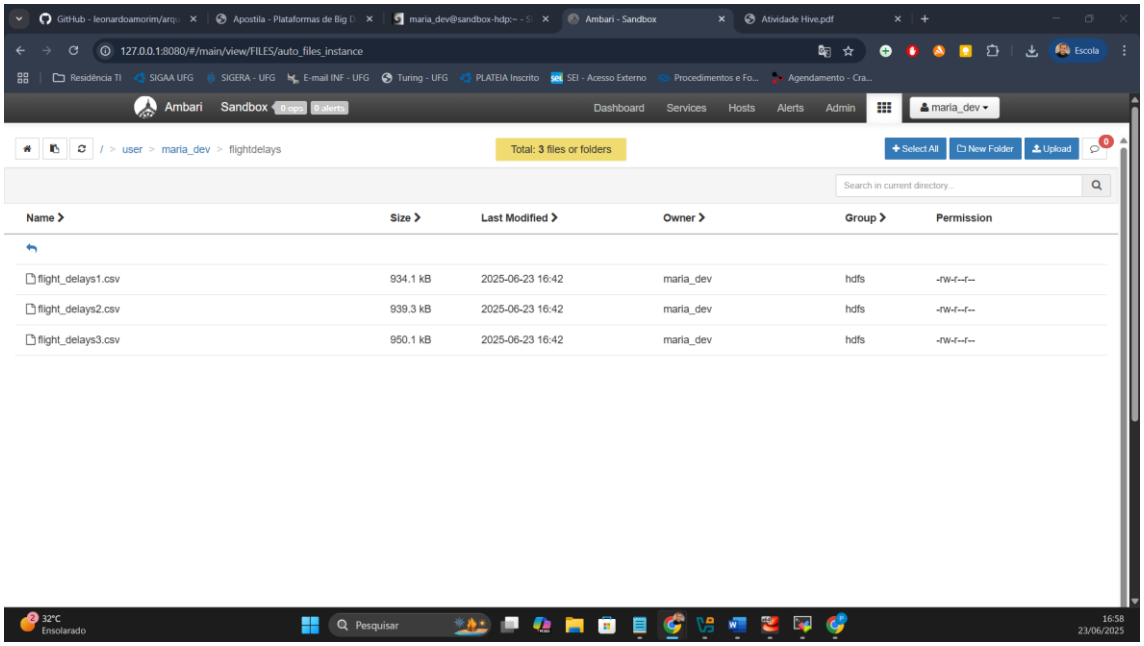
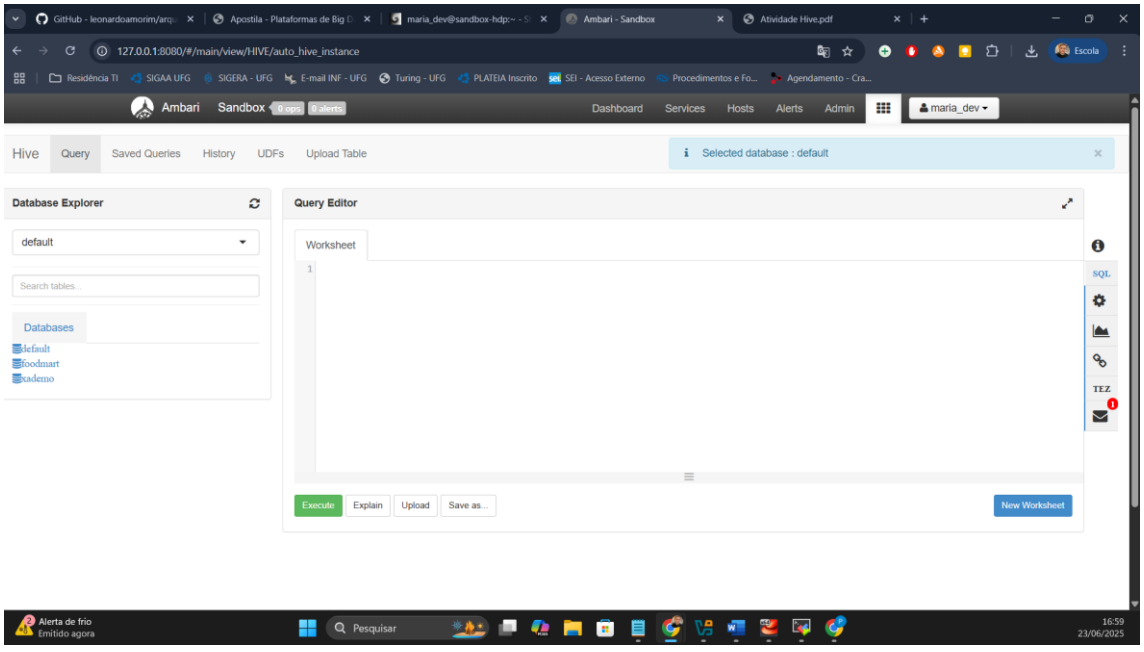
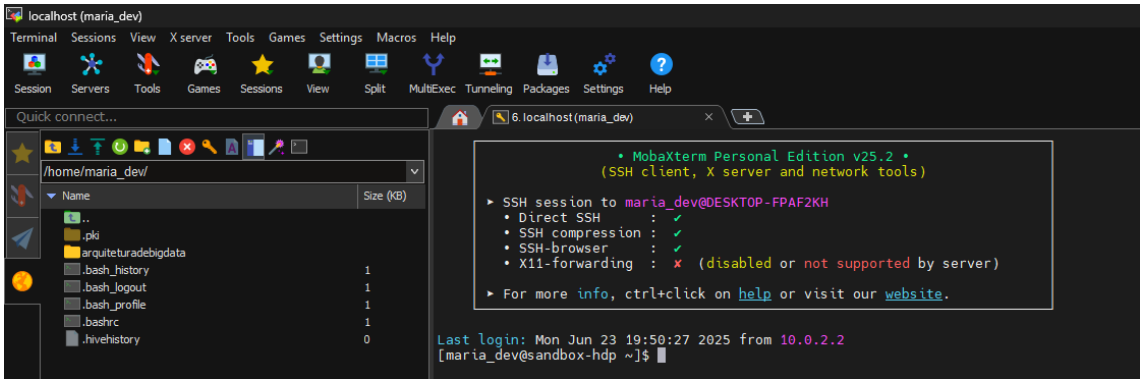
Git: https://github.com/leonardoamorim/arquiteturadebigdata

