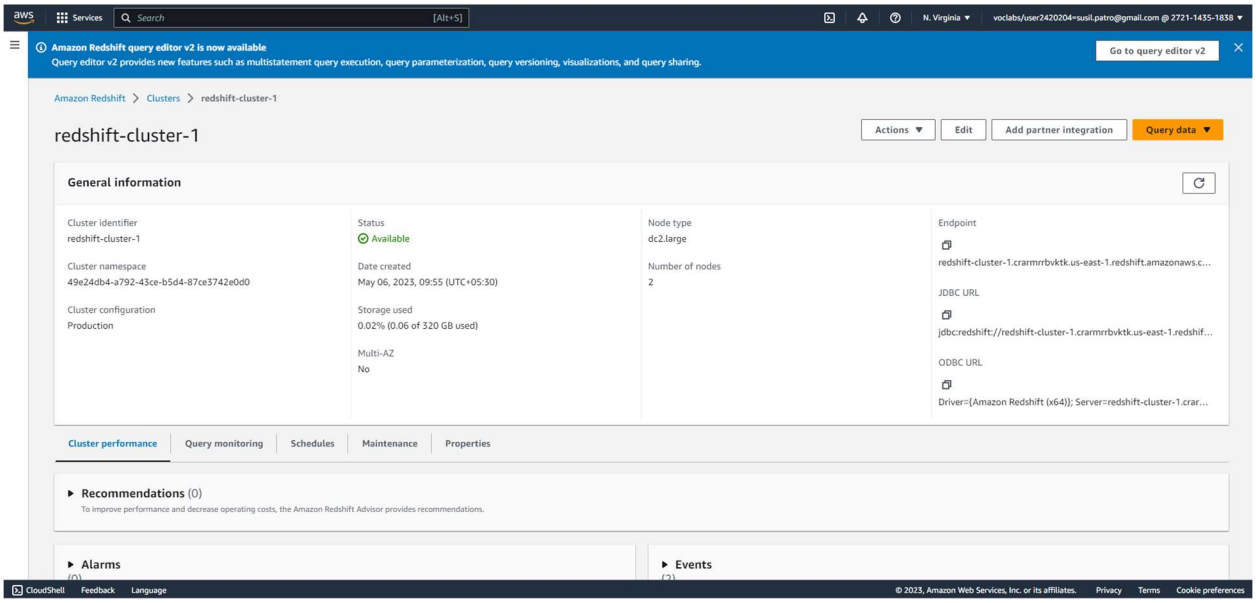
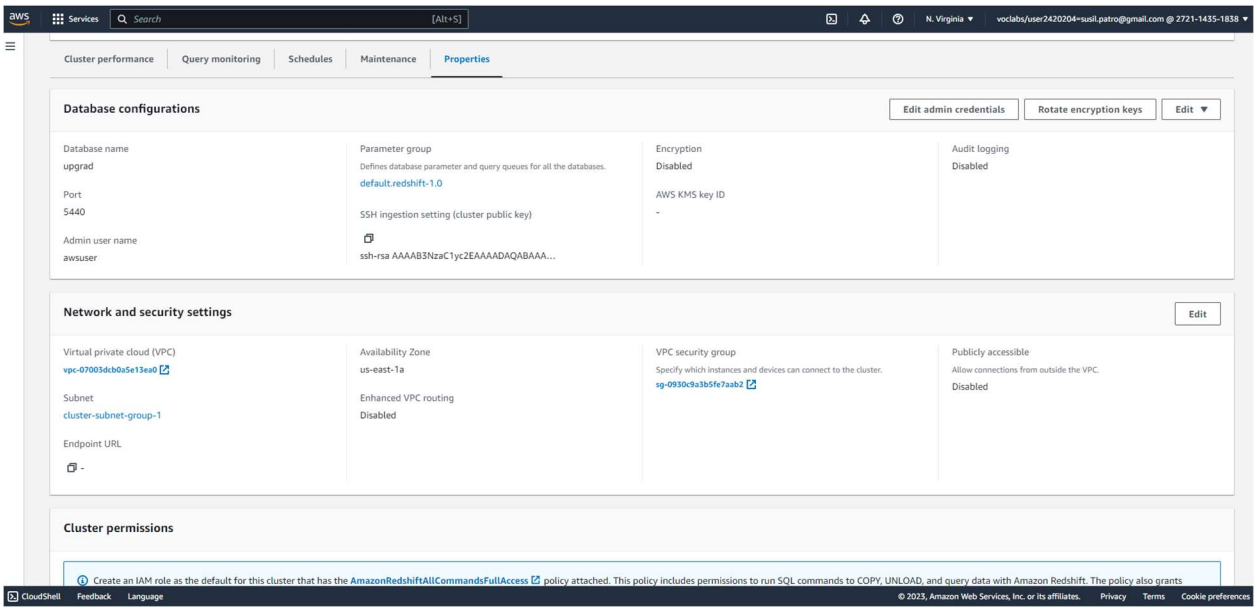
