Azure Databricks Coding Challenge

Submitted By-
Subrat Shukla, DE-1

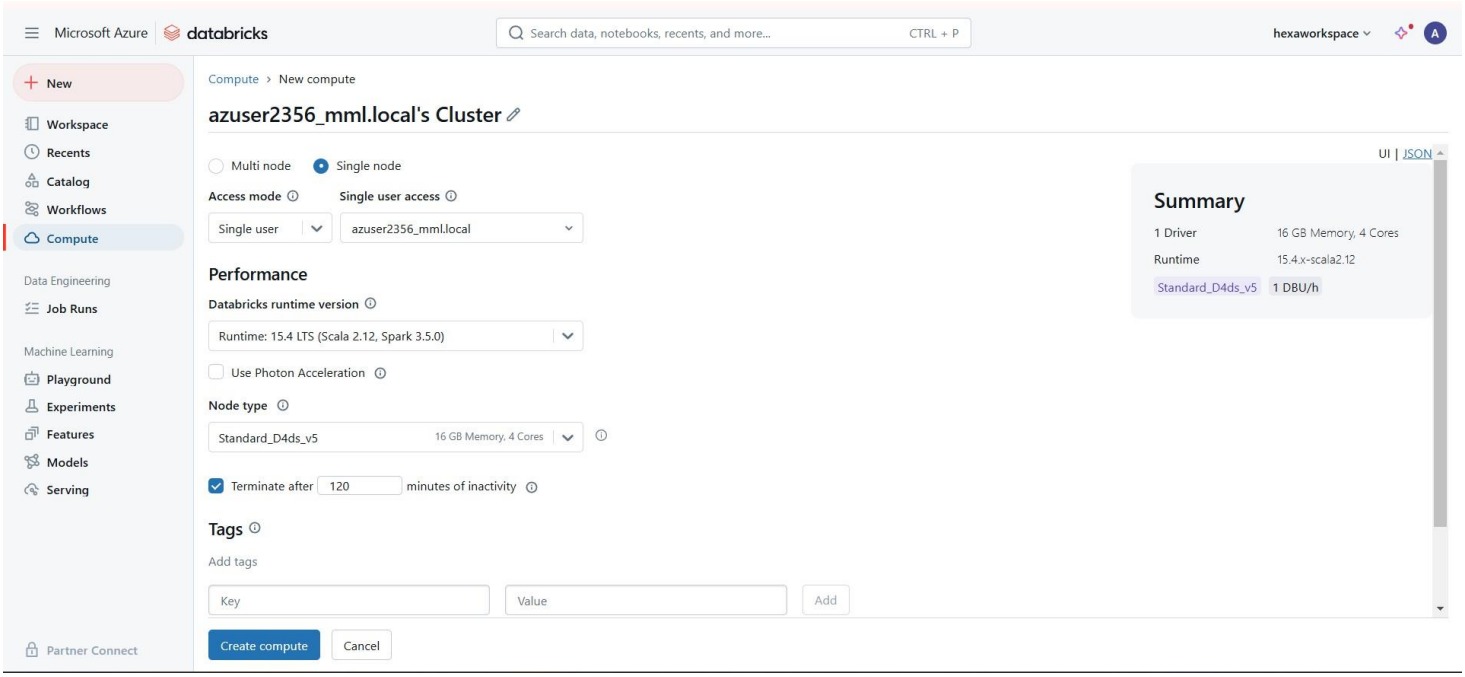
Task : Creating a Cluster, Notebook, Transformations and Visualizations

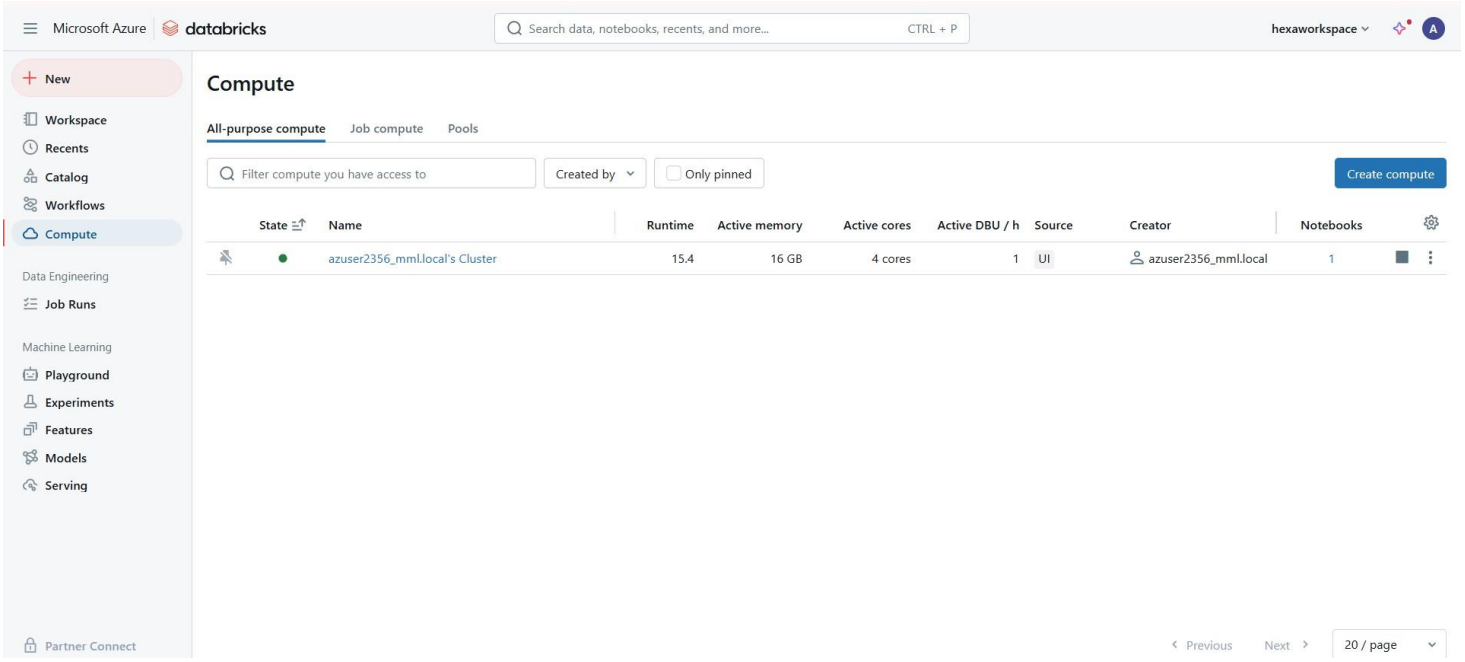
1. **Create a cluster & Attach the notebook to the cluster and run all commands in the notebook & creates a DataFrame from a Databricks dataset& Create a Visualizations in Databricks notebooks.**

Step 1: Create a cluster:

To create a cluster:

- Log in to Azure Databricks.
- Go to the Compute section and click on Create Cluster.
- Fill out the cluster details:
    - **Cluster Name:** azuser2356_mml.local's Cluster
    - **Databricks Runtime Version:** 15.4 LTS(Scala 2.12, Spark 3.5.0)
    - **Node Type:** Single Node, Standard_D4ads_v5
- Click Create Cluster and wait until the status is "Running."

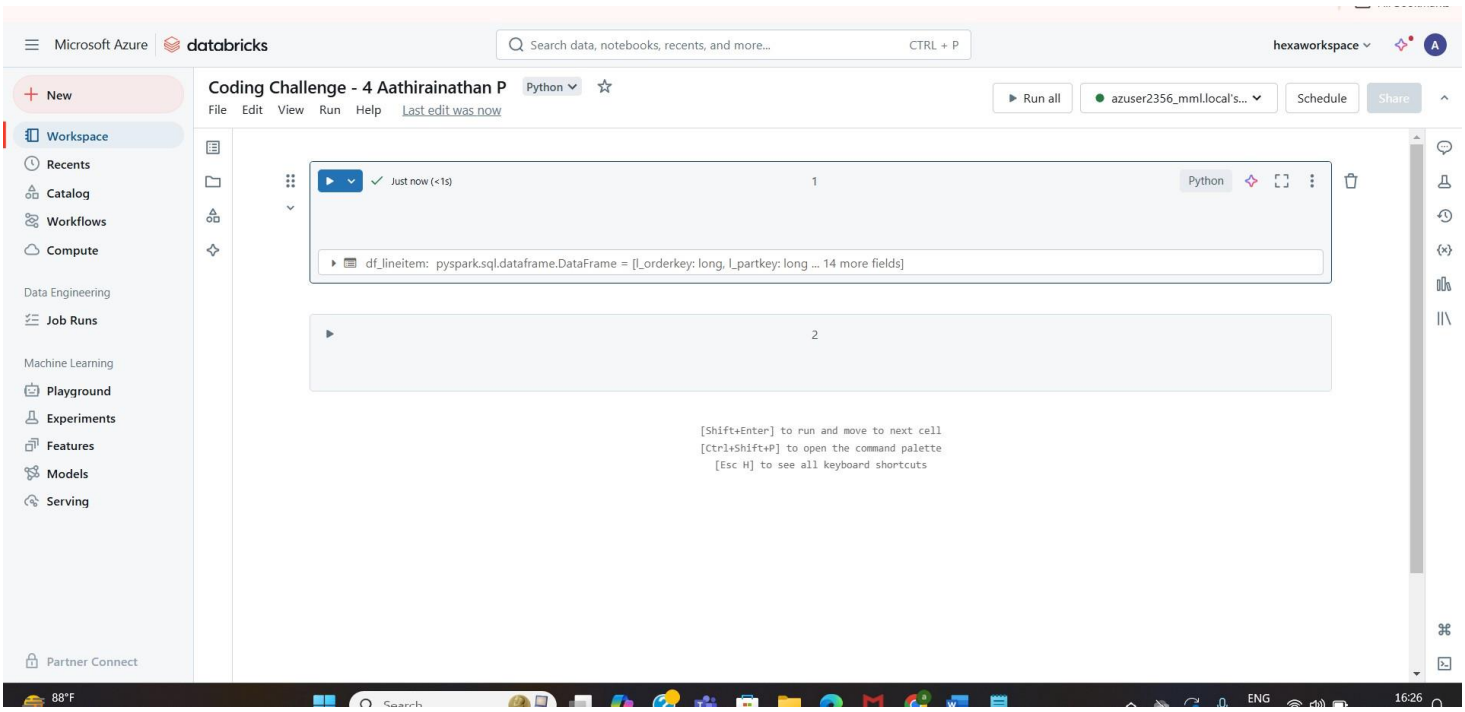




Step 2: Create a Notebook

To create a notebook:

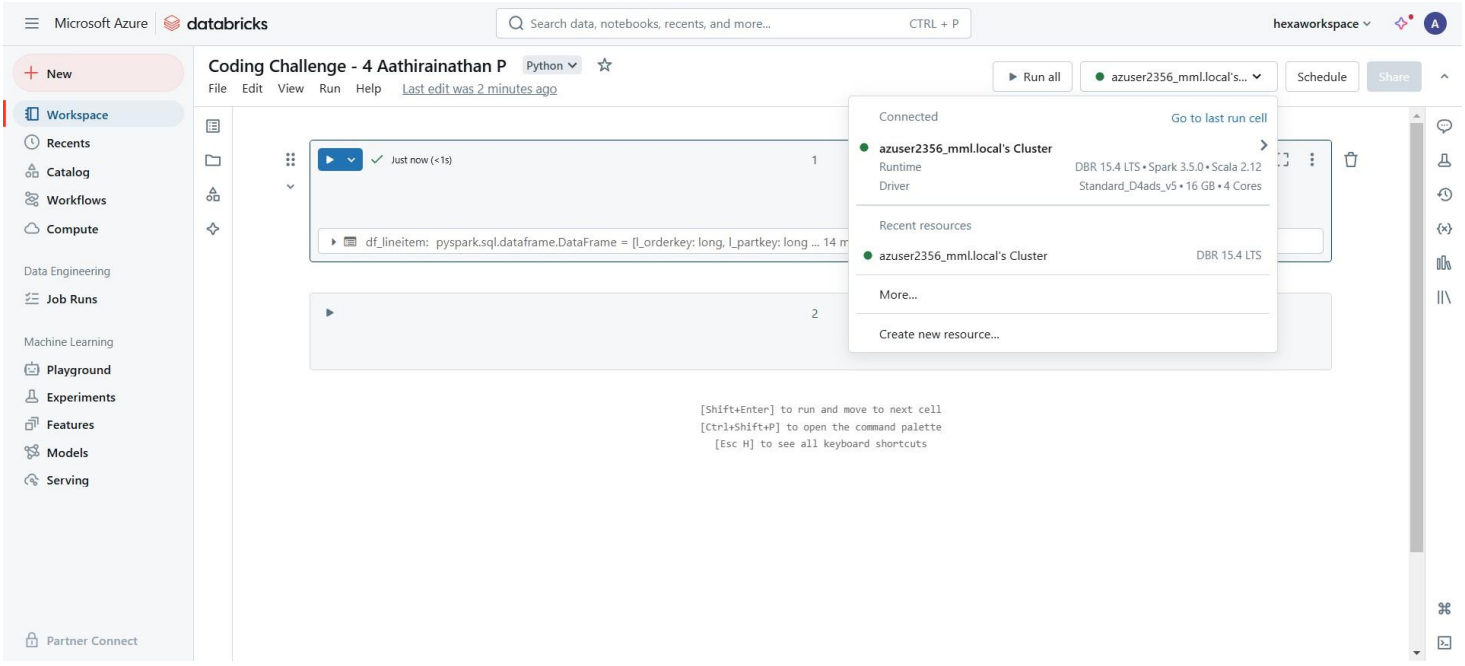
- Create a Notebook
- Go to the Workspace section.
- Click Create → Notebook.
- Name your notebook.
- Select the language as Python



Step 3: Attach the cluster to the notebook:

To attach the cluster to the notebook:

- Open the notebook.
- In the top toolbar, use the Cluster dropdown menu to attach the notebook to the cluster created.



Step 4: Create a Dataframe from a Databricks Dataset (line item):

Just now (2s) 1 Python

```
from pyspark.sql import SparkSession

spark = SparkSession.builder.appName("Coding Challenge - 4").getOrCreate()

# Load lineitem table as a DataFrame
df_lineitem = spark.read.format("delta").load("/databricks-datasets/tpch/delta-001/lineitem")

# Display the DataFrame
df_lineitem.show(5)
```

(1) Spark Jobs

(1) Spark Jobs

df_lineitem: pyspark.sql.dataframe.DataFrame = [l_orderkey: long, l_partkey: long ... 14 more fields]

```
+----------+---------+---------+------------+----------+---------------+----------+-----+------------+------------+----------+------------+--------
-----+----------------+----------+--------------------+
|l_orderkey|l_partkey|l_suppkey|l_linenumber|l_quantity|l_extendedprice|l_discount|l_tax|l_returnflag|l_linestatus|l_shipdate|l_commitdate|l_receip
tdate|  l_shipinstruct|l_shipmode|           l_comment|
+----------+---------+---------+------------+----------+---------------+----------+-----+------------+------------+----------+------------+--------
-----+----------------+----------+--------------------+
|  15997987|   295335|    20346|           4|     50.00|       66516.00|      0.01| 0.08|           A|           F|1992-02-12|  1992-04-22|   1992-
03-10|TAKE BACK RETURN|   REG AIR| even pinto beans...|
|  15997988|   332059|    19578|           1|     49.00|       53460.96|      0.08| 0.03|           A|           F|1994-05-31|  1994-06-20|   1994-
06-22|            NONE|       FOB|detect carefully....|
|  15997988|   904286|     4287|           2|     37.00|       47738.88|      0.07| 0.05|           A|           F|1994-05-24|  1994-05-28|   1994-
06-03|     COLLECT COD|      RAIL|         the slyly e|
|  15997988|   327898|    15417|           3|     13.00|       25036.44|      0.09| 0.08|           A|           F|1994-06-09|  1994-06-28|   1994-
06-29|            NONE|       FOB|     ss courts. fina|
|  15997988|   973125|    48164|           4|     29.00|       34744.32|      0.10| 0.02|           A|           F|1994-08-05|  1994-06-26|   1994-
08-17|     COLLECT COD|      RAIL| sly final packages |
+----------+---------+---------+------------+----------+---------------+----------+-----+------------+------------+----------+------------+--------
-----+----------------+----------+--------------------+
only showing top 5 rows
```

Step 5: Run all the transformation Queries:

1. Select Specific Columns:

04:34 PM (1s) 2 Python

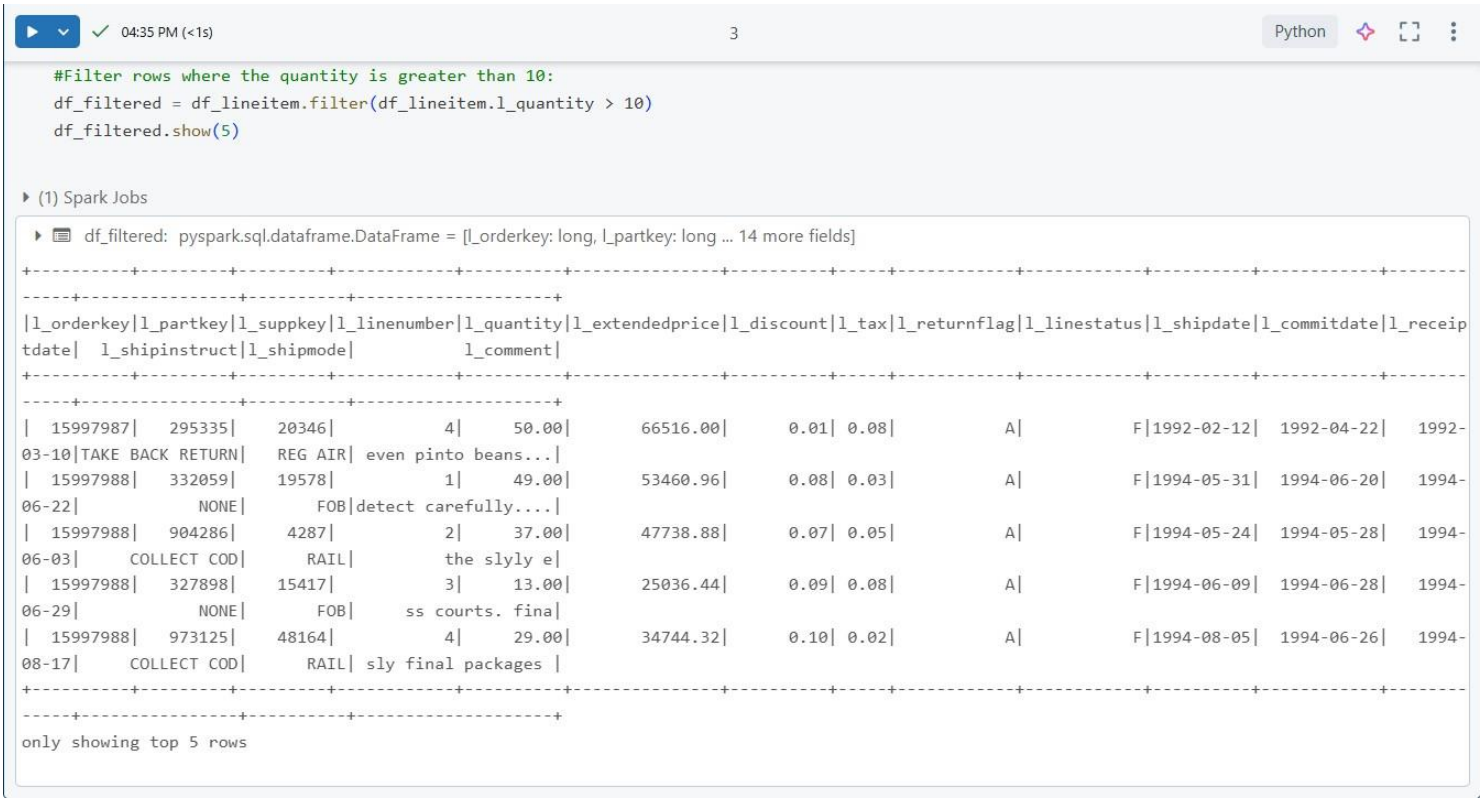
```
#Select Specific Columns
df_selected = df_lineitem.select("l_orderkey", "l_quantity", "l_extendedprice")
df_selected.show(5)
```