Atividade 01 - Obtenção de dados e inserção de dados no HDFS







Atividade 02 - Criação de tabela externa no Hive

```
DROP TABLE IF EXISTS flightdelays;

CREATE EXTERNAL TABLE flightdelays (

Year INT,

Month INT,

DayofMonth INT,

DayOfWeek INT,

DepTime INT,

CRSDepTime INT,

ArrTime INT,

CRSArrTime INT,

UniqueCarrier STRING,

FlightNum INT,

TailNum STRING,

ActualElapsedTime INT,

CRSElapsedTime INT,

AirTime INT,

ArrDelay INT,

DepDelay INT,

Origin STRING,

Dest STRING,

Distance INT,

TaxiIn INT,

TaxiOut INT,

Cancelled INT,

CancellationCode STRING,

Diverted INT,
```

CarrierDelay INT,

WeatherDelay INT,

NASDelay INT,

SecurityDelay INT,

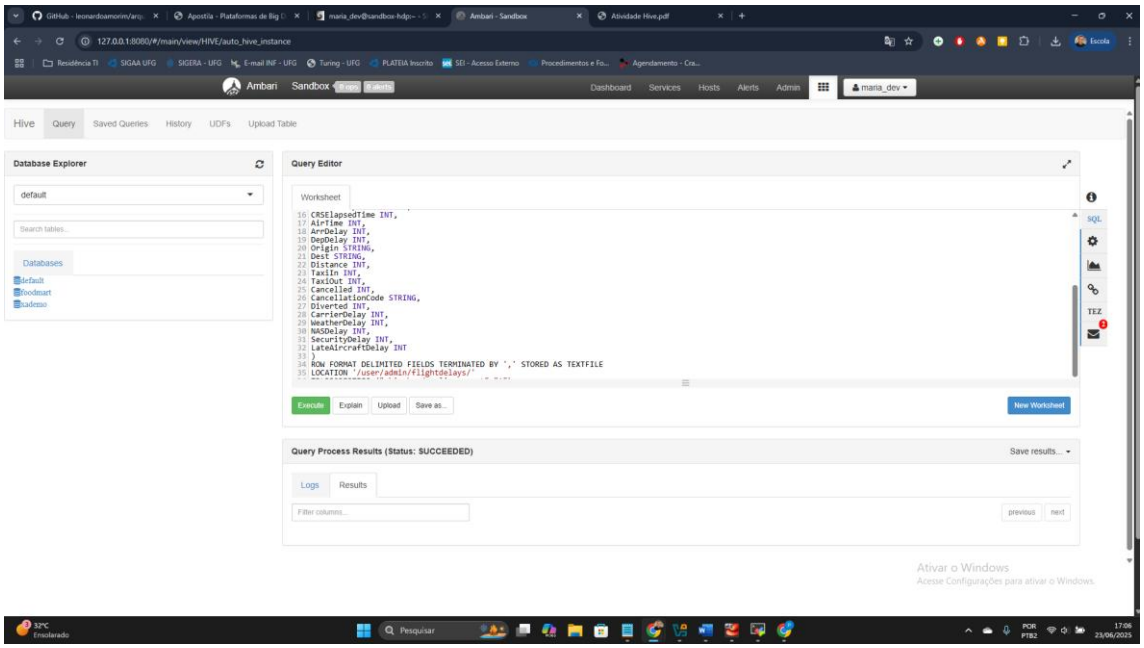
LateAircraftDelay INT

)

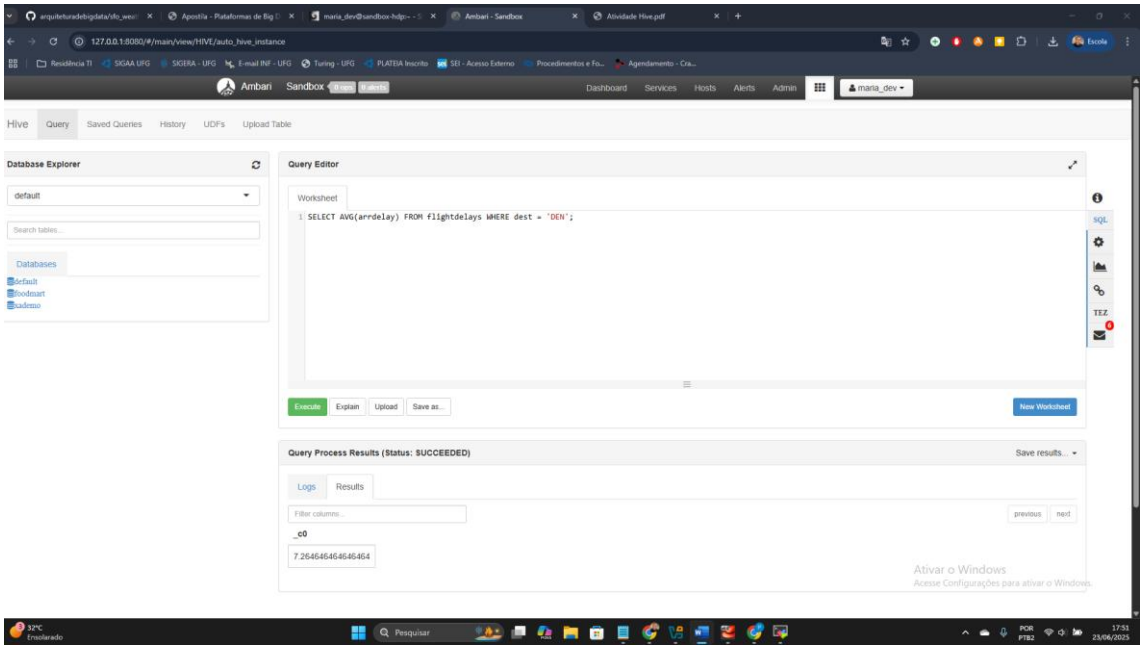
ROW FORMAT DELIMITED FIELDS TERMINATED BY ',' STORED AS TEXTFILE