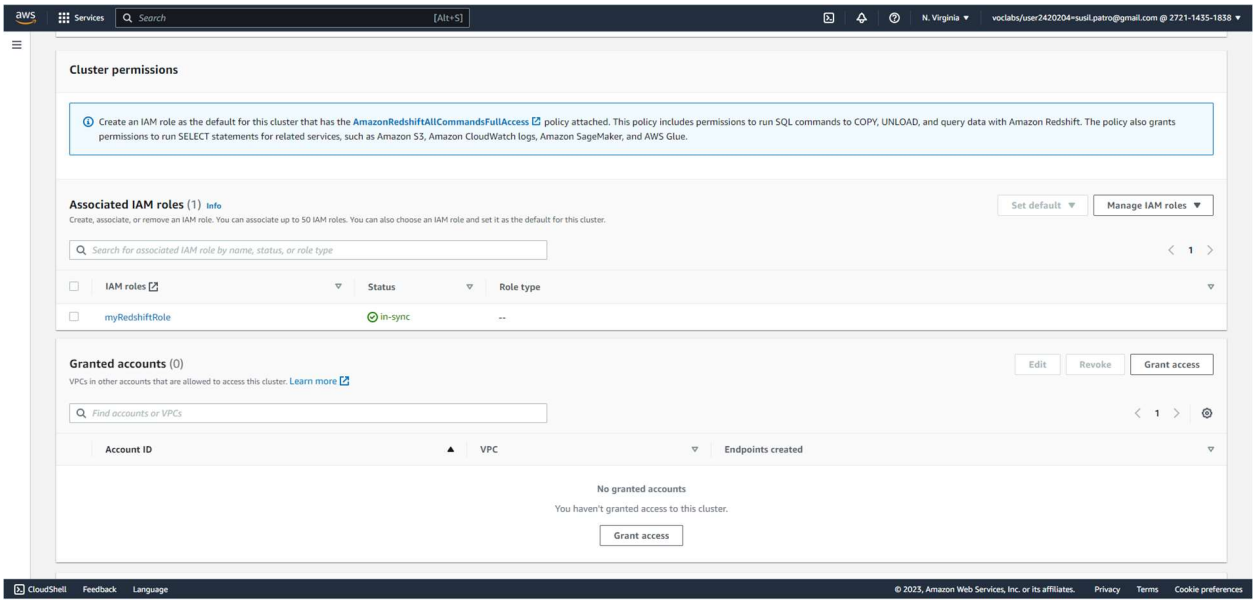
Creation of a Redshift Cluster

