

IBM NAAN MUDHALVAN

CLOUD APPLICATION DEVELOPMENT

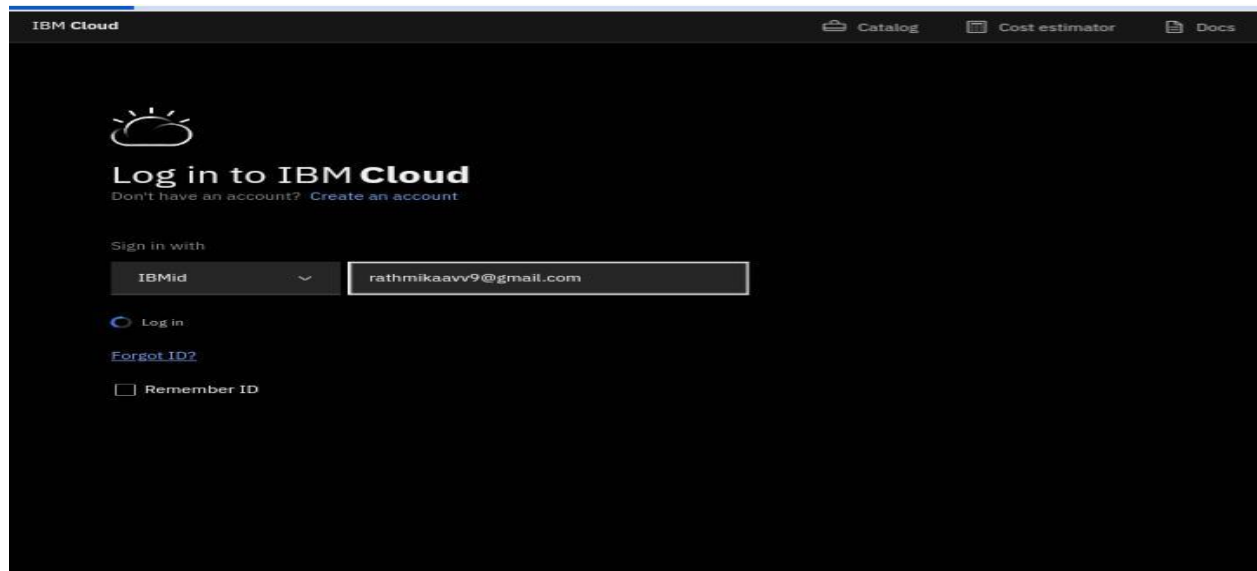
PROJECT: Data Warehousing with IBM Cloud Db2 Warehouse

Phase 3:

In this part you will begin building your project.
Start building the data warehouse using IBM Cloud Db2 Warehouse.
Define the schema and structure of the data warehouse tables. Identify data sources (e.g., CSV files, databases) and design a strategy to integrate them into the data warehouse.

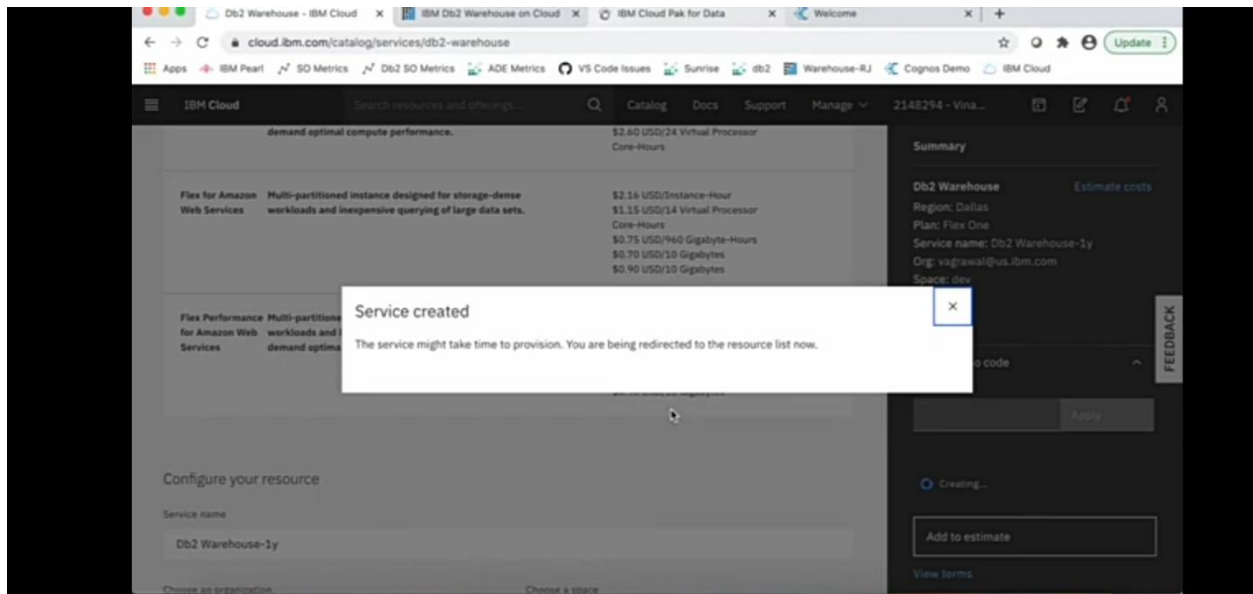
1. IBM Cloud Setup:

- Sign in to your IBM Cloud account or create one if you haven't already.

