rows updated. The first row shows:

Row	number of rows updated
1	1

At the bottom right of the results table, it says "number of multi-joined rows updated" and shows 0.

# Example Command Line Queries

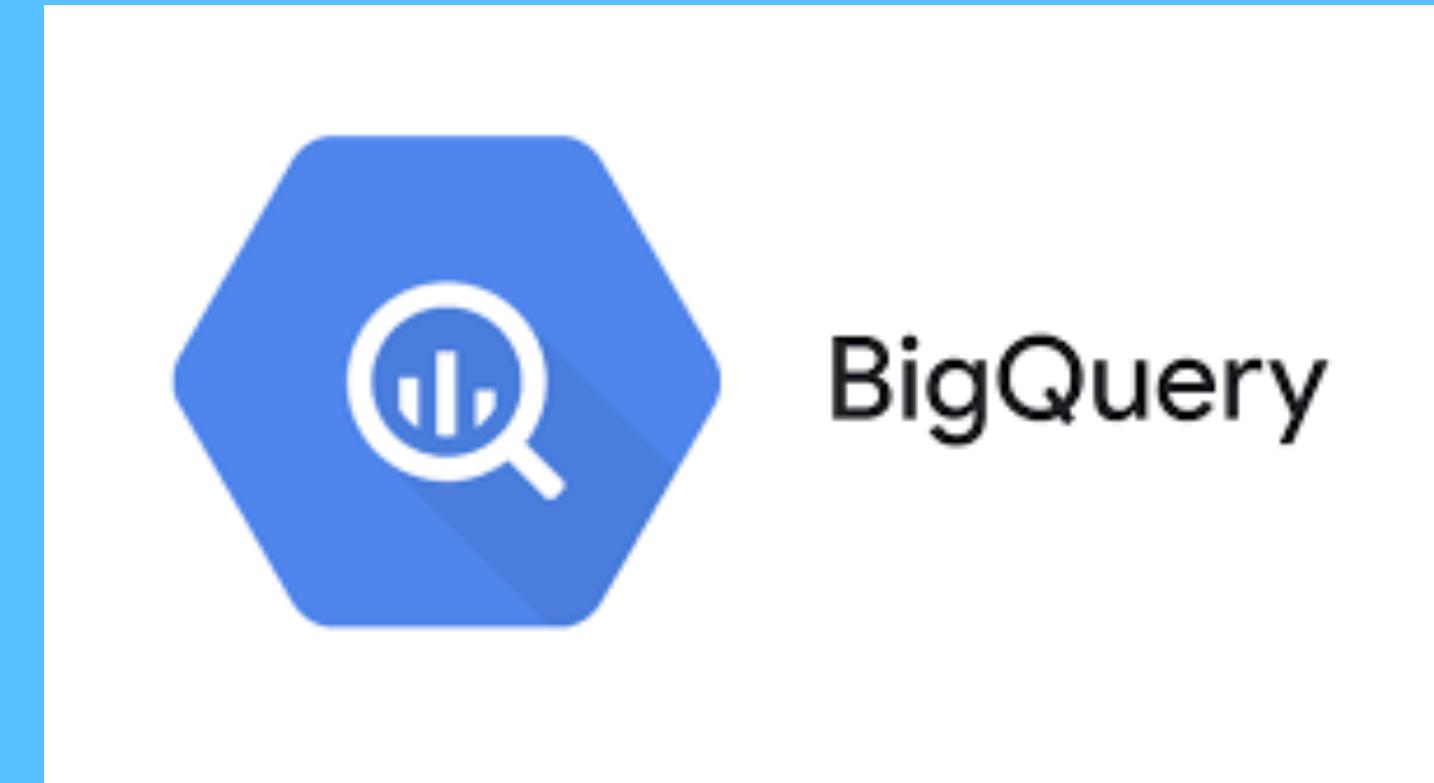
```
poe1993#COMPUTE_WH@SF_TUTS.PUBLIC>INSERT INTO ALBUMS VALUES ('2', 'Contra', false, '2010-07-05', 2);
+-----+
| number of rows inserted |
+-----|
| 1 |
+-----+
1 Row(s) produced. Time Elapsed: 1.487s
```

```
poe1993#COMPUTE_WH@SF_TUTS.PUBLIC>INSERT INTO BANDS VALUES (2, 'Vampire Weekend', 'USA', 3, 'https://www.vampir weekend.com'
,'Alternative', True, 'Billy Poe', '813-943-8124');
+-----+
| number of rows inserted |
+-----|
| 1 |
+-----+
1 Row(s) produced. Time Elapsed: 1.761s
```

```
poe1993#COMPUTE_WH@SF_TUTS.PUBLIC>SELECT * FROM ALBUMS JOIN BANDS ON ALBUMS."BandId" = BANDS.ID;
+-----+
| ID | TITLE | ISEXPLICIT | RELEASEDATE | BandId | ID | NAME | COUNTRYOFORIGIN | NUMBEROFMEMBERS | WEBSITE | STYLE | ISSIGNED | CONTACTNAME | CONTACTPHONENUMBER |
+-----+
| 1 | Near Dark | False | 2014-08-23 | 1 | 1 | Dance With the Dead | USA | 2 | https://dancewiththedead.bandcamp.com | Synthwave | True | Eric Poe | 813-943-8123 |
| 2 | Contra | False | 2010-07-05 | 2 | 2 | Vampire Weekend | USA | 3 | https://www.vampir weekend.com | Alternative | True | Billy Poe | 813-943-8124 |
+-----+
2 Row(s) produced. Time Elapsed: 1.100s
```

# Similar Products

- Google Big Query
- Amazon RedShift
- Cloudera
- IBM
- SQL Server 2019
- Azure SQL Data Warehouse



BigQuery



# Thank You!

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