Screenshots of the configuration of the Redshift cluster that you have created:

Screenshot of the type of machine used along with number of nodes:





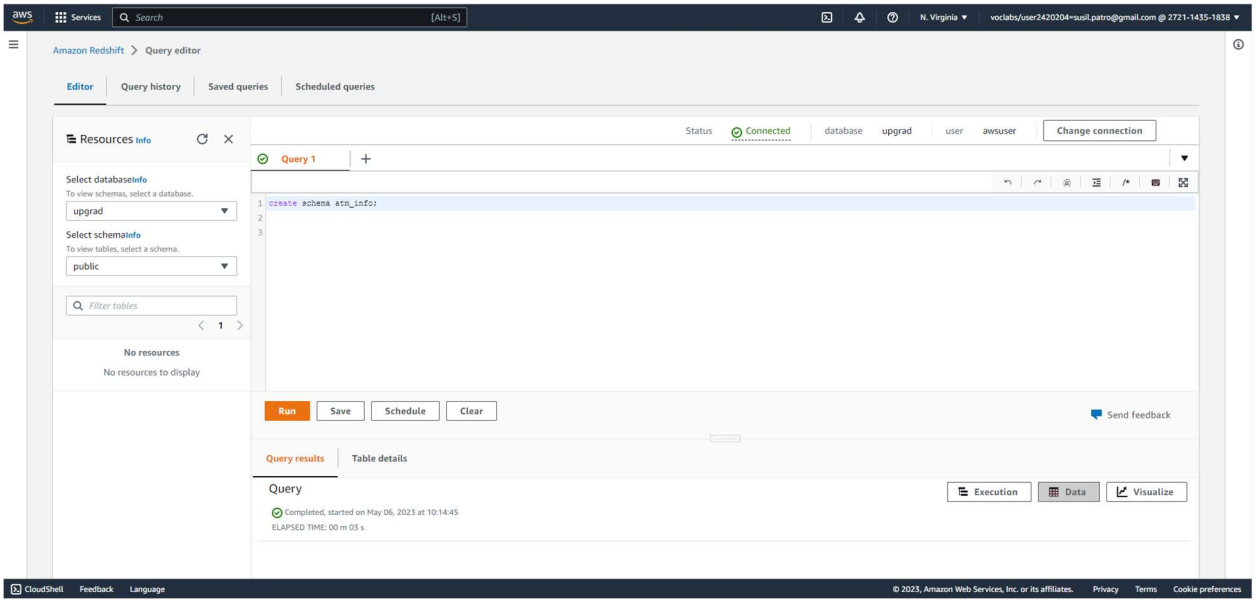


Setting up a database in the Redshift cluster and running queries to create the dimension and fact tables

Query for creating schema:

create schema atm_info;

Screenshot:

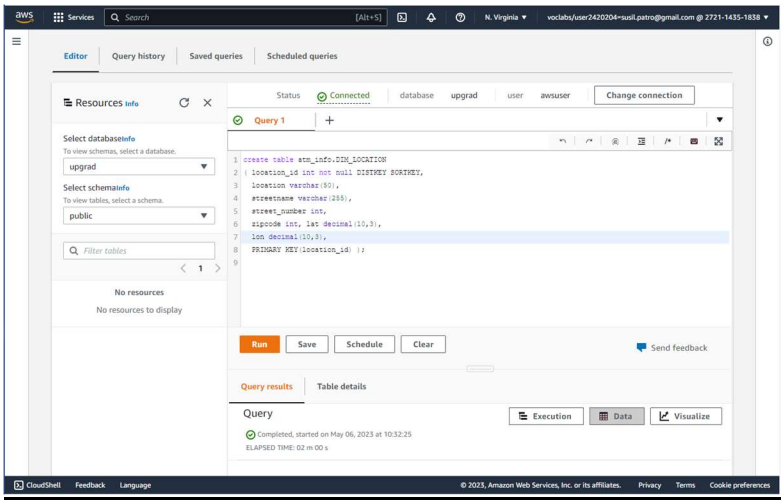


Queries to create the various dimension and fact tables with appropriate primary and foreign keys:

