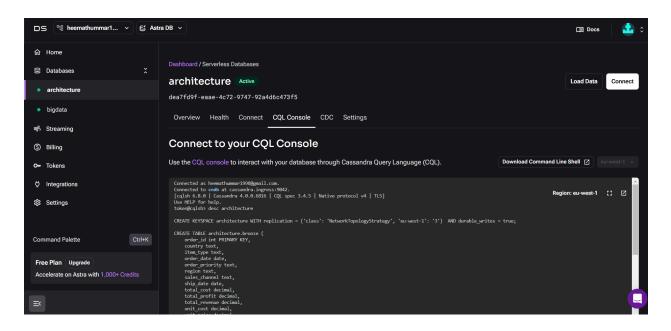
Big Data Cassandra Assignment

1) DataStax Astra:-



Tables created in cql:-

CREATE KEYSPACE architecture WITH replication = {'class': 'NetworkTopologyStrategy', 'eu-west-1': '3'} AND durable_writes = true;

```
CREATE TABLE architecture.bronze (
order_id int PRIMARY KEY,
country text,
item_type text,
order_date date,
order_priority text,
region text,
sales_channel text,
ship_date date,
total cost decimal,
```

```
total profit decimal,
  total revenue decimal,
  unit cost decimal.
  unit price decimal,
  units sold int
) WITH additional write policy = '99PERCENTILE'
  AND bloom filter fp chance = 0.01
  AND caching = {'keys': 'ALL', 'rows per partition': 'NONE'}
  AND comment = "
  AND compaction = {'class':
'org.apache.cassandra.db.compaction.UnifiedCompactionStrategy'}
  AND compression = {'chunk length in kb': '64', 'class':
'org.apache.cassandra.io.compress.LZ4Compressor'}
  AND crc check chance = 1.0
  AND default time to live = 0
  AND gc grace seconds = 864000
  AND max index interval = 2048
  AND memtable flush period in ms = 0
  AND min index interval = 128
  AND read repair = 'BLOCKING'
  AND speculative retry = '99PERCENTILE';
CREATE TABLE architecture.sales_by_priority (
  order_priority text PRIMARY KEY,
  total cost decimal,
  total profit decimal,
  total revenue decimal
) WITH additional write policy = '99PERCENTILE'
  AND bloom filter fp chance = 0.01
  AND caching = {'keys': 'ALL', 'rows per partition': 'NONE'}
  AND comment = "
  AND compaction = {'class':
'org.apache.cassandra.db.compaction.UnifiedCompactionStrategy'}
  AND compression = {'chunk length in kb': '64', 'class':
'org.apache.cassandra.io.compress.LZ4Compressor'}
  AND crc check chance = 1.0
  AND default time to live = 0
  AND gc grace seconds = 864000
  AND max index interval = 2048
  AND memtable flush period in ms = 0
```

```
AND min index interval = 128
  AND read repair = 'BLOCKING'
  AND speculative retry = '99PERCENTILE';
CREATE TABLE architecture.sales_by_product (
  item type text PRIMARY KEY,
  total cost decimal,
  total profit decimal,
  total revenue decimal,
  total units sold int
) WITH additional write policy = '99PERCENTILE'
  AND bloom filter fp chance = 0.01
  AND caching = {'keys': 'ALL', 'rows per partition': 'NONE'}
  AND comment = "
  AND compaction = {'class':
'org.apache.cassandra.db.compaction.UnifiedCompactionStrategy'}
  AND compression = {'chunk length in kb': '64', 'class':
'org.apache.cassandra.io.compress.LZ4Compressor'}
  AND crc check chance = 1.0
  AND default time to live = 0
  AND gc grace seconds = 864000
  AND max index interval = 2048
  AND memtable flush period in ms = 0
  AND min index interval = 128
  AND read repair = 'BLOCKING'
  AND speculative retry = '99PERCENTILE';
CREATE TABLE architecture.sales by region (
  region text PRIMARY KEY,
  total cost decimal,
  total profit decimal,
  total revenue decimal
) WITH additional write policy = '99PERCENTILE'
  AND bloom filter fp chance = 0.01
  AND caching = {'keys': 'ALL', 'rows per partition': 'NONE'}
  AND comment = "
  AND compaction = {'class':
'org.apache.cassandra.db.compaction.UnifiedCompactionStrategy'}
  AND compression = {'chunk length in kb': '64', 'class':
'org.apache.cassandra.io.compress.LZ4Compressor'}
```

```
AND crc check chance = 1.0
  AND default_time_to_live = 0
  AND gc grace seconds = 864000
  AND max index interval = 2048
  AND memtable_flush_period_in_ms = 0
  AND min index interval = 128
  AND read repair = 'BLOCKING'
  AND speculative retry = '99PERCENTILE';
CREATE TABLE architecture.silver (
  order id int PRIMARY KEY,
  country text,
  item type text,
  order date date,
  order priority text,
  region text,
  sales channel text,
  ship date date,
  total cost decimal,
  total profit decimal,
  total revenue decimal,
  unit cost decimal,
  unit price decimal,
  units sold int
) WITH additional write policy = '99PERCENTILE'
  AND bloom filter fp chance = 0.01
  AND caching = {'keys': 'ALL', 'rows per partition': 'NONE'}
  AND comment = "
  AND compaction = {'class':
'org.apache.cassandra.db.compaction.UnifiedCompactionStrategy'}
  AND compression = {'chunk length in kb': '64', 'class':
'org.apache.cassandra.io.compress.LZ4Compressor'}
  AND crc check chance = 1.0
  AND default time to live = 0
  AND gc grace seconds = 864000
  AND max index interval = 2048
  AND memtable flush period in ms = 0
  AND min index interval = 128
  AND read repair = 'BLOCKING'
  AND speculative retry = '99PERCENTILE';
```

2) Tables in Python:-

BRONZE LEVEL TABLE: -

```
!pip install cassandra-driver
from cassandra.cluster import Cluster
from cassandra.auth import PlainTextAuthProvider
import json
cloud config= {
with open("architecture-token.json") as f:
   secrets = json.load(f)
CLIENT ID = secrets["clientId"]
CLIENT SECRET = secrets["secret"]
auth provider = PlainTextAuthProvider(CLIENT ID, CLIENT SECRET)
cluster = Cluster(cloud=cloud config, auth provider=auth provider)
session = cluster.connect()
if session:
 print('Connected!')