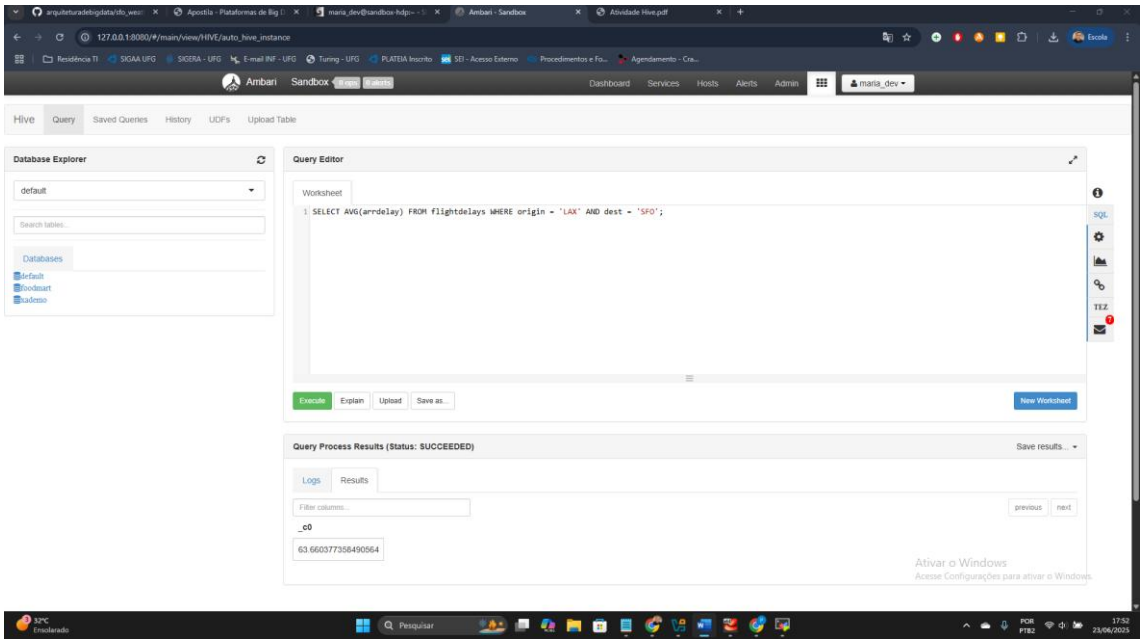
LOCATION '/user/maria_dev/flightdelays/'

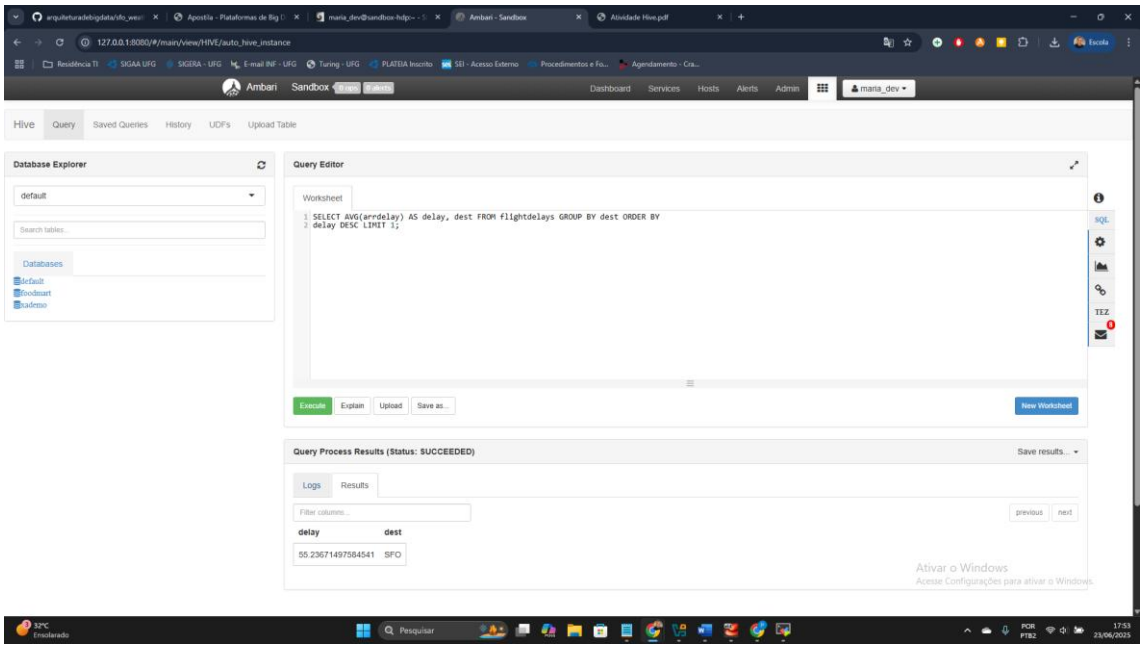
TBLPROPERTIES ("skip.header.line.count"="1");