Queries:

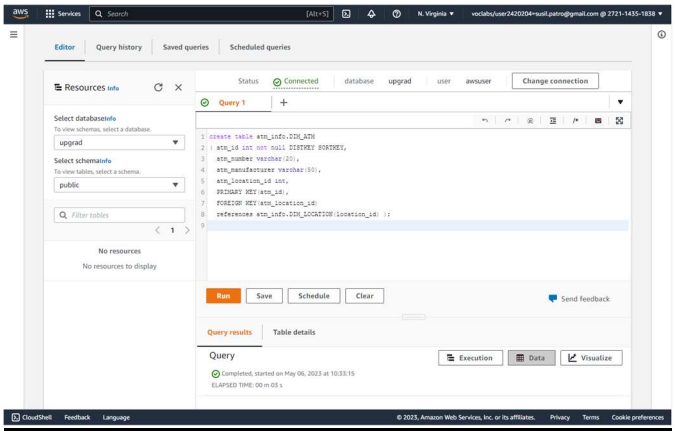
Creating location dimension table:

```
create table atm_info.DIM_LOCATION
( location_id int not null DISTKEY SORTKEY,
  location varchar(50),
  streetname varchar(255),
  street_number int,
  zipcode int, lat decimal(10,3),
  lon decimal(10,3),
  PRIMARY KEY(location_id) );
```



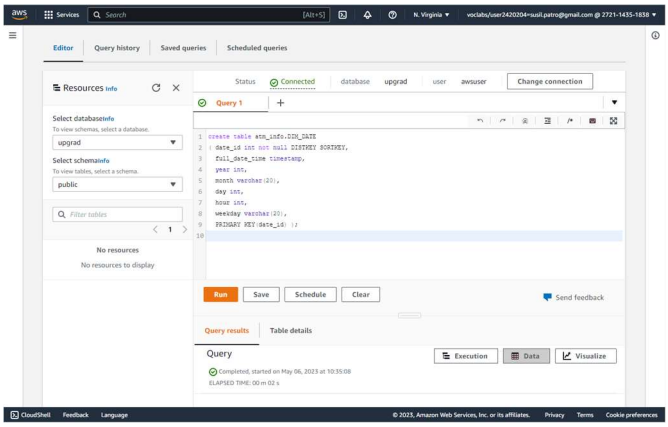
Creating atm dimension table:

```
create table atm_info.DIM_ATM
( atm_id int not null DISTKEY SORTKEY,
  atm_number varchar(20),
  atm_manufacturer varchar(50),
  atm_location_id int,
  PRIMARY KEY(atm_id),
  FOREIGN KEY(atm_location_id)
  references atm_info.DIM_LOCATION(location_id) );
```



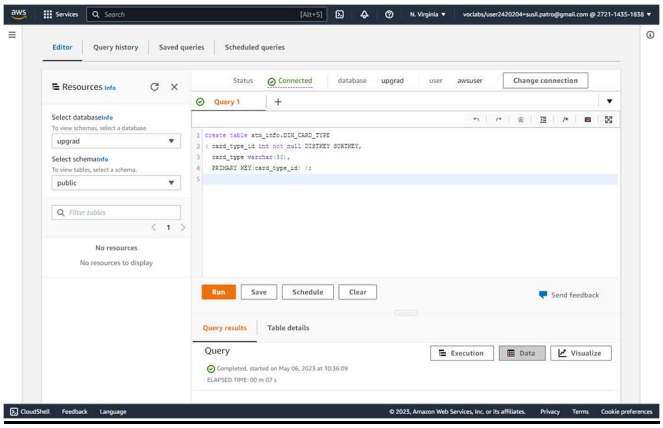
Creating date dimension table:

```
create table atm_info.DIM_DATE
( date_id int not null DISTKEY SORTKEY,
  full_date_time timestamp,
  year int,
  month varchar(20),
  day int,
  hour int,
  weekday varchar(20),
  PRIMARY KEY(date_id) );
```