else:
 print("An error occurred.")
```

```
# URL of the CSV file
url =
"https://raw.githubusercontent.com/gchandra10/filestorage/main/sales_10
0.csv"

# Download and read the CSV
response = requests.get(url)
with open("/content/sales_100.csv", "wb") as file:
    file.write(response.content)

rows = session.execute("SELECT * FROM architecture.bronze")
data = [row._asdict() for row in rows]
df = pd.DataFrame(data)

# Print the DataFrame
print(df.to_string(index=True))
```

order_id	country	item_type	order_date	order_priority	region	sales_channel	ship_date	total_c
571997869	Vanuatu	Fruits	2013-11-03		Australia and Oceania	Online	2013-11-11	39686.199999999997089616954326629638671
1 349235904	Mauritius	Clothes	2012-11-17		Sub-Saharan Africa	Offline	2012-12-02	197836.799999999883584678173065185546
2 440306556	India	Snacks	2012-10-10		Asia	Online	2012-11-20	521206.559999999976716935634613037109
3 667593514	Morocco	Clothes	2013-09-14		Middle East and North Africa	Online	2013-10-19	165258.2399999999068677425384521484
4 520480573	Indonesia	Household	2011-09-28		Asia	Online	2011-09-28	313082.419999999837018549442291259765
5 488121116	The Bahamas	Fruits	2010-06-18		Central America and the Caribbean	Offline	2010-06-30	32800.800000000002910383045673370361328
6 835696351	Estonia	Household	2011-09-01		Europe	Offline	2011-10-21	5013339.04000000037252902984619146
7 146634709	Liberia	Baby Food	2015-06-06		Sub-Saharan Africa	Offline	2015-06-12	211072.0799999998719431459903717041015
8 315402734	Belize	Personal Care	2015-06-14		Central America and the Caribbean	Online	2015-08-02	200215.10999999998603016138076782226
9 198927056	China	Office Supplies	2016-02-10		Asia	Online	2016-03-29	3040043.359999998696148395538330078
10 274930989	Dominica	Household	2011-11-19		Central America and the Caribbean	Offline	2011-12-13	3539891.75999999977648258209228515
11 902511680	Montenegro	Clothes	2016-09-04		Europe	Offline	2016-09-08	75873.27999999999883584678173065185546
12 358570849	Oman	Cosmetics	2010-11-29		Middle East and North Africa	Online	2010-12-28	2090050.20999999962747097015380859
13 176461303	Singapore	Snacks	2013-01-28		Asia	Online	2013-02-07	747949.439999999441206455230712890
14 179137074	Nepal	Meat	2014-02-21		Asia	Online	2014-03-14	3463096.2400000002235174179077148
15 294530856	Italy	Cereal	2011-11-15		Europe	Online	2011-12-28	829138.8000000000465661287307739257
16 190777862	United States of America	Personal Care	2016-01-21		North America	Online	2016-02-19	241640.880000000004656612873077392578
17 830410039	Switzerland	Office Supplies	2014-07-29		Europe	Offline	2014-08-27	2960249.439999999441206455230712896
18 104191863	Albania	Personal Care	2016-02-06		Europe	Offline	2016-02-11	87441.809999999976716935634613037109
19 940980136	New Zealand	Beverages	2012-10-11		Australia and Oceania	Online	2012-11-04	184000.51999999998952262103557586669923
20 434008300	Thailand	Fruits	2012-09-30		Asia	Offline	2012-11-14	10760.600000000000363797880709171295166015
21 573998582	Nicaragua	Household	2015-10-28		Central America and the Caribbean	Online	2015-12-07	3915289.1400000001303851604461669923
22 842238795	Uganda	Cosmetics	2015-02-28		Sub-Saharan Africa	Online	2015-03-15	1588143.229999999813735485076904296
23 757619178	Turkmenistan	Meat	2017-04-30		Asia	Online	2017-05-14	1898576.1399999989755451679229736328
24 286891067	Antigua and Barbuda	Office Supplies	2011-10-02		Central America and the Caribbean	Offline	2011-10-04	3305673.12000000011175870895385742
25 529276502	Burundi	Beverages	2011-03-09		Sub-Saharan Africa	Online	2011-04-09	112314.0700000000069849193096160888673
26 539471471	Uganda	Personal Care	2014-06-19		Sub-Saharan Africa	Online	2014-07-21	25558.16999999999825377017259597778320
27 726137769	Czech Republic	Cosmetics	2014-03-22		Europe	Online	2014-04-26	2411312.810000000055879354476928710
28 882908809	Egypt	Clothes	2016-08-09		Middle East and North Africa	Online	2016-08-24	42721.279999999988358467817306518554
29 467399013	Monaco	Beverages	2016-05-29		Europe	Offline	2016-06-14	82940.110000000000058207660913467407226
30 156530129	Tanzania	Fruits	2014-10-20		Sub-Saharan Africa	Offline	2014-11-29	66425.08000000000174622982740402221679
31 678896129	Indonesia	Personal Care			Asia	Offline	2012-10-31	527371.020000000018626451492309570