(1) Spark Jobs

df_selected: pyspark.sql.dataframe.DataFrame = [l_orderkey: long, l_quantity: decimal(18,2) ... 1 more field]

```
+----------+----------+---------------+
|l_orderkey|l_quantity|l_extendedprice|
+----------+----------+---------------+
|  15997987|     50.00|       66516.00|
|  15997988|     49.00|       53460.96|
|  15997988|     37.00|       47738.88|
|  15997988|     13.00|       25036.44|
|  15997988|     29.00|       34744.32|
+----------+----------+---------------+
only showing top 5 rows
```

2. Filter rows where the quantity is greater than 10:



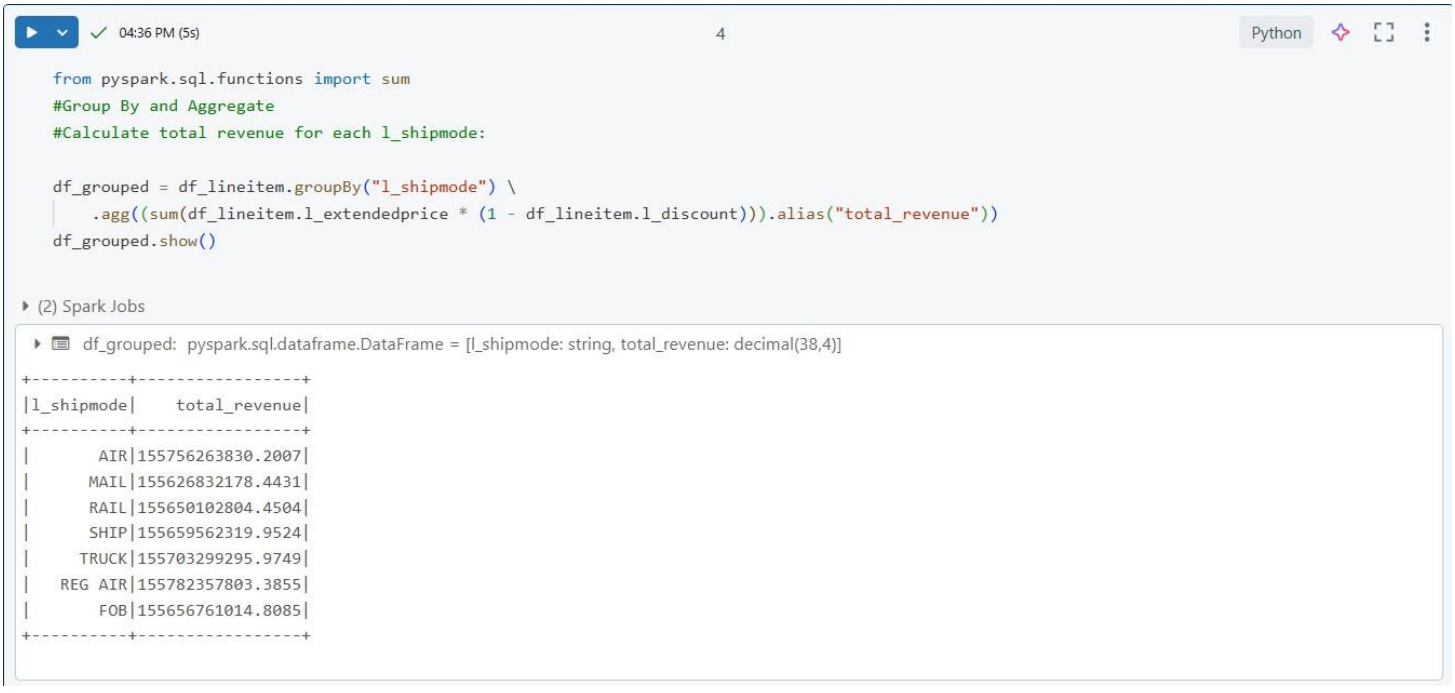
```
04:35 PM (<1s)                                3                                Python

#Filter rows where the quantity is greater than 10:
df_filtered = df_lineitem.filter(df_lineitem.l_quantity > 10)
df_filtered.show(5)
```

(1) Spark Jobs

df_filtered: pyspark.sql.dataframe.DataFrame = [l_orderkey: long, l_partkey: long ... 14 more fields]

```
+----------+---------+---------+------------+----------+---------------+----------+-----+------------+------------+----------+------------+--------
-----+----------------+----------+--------------------+
|l_orderkey|l_partkey|l_suppkey|l_linenumber|l_quantity|l_extendedprice|l_discount|l_tax|l_returnflag|l_linestatus|l_shipdate|l_commitdate|l_receip
tdate|  l_shipinstruct|l_shipmode|           l_comment|
+----------+---------+---------+------------+----------+---------------+----------+-----+------------+------------+----------+------------+--------
-----+----------------+----------+--------------------+
|  15997987|   295335|    20346|           4|     50.00|       66516.00|      0.01| 0.08|           A|           F|1992-02-12|  1992-04-22|   1992-
03-10|TAKE BACK RETURN|   REG AIR| even pinto beans...|
|  15997988|   332059|    19578|           1|     49.00|       53460.96|      0.08| 0.03|           A|           F|1994-05-31|  1994-06-20|   1994-
06-22|            NONE|      FOB|detect carefully....|
|  15997988|   904286|     4287|           2|     37.00|       47738.88|      0.07| 0.05|           A|           F|1994-05-24|  1994-05-28|   1994-
06-03|     COLLECT COD|     RAIL|         the slyly e|
|  15997988|   327898|    15417|           3|     13.00|       25036.44|      0.09| 0.08|           A|           F|1994-06-09|  1994-06-28|   1994-
06-29|            NONE|      FOB|     ss courts. fina|
|  15997988|   973125|    48164|           4|     29.00|       34744.32|      0.10| 0.02|           A|           F|1994-08-05|  1994-06-26|   1994-
08-17|     COLLECT COD|     RAIL| sly final packages |
+----------+---------+---------+------------+----------+---------------+----------+-----+------------+------------+----------+------------+--------
-----+----------------+----------+--------------------+
only showing top 5 rows
```