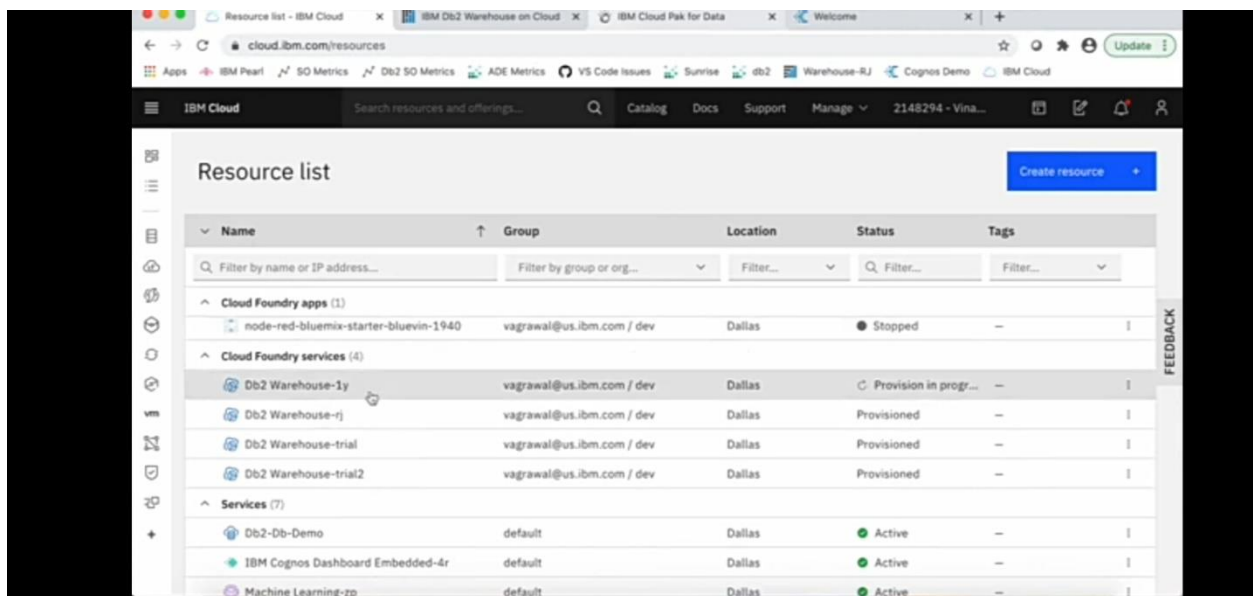


2. Provision Db2 Warehouse:

- In the IBM Cloud console, provision an instance of Db2 Warehouse.

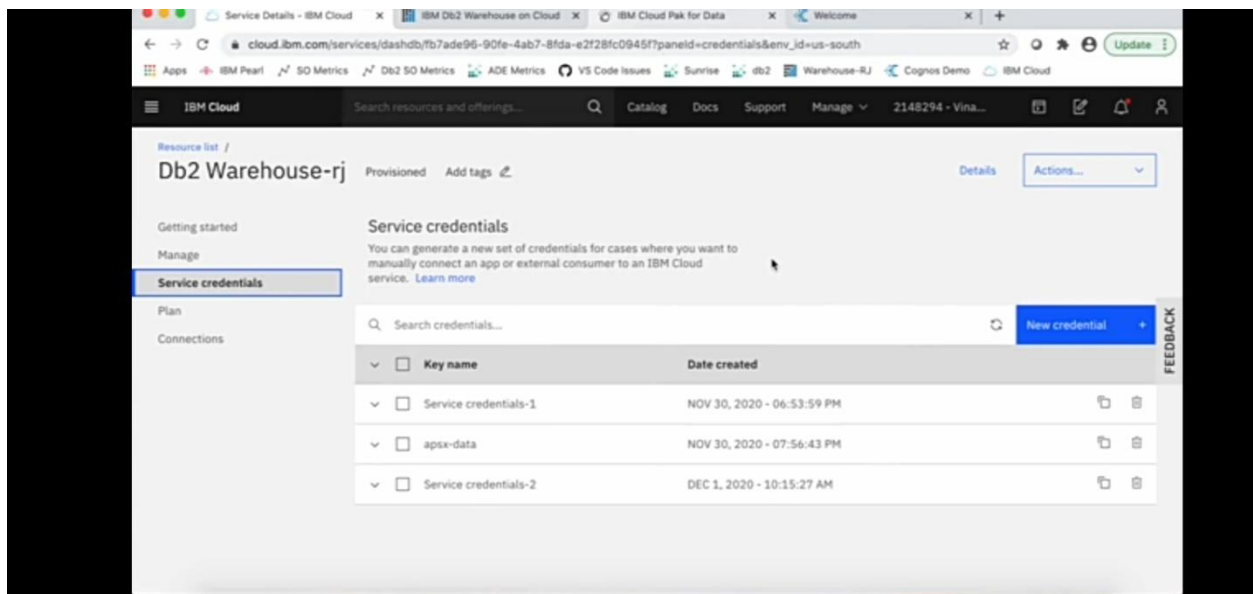
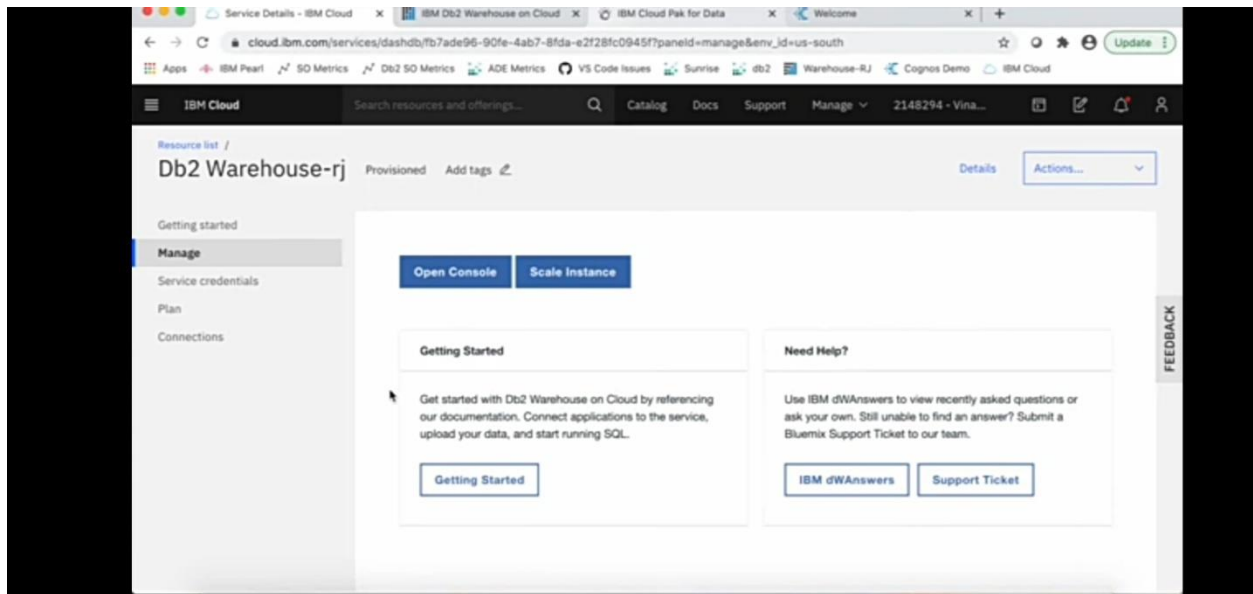