Atividade 03 - Analisando dados com o Hive



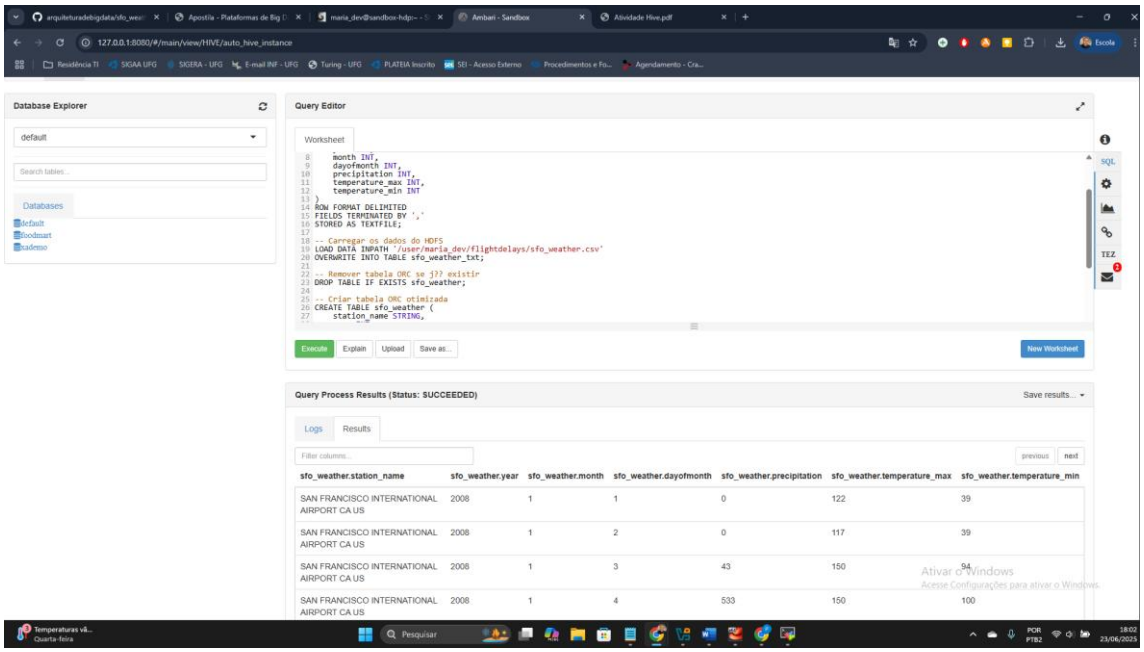


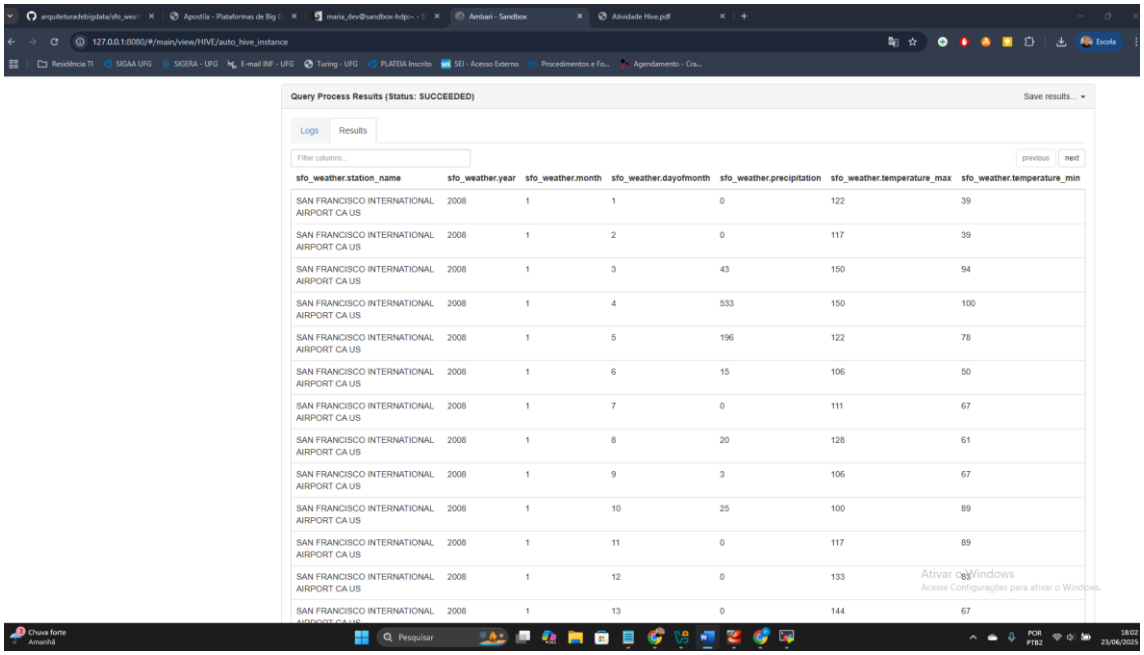


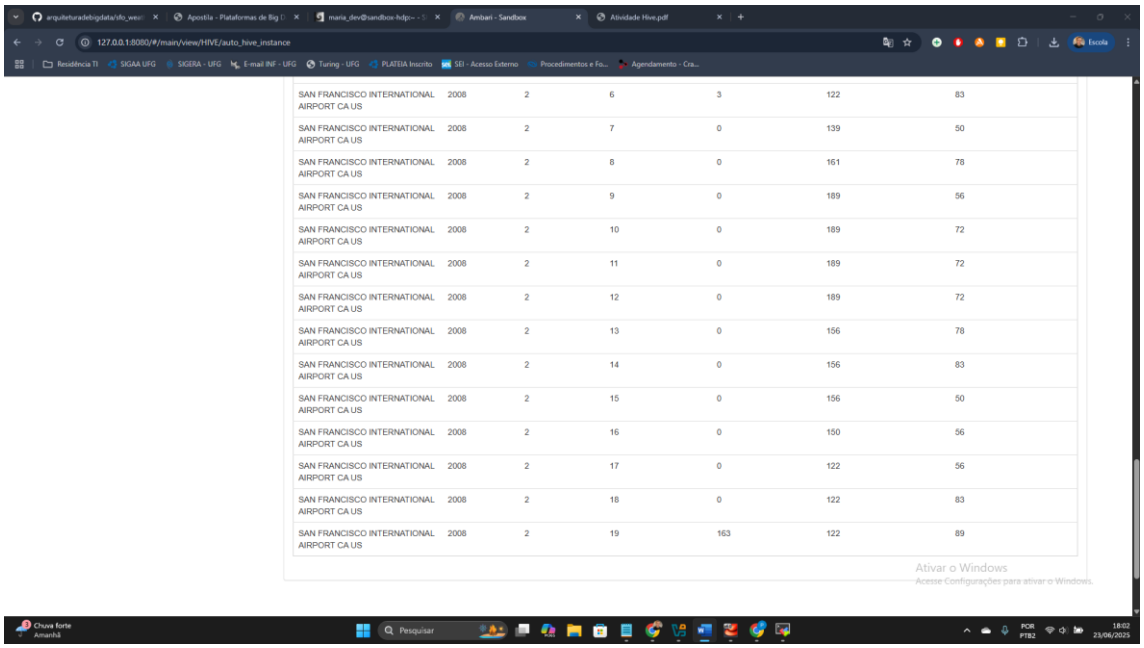
Atividade 04 - Definir e preencher uma tabela ORCFile

```
-- Cria tabela temporária em formato texto
DROP TABLE IF EXISTS sfo_weather_txt;

CREATE TABLE sfo_weather_txt (
  station_name STRING,
  year INT,
  month INT,
  dayofmonth INT,
  precipitation INT,
  temperature_max INT,
  temperature_min INT
)
ROW FORMAT DELIMITED
FIELDS TERMINATED BY ','
STORED AS TEXTFILE;

-- Carrega dados do arquivo CSV local
```

```
LOAD DATA LOCAL INPATH
'/home/maria_dev/arquiteturadebigdata/sfo_weather.csv'
OVERWRITE INTO TABLE sfo_weather_txt;

-- Cria tabela definitiva em formato ORC
DROP TABLE IF EXISTS sfo_weather;

CREATE TABLE sfo_weather (
  station_name STRING,
  year INT,
  month INT,
  dayofmonth INT,
  precipitation INT,
  temperature_max INT,
  temperature_min INT
)
STORED AS ORC;

-- Insere dados da tabela texto para a tabela ORC
INSERT INTO TABLE sfo_weather
SELECT * FROM sfo_weather_txt;

-- Consulta os dados da tabela ORC
SELECT * FROM sfo_weather;
```