32 485070693	Haiti	Office Supplies	2010-12-31		Central America and the Caribbean	Online	2011-01-31	1077217.919999999254941940307617
33 955894076	Malaysia	Beverages	2014-11-13		Asia	Online	2014-12-28	291005.65999999974388629198074340820
34 659878194	Tanzania	Beverages	2016-11-30		Sub-Saharan Africa	Online	2017-01-16	46922.040000000000873114913702011108398
35 704205024	Lebanon	Meat	2017-03-08		Middle East and North Africa	Online	2017-04-18	3198331.2999999981373548507690429
36 116205585	Turkmenistan	Vegetables	2015-04-13		Asia	Online	2015-06-02	606503.0999999997671693563461303710
37 937431466	Samoa	Household	2016-12-05		Australia and Oceania	Online	2016-12-08	2842868.779999999795109033584594726
38 747796285	Japan	Household	2014-07-16			Offline	2014-07-24	4217818.2199999973922967910766601
39 731120240	Saint Lucia	Fruits	2015-12-12		Central America and the Caribbean	Offline	2016-01-12	24780.52000000000043655745685100555419923
40 297876536	South Korea	Meat	2016-03-16			Offline	2016-04-20	2604251.290000000037252902984619146
41 563681733	Togo	Cosmetics	2015-09-08		Sub-Saharan Africa	Online	2015-09-09	1265563.97999999981373548507690429
42 265081918	Sweden	Beverages	2012-09-13		Europe	Online	2012-10-12	78998.1499999999941792339086532592773
43 839094388	Tonga	Baby Food	2016-05-11		Australia and Oceania	Online	2016-05-31	881752.020000000018626451492309570
44 739008080	Tanzania	Cosmetics	2016-05-23		Sub-Saharan Africa	Offline	2016-05-24	2045547.43999999944120645523071289
45 710296428	Kazakhstan	Snacks	2013-09-08		Asia	Online	2013-10-25	131738.88000000000465661287307739257
46 880811536	Djibouti	Clothes	2017-05-17		Sub-Saharan Africa	Offline	2017-07-02	20142.080000000001746229827404022216796
47 04F0FCC17	Not bool and a	Consta	2016 11 10			Online	2016 11 20	C0410_030000000003E071E7300E10E0E30E07

51 425793445	Seychelles Seychelles	Reverages	2013-01-18	М	Sub-Saharan Africa	Online	2013-02-16	18978.630000000001018634065985679626464843
52 498071897	Taiwan		2010-04-11	H	Asia		2010-05-26	1100482.66999999925494194030761718
53 368977391	Canada		2011-05-09	H	North America		2011-06-02	1965495.1200000001117587089538574218
54 494570004	Madagascar				Sub-Saharan Africa		2016-10-26	111462.399999999994179233908653259277343
55 761723172	Algeria		2011-02-18	M	Middle East and North Africa		2011-02-24	2546137.77000000001862645149230957031
56 757257401	Finland	Household	2016-01-15	H	Europe		2016-01-31	4094695.91999999925494194030761718
57 363086831	Mali			M	Sub-Saharan Africa		2010-09-07	2169465.18000000016763806343078613281
58 343752610	Nicaragua	Baby Food	2016-11-11		Central America and the Caribbean		2016-11-16	460883.219999999972060322761535644531
59 584356629	Democratic Republic of the Congo		2012-10-07	M	Sub-Saharan Africa		2012-10-25	781300.109999999860301613807678222656
60 75252556	Albania		2012-07-19	H	Europe		2012-08-13	1257823.800000000046566128730773925781
61 862861335	The Gambia		2011-11-20		Sub-Saharan Africa		2011-11-22	60197.0800000000017462298274040222167968
62 314505374	Vietnam	Personal Care	2010-04-04	М	Asia	Online	2010-05-06	452453.280000000027939677238464355468
63 791778934	Ghana	Clothes	2011-11-02	М	Sub-Saharan Africa	Online	2011-12-01	137482.23999999999686774253845214843
64 135178029	United Kingdom		2015-05-01		Europe		2015-05-16	273336.53999999997904524207115173339843
65 180908620	Moldova		2013-01-27		Europe		2013-03-03	25853.119999999998981365934014320373535156
66 887409770	Italy	Cereal	2015-11-30		Europe		2015-12-05	366085.8599999999860301613807678222656
67 450544869	Malawi	Meat	2016-03-01		Sub-Saharan Africa	Offline	2016-03-12	1857730.860000000102445483207702636718
68 156295812	East Timor	Cereal	2015-12-07		Australia and Oceania	Offline	2015-12-30	30331.490000000001600710675120353698730468
69 601245963	Ghana	Office Supplies	2017-03-23		Sub-Saharan Africa	Online	2017-04-15	470364.15999999997438862919807434082031
70 732588374	Taiwan	Fruits	2014-02-09		Asia	Offline	2014-02-23	55595.27999999998835846781730651855468
71 246248090	The Bahamas	Personal Care	2011-01-19		Central America and the Caribbean	Online	2011-02-21	517793.78999999997904524207115173339843
72 647164094	Papua New Guinea	Clothes	2011-06-20		Australia and Oceania	Offline	2011-07-14	325857.280000000027939677238464355468
73 548299157	Sao Tome and Principe	Clothes	2015-11-11		Sub-Saharan Africa	Offline	2015-12-28	98918.399999999994179233908653259277343