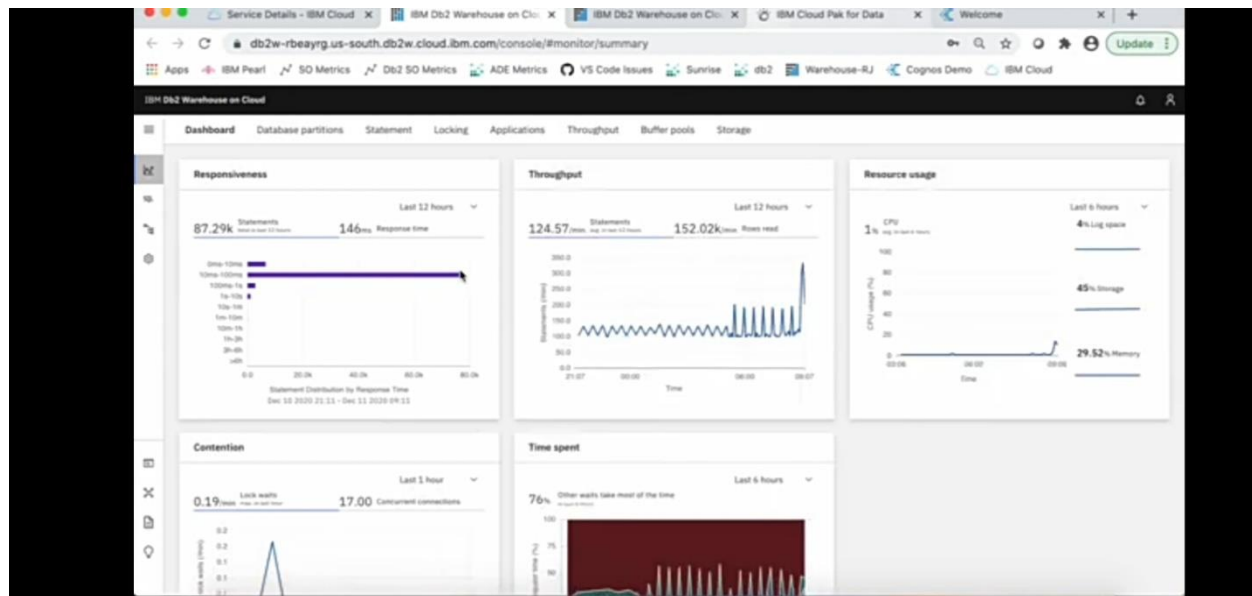
-can be viewed in resource list



3. Connect to Db2 Warehouse:

- Use a SQL client like Db2 Data Studio or command-line tools to connect to your Db2 Warehouse instance.





4. Schema Definition:

- Decide on the schema(s) for your data warehouse to logically organize data.
- Create a schema using SQL. For example:

```
```sql
```