Database Explorer
default
Databases
default
Bloodsmart
Diabetes
Query Editor
Worksheet
month INT,
dayofmonth INT,
precipitation INT,
temperature_max INT,
temperature_min INT
)
ROW FORMAT DELIMITED
FIELDS TERMINATED BY ','
STORED AS TEXTFILE;
-- Carregar os dados do HDFS
LOAD DATA INPATH '/user/maria_dev/flightdelays/sfo_weather.csv'
OVERWRITE INTO TABLE sfo_weather_txt;
-- Remover tabela ORC se já? existir
DROP TABLE IF EXISTS sfo_weather;
-- Criar tabela ORC otimizada
CREATE TABLE sfo_weather (
station_name STRING,
Execute
Explain
Upload
Save as...
New Worksheet
Query Process Results (Status: SUCCEEDED)
Save results...
Logs
Results
Filter columns...
previous
next
sfo_weather.station_name
sfo_weather.year
sfo_weather.month
sfo_weather.dayofmonth
sfo_weather.precipitation
sfo_weather.temperature_max
sfo_weather.temperature_min
SAN FRANCISCO INTERNATIONAL AIRPORT CA US
2008
1
1
0
122
39
SAN FRANCISCO INTERNATIONAL AIRPORT CA US
2008
1
2
0
117
39
SAN FRANCISCO INTERNATIONAL AIRPORT CA US
2008
1
3
43
150
94
SAN FRANCISCO INTERNATIONAL AIRPORT CA US
2008
1
4
533
150
100
Ativar o Windows
Acesse Configurações para ativar o Windows.

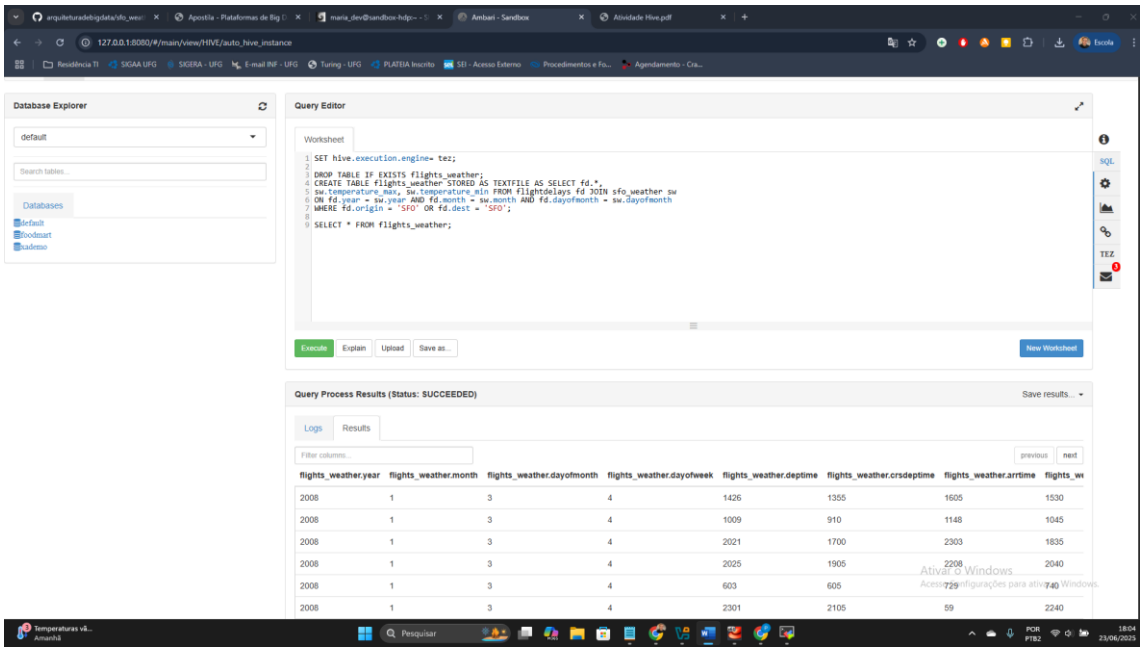

Query Process Results (Status: SUCCEEDED)
Save results...
Logs
Results
Filter columns...
previous
next
sfo_weather.station_name
sfo_weather.year
sfo_weather.month
sfo_weather.dayofmonth
sfo_weather.precipitation
sfo_weather.temperature_max
sfo_weather.temperature_min
SAN FRANCISCO INTERNATIONAL AIRPORT CA US
2008
1
1
0
122
39
SAN FRANCISCO INTERNATIONAL AIRPORT CA US
2008
1
2
0
117
39
SAN FRANCISCO INTERNATIONAL AIRPORT CA US
2008
1
3
43
150
94
SAN FRANCISCO INTERNATIONAL AIRPORT CA US
2008
1
4
533
150
100
SAN FRANCISCO INTERNATIONAL AIRPORT CA US
2008
1
5
196
122
78
SAN FRANCISCO INTERNATIONAL AIRPORT CA US
2008
1
6
15
106
50
SAN FRANCISCO INTERNATIONAL AIRPORT CA US
2008
1
7
0
111
67
SAN FRANCISCO INTERNATIONAL AIRPORT CA US
2008
1
8
20
128
61
SAN FRANCISCO INTERNATIONAL AIRPORT CA US
2008
1
9
3
106
67
SAN FRANCISCO INTERNATIONAL AIRPORT CA US
2008
1
10
25
100
89
SAN FRANCISCO INTERNATIONAL AIRPORT CA US
2008
1
11
0
117
89
SAN FRANCISCO INTERNATIONAL AIRPORT CA US
2008
1
12
0
133
83
SAN FRANCISCO INTERNATIONAL AIRPORT CA US
2008
1
13
0
144
67
Ativar o Windows
Acesse Configurações para ativar o Windows.

