

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.ACCTS
 - 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:
 - o Grant BANKING_APP_ROLE to your user.
 - o (Optionally) send a test email if you uncomment that block.
 - o 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:
 - o An Executive Dashboard with KPIs and charts.
 - o Tabs: “Ask Your Data (Cortex Analyst)”, “Data Quality Dashboard”, “Customer 360 View”.