3. Group By and Aggregate (Calculate total revenue for each l_shipmode):



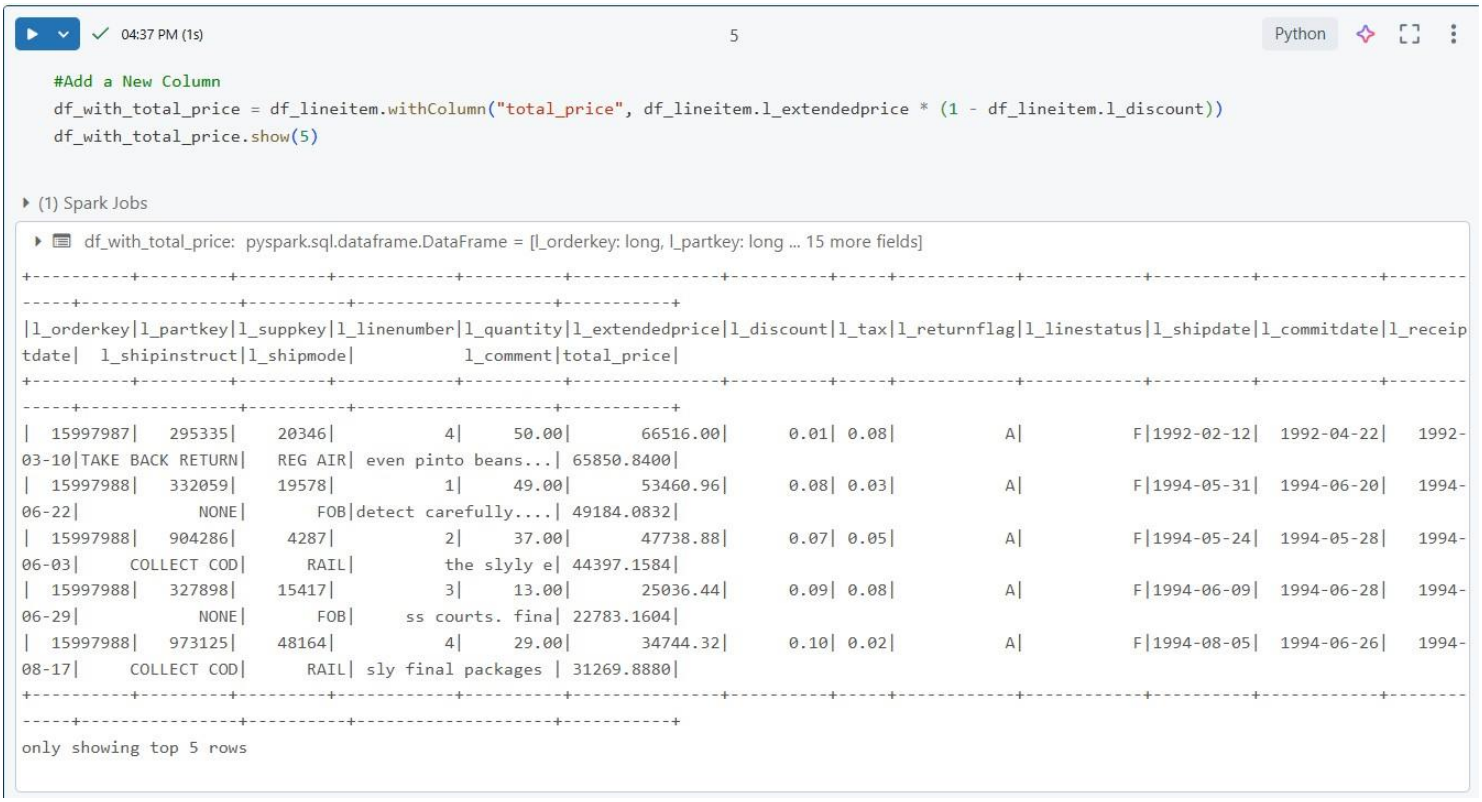
```
04:36 PM (5s)                                 4                                Python

from pyspark.sql.functions import sum
#Group By and Aggregate
#Calculate total revenue for each l_shipmode:

df_grouped = df_lineitem.groupBy("l_shipmode") \
    .agg((sum(df_lineitem.l_extendedprice * (1 - df_lineitem.l_discount))).alias("total_revenue"))
df_grouped.show()
```

(2) Spark Jobs

df_grouped: pyspark.sql.dataframe.DataFrame = [l_shipmode: string, total_revenue: decimal(38,4)]

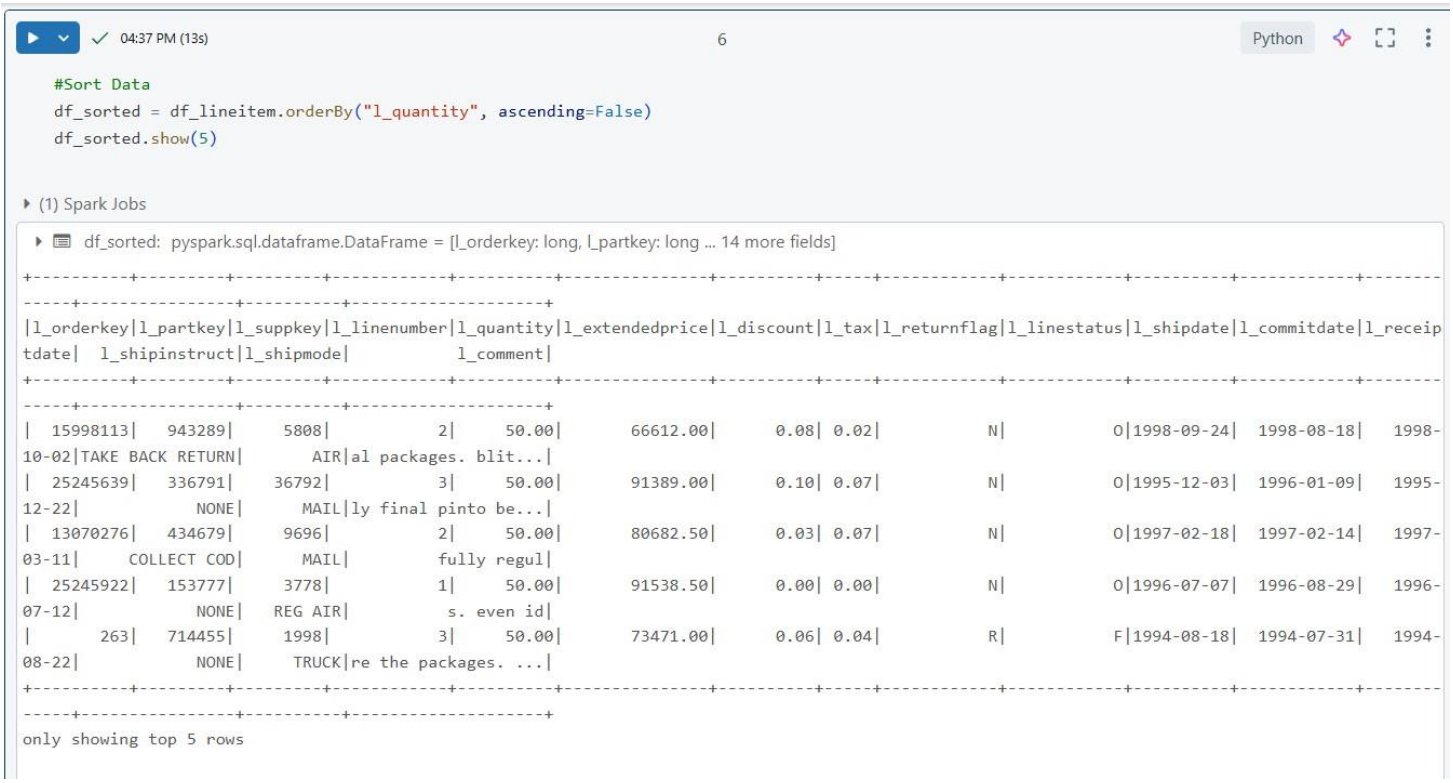
```
+----------+-----------------+
|l_shipmode|    total_revenue|
+----------+-----------------+
|       AIR|155756263830.2007|
|      MAIL|155626832178.4431|
|      RAIL|155650102804.4504|
|      SHIP|155659562319.9524|
|     TRUCK|155703299295.9749|
|   REG AIR|155782357803.3855|
|       FOB|155656761014.8085|
+----------+-----------------+
```