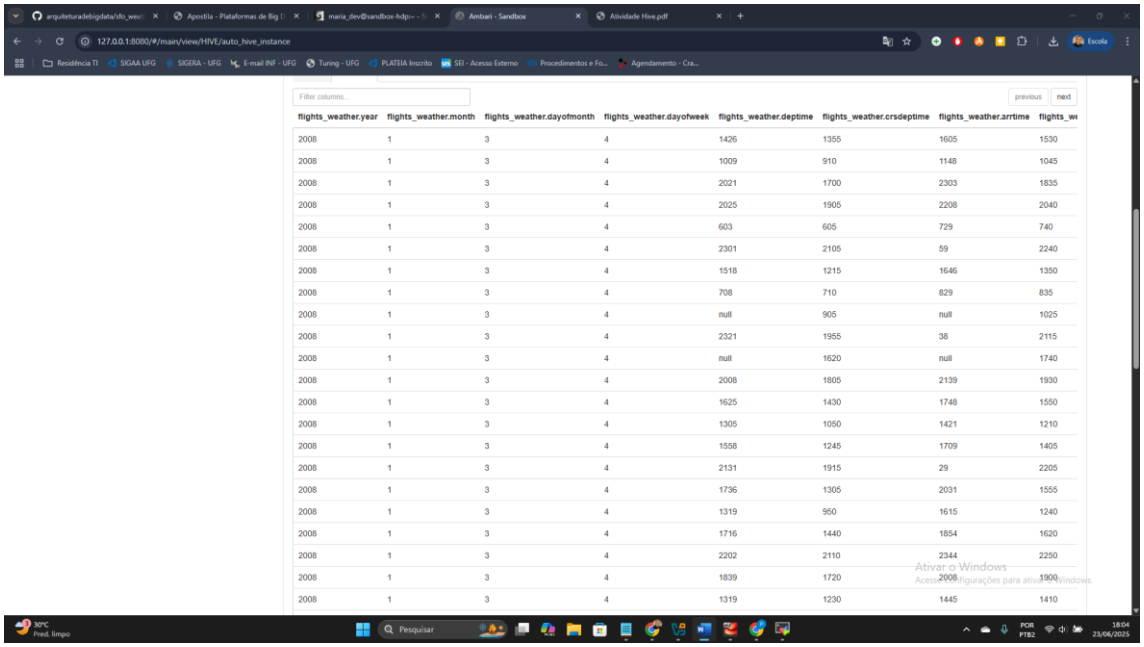


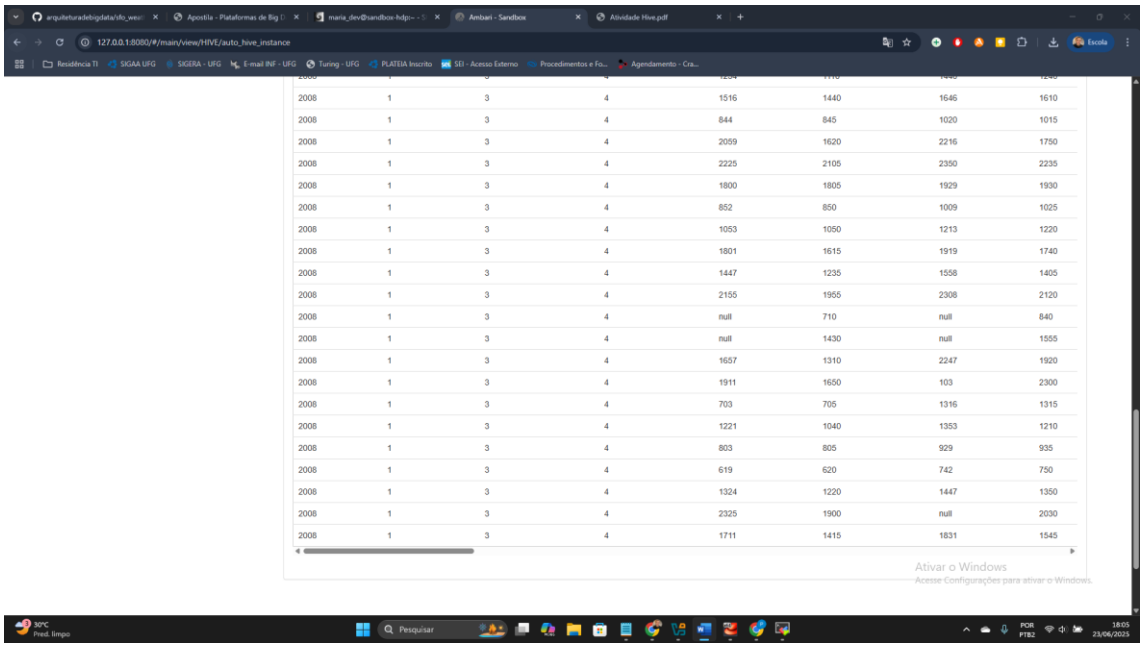
SAN FRANCISCO INTERNATIONAL AIRPORT CA US	2008	2	6	3	122	83
SAN FRANCISCO INTERNATIONAL AIRPORT CA US	2008	2	7	0	139	50
SAN FRANCISCO INTERNATIONAL AIRPORT CA US	2008	2	8	0	161	78
SAN FRANCISCO INTERNATIONAL AIRPORT CA US	2008	2	9	0	189	56
SAN FRANCISCO INTERNATIONAL AIRPORT CA US	2008	2	10	0	189	72
SAN FRANCISCO INTERNATIONAL AIRPORT CA US	2008	2	11	0	189	72
SAN FRANCISCO INTERNATIONAL AIRPORT CA US	2008	2	12	0	189	72
SAN FRANCISCO INTERNATIONAL AIRPORT CA US	2008	2	13	0	156	78
SAN FRANCISCO INTERNATIONAL AIRPORT CA US	2008	2	14	0	156	83
SAN FRANCISCO INTERNATIONAL AIRPORT CA US	2008	2	15	0	156	50
SAN FRANCISCO INTERNATIONAL AIRPORT CA US	2008	2	16	0	150	56
SAN FRANCISCO INTERNATIONAL AIRPORT CA US	2008	2	17	0	122	56
SAN FRANCISCO INTERNATIONAL AIRPORT CA US	2008	2	18	0	122	83
SAN FRANCISCO INTERNATIONAL AIRPORT CA US	2008	2	19	163	122	89