74 153842341	Brunei	Cereal	2013-05-28		Asia	Offline	2013-07-16	494438.41999999998370185494422912597656
75 940995585	Papua New Guinea	Meat	2015-05-15		Australia and Oceania	Offline	2015-06-04	131288.39999999994179233908653259277343
76 797385394	Italy	Office Supplies	2011-03-29		Europe	Online	2011-04-11	1529208.4799999998137354850769042968
77 479969346	Tunisia	Cosmetics	2012-07-01		Middle East and North Africa	Offline	2012-07-20	645158
78 807785928	Ethiopia	Cosmetics	2011-07-07		Sub-Saharan Africa	Online	2011-07-25	174324.459999999991850927472114562988281
79 500371730	Pakistan	Meat	2013-12-28		Middle East and North Africa	Online	2014-02-15	3635594.60999999986961483955383300781
80 324669444	France		2015-12-07		Europe	Online	2016-01-18	1516254.139999999897554516792297363281
81 425418365	United Arab Emirates	Office Supplies	2012-06-23		Middle East and North Africa		2012-07-06	5041190.879999998882412910461425781
82 756839835	Romania	Beverages	2012-02-19		Europe	Online	2012-03-13	145629.98999999999686774253845214843
83 459386289	Kuwait	Household	2011-06-13		Middle East and North Africa	Offline	2011-07-21	736723.6400000000139698386192321777343
84 101328551	Solomon Islands		2010-12-17		Australia and Oceania		2010-12-28	2123231
85 642134416	Finland	Vegetables			Europe		2012-11-27	63469.139999999994179233908653259277343
86 887124383	Greece	Cereal	2015-08-22		Europe	Online	2015-10-08	1015812.1400000000139698386192321777343
87 222504317	Belgium	Personal Care			Europe		2011-11-20	160206.08999999996507540345191955566406
88 633134210	Romania				Europe		2015-04-18	859236.069999999487772583961486816406
89 371502530	Israel		2013-09-08		Middle East and North Africa		2013-10-13	149699.109999999860301613807678222656
90 496523940	Ghana	Fruits	2016-05-29		Sub-Saharan Africa		2016-06-04	9155.159999999999854480847716331481933593
91 174590194	Slovakia	Beverages			Europe		2016-12-04	126301.669999999982537701725959777832031
92 438011872	Dominica				Central America and the Caribbean		2012-07-18	200308.790000000008149072527885437011718
93 699160754	Rwanda		2012-09-05		Sub-Saharan Africa		2012-09-15	41928.279999999998835846781730651855468
94 252889239	Thailand	Meat	2015-02-04		Asia		2015-02-19	1605000.6899999994412064552307128906
95 830192887	Sri Lanka	Fruits	2011-11-07		Asia		2011-12-18	9542.680000000000029103830456733703613281
96 925136649	Serbia	Clothes	2016-07-06		Europe		2016-07-13	263352.32000000000698491930961608886718
97 824714744	Dominican Republic	Baby Food	2011-08-25		Central America and the Caribbean		2011-09-24	43681.0800000000017462298274040222167968
98 572335612	Vanuatu	Cereal	2014-06-20		Australia and Oceania	Offline	2014-08-05	665301.9100000000325962901115417480468

SILVER LEVEL TABLE:-

Cleaning the data:-

```
session = cluster.connect()
import requests
import pandas as pd

## Find duplicates in order id as it is primary key
query = "SELECT Order_ID FROM architecture.bronze"
rows = session.execute(query)
# Convert rows to a list of Order_IDs
order_ids = list(rows)
# Check for duplicates
from collections import Counter
```

```
duplicates = [item for item, count in Counter(order ids).items() if
count > 1]
# Print results
if duplicates:
    print("Duplicate Order IDs found:", duplicates)
else:
    print("No duplicates found.")
## Find missing values
query = "SELECT * FROM architecture.bronze"
rows = session.execute(query)
df = pd.DataFrame(rows)
# Check for null values
missing values = df.isnull().sum()
print("Missing values per column:")
print(missing values)
# Filter rows with any missing values
rows with nulls = df[df.isnull().any(axis=1)]
print("Rows with missing values:")
print(rows with nulls)
##Country Name Normalization
query = "SELECT * FROM architecture.bronze"
rows = session.execute(query)
Convert rows to Pandas DataFrame
df = pd.DataFrame(rows)
# Find unique countries
unique countries = df['country'].unique()
# Print unique countries
print("Unique Country Names:")
print(unique countries)
```

Table after cleaning:-

```
session.execute("""

CREATE TABLE IF NOT EXISTS architecture.silver (
Region TEXT,
Country TEXT,
Item_Type TEXT,
Sales_Channel TEXT,
Order_Priority TEXT,
Order_Date DATE,
Order_ID int PRIMARY KEY,
Ship_Date DATE,
Units_Sold INT,
Unit_Price DECIMAL,
Unit_Cost DECIMAL,
Total_Revenue DECIMAL,
```

```
....