```
CREATE SCHEMA YOUR_SCHEMA;
```

...

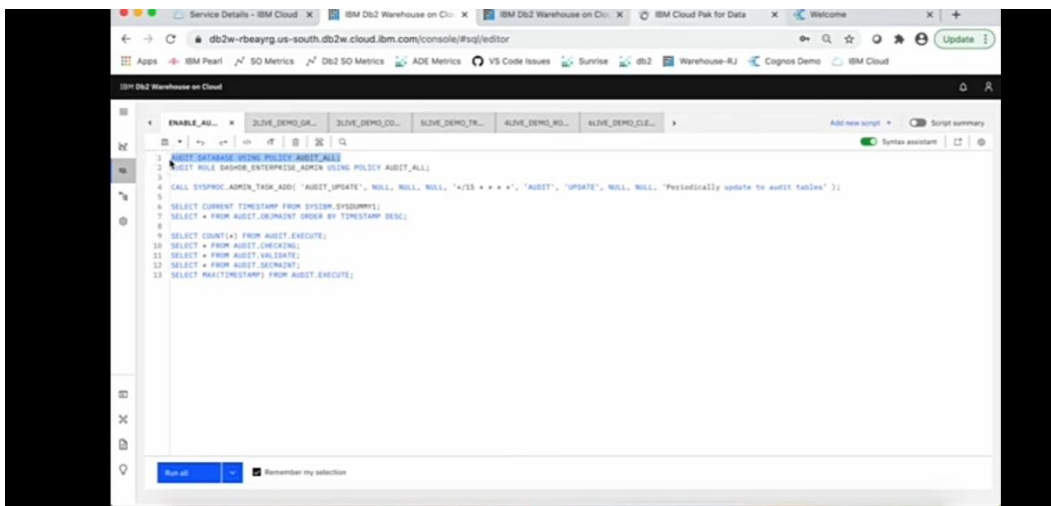
## 5. Table Structure:

- Design the structure of your data warehouse tables. Determine which data attributes will be stored in each table.

- Create tables using SQL, specifying column names and data types. For example:

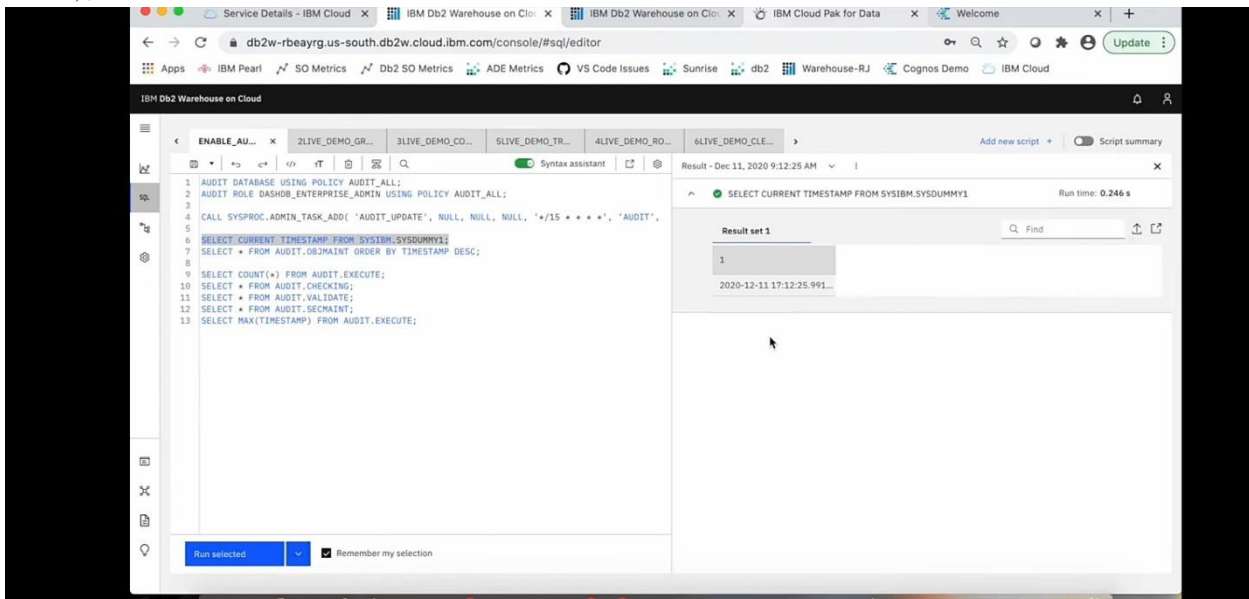
```
```sql
```

```
CREATE TABLE YOUR_SCHEMA.YOUR_TABLE (  
  
    COLUMN1 DATATYPE,  
  
    COLUMN2 DATATYPE,
```

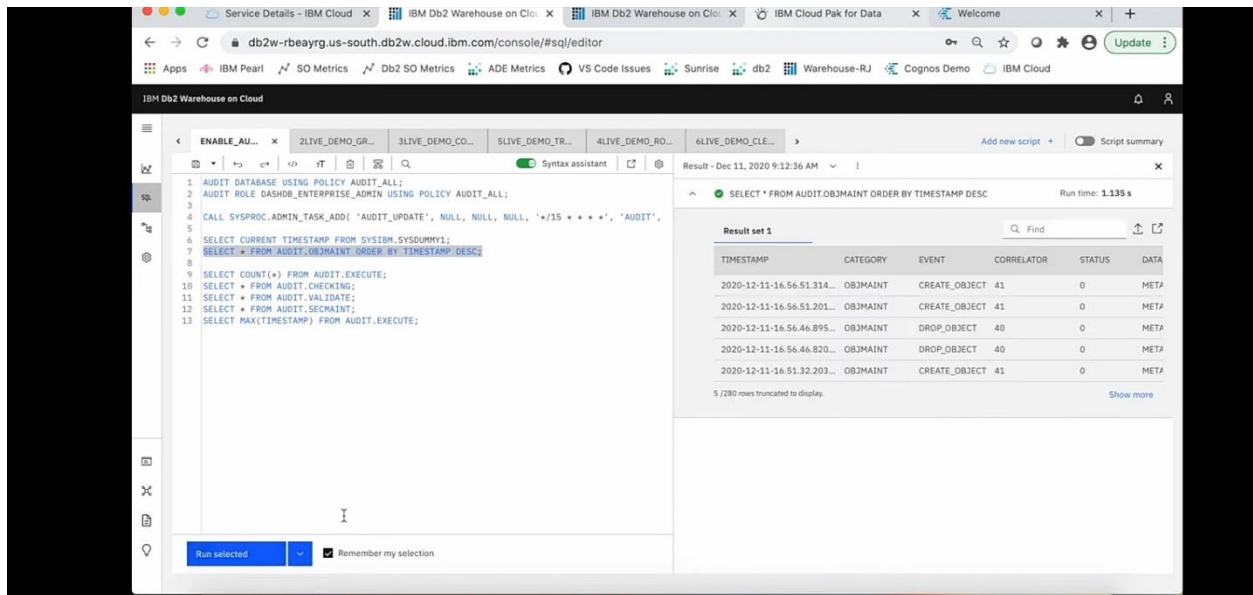


...