4. Add a New Column:



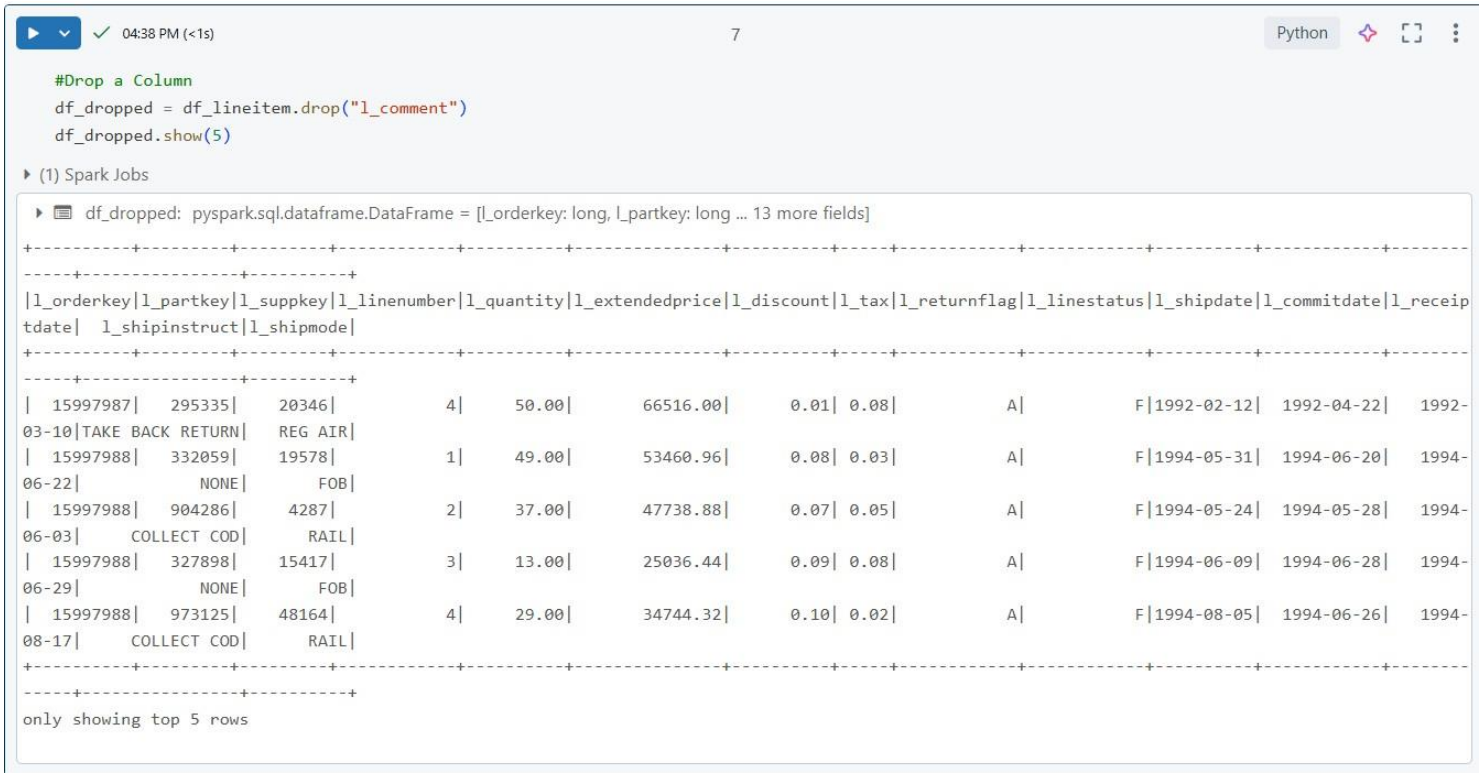
```
04:37 PM (1s)                                                    5                                                    Python

#Add a New Column
df_with_total_price = df_lineitem.withColumn("total_price", df_lineitem.l_extendedprice * (1 - df_lineitem.l_discount))
df_with_total_price.show(5)

(1) Spark Jobs
df_with_total_price:  pyspark.sql.dataframe.DataFrame = [l_orderkey: long, l_partkey: long ... 15 more fields]
+----------+---------+---------+------------+----------+---------------+----------+-----+------------+------------+----------+------------+--------------------+----------+--------------------+-----------+
|l_orderkey|l_partkey|l_suppkey|l_linenumber|l_quantity|l_extendedprice|l_discount|l_tax|l_returnflag|l_linestatus|l_shipdate|l_commitdate|l_receiptdate|l_shipinstruct|l_shipmode|           l_comment|total_price|
+----------+---------+---------+------------+----------+---------------+----------+-----+------------+------------+----------+------------+-------------+--------------+----------+--------------------+-----------+
|  15997987|   295335|    20346|           4|     50.00|       66516.00|      0.01| 0.08|           A|           F|1992-02-12|  1992-04-22|   1992-03-10|TAKE BACK RETURN|   REG AIR| even pinto beans...| 65850.8400|
|  15997988|   332059|    19578|           1|     49.00|       53460.96|      0.08| 0.03|           A|           F|1994-05-31|  1994-06-20|   1994-06-22|          NONE|       FOB|detect carefully....| 49184.0832|
|  15997988|   904286|     4287|           2|     37.00|       47738.88|      0.07| 0.05|           A|           F|1994-05-24|  1994-05-28|   1994-06-03|     COLLECT COD|      RAIL|         the slyly e| 44397.1584|
|  15997988|   327898|    15417|           3|     13.00|       25036.44|      0.09| 0.08|           A|           F|1994-06-09|  1994-06-28|   1994-06-29|          NONE|       FOB|     ss courts. fina| 22783.1604|
|  15997988|   973125|    48164|           4|     29.00|       34744.32|      0.10| 0.02|           A|           F|1994-08-05|  1994-06-26|   1994-08-17|     COLLECT COD|      RAIL| sly final packages | 31269.8880|
+----------+---------+---------+------------+----------+---------------+----------+-----+------------+------------+----------+------------+-------------+--------------+----------+--------------------+-----------+
only showing top 5 rows
```

5. Sort Data:



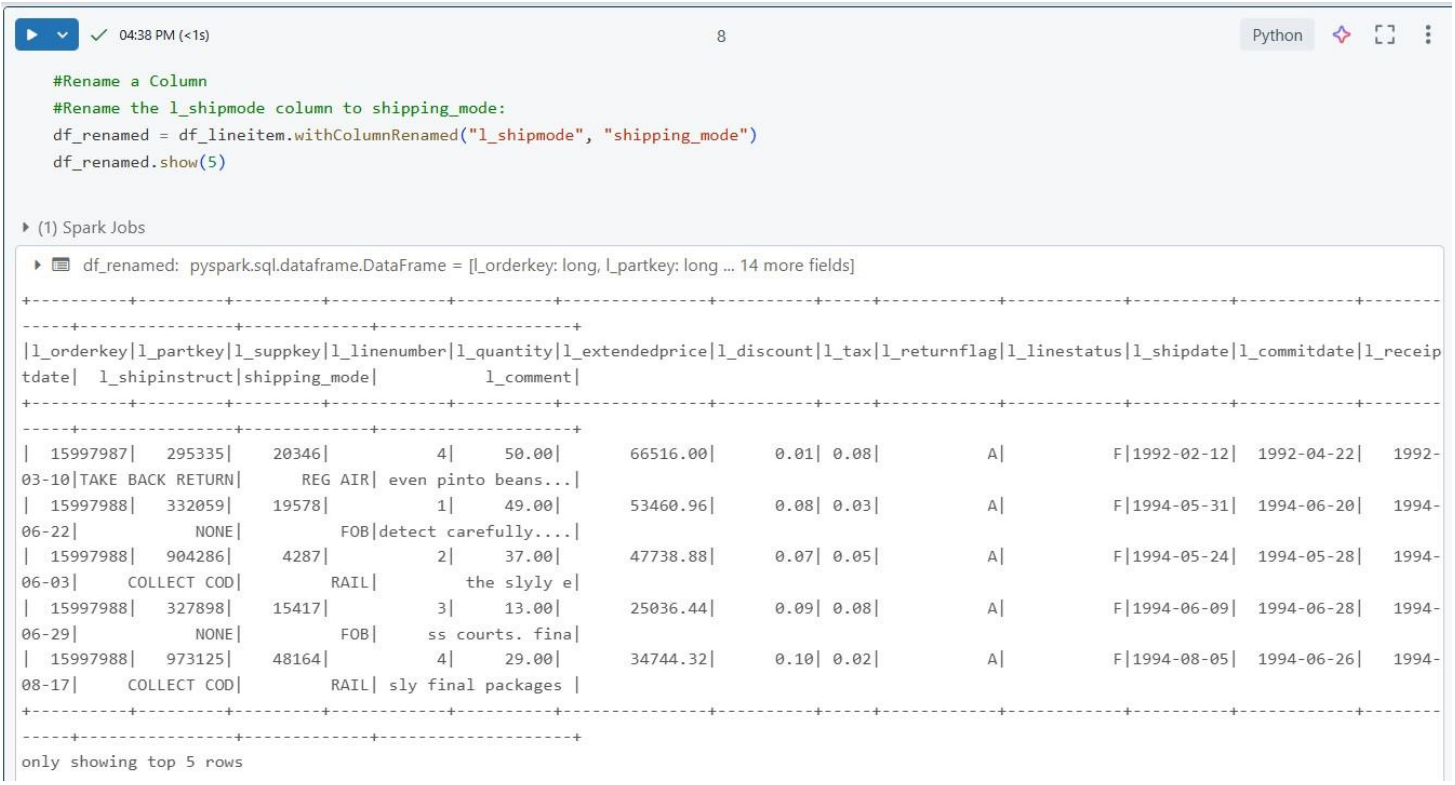
```
04:37 PM (13s)                                                   6                                                    Python

#Sort Data
df_sorted = df_lineitem.orderBy("l_quantity", ascending=False)
df_sorted.show(5)

(1) Spark Jobs
df_sorted:  pyspark.sql.dataframe.DataFrame = [l_orderkey: long, l_partkey: long ... 14 more fields]
+----------+---------+---------+------------+----------+---------------+----------+-----+------------+------------+----------+------------+-------------+--------------+----------+--------------------+
|l_orderkey|l_partkey|l_suppkey|l_linenumber|l_quantity|l_extendedprice|l_discount|l_tax|l_returnflag|l_linestatus|l_shipdate|l_commitdate|l_receiptdate|l_shipinstruct|l_shipmode|           l_comment|
+----------+---------+---------+------------+----------+---------------+----------+-----+------------+------------+----------+------------+-------------+--------------+----------+--------------------+
|  15998113|   943289|     5808|           2|     50.00|       66612.00|      0.08| 0.02|           N|           O|1998-09-24|  1998-08-18|   1998-10-02|TAKE BACK RETURN|       AIR|al packages. blit...|
|  25245639|   336791|    36792|           3|     50.00|       91389.00|      0.10| 0.07|           N|           O|1995-12-03|  1996-01-09|   1995-12-22|          NONE|      MAIL|ly final pinto be...|
|  13070276|   434679|     9696|           2|     50.00|       80682.50|      0.03| 0.07|           N|           O|1997-02-18|  1997-02-14|   1997-03-11|     COLLECT COD|      MAIL|         fully regul|
|  25245922|   153777|     3778|           1|     50.00|       91538.50|      0.00| 0.00|           N|           O|1996-07-07|  1996-08-29|   1996-07-12|          NONE|   REG AIR|          s. even id|
|       263|   714455|     1998|           3|     50.00|       73471.00|      0.06| 0.04|           R|           F|1994-08-18|  1994-07-31|   1994-08-22|          NONE|     TRUCK|re the packages. ...|
+----------+---------+---------+------------+----------+---------------+----------+-----+------------+------------+----------+------------+-------------+--------------+----------+--------------------+
only showing top 5 rows
```