cloud config= {
with open("architecture-token.json") as f:
    secrets = json.load(f)
CLIENT ID = secrets["clientId"]
CLIENT SECRET = secrets["secret"]
auth provider = PlainTextAuthProvider(CLIENT ID, CLIENT SECRET)
cluster = Cluster(cloud=cloud config, auth provider=auth provider)
session = cluster.connect()
import requests
import pandas as pd
session.execute("""
```

```
# Query to fetch all data from the original table
query = session.prepare("SELECT * FROM architecture.bronze")
rows = session.execute(query)
# Fetch data into a Pandas DataFrame
df = pd.DataFrame(rows)
for index, row in df.iterrows():
    session.execute("""
Sales Channel, Order Priority,
Unit Cost, Total Revenue,
    """, (row['region'], row['country'], row['item type'],
row['sales channel'], row['order priority'],
          row['order date'], row['order id'], row['ship date'],
row['units sold'], row['unit price'],
          row['unit cost'], row['total revenue'], row['total cost'],
row['total profit']))
rows = session.execute("SELECT * FROM architecture.silver")
data = [row. asdict() for row in rows]
df = pd.DataFrame(data)
# Print the DataFrame
print(df.to string(index=True))
```

	order id	country	item type	order date	order priority	region	sales channel	ship date	total cost	total profit	total revenue unit
Addresses Addr	0 571997869	Vanuatú	Fruits	2013-11-03		Australia and Oceania	_ Online	2013-11-11	39686.2	13821.35	53507.55
5 65799514 South Norse Clothes 2013-99-14 M. Middle East and North Africa Online 2013-19-19 160258, 24 338631, 28 53890,88 5487271 5488121116 The Bahmans Fruits 2010-90-18 Central America and the Caribbean Online 2016-06-39 33890,48 114031,4 44224,2 14790,774 Central America and the Caribbean Online 2016-06-39 33890,48 114031,4 44224,2 14790,774 Central America and the Caribbean Online 2016-07-19 2019-06-07 2019-07-07 2019-	1 349235904	Mauritius	Clothes	2012-11-17		Sub-Saharan Africa	Offline	2012-12-02	197836.8	405388.8	603225.6
4 5.48489573 Indonesia Household 9011-09-28 C Asia Online 2011-09-28 313892.42 192349.79 416332.21 2 5 48812116 The Bahamas Fults 2010-06-618 L central America and the Caribbean offline 2010-06-30 23808.3 11423.4 4224.2.4 5 83566351 Estonia Household 9011-09-01 H Sub-Saharan Africa offline 2011-09-12 211072.08 165392.48 666666.1.5 2 5 1365402734 Belize Personal Care 2015-06-04 H Central America and the Caribbean Online 2015-08-02 200215.11 888536.98 238752.09 1 190251680 Pontinica District Colores 2016-02-10 H Middle East and North Africa Online 2016-09-10 2004-01-12-13 353990.72 1167402.12 4707293.88 1 170461303 Singapore Sacks 2019-11-12-1 H Middle East and North Africa Online 2016-01-12-13 053990.76 1167402.12 4707293.88 1 170461303 Singapore Sacks 2019-11-12-1 H Middle East and North Africa Online 2016-01-12-13 053990.76 1167402.12 4707293.88 1 170461303 Singapore Sacks 2019-11-12-1 H Middle East and North Africa Online 2018-01-12-1 1380960.19 3476906.4 2 1 170413070 M Popul Most 2014-02-12 H Most 2014-01-12-1 H Most 2014-01-1	2 440306556	India	Snacks	2012-10-10		Asia	Online	2012-11-20	521206.56	294943.86	816150.42
5 88322116 The Bahamas Fruits 2010-66-18 L central America and the Caribbean offiline 2011-03-1 503332-48 666666.1,52 7 146634769 Liberia Baby Food 2015-66-66 H S. S. Farran Africa Offiline 2011-03-1 503332-48 125932.4 33799-7.2 1 1 9527056 C Central America and the Caribbean of Caribbean o	3 667593514	Morocco	Clothes	2013-09-14		Middle East and North Africa	Online	2013-10-19	165258.24	338631.84	503890.08
6 8 35:666351	4 520480573	Indonesia	Household	2011-09-28		Asia	Online	2011-09-28	313082.42	103249.79	416332.21 56
Table Tabl	5 488121116	The Bahamas	Fruits	2010-06-18		Central America and the Caribbean	Offline	2010-06-30	32800.8	11423.4	44224.2
8 13409734 Belize Personal Care 2015-06-14 H Central America and the Caribbean Online 2015-08-09 200215.11 88536.98 28075.09 19 199279165 China office Supplies 2016-09-19 M Sub-Saharan Africa Online 2015-08-09 200215.11 88536.98 28075.09 2017-09-18 17046139 Singapore Snacks 2016-09-09 H M Middle East and North Africa Online 2016-09-08 19 2016-09-08 1	6 835696351	Estonia	Household	2011-09-01		Europe	Offline	2011-10-21	5013339.04	1653322.48	6666661.52 56