);



...



6. Data Sources Identification:

- Identify your data sources, which could include CSV files, other databases, APIs, etc.

Service Details - IBM Cloud

IBM Db2 Warehouse on Clou

IBM Db2 Warehouse on Clou

IBM Cloud Pak for Data

Welcome

db2w-rbeayrg-south.db2w.cloud.ibm.com/console/#load/wizard/detail

Update

Apps

IBM Pearl

SO Metrics

Db2 SO Metrics

ADE Metrics

VS Code Issues

Sunrise

db2

Warehouse-RJ

Cognos Demo

IBM Cloud

IBM Db2 Warehouse on Cloud

Load Data

Load History

Tables

Views

Aliases

MQTs

Schemas

Sequences

Application objects

LIVE_DEMO.LOAN_DATA

Back

Export to CSV

	LOAN_ID VARCHAR(9)	GENDER VARCHAR(4)	MARRIED VARCHAR(3)	DEPENDENTS SMALLINT	EDUCATION VARCHAR(12)	SELF EMPLO... VARCHAR(3)	APPLICANT... DECIMAL(7, 1)	COAPPLICA... DECIMAL(7, 1)	LOANAMOUNT INTEGER	LOAN AMOU... SMALLINT	CREDIT HIS... SMALLINT	PR VAR
1	LP001002	Male	No	0	Graduate	No	58490.0	0.0	36	1	Urt	
2	LP001003	Male	Yes	1	Graduate	No	45830.0	15080.0	12800	36	1	Ru
3	LP001005	Male	Yes	0	Graduate	Yes	30000.0	0.0	6600	36	1	Urt
4	LP001006	Male	Yes	0	Not Graduate	No	25830.0	23580.0	12000	36	1	Urt
5	LP001008	Male	No	0	Graduate	No	60000.0	0.0	14100	36	1	Urt
6	LP001011	Male	Yes	2	Graduate	Yes	54170.0	41960.0	26700	36	1	Urt
7	LP001013	Male	Yes	0	Not Graduate	No	23330.0	15160.0	9500	36	1	Urt
8	LP001014	Male	Yes	3	Graduate	No	30360.0	25040.0	15800	36	0	Sei
9	LP001018	Male	Yes	2	Graduate	No	40060.0	15260.0	16800	36	1	Urt
10	LP001020	Male	Yes	1	Graduate	No	128410.0	109680.0	34900	36	1	Sei
11	LP001024	Male	Yes	2	Graduate	No	32000.0	7000.0	7000	36	1	Urt
12	LP001027	Male	Yes	2	Graduate	No	25000.0	18400.0	10900	36	1	Urt
13	LP001028	Male	Yes	2	Graduate	No	30730.0	81060.0	20000	36	1	Urt
14	LP001029	Male	No	0	Graduate	No	18530.3	28400.0	11400	36	1	Ru
15	LP001030	Male	Yes	2	Graduate	No	12990.0	10860.0	1700	12	1	Urt
16	LP001032	Male	No	0	Graduate	No	49500.0	0.0	12500	36	1	Urt
17	LP001034	Male	No	1	Not Graduate	No	55560.0	0.0	40000	36	1	Urt

7. Data Integration Strategy:

- Design a strategy to integrate data sources into your data warehouse. Consider using ETL (Extract, Transform, Load) tools or custom scripts.
- For CSV files, you might use Db2's `IMPORT` command to load data into your tables.
- For external databases, establish connections and design data transfer processes.

```

1 ---CREATE THE REQUIRED ROLES AND GRANT PRIVILEGES TO USERS
2 CREATE ROLE EMPLOYEE;
3 GRANT ROLE EMPLOYEE TO USER TESTUSER1;
4 GRANT SELECT ON TABLE LIVE_DEMO.LOAN_DATA TO ROLE EMPLOYEE;
5
6 CREATE ROLE CUSTOMER;
7 GRANT ROLE CUSTOMER TO USER CUSTOMER1;
8 GRANT SELECT ON TABLE LIVE_DEMO.LOAN_DATA TO ROLE CUSTOMER;
9
10
11 CREATE ROLE ADMIN;
12 GRANT ROLE ADMIN TO USER VIN113;
13 GRANT ROLE ADMIN TO USER BLUEADMIN;
14 GRANT ALL ON TABLE LIVE_DEMO.LOAN_DATA TO USER BLUEADMIN;
15 GRANT ALL ON TABLE LIVE_DEMO.LOAN_DATA TO ROLE ADMIN;
16
17
18 ---CHECK THE PRIVILEGES FOR A SPECIFIC USER
19 SELECT GRANTOR, GRANTORTYPE, GRANTEE, GRANTEETYPE, ROLENAM,
20       CREATE_TIME, ADMIN
21 FROM TABLE (SYSPROC.AUTH_LIST_ROLES_FOR_AUTHID ('BLUEADMIN', 'U') ) AS T;
22
23 SELECT * FROM SYSIBMADM.PRIVILEGES
  