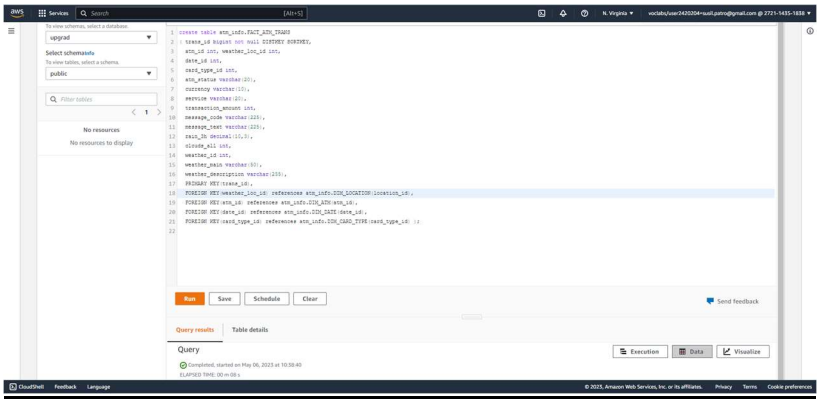
Creating card type dimension table:

```
create table atm_info.DIM_CARD_TYPE
( card_type_id int not null DISTKEY SORTKEY,
  card_type varchar(30),
  PRIMARY KEY(card_type_id) );
```



Creating atm transactions fact table:

```
create table atm_info.FACT_ATM_TRANS
( trans_id bigint not null DISTKEY SORTKEY,
atm_id int, weather_loc_id int,
date_id int,
card_type_id int,
atm_status varchar(20),
currency varchar(10),
service varchar(20),
transaction_amount int,
message_code varchar(225),
message_text varchar(225),
rain_3h decimal(10,3),
clouds_all int,
weather_id int,
weather_main varchar(50),
weather_description varchar(255),
PRIMARY KEY(trans_id),
FOREIGN KEY(weather_loc_id) references atm_info.DIM_LOCATION(location_id),
FOREIGN KEY(atm_id) references atm_info.DIM_ATM(atm_id),
FOREIGN KEY(date_id) references atm_info.DIM_DATE(date_id),
FOREIGN KEY(card_type_id) references atm_info.DIM_CARD_TYPE(card_type_id) );
```

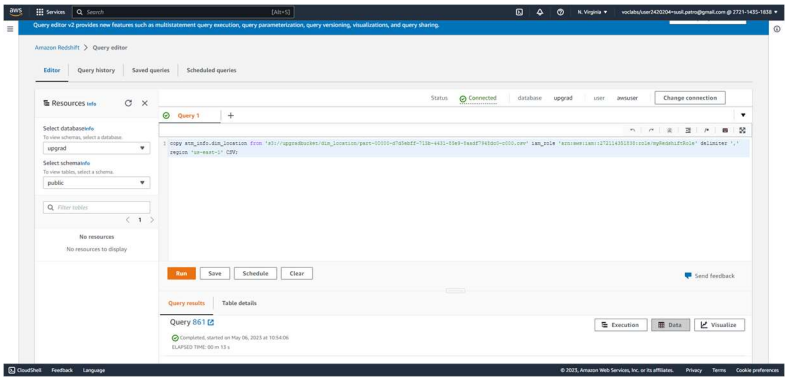


Loading data into a Redshift cluster from Amazon S3 bucket

Queries to copy the data from S3 buckets to the Redshift cluster in the appropriate tables