9 1992/1966 China office Supplies 2816-92-10 M central America and the Caribbean Offiline 2816-92-9 3040943.36 731113.75 3771157.11 9 2793-88 9 Dominica browshold 2811-11-13 3793-88 1 1 92511680 Montenegro Clothes 2816-90-94 M Middle East and Morth Africa Online 2816-90-98 7878.28 1 15547.48 231345.76 1 1 7913/1974 Nepal Singapore Snacks 2813-91-88 C Middle East and Morth Africa Online 2813-92-96 7 47949.44 423254.64 1 171244.08 1 1 1991/197862 United States of America 2814-82-21 H Morth America Online 2813-92-96 7 47949.44 423254.64 1 171244.08 1 1 1991/197862 United States of America 2814-92-91 H Morth America Online 2813-92-96 7 47949.44 423254.64 1 171244.08 1 1 1991/197862 United States of America 2814-92-91 C Europe Online 2811-92-98 289138.88 677217.2 1856356.9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	7 146634709	Liberia	Baby Food	2015-06-06		Sub-Saharan Africa	Offline	2015-06-12	211072.08	126918.64	337990.72 15
19 727939899	8 315402734	Belize	Personal Care	2015-06-14		Central America and the Caribbean	Online	2015-08-02	200215.11	88536.98	288752.09
11 992511688 Montenegro Clothes 2016-09-04 M Middle East and North Africa Online 2016-12-28 2090090,1 1380066,1 20 134070,7 6 2 131070,7 6 2 131070,7 6 2 131070,7 6 2 1310,7 6 2 1310,7 7 2 1 1310,7 7 2 1 13	9 198927056	China	Office Supplies	2016-02-10		Asia	Online	2016-03-29	3040043.36	731113.75	3771157.11 52
12 3587/8849 Main Cosmetics 2019-11-29 H Middle East and North Africa Online 2018-02-28 2008-09.21 1380866.19 3470956.4 21 17104086 21 1710408 21 1710	10 274930989	Dominica	Household	2011-11-19		Central America and the Caribbean	Offline	2011-12-13	3539891.76	1167402.12	4707293.88 50
13 176461303 Singapore Snacks 2013-01-28 C Asia Online 2013-02-07 747949,44 423254,64 1171264,08 1 1712744,08	11 902511680	Montenegro	Clothes	2016-09-04		Europe	Offline	2016-09-08	75873.28	155472.48	231345.76
May Meat M	12 358570849	Oman	Cosmetics	2010-11-29		Middle East and North Africa	Online	2010-12-28		1380006.19	3470056.4 26
15 294538856		Singapore	Snacks	2013-01-28		Asia				423254.64	1171204.08
16 199777862 United States of America 19977862 United States of America 1997866 Personal Care 2016-01-21 H North America 2016 Online 2016-02-19 2411640.88 196855.84 348496.72 348496.72 348496.73 348496.73 348496.73 348496.73 348496.73 348496.73 348496.73 348496.73 348496.73 348498.73 348496.73 348498.73 348496.73 348498.73 3						Asia	Online	2014-03-14		543171.2	4006267.44 36
17 830410939											
18 194191863 Albania Personal Care 2016-02-06 M Europe Offiline 2016-02-11 87441.81 38667.58 120189.39 194898186 New Zealand Beverages 2012-10-11 M Australia and Oceania online 2015-11-04 1809.02 90640.80 274640.6 20 434080800 Thailand Fruits 2012-09-30 C Asia Offiline 2012-11-04 1809.02 90640.80 274640.6 20 434080800 Thailand Fruits 2012-09-30 C Asia Offiline 2012-11-14 10760.6 3747.55 14598.15 173998582 Nicaragua Household 2015-10-28 M Sub-Saharan Africa Online 2015-07-31 1898576.14 291709.3 1259179.7 22 442238795 Uganda Cosmetics 2015-02-28 M Sub-Saharan Africa Online 2015-08-31 1588143.23 1048069.97 2636753.2 2 2 757619178 Turkmenistan Meat 2017-08-38 M Sub-Saharan Africa Online 2015-08-31 1588143.23 1048069.97 2636753.2 2 2 757619178 Natural Beverages 2011-10-02 C Central America and the Caribbean Online 2015-08-31 1588143.23 1048069.97 2636753.2 2 2 757619178 Uganda Personal Care 2011-08-09 H Sub-Saharan Africa Online 2011-08-3 4056753.12 74996.5 1400669.37 2 2 1000-09 N Sub-Saharan Africa Online 2011-08-09 112314.07 55326.78 167640.85 2 2 1000-09 N Sub-Saharan Africa Online 2011-08-09 112314.07 55326.78 167640.85 2 1000-09 N Sub-Saharan Africa Online 2014-08-21 15581.7 1380.06 36606.23 2 1000-09 N Sub-Saharan Africa Online 2014-08-21 1558.17 1380.06 36606.23 2 1000-09 N Sub-Saharan Africa Online 2014-08-22 2 2411312.81 1592127.59 4003440.4 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2											
94 94989136 New Zealand Beverages 2012-10-11 M Asia offlice 2012-11-04 1960-6. 3747-55 14580-15 1573998882 Nicaragua Household 2015-10-28 M Sub-Saharan Africa online 2015-12-07 915289.14 1291202.43 3206491.57 12 375701978 Turkmenistan Meat 2017-04-30 M Sub-Saharan Africa online 2015-12-07 915289.14 1291202.43 3206491.57 12 375701978 Turkmenistan Meat 2017-04-30 M Sub-Saharan Africa online 2015-12-07 915289.14 1291202.43 3206491.57 12 35927502 Burundi Beverages 2011-09-02 C Central America and the Caribbean Online 2015-09-14 1898857.14 297783.2 2190339.34 12 559276502 Burundi Beverages 2011-09-09 H Sub-Saharan Africa Online 2011-09-09 112314.07 55326.78 167640.85 12 776137760 Czech Republic Cosnetics 2014-09-2 M Sub-Saharan Africa Online 2014-07-21 2558.17 1130-06 36869.23 12 776131760 Czech Republic Cosnetics 2014-09-2 H Sub-Saharan Africa Online 2014-07-21 2558.17 1130-06 36869.23 12 776131760 Czech Republic Cosnetics 2016-09-9 M Sub-Saharan Africa Online 2014-07-21 2558.17 1130-06 36869.23 12 776131760 Czech Republic Cosnetics 2016-09-9 M Sub-Saharan Africa Online 2014-09-20 2011-09-9 12314.07 55326.78 1367640.85 12 776131760 Czech Republic Cosnetics 2016-09-9 M Sub-Saharan Africa Online 2014-09-20 2011-09-9 12314.07 55326.78 1367640.85 12 776131760 Czech Republic Cosnetics 2016-09-9 M Sub-Saharan Africa Online 2014-09-12 2011-09-0 12314.07 55326.78 1367840.85 130917.79 12 300917.79 1	17 830410039	Switzerland				Europe	Offline	2014-08-27	2960249.44	711923.75	3672173.19 52