6. Drop a Column:



```
04:38 PM (<1s)                                    7                                    Python

#Drop a Column
df_dropped = df_lineitem.drop("l_comment")
df_dropped.show(5)

▸ (1) Spark Jobs
▸ df_dropped: pyspark.sql.dataframe.DataFrame = [l_orderkey: long, l_partkey: long ... 13 more fields]

+----------+---------+---------+------------+----------+---------------+----------+-----+------------+------------+----------+------------+--------
-----+----------------+----------+
|l_orderkey|l_partkey|l_suppkey|l_linenumber|l_quantity|l_extendedprice|l_discount|l_tax|l_returnflag|l_linestatus|l_shipdate|l_commitdate|l_receip
tdate|  l_shipinstruct|l_shipmode|
+----------+---------+---------+------------+----------+---------------+----------+-----+------------+------------+----------+------------+--------
-----+----------------+----------+
| 15997987|   295335|    20346|           4|     50.00|       66516.00|      0.01| 0.08|           A|           F|1992-02-12|  1992-04-22|   1992-
03-10|TAKE BACK RETURN|   REG AIR|
| 15997988|   332059|    19578|           1|     49.00|       53460.96|      0.08| 0.03|           A|           F|1994-05-31|  1994-06-20|   1994-
06-22|            NONE|       FOB|
| 15997988|   904286|     4287|           2|     37.00|       47738.88|      0.07| 0.05|           A|           F|1994-05-24|  1994-05-28|   1994-
06-03|     COLLECT COD|      RAIL|
| 15997988|   327898|    15417|           3|     13.00|       25036.44|      0.09| 0.08|           A|           F|1994-06-09|  1994-06-28|   1994-
06-29|            NONE|       FOB|
| 15997988|   973125|    48164|           4|     29.00|       34744.32|      0.10| 0.02|           A|           F|1994-08-05|  1994-06-26|   1994-
08-17|     COLLECT COD|      RAIL|
+----------+---------+---------+------------+----------+---------------+----------+-----+------------+------------+----------+------------+--------
-----+----------------+----------+
only showing top 5 rows
```

7. Rename a Column (Rename the l_shipmode column to shipping_mode):



```
04:38 PM (<1s)                                    8                                    Python

#Rename a Column
#Rename the l_shipmode column to shipping_mode:
df_renamed = df_lineitem.withColumnRenamed("l_shipmode", "shipping_mode")
df_renamed.show(5)

▸ (1) Spark Jobs
▸ df_renamed: pyspark.sql.dataframe.DataFrame = [l_orderkey: long, l_partkey: long ... 14 more fields]

+----------+---------+---------+------------+----------+---------------+----------+-----+------------+------------+----------+------------+--------
-----+----------------+-------------+--------------------+
|l_orderkey|l_partkey|l_suppkey|l_linenumber|l_quantity|l_extendedprice|l_discount|l_tax|l_returnflag|l_linestatus|l_shipdate|l_commitdate|l_receip
tdate|  l_shipinstruct|shipping_mode|           l_comment|
+----------+---------+---------+------------+----------+---------------+----------+-----+------------+------------+----------+------------+--------
-----+----------------+-------------+--------------------+
| 15997987|   295335|    20346|           4|     50.00|       66516.00|      0.01| 0.08|           A|           F|1992-02-12|  1992-04-22|   1992-
03-10|TAKE BACK RETURN|     REG AIR| even pinto beans...|
| 15997988|   332059|    19578|           1|     49.00|       53460.96|      0.08| 0.03|           A|           F|1994-05-31|  1994-06-20|   1994-
06-22|            NONE|          FOB|detect carefully....|
| 15997988|   904286|     4287|           2|     37.00|       47738.88|      0.07| 0.05|           A|           F|1994-05-24|  1994-05-28|   1994-
06-03|     COLLECT COD|         RAIL|         the slyly e|
| 15997988|   327898|    15417|           3|     13.00|       25036.44|      0.09| 0.08|           A|           F|1994-06-09|  1994-06-28|   1994-
06-29|            NONE|          FOB|     ss courts. fina|
| 15997988|   973125|    48164|           4|     29.00|       34744.32|      0.10| 0.02|           A|           F|1994-08-05|  1994-06-26|   1994-
08-17|     COLLECT COD|         RAIL| sly final packages |
+----------+---------+---------+------------+----------+---------------+----------+-----+------------+------------+----------+------------+--------
-----+----------------+-------------+--------------------+
only showing top 5 rows
```

8. Filter Rows Using Multiple Conditions:

```
04:39 PM (1s)                                                    9                                                    Python

#Filter Rows Using Multiple Conditions

df_filtered_multi = df_lineitem.filter((df_lineitem.l_shipmode == "AIR") & (df_lineitem.l_quantity > 30))
df_filtered_multi.show(5)

▸ (1) Spark Jobs
▸ df_filtered_multi:  pyspark.sql.dataframe.DataFrame = [l_orderkey: long, l_partkey: long ... 14 more fields]
+----------+---------+---------+------------+----------+---------------+----------+-----+------------+------------+----------+------------+--------
-----+-----------------+----------+--------------------+
|l_orderkey|l_partkey|l_suppkey|l_linenumber|l_quantity|l_extendedprice|l_discount|l_tax|l_returnflag|l_linestatus|l_shipdate|l_commitdate|l_receip
tdate|   l_shipinstruct|l_shipmode|           l_comment|
+----------+---------+---------+------------+----------+---------------+----------+-----+------------+------------+----------+------------+--------
-----+-----------------+----------+--------------------+
|  15997989|   150305|      306|           2|     49.00|       66409.70|      0.01| 0.08|           R|           F|1993-01-18|  1993-02-05|   1993-
02-06|             NONE|       AIR|       ometimes iron|
|  15998018|   650130|    12644|           1|     50.00|       54005.00|      0.06| 0.07|           N|           O|1997-10-20|  1997-10-09|   1997-
10-28|      COLLECT COD|       AIR|the slyly special...|
|  15998018|   455260|    30279|           4|     41.00|       49824.84|      0.03| 0.07|           N|           O|1997-11-21|  1997-09-23|   1997-
12-18| TAKE BACK RETURN|       AIR|      d accounts aga|
|  15998022|   137122|    24629|           1|     42.00|       48683.04|      0.01| 0.06|           A|           F|1992-12-26|  1992-10-21|   1992-
12-31|DELIVER IN PERSON|       AIR|instructions boos...|
|  15998022|   600590|      591|           2|     41.00|       61112.96|      0.08| 0.02|           A|           F|1992-12-06|  1992-11-16|   1992-
12-18|DELIVER IN PERSON|       AIR|osits detect even...|
+----------+---------+---------+------------+----------+---------------+----------+-----+------------+------------+----------+------------+--------
-----+-----------------+----------+--------------------+
only showing top 5 rows
```

9. Calculate Discounted Price:

```
04:40 PM (1s)                                                    10                                                   Python

#Calculate Discounted Price
df_discounted_price = df_lineitem.withColumn(
    "discounted_price",
    df_lineitem.l_extendedprice * (1 - df_lineitem.l_discount)
)
df_discounted_price.show(5)

▸ (1) Spark Jobs
▸ df_discounted_price:  pyspark.sql.dataframe.DataFrame = [l_orderkey: long, l_partkey: long ... 15 more fields]
+----------+---------+---------+------------+----------+---------------+----------+-----+------------+------------+----------+------------+--------
-----+----------------+----------+--------------------+----------------+
|l_orderkey|l_partkey|l_suppkey|l_linenumber|l_quantity|l_extendedprice|l_discount|l_tax|l_returnflag|l_linestatus|l_shipdate|l_commitdate|l_receip
tdate|  l_shipinstruct|l_shipmode|           l_comment|discounted_price|
+----------+---------+---------+------------+----------+---------------+----------+-----+------------+------------+----------+------------+--------
-----+----------------+----------+--------------------+----------------+
|  15997987|   295335|    20346|           4|     50.00|       66516.00|      0.01| 0.08|           A|           F|1992-02-12|  1992-04-22|   1992-
03-10|TAKE BACK RETURN|   REG AIR| even pinto beans...|      65850.8400|
|  15997988|   332059|    19578|           1|     49.00|       53460.96|      0.08| 0.03|           A|           F|1994-05-31|  1994-06-20|   1994-
06-22|             NONE|      FOB|detect carefully....|      49184.0832|
|  15997988|   904286|     4287|           2|     37.00|       47738.88|      0.07| 0.05|           A|           F|1994-05-24|  1994-05-28|   1994-
06-03|     COLLECT COD|      RAIL|         the slyly e|      44397.1584|
|  15997988|   327898|    15417|           3|     13.00|       25036.44|      0.09| 0.08|           A|           F|1994-06-09|  1994-06-28|   1994-
06-29|             NONE|      FOB|     ss courts. fina|      22783.1604|
|  15997988|   973125|    48164|           4|     29.00|       34744.32|      0.10| 0.02|           A|           F|1994-08-05|  1994-06-26|   1994-
08-17|     COLLECT COD|      RAIL| sly final packages |      31269.8880|
+----------+---------+---------+------------+----------+---------------+----------+-----+------------+------------+----------+------------+--------
```

10. Filter Based on Date Range:

```
04:40 PM (1s)                                                    11                                                    Python

#Filter Based on Date Range
from pyspark.sql.functions import col

df_date_filtered = df_lineitem.filter(
    (col("l_shipdate") >= "1995-01-01") & (col("l_shipdate") <= "1995-12-31")
)
df_date_filtered.show(5)
```

(1) Spark Jobs

df_date_filtered: pyspark.sql.dataframe.DataFrame = [l_orderkey: long, l_partkey: long ... 14 more fields]