Atividade 05 - Junção de dados do Hive

```
SET hive.execution.engine= tez;


DROP TABLE IF EXISTS flights_weather;

CREATE TABLE flights_weather STORED AS TEXTFILE AS SELECT fd.*,

sw.temperature_max, sw.temperature_min FROM flightdelays fd JOIN sfo_weather sw

ON fd.year = sw.year AND fd.month = sw.month AND fd.dayofmonth = sw.dayofmonth

WHERE fd.origin = 'SFO' OR fd.dest = 'SFO';


SELECT * FROM flights_weather;
```


Database Explorer
default
Databases
Query Editor
Worksheet
SET hive.execution.engine= tez;
DROP TABLE IF EXISTS flights_weather;
CREATE TABLE flights_weather STORED AS TEXTFILE AS SELECT fd.*,
sw.temperature_max, sw.temperature_min FROM flightdelays fd JOIN sfo_weather sw
ON fd.year = sw.year AND fd.month = sw.month AND fd.dayofmonth = sw.dayofmonth
WHERE fd.origin = 'SFO' OR fd.dest = 'SFO';
SELECT * FROM flights_weather;
Execute
Explain
Upload
Save as...
New Worksheet
Query Process Results (Status: SUCCEEDED)
Save results...
Logs
Results
flights_weather.year
flights_weather.month
flights_weather.dayofmonth
flights_weather.dayofweek
flights_weather.deptime
flights_weather.crsdeptime
flights_weather.arrtime
2008 1 3 4 1426 1355 1605 1530
2008 1 3 4 1009 910 1148 1045
2008 1 3 4 2021 1700 2303 1835
2008 1 3 4 2025 1905 2208 2040
2008 1 3 4 603 605 729 740
2008 1 3 4 2301 2105 59 2240


flights_weather.year
flights_weather.month
flights_weather.dayofmonth
flights_weather.dayofweek
flights_weather.deptime
flights_weather.crsdeptime
flights_weather.arrtime
2008 1 3 4 1426 1355 1605 1530
2008 1 3 4 1009 910 1148 1045
2008 1 3 4 2021 1700 2303 1835
2008 1 3 4 2025 1905 2208 2040
2008 1 3 4 603 605 729 740
2008 1 3 4 2301 2105 59 2240
2008 1 3 4 1518 1215 1646 1350
2008 1 3 4 708 710 829 835
2008 1 3 4 null 905 null 1025
2008 1 3 4 2321 1955 38 2115
2008 1 3 4 null 1620 null 1740
2008 1 3 4 2008 1805 2139 1930
2008 1 3 4 1625 1430 1748 1550
2008 1 3 4 1305 1050 1421 1210
2008 1 3 4 1558 1245 1709 1405
2008 1 3 4 2131 1915 29 2205
2008 1 3 4 1736 1305 2031 1555
2008 1 3 4 1319 950 1615 1240
2008 1 3 4 1716 1440 1854 1620
2008 1 3 4 2202 2110 2344 2250
2008 1 3 4 1839 1720 2008 1900
2008 1 3 4 1319 1230 1445 1410