20 434098300 Thailand Fruits 2012-09-30 C Central America and the Caribbean online 2012-11-1a 10760.6 3747.55 14508.15 2 157309852 Nicaragua Household 2015-10-28 C Central America and the Caribbean online 2015-01-16 1898576.1 12 108669.97 2636753.2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	18 104191863	Albania	Personal Care	2016-02-06		Europe	Offline	2016-02-11	87441.81	38667.58	126109.39 5
21 573998582 Nicaragua Household 2015-10-28 M Sub-Saharan Africa Online 2015-12-07 3915289,14 1291202,43 5206491,57 2 2 382238795 Uganda Cossettics 2015-02-28 M Sub-Saharan Africa Online 2015-03-15 1588143,23 1048669,97 263675,2 2 2 3757619178 Turkmenistan Meat 2017-04-30 M Sub-Saharan Africa Online 2017-05-14 1898576,14 297783,2 2196339,34 2 2 2016-05-29 M Sub-Saharan Africa Online 2017-05-14 1898576,14 297783,2 219639,34 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	19 940980136	New Zealand	Beverages	2012-10-11		Australia and Oceania	Online	2012-11-04	184000.52	90640.08	274640.6
28 482288795	20 434008300	Thailand	Fruits	2012-09-30			Offline	2012-11-14	10760.6	3747.55	14508.15
23 757619178	21 573998582	Nicaragua				Central America and the Caribbean				1291202.43	5206491.57 50
24 286891067 Antigua and Barbuda Office Supplies 2011-10-02 C Central America and the Caribbean Offiline 2011-10-04 3305673, 12 794096, 25 4100669, 37 87 5529757692 Burundi Beverages 2011-03-09 H Sub-Saharan Africa Online 2011-04-09 11214-04 752136, 78 1676040, 85 26 539471471 Uganda Personal Care 2014-06-19 M Sub-Saharan Africa Online 2011-04-09 1214-14-07 21 75558, 17 1130, 06 36809, 23 726137769 CZech Republic Cosmetics 2014-08-19 H Sub-Saharan Africa Online 2014-04-26 2411312, 81 1592127.59 4003404, 4 26 241312, 81 1592127.59 4003404, 4 241312, 81 1592127.59 4003404, 4 241312, 81 1592127.59 4003404, 4 241312, 81 1592127.59 4003404, 4 241312, 81 1592127.59 4003404, 4 241312, 81 159212, 81 1	22 842238795		Cosmetics	2015-02-28		Sub-Saharan Africa	Online	2015-03-15	1588143.23	1048609.97	2636753.2 26
25 5392/6592 Burundi Beverages 2011-03-09 H Sub-Saharan Africa online 2011-04-09 112314.07 55326.78 167660.85 77 726137760 Czech Republic Cosnetics 2014-03-22 H Europe online 2014-04-02-11 2558-17 11392.06 36860.23 77 726137760 Czech Republic Cosnetics 2014-03-22 H Europe online 2014-04-26 2411312.81 1592127.59 4093440.4 2 88 829088899 E FEYNT Clothree Of Middle East and North Africa online 2014-04-26 2411312.81 1592127.59 4093440.4 2 26 467399013 Monaco Beverages 2016-05-29 M Europe Offline 2016-08-14 82940.11 40856.94 123797.05 18 16530129 Indonesia Personal Care 2012-10-22 L Asia Offline 2014-11-29 66425.08 23133.59 80558.67 18 678896129 Indonesia Personal Care 2012-10-22 L Asia Offline 2014-12-19 572771.00 233208.36 760579.38 2485970693 Haiti Office Supplies 2016-02-31 C Central America and the Caribbean Online 2014-12-28 291095.66 14351.64 34357.3 18 659878194 Indonesia Beverages 2014-11-13 M Sub-Saharan Africa Online 2017-01-16 46922.04 23114.16 70036.2 25 704205024 Lebanon Meat 2017-03-08 L Middle East and North Africa Online 2017-01-16 46922.04 23114.16 70036.3 25 704205024 Lebanon Meat 2017-09-08 L Middle East and North Africa Online 2017-01-16 46922.04 23114.16 70036.3 27 3937431466 Samoa Mousehold 2014-07-16 M Asia Online 2015-08-02 606593.1 421077.1 1027580.2 28 37 3937431066 Samoa Mousehold 2014-07-16 M Asia Offline 2014-07-28 242868.88 93754.61 3780403.39 28 37 391102408 Saint Lucia Fruits 2015-01-12 L Central America and the Caribbean Offline 2014-07-12 42198.92 8680.21 33410-73 291276536 South Norea Meat 2016-03-16 L Central America and the Caribbean Offline 2016-01-12 24780.92 408405.2 2015/10-13 201276536 South Norea Meat 2016-03-16 L Central America and the Caribbean Offline 2016-01-12 24780.92 86805.1 3410-73 201276536 South Norea Meat 2016-03-16 M Sub-Saharan Africa Online 2017-01-10 2016-01-12 24780.92 86805.1 3410-73 201276536 South Norea Meat 2016-03-16 M Sub-Saharan Africa Online 2016-01-09 2016-01-09 2016-01-09 2016-01-09 2016-01-09 2016-01-09 2016-01-	23 757619178	Turkmenistan					Online	2017-05-14	1898576.14	297783.2	2196359.34 36
