

## SEA Banking Analytics – Snowflake Cortex & Streamlit Demo

### 1. Prerequisites

- Snowflake account with ACCOUNTADMIN (or equivalent) for initial setup.
- Snowsight UI access.
- Cortex features enabled (or ability to set ENABLE\_CORTEX\_ANALYST = TRUE).
- A named Snowflake user that will own/run the Streamlit app (e.g. CAPSTONE).

### 2. Files in the Demo Bundle

sea-banking-cortex-analytics/

sql/

00\_cleanup\_all\_objects.sql

01\_setup\_foundation.sql

02\_create\_banking\_data.sql

03\_data\_quality\_validation.sql

04\_cortex\_analyst\_setup.sql

05\_streamlit\_app\_setup.sql

semantic/

banking\_semantic\_sea.yaml

app/

streamlit\_app.py

### 3. Step-by-Step Setup

#### Step 0 – Optional Cleanup

Only run this if you want to remove any previous version of the demo. It will drop the demo DB, schemas, warehouse, stages, app, role, and notification integration.

1. Use role ACCOUNTADMIN in a Snowsight worksheet.
2. Run: -- 00\_cleanup\_all\_objects.sql

#### Step 1 – Foundation Setup

1. As ACCOUNTADMIN, run:-- 01\_setup\_foundation.sql
2. This will create:
  - Database RETAIL\_BANKING\_DEMO.
  - Schemas: BRONZE, SILVER, GOLD, DOCS, ANALYTICS.
  - Warehouse BANKING\_WH.
  - Role BANKING\_APP\_ROLE.

- Stages in SILVER: SEMANTIC\_STAGE, APP\_STAGE, DOCS\_STAGE.
- Cortex Analyst settings and email integration EMAIL\_INT.

## **Step 2 – Load Sample Banking Data (Bronze)**

1. As ACCOUNTADMIN (or equivalent), run:-- 02\_create\_banking\_data.sql
2. This script:
  - Creates and populates:
    - BRONZE.SRC\_CUSTOMERS
    - BRONZE.SRC\_ACCOUNTS
    - BRONZE.SRC\_TRANSACTIONS
    - BRONZE.SRC\_LOANS
  - Inserts realistic SEA (Malaysia/Singapore) customer, account, transaction, and loan data.
  - Includes deliberate data quality issues (invalid emails, duplicates, odd dates, etc.).

## **Step 3 – Data Quality, Silver & Gold, Analytics Views**

1. Run:-- 03\_data\_quality\_validation.sql
2. This script:
  - Creates Silver staging tables:
    - SILVER.STG\_CUSTOMERS, STG\_ACCOUNTS, STG\_TRANSACTIONS, STG\_LOANS
  - Creates SILVER.DATA\_QUALITY\_REJECTS with rule name, reason, severity, and payload.
  - Applies DQ rules:
    - Invalid / missing emails.
    - Duplicate customers.
    - Age < 18.
    - Credit score out of range.
    - FK violations for accounts & transactions.
    - Suspicious / huge amounts, invalid or future dates, etc.
  - Builds Gold curated tables:
    - GOLD.CUSTOMERS
    - GOLD.ACCOUNTS
    - GOLD.TRANSACTIONS
    - GOLD.LOANS
  - Creates Analytics views:

- ANALYTICS.VW\_CUSTOMER\_360
- ANALYTICS.VW\_TRANSACTION\_SUMMARY
- ANALYTICS.VW\_LOAN\_PORTFOLIO
- Prints summary counts and DQ stats at the end.

#### **Step 4 – Semantic Model for Cortex Analyst**

1. Save banking\_semantic\_sea.yaml locally.
2. In Snowsight:
  - Go to Data → RETAIL\_BANKING\_DEMO → SILVER → Stages → SEMANTIC\_STAGE.
  - Click Upload Files and upload banking\_semantic\_sea.yaml.
3. Run:-- 04\_cortex\_analyst\_setup.sql
4. This:
  - Verifies primary keys on Gold tables.
  - Lists the contents of @SEMANTIC\_STAGE.
  - Documents manual semantic model creation steps.
5. Create the semantic model in Snowsight:
  - Go to AI & ML → Cortex Analyst → + Semantic Model.
  - Configure:
    - Name: SEA Banking Analytics
    - Database: RETAIL\_BANKING\_DEMO
    - Schema: SILVER
    - Stage: @SEMANTIC\_STAGE
    - YAML file: banking\_semantic\_sea.yaml
  - Click Create.
6. Test a few sample questions in the Cortex Analyst Playground.

#### **Step 5 – Upload Streamlit App File**

1. Ensure your app file is named streamlit\_app.py (renamed from streamlit\_FINAL\_WORKING\_6.py).
2. In Snowsight:
  - Go to Data → RETAIL\_BANKING\_DEMO → SILVER → Stages → APP\_STAGE.
  - Click Upload Files and upload streamlit\_app.py.

#### **Step 6 – Create Streamlit App and Assign Role**

1. Edit 05\_streamlit\_app\_setup.sql and update:

GRANT ROLE BANKING\_APP\_ROLE TO USER YOUR\_USER\_NAME\_HERE;

2. Replace YOUR\_USER\_NAME\_HERE with the actual Snowflake user (e.g. CAPSTONE).
3. Run:-- 05\_streamlit\_app\_setup.sql
4. This will:
  - Grant BANKING\_APP\_ROLE to your user.
  - (Optionally) send a test email if you uncomment that block.
  - Create/replace the app RETAIL\_BANKING\_DEMO.SILVER.SEA\_BANKING\_ANALYTICS\_APP.

5. Verify:

SHOW STREAMLIT APPS IN SCHEMA RETAIL\_BANKING\_DEMO.SILVER;

### **Step 7 – Open the App**

1. In Snowsight, go to Projects → Streamlit (or Apps).
2. Open SEA\_BANKING\_ANALYTICS\_APP.
3. You should see:
  - An Executive Dashboard with KPIs and charts.
  - Tabs: “Ask Your Data (Cortex Analyst)”, “Data Quality Dashboard”, “Customer 360 View”.