```

Result - Dec 11, 2020 9:19:25 AM

Script summary

GRANT ALL ON TABLE LIVE_DEMO.LOAN_DATA TO USER BLUEADMIN Run time: 2.226 s

Status: Success | Affected rows: 0

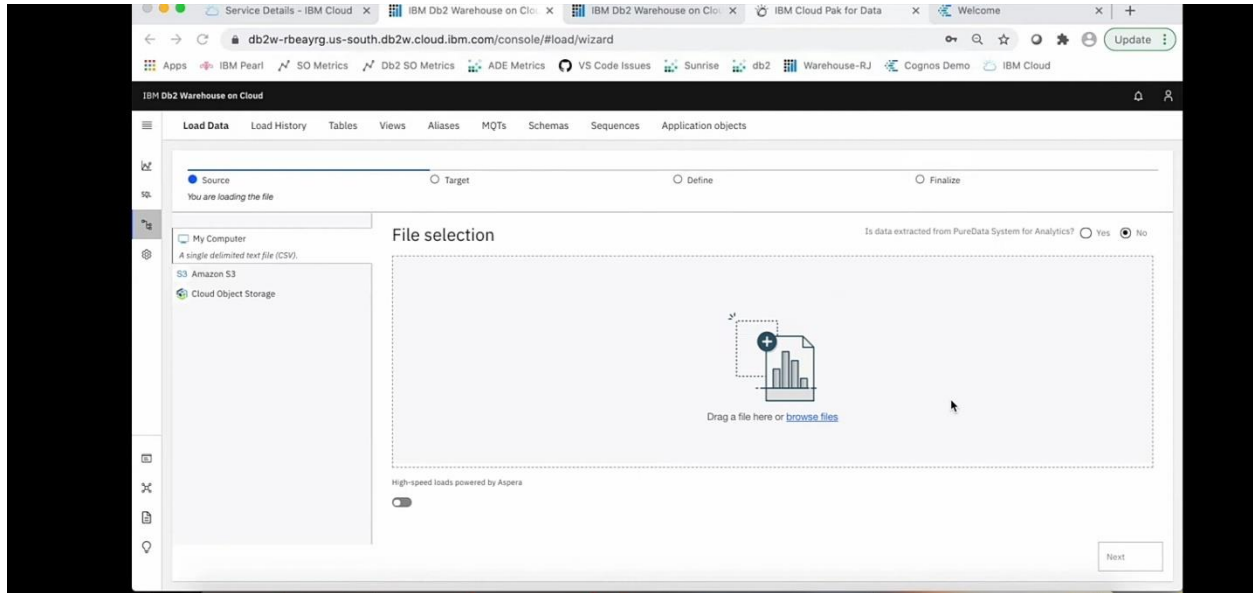
GRANT ALL ON TABLE LIVE_DEMO.LOAN_DATA TO ROLE ADMIN Run time: 0.149 s