26 539471471											
27 726137760										55326.78	
28 882908899						Sub-Saharan Africa				11302.06	
29 467399013 Monaco Beverages 2016-05-29 M Europe Offline 2016-06-14 82940.11 46856.94 123797.05 31 676896129 Indonesia Perisonal Care 2012-10-22 L Asia Offline 2012-10-31 577371.00 233208.35 760579.38 32 48597093 Haiti Office supplies 2016-10-31 C Central America and the Caribbean Online 2012-10-31 577371.00 233208.36 760579.38 33 955964076 Malaysia Beverages 2014-11-13 M Central America and the Caribbean Online 2014-12-28 291005.66 143351.64 434357.3 34 659878194 Inazunia Beverages 2014-11-30 L Sub-Saharan Africa Online 2017-04-16 46992.04 23114.16 70936.2 35 704205924 Lebanon Neat 2017-03-08 L Middle East and North Africa Online 2017-04-18 3198331.3 501644.0 369975.3 3 36 116205585 Turkmenistan Vegetables 2015-04-13 M Asia Online 2017-04-18 3198331.3 501644.0 369975.3 3 37 937431366 Samoa Household 2014-07-26 L Australia and Oceania Online 2012-12-28 2824588.8 93753.4 61 3780403.39 5 38 747796285 Japan Household 2014-07-16 M Asia Offline 2014-07-28 2424588.8 93754.6 1 3780403.39 5 39 73110240 Saint Lucia Fruits 2015-12-12 L Central America and the Caribbean Offline 2016-01-12 24789.5 2868.2 1 3410-73 40 297876536 South Korea Meat 2016-03-16 L Central America and Fruits Asia Offline 2016-01-12 24789.5 8360.1 33410-73 41 553681733 Topo Cosmetics 2015-09-08 M Sub-Saharan Africa Online 2016-09-09 1255503.9 835615.2 2018-183.2		Czech Republic									
30 156530129											
31 678896129											
32 485970693											
33 958940476 Malaysia Beverages 2014-11-13 M Asia Online 2014-12-28 291095.66 143351.64 434357.3 4 659878194 Ianzania Beverages 2016-11-190 L Sub-Saharan Africa Online 2017-01-16 4692.04 2314.16 70936.2 35 704209524 Lehanon Meat 2017-03-08 L Middle East and North Africa Online 2017-04-18 319331.3 501644.0 3699975.3 2 36 116209585 Turkmenistan Vegetables 2015-04-13 M Asia Online 2017-04-18 319331.3 501644.0 3699975.3 2 37 937431466 Samoa Household 2016-12-05 L Australia and Oceania Online 2016-12-08 2018-068.1 421097.1 1027580.2 38 747796285 Japan Household 2016-07-16 M Asia Offline 2016-12-08 2018-068.1 319331.3 506049.0 11 39 731120240 Saint Lucia Fruits 2015-07-12 L Central America and the Caribbean Offline 2016-07-12 247818.22 1390971.39 50608790.11 340 297876536 South Korea Meat 2016-03-16 L Asia Offline 2016-09-09 2056053.9 835619.22 2018183.2 2											
34 6598/8194 Tanzania Beverages 2016-11-30 L Sub-Saharan Africa Online 2017-01-16 46922.04 23114.16 70036.2 35 704269624 Lebanon Meat Al-70-80-8 L Middle East and North Africa Online 2017-04-18 3198331.3 501644.0 3699975.3 3 36 116269585 Turkmenistan Vegetables 2015-04-13 M M Asia Online 2015-06-02 606503.1 421077.1 1027580.2 37 937431466 Samoa Household 2016-12-05 L Australia and Oceania Online 2016-12-08 8842868.78 937534.61 3780403.39 38 747796285 Japan Household 2016-12-12 L Central America and the Caribbean Offline 2016-07-24 4271818.2 3399731.8 13780403.39 40 297876536 South Korea Meat 2016-03-16 L Central America and the Caribbean Offline 2016-01-12 24780.52 8630.21 33410											
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36 116205585 Turkmenistan Vegetables 2015-04-13 M Asia Online 2015-06-02 606503.1 421077.1 1927580.2 2 37 937431466 Samoa Household 2016-12-05 L Australia and Oceania Online 2016-12-08 2842868.8 937534.61 3780403.3 9 58 747796285 Japan Household 2014-07-16 M Asia Offline 2014-07-24 4217818.2 2 1390771.8 9 5608790.1 1 2 39 731120240 Saint Lucia Fruits 2015-12-12 L Central America and the Caribbean Offline 2016-01-12 24780.5 2850.2 1 33410.7 3 40 297876356 South Korea Meat 2016-03-16 L Asia Offline 2016-01-2 24780.5 2850.2 1 33410.7 3 40 29787636 South Korea Meat 2016-03-16 L Asia Offline 2016-01-12 24780.5 2850.2 1 2016-03-16 L S0681733 Togo Cosmetics 2015-09-08 M Sub-Saharan Africa Online 2015-09-09 1265563-38 835619.2 2 2016183.2 2											
37 937431466 Samoa Household 2016-12-05 L Australia and Oceania Online 2016-12-08 2842868,78 937534.61 3780403,39 52 8747706285 Japan Household 2014-07-16 M Asia Offline 2016-07-24 4217818.22 1390971.89 5608790.11 52 87 731120240 Saint Lucia Fruits 2015-12-12 L Central America and the Caribbean Offline 2016-01-12 24780.52 8500.21 33410.73 40 297876536 South Korea Meat 2016-03-16 L Asia Offline 2016-04-20 2604251.29 469405.2 3012716.49 51 51 51 51 51 51 51 51 51 51 51 51 51											
38 74779685 Japan Household 2014