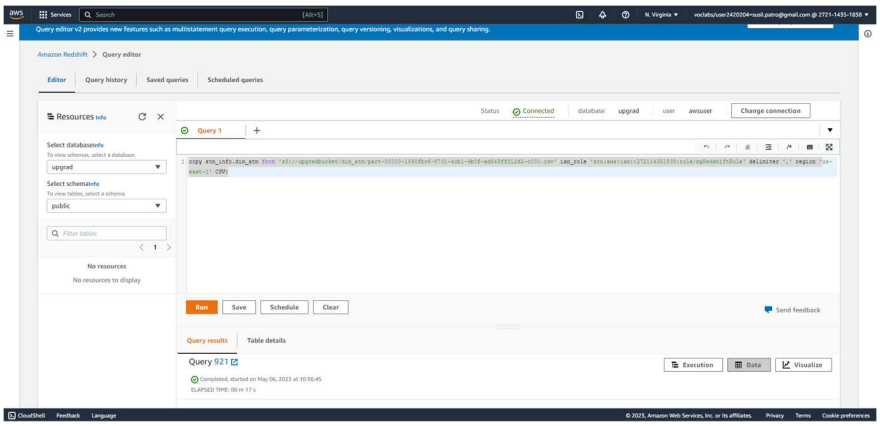
Copying the data to dim_location table:

copy atm_info.dim_location from 's3://upgradbucket/dim_location/part-00000-d7d5ebff-715b-4431-85e9-8aadf7948dc0-c000.csv' iam_role 'arn:aws:iam::272114351838:role/myRedshiftRole' delimiter ',' region 'us-east-1' CSV;



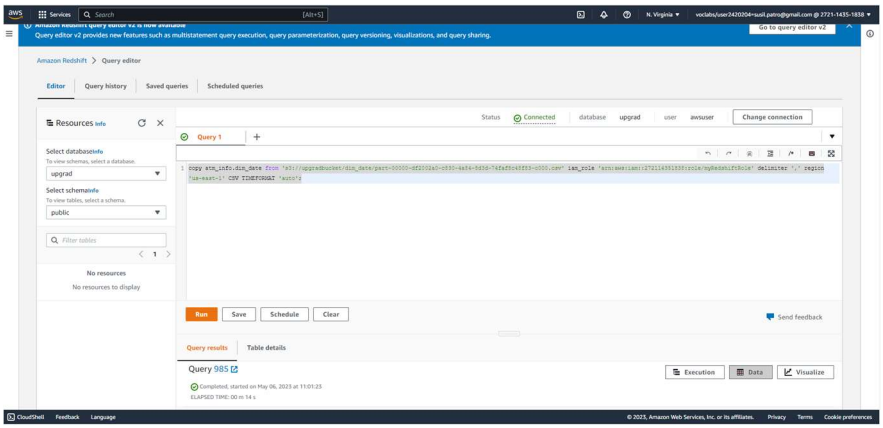
Copying the data to dim_atm table:

copy atm_info.dim_atm from 's3://upgradbucket/dim_atm/part-00000-1590fbc6-8731-4cb1-9b0f-ad845ff312d2-c000.csv' iam_role 'arn:aws:iam::272114351838:role/myRedshiftRole' delimiter ',' region 'us-east-1' CSV;



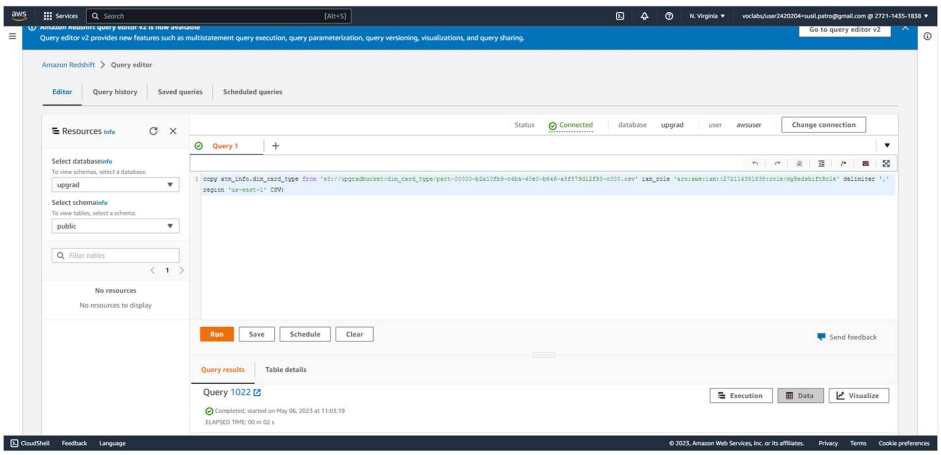
Copying the data to dim_date table:

copy atm_info.dim_date from 's3://upgradbucket/dim_date/part-00000-df2002a0-c830-4a84-8d3d-74faf8c48f83-c000.csv' iam_role 'arn:aws:iam::272114351838:role/myRedshiftRole' delimiter ',' region 'us-east-1' CSV TIMEFORMAT 'auto';



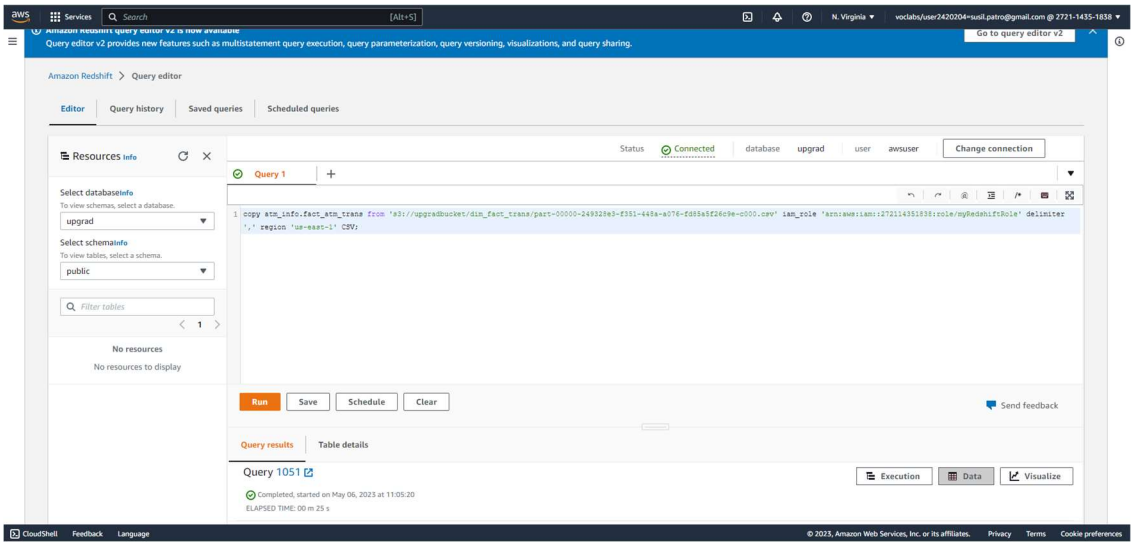
Copying the data to dim_card_type table:

copy atm_info.dim_card_type from 's3://upgradbucket/dim_card_type/part-00000-b2a10fb9-c4ba-40e0-b646-a8f879d12f93-c000.csv' iam_role 'arn:aws:iam::272114351838:role/myRedshiftRole' delimiter ',' region 'us-east-1' CSV;



Copying the data to fact_atm_trans table:

copy atm_info.fact_atm_trans from 's3://upgradbucket/dim_fact_trans/part-00000-249328e3-f351-448a-a076-fd85a5f26c9e-c000.csv' iam_role 'arn:aws:iam::272114351838:role/myRedshiftRole' delimiter ',' region 'us-east-1' CSV;



Once all data copied onto dimension and fact tables for atm_info schema, queries for analysis will be done. The queries are illustrated with evidence in separate document “RedshiftQueries.pdf”

Case Study submitted by:
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