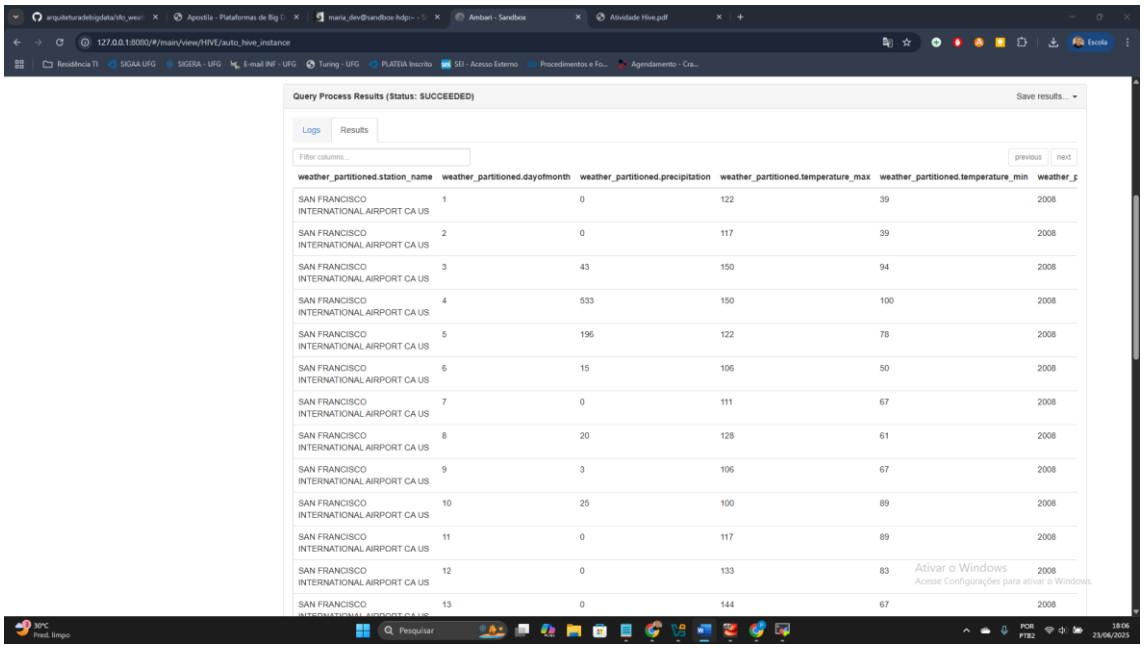


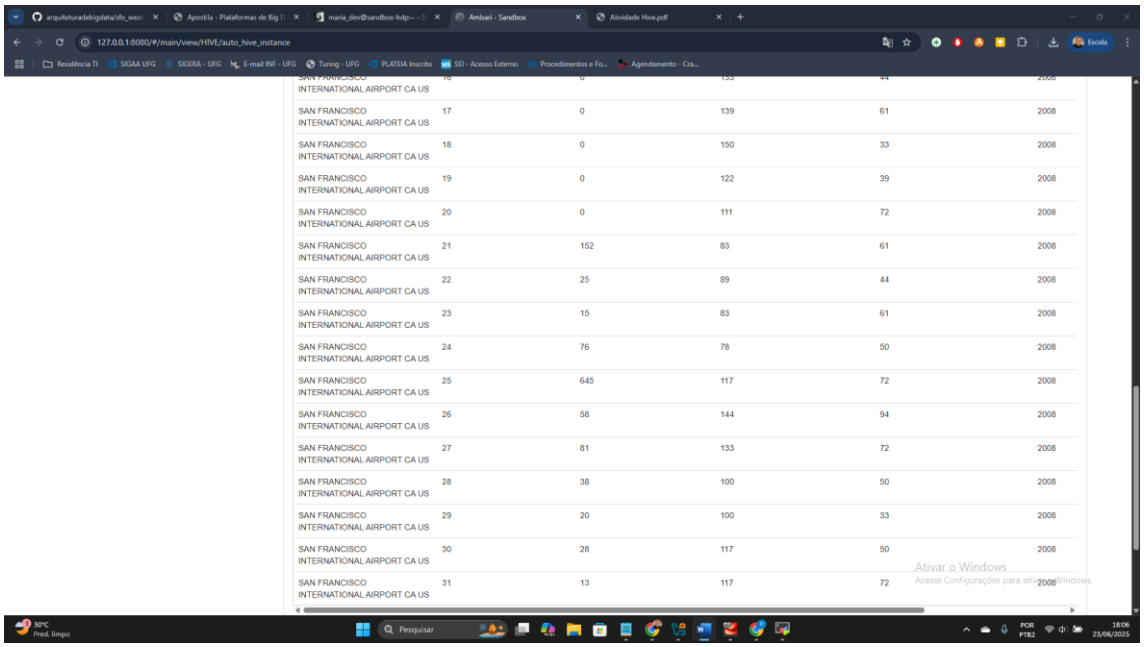
2008	1	3	4	1516	1440	1646	1610
2008	1	3	4	844	845	1020	1015
2008	1	3	4	2059	1620	2216	1750
2008	1	3	4	2225	2105	2350	2235
2008	1	3	4	1800	1805	1929	1930
2008	1	3	4	852	850	1009	1025
2008	1	3	4	1053	1050	1213	1220
2008	1	3	4	1801	1615	1919	1740
2008	1	3	4	1447	1235	1558	1405
2008	1	3	4	2155	1955	2308	2120
2008	1	3	4	null	710	null	840
2008	1	3	4	null	1430	null	1555
2008	1	3	4	1657	1310	2247	1920
2008	1	3	4	1911	1650	103	2300
2008	1	3	4	703	705	1316	1315
2008	1	3	4	1221	1040	1353	1210
2008	1	3	4	803	805	929	935
2008	1	3	4	619	620	742	750
2008	1	3	4	1324	1220	1447	1350
2008	1	3	4	2325	1900	null	2030
2008	1	3	4	1711	1415	1831	1545

Atividade 06 - Tabelas particionadas do Hive

```
-- Remover a tabela particionada se já existir
DROP TABLE IF EXISTS weather_partitioned;


-- Criar tabela particionada por ano e mês
CREATE TABLE weather_partitioned (
   station_name STRING,
   dayofmonth INT,
   precipitation INT,
   temperature_max INT,
   temperature_min INT
)
PARTITIONED BY (year INT, month INT)
STORED AS ORC;


-- Inserir dados na partição do ano de 2008 e mês 1 (Janeiro)
INSERT INTO TABLE weather_partitioned
PARTITION (year=2008, month=1)
```

```
SELECT
   station_name,
   dayofmonth,
   precipitation,
   temperature_max,
   temperature_min
FROM sfo_weather
WHERE year = 2008 AND month = 1;


-- Consultar todos os dados da tabela particionada
SELECT * FROM weather_partitioned;
```





SAN FRANCISCO INTERNATIONAL AIRPORT CA US	16	0	133	44	2008
SAN FRANCISCO INTERNATIONAL AIRPORT CA US	17	0	139	61	2008
SAN FRANCISCO INTERNATIONAL AIRPORT CA US	18	0	150	33	2008
SAN FRANCISCO INTERNATIONAL AIRPORT CA US	19	0	122	39	2008
SAN FRANCISCO INTERNATIONAL AIRPORT CA US	20	0	111	72	2008
SAN FRANCISCO INTERNATIONAL AIRPORT CA US	21	152	83	61	2008
SAN FRANCISCO INTERNATIONAL AIRPORT CA US	22	25	89	44	2008
SAN FRANCISCO INTERNATIONAL AIRPORT CA US	23	15	83	61	2008
SAN FRANCISCO INTERNATIONAL AIRPORT CA US	24	76	78	50	2008
SAN FRANCISCO INTERNATIONAL AIRPORT CA US	25	645	117	72	2008
SAN FRANCISCO INTERNATIONAL AIRPORT CA US	26	58	144	94	2008
SAN FRANCISCO INTERNATIONAL AIRPORT CA US	27	81	133	72	2008
SAN FRANCISCO INTERNATIONAL AIRPORT CA US	28	38	100	50	2008
SAN FRANCISCO INTERNATIONAL AIRPORT CA US	29	20	100	33	2008
SAN FRANCISCO INTERNATIONAL AIRPORT CA US	30	28	117	50	2008
SAN FRANCISCO INTERNATIONAL AIRPORT CA US	31	13	117	72	2008