Run selected

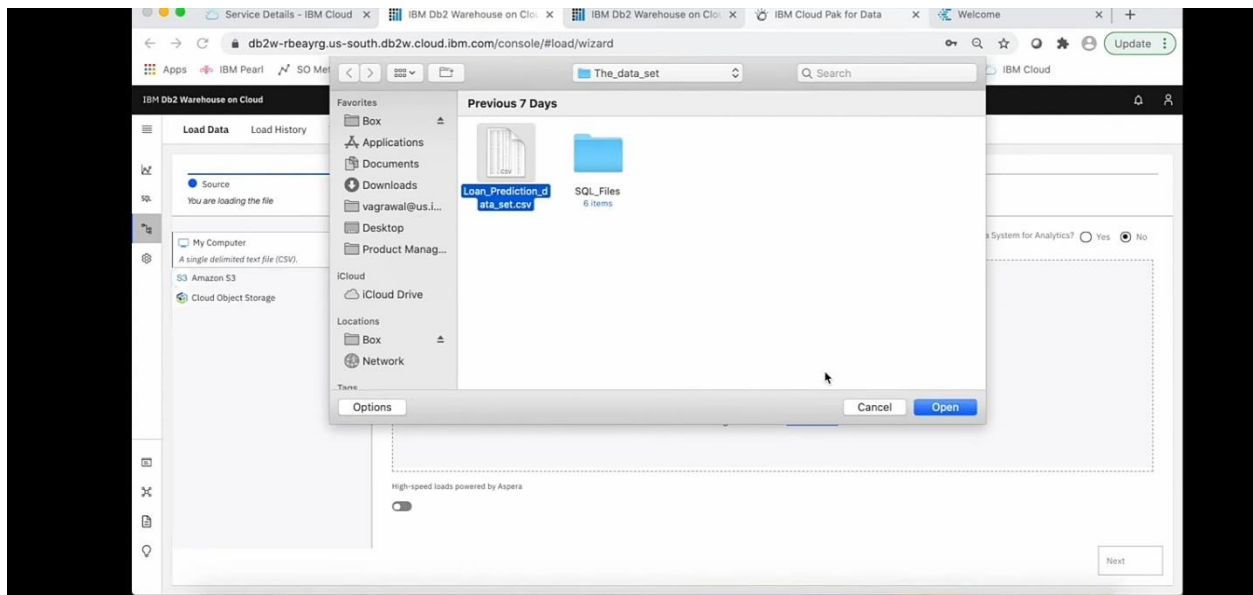
Remember my selection

8. Data Loading:

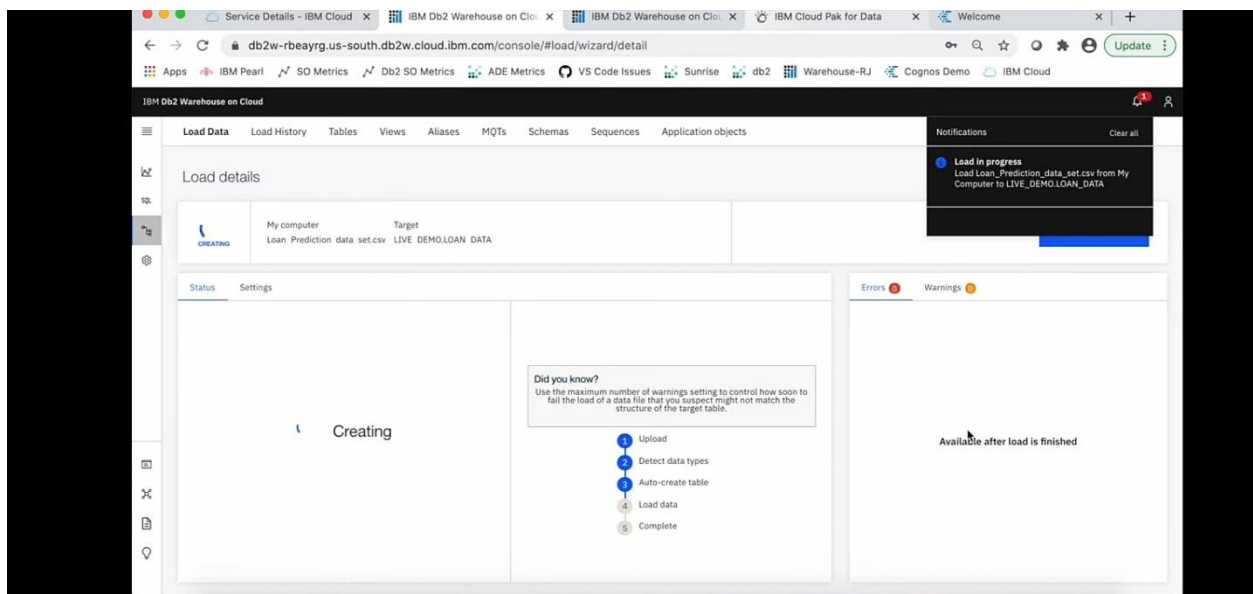
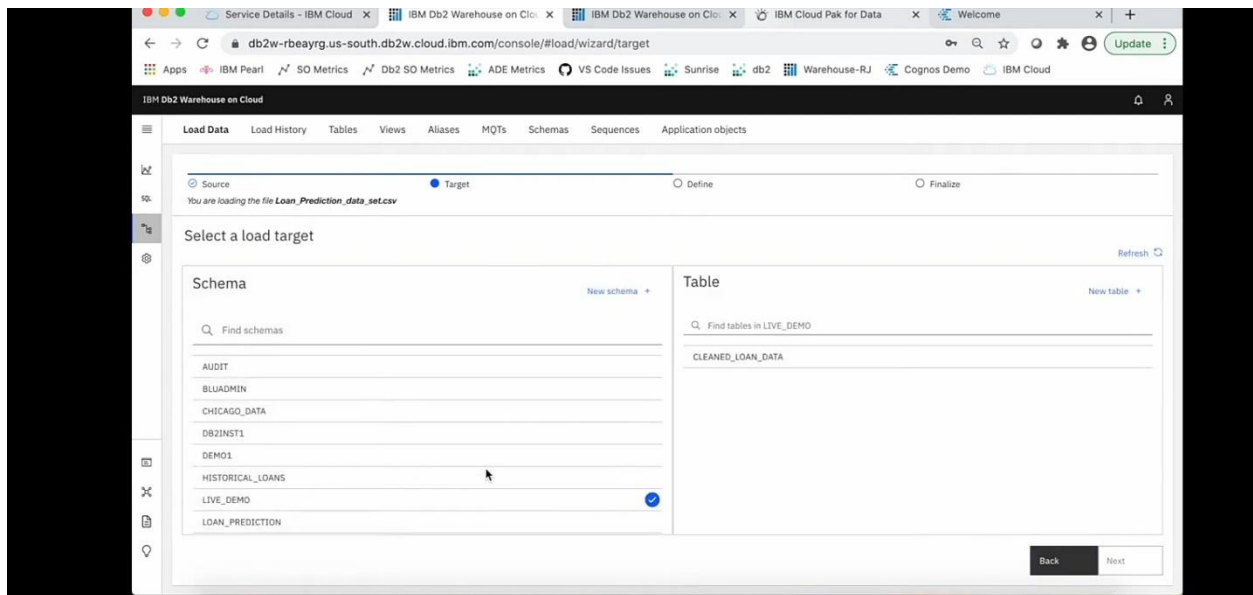
- Implement your data integration strategy to load data into your tables. This may involve running SQL scripts, using ETL tools, or other methods.



-add file

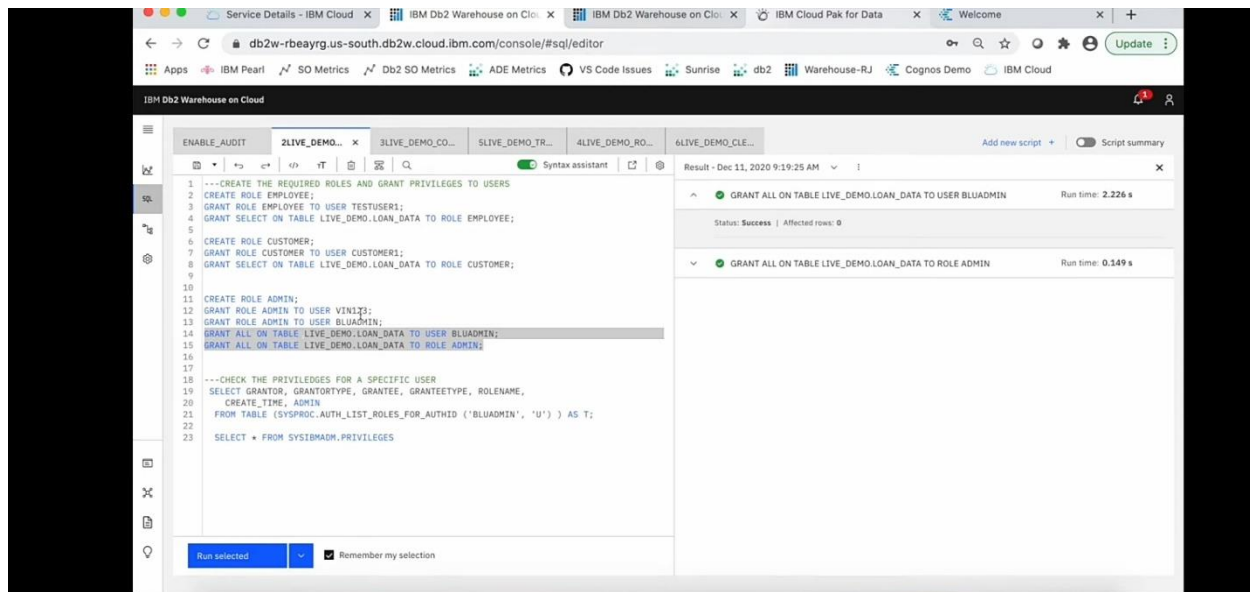
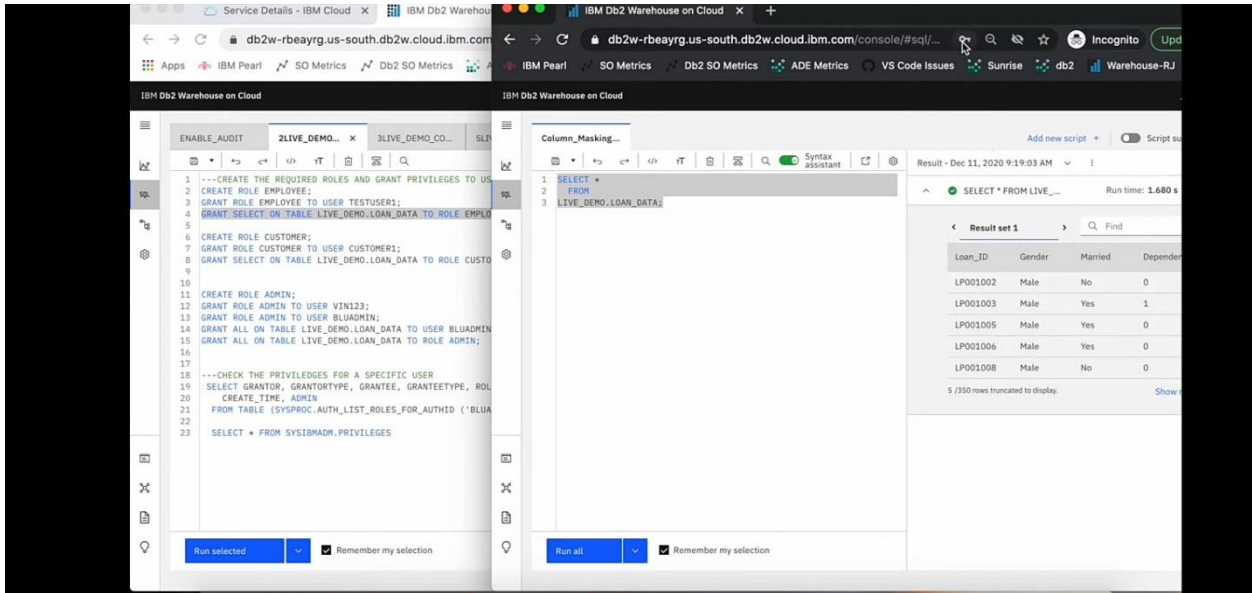


-load target file



9. Data Validation:

- Verify data integrity by running queries to validate that the data loaded correctly and is consistent with your expectations.



Service Details - IBM Cloud

db2w-rbeayrg.us-south. IBM Db2 Warehouse on Cloud

db2w-rbeayrg.us-south.db2w.cloud.ibm.com/console/#sql/...

IBM Pearl SO Metrics Db2 SO Metrics ADE Metrics VS Code Issues Sunrise db2 Warehouse-RJ

IBM Db2 Warehouse on Cloud

ENABLE_AUDIT 2LIVE_DEMO_GR...

```
1 ---CREATE COLUMN MASKING---
2 CREATE OR REPLACE MASK GENDER_MASK
3 FOR COLUMN "Gender" RETURN
4 CASE
5 WHEN (
6   VERIFY_ROLE_FOR_USER(SESSION_USER_ID,
7     THEN "Gender"
8   WHEN (
9     VERIFY_ROLE_FOR_USER(SESSION_USER_ID,
10    THEN "Gender"
11   WHEN (
12     VERIFY_ROLE_FOR_USER(SESSION_USER_ID,
13    THEN "Gender"
14   ELSE CHAR('XXXXXX')
15 END
16 END
17 ENABLE;
18
19 ALTER TABLE LIVE_DEMO.LOAN_DATA
20 ACTIVATE COLUMN ACCESS CONTROLS;
21
22 Select * from LIVE_DEMO.LOAN_DATA;
```

Column_Masking...

```
1 SELECT *
2 FROM
3 LIVE_DEMO.LOAN_DATA;
```

Result - Dec 11, 2020 9:20:39 AM Run time: 0.153 s

Result set 1

Loan_ID	Gender	Married	Dependents
LP001002	XXXXXX	No	0
LP001003	XXXXXX	Yes	1
LP001005	XXXXXX	Yes	0
LP001006	XXXXXX	Yes	0
LP001008	XXXXXX	No	0

5 / 350 rows truncated to display

Show more

Run selected Remember my selection

Run all Remember my selection