Data Ingestion Into PostgreSQL

1. Load CSV File Into Dataframe
2. Establish PostgreSQL Database Connection
3. Create PostgreSQL Table
4. Load Dataframe Into PostgreSQL Table

In [12]:
```
import pandas as pd
import numpy as np
import psycopg2
```

Load CSV File Into Dataframe

In [13]:
```
df = pd.read_csv('/Users/michaeltyus/Desktop/sales_records.csv')
df.head()
```

Out[13]:

	Region	Country	Item Type	Sales Channel	Order Priority	Order Date	Order ID	Ship Date	Units Sold
0	Sub-Saharan Africa	Chad	Office Supplies	Online	L	1/27/2011	292494523	2/12/2011	4484
1	Europe	Latvia	Beverages	Online	C	12/28/2015	361825549	1/23/2016	1075
2	Middle East and North Africa	Pakistan	Vegetables	Offline	C	1/13/2011	141515767	2/1/2011	6515
3	Sub-Saharan Africa	Democratic Republic of the Congo	Household	Online	C	9/11/2012	500364005	10/6/2012	7683
4	Europe	Czech Republic	Beverages	Online	C	10/27/2015	127481591	12/5/2015	3491

In [14]:
```
df.shape
```

Out[14]:
```
(10000, 14)
```

In [15]:
```
df.columns
```

Out[15]:
```
Index(['Region', 'Country', 'Item Type', 'Sales Channel', 'Order Priority',
       'Order Date', 'Order ID', 'Ship Date', 'Units Sold', 'Unit Price',
       'Unit Cost', 'Total Revenue', 'Total Cost', 'Total Profit'],
      dtype='object')
```

Establish PostgreSQL Database Connection

In [16]:
```
connection = psycopg2.connect(user="postgres",
                                  password="********************",
                                  host="localhost",
                                  port="5432",
                                  database="sales_data")
cursor = connection.cursor()
print('Database Connection Successful...')
```

```
Database Connection Successful...
```

Create PostgreSQL Table

In [17]:
```
# Make dataframe column names lowercase and replace spaces in column names wit
df.columns = df.columns.str.lower()
df.columns = df.columns.str.replace(" ","_")
df.columns
```

Out[17]:
```
Index(['region', 'country', 'item_type', 'sales_channel', 'order_priority',
       'order_date', 'order_id', 'ship_date', 'units_sold', 'unit_price',
       'unit_cost', 'total_revenue', 'total_cost', 'total_profit'],
      dtype='object')
```

In [18]:
```
# Get column data types.
df.dtypes
```

Out[18]:
```
region             object
country            object
item_type          object
sales_channel      object
order_priority     object
order_date         object
order_id            int64
ship_date          object
units_sold          int64
unit_price        float64
unit_cost         float64
total_revenue     float64
total_cost        float64
total_profit      float64
dtype: object
```

In [19]:
```
# Create Pandas/PostgreSQL data type mapping dictionary and create the Postgre
dt_map = {'object':'varchar',
          'int64':'int',
          'float64':'float'}
col_ddl = ", ".join("{} {}".format(x, y) for (x, y) in zip(df.columns, df.dtype
ddl_sql = "CREATE TABLE sales.sales_info (" + col_ddl + ")"
print(ddl_sql)
```

```
CREATE TABLE sales.sales_info (region varchar, country varchar, item_type varc
har, sales_channel varchar, order_priority varchar, order_date varchar, order_
id int, ship_date varchar, units_sold int, unit_price float, unit_cost float,
total_revenue float, total_cost float, total_profit float)
```

In [20]:
```
# Create the PostgreSQL table
cursor.execute(ddl_sql)
connection.commit()
```

```
print('Database Table Created...')
cursor.execute('SELECT COUNT(*) FROM sales.sales_info')
cursor.fetchall()
```

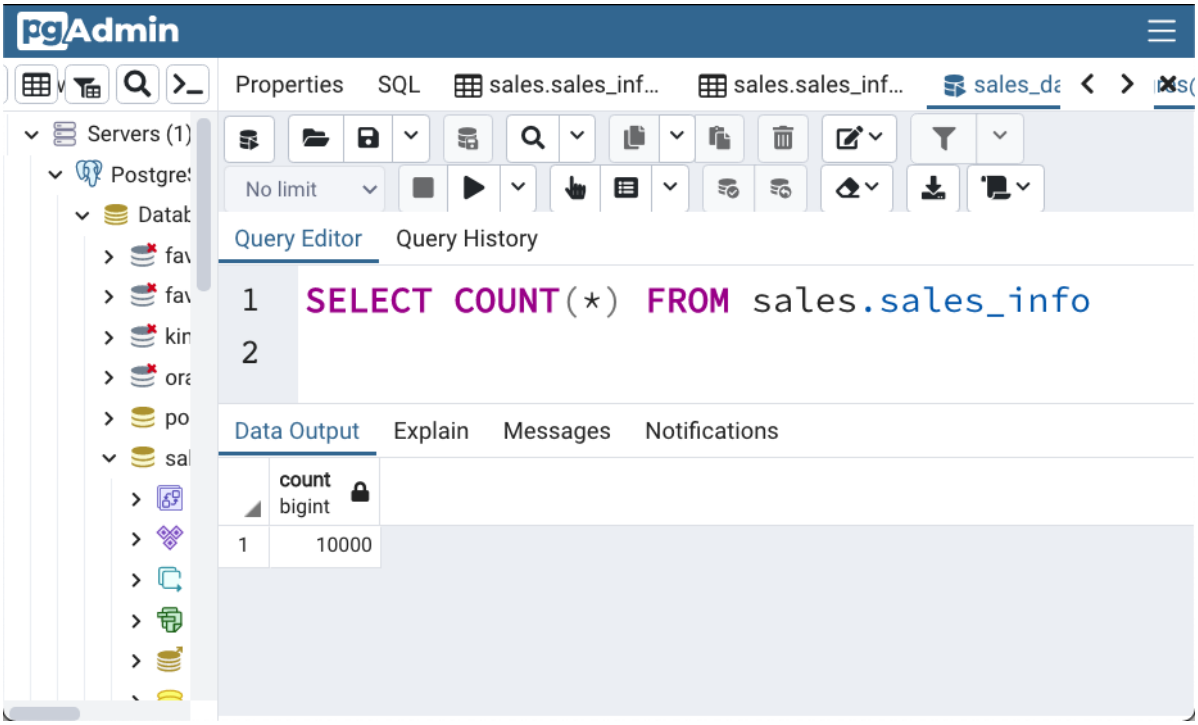
```
Database Table Created...
```

Out[20]:
```
[(0,)]
```

Load Dataframe Into PostgreSQL Table

In [21]:
```
records = [tuple(x) for x in df.to_numpy()]
sql_dml = """INSERT INTO sales.sales_info (region, country, item_type, sales_ch
cursor.executemany(sql_dml, records)
connection.commit()
cursor.execute('SELECT COUNT(*) FROM sales.sales_info')
cursor.fetchall()
```

Out[21]:
```
[(10000,)]
```



In [22]:
```
connection.close()
print('Database Connection Closed...')
```

```
Database Connection Closed...
```