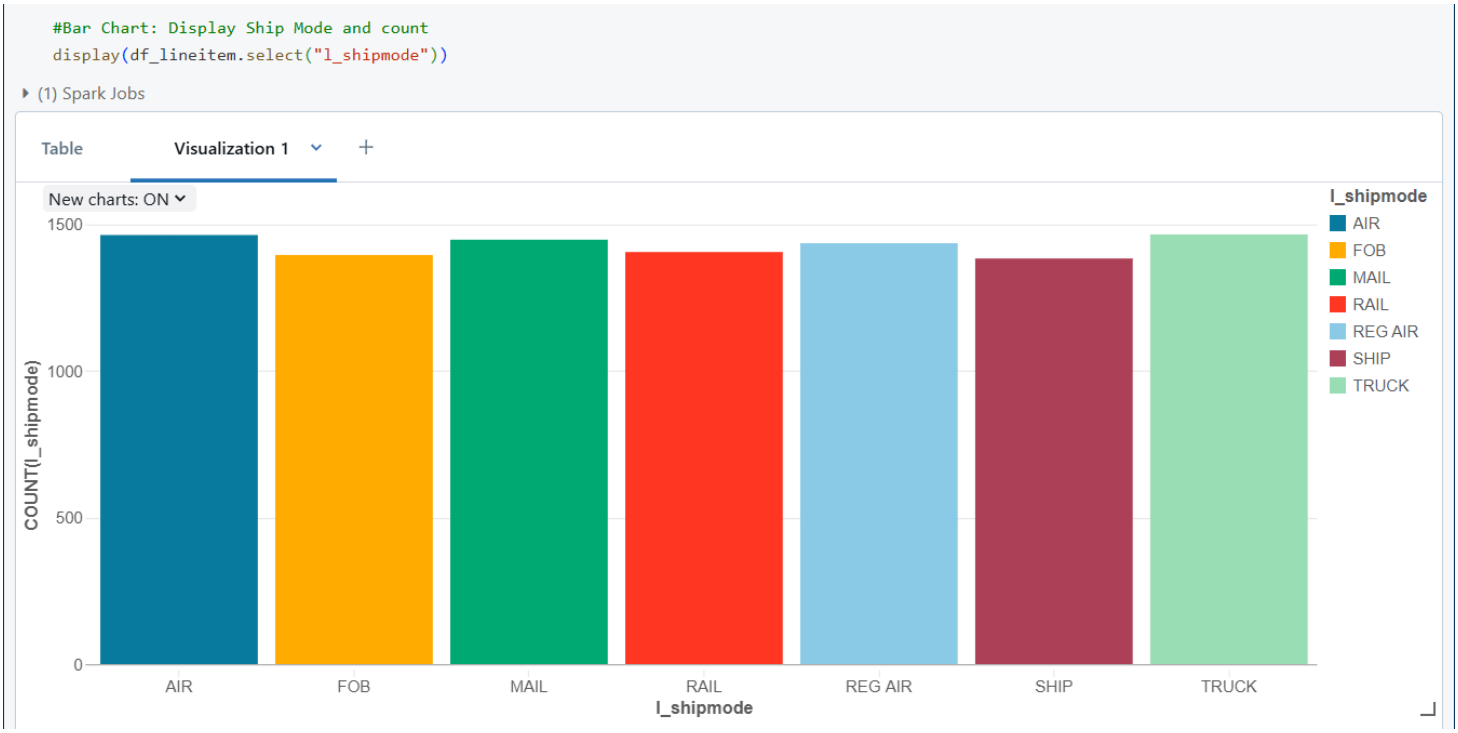
```
+----------+---------+---------+------------+----------+---------------+----------+-----+------------+------------+----------+------------+--------
-----+--------------+----------+--------------------+
|l_orderkey|l_partkey|l_suppkey|l_linenumber|l_quantity|l_extendedprice|l_discount|l_tax|l_returnflag|l_linestatus|l_shipdate|l_commitdate|l_receip
tdate|l_shipinstruct|l_shipmode|           l_comment|
+----------+---------+---------+------------+----------+---------------+----------+-----+------------+------------+----------+------------+--------
-----+--------------+----------+--------------------+
|  15997991|   466072|     3600|           1|     26.00|       26989.30|      0.04| 0.00|           N|           F|1995-05-31|  1995-07-11|   1995-
06-30|   COLLECT COD|     TRUCK|          es. regula|
|  15997991|   271922|    34428|           2|     26.00|       49241.66|      0.01| 0.05|           N|           O|1995-06-19|  1995-06-23|   1995-
07-06|   COLLECT COD|       AIR|ages are fluffily...|
|  15997991|   183864|     8871|           3|      6.00|       11687.16|      0.08| 0.06|           N|           O|1995-07-06|  1995-07-12|   1995-
08-03|   COLLECT COD|      MAIL| cajole furiously. s|
|  15997991|   199077|    11581|           4|     17.00|       19993.19|      0.04| 0.00|           N|           O|1995-07-12|  1995-07-17|   1995-
07-27|   COLLECT COD|     TRUCK|ve silent request...|
|  15997991|   873553|    23554|           5|     43.00|       65639.93|      0.10| 0.01|           N|           O|1995-06-21|  1995-07-12|   1995-
06-25|   COLLECT COD|      MAIL|  e pending, express|
```

Step 6: Visualization:

1. Bar Chart: Display Ship Mode and count:

```
#Bar Chart: Display Ship Mode and count
display(df_lineitem.select("l_shipmode"))
```

(1) Spark Jobs



2. Pie Chart: Proportion of Orders by Return Flag:

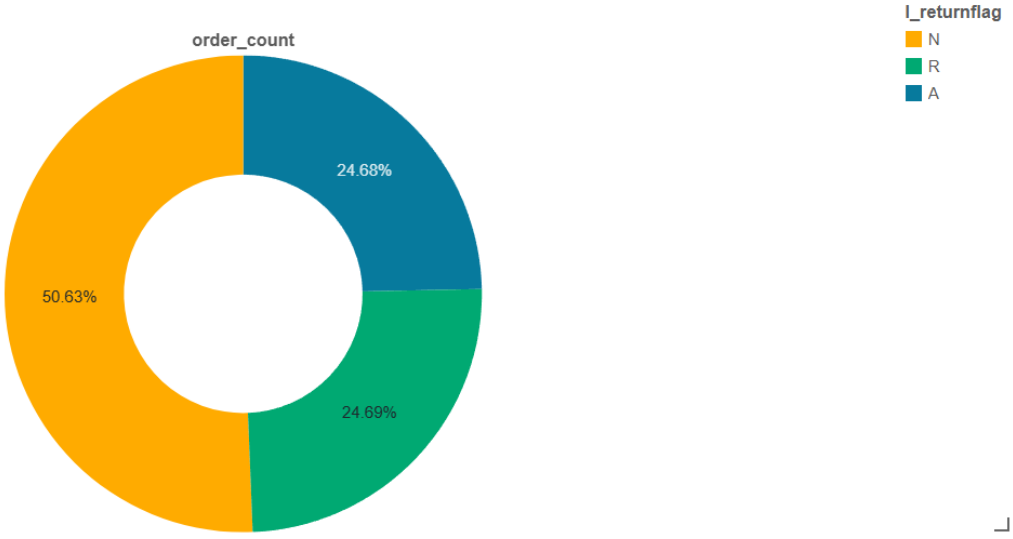
```
#Pie Chart: Proportion of Orders by Return Flag
from pyspark.sql.functions import count

df_return_flag = df_lineitem.groupBy("l_returnflag") \
    .agg(count("*").alias("order_count"))

display(df_return_flag)
```

(2) Spark Jobs

df_return_flag: pyspark.sql.dataframe.DataFrame = [l_returnflag: string, order_count: long]

Table | Visualization 1 | +

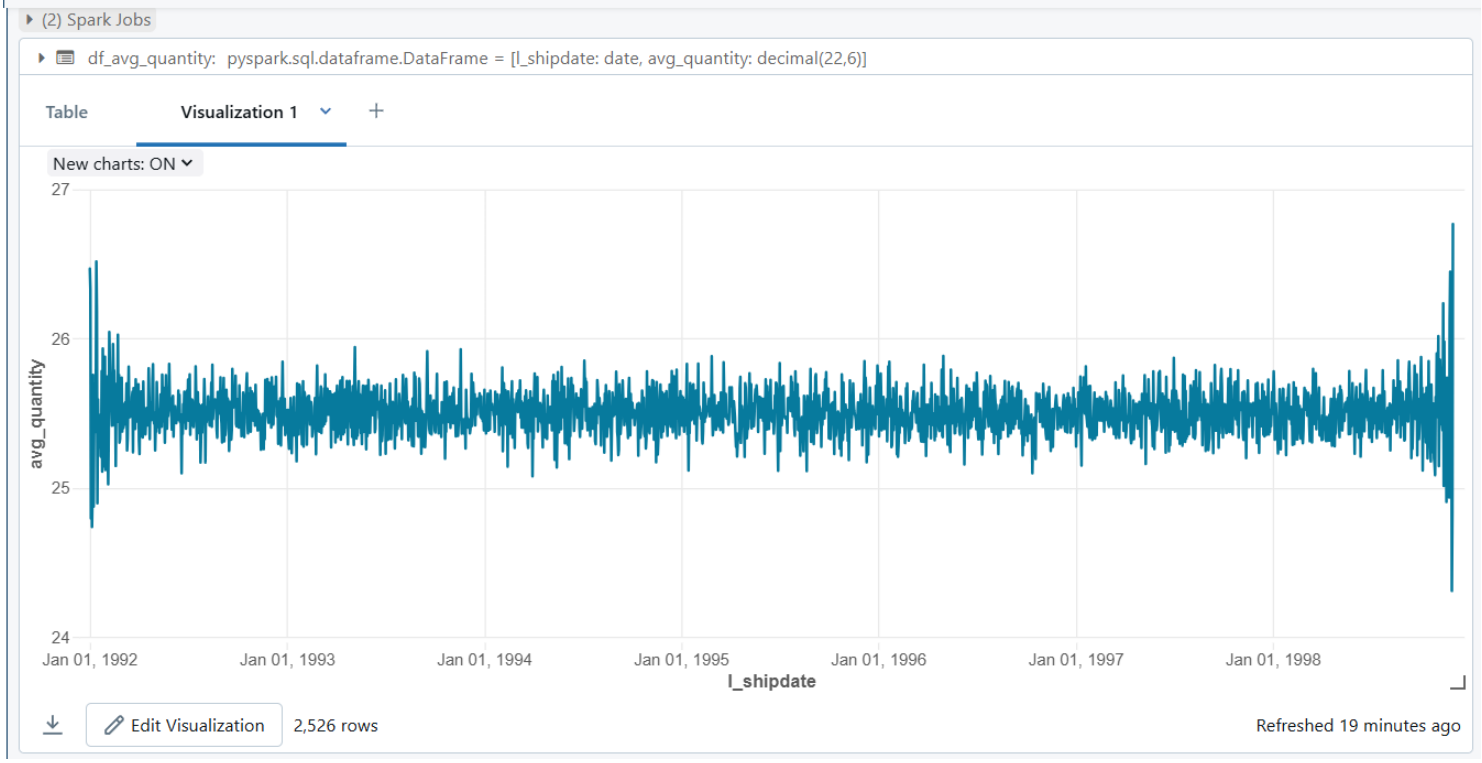
New charts: ON



Edit Visualization | 3 rows | Refreshed 18 minutes ago

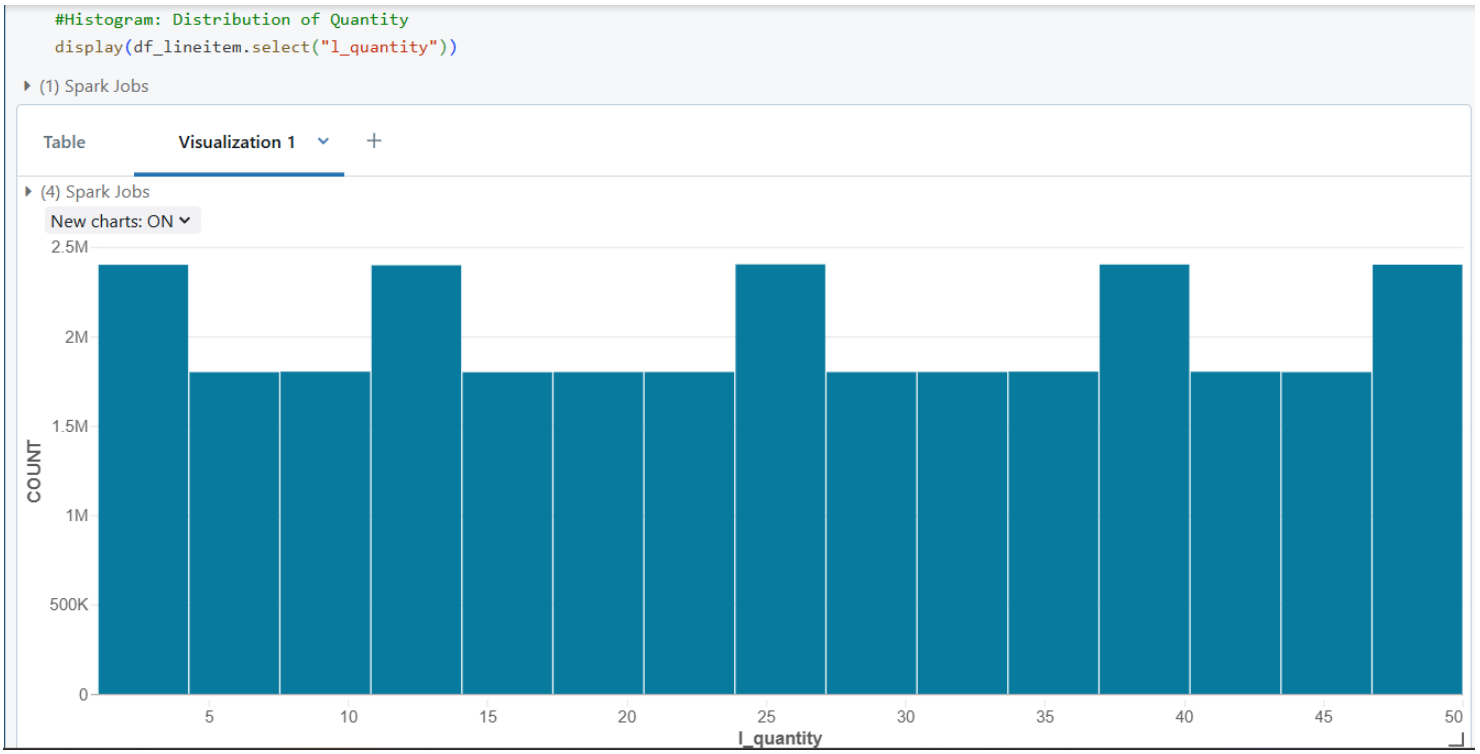
3. Line Chart: Average Quantity Over Time:

```
#Line Chart: Average Quantity Over Time
from pyspark.sql.functions import avg

df_avg_quantity = df_lineitem.groupBy("l_shipdate") \
    .agg(avg("l_quantity").alias("avg_quantity")) \
    .orderBy("l_shipdate")

display(df_avg_quantity)
```



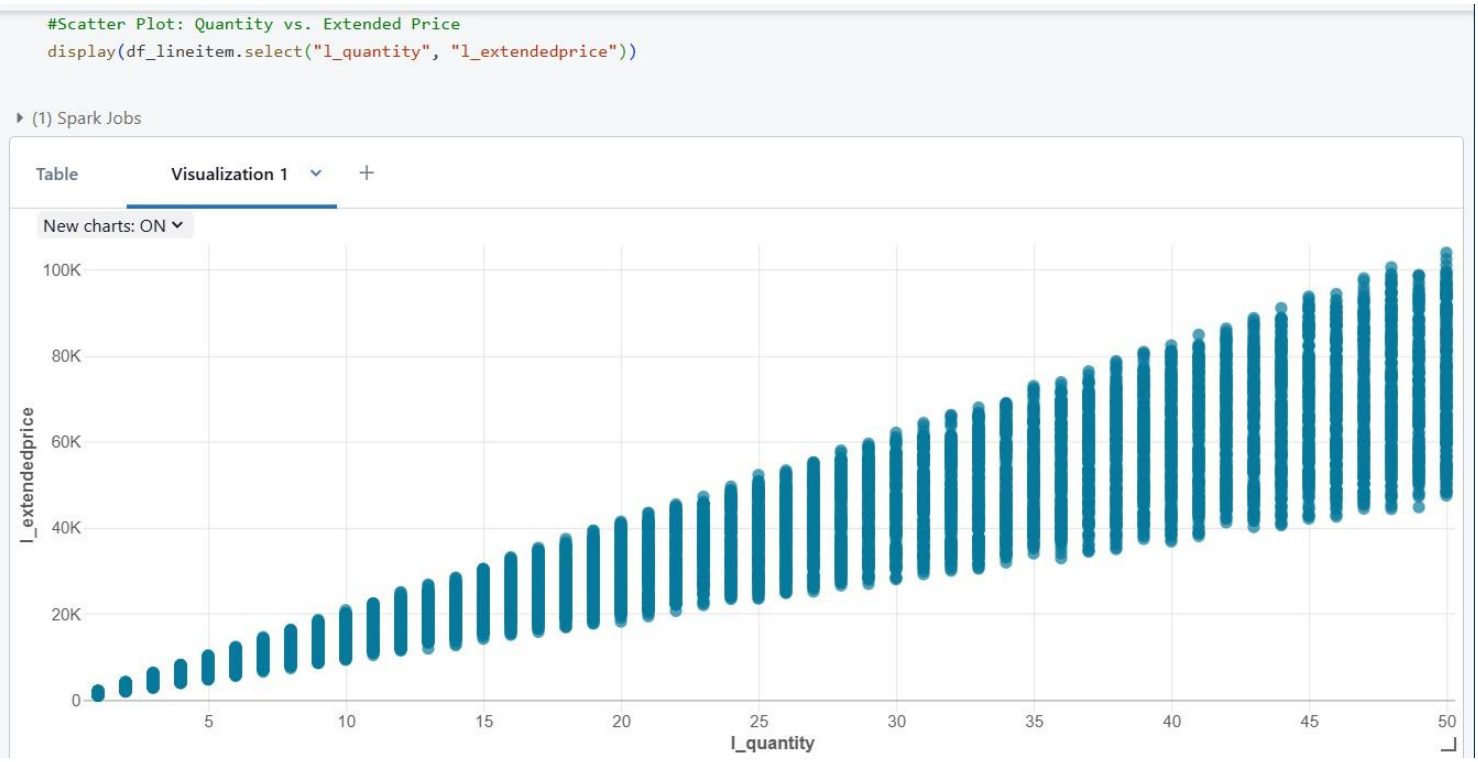
4. Histogram: Distribution of Quantity:

```
#Histogram: Distribution of Quantity
display(df_lineitem.select("l_quantity"))
```



5. Scatter Plot: Quantity vs. Extended Price:

```
#Scatter Plot: Quantity vs. Extended Price
display(df_lineitem.select("l_quantity", "l_extendedprice"))
```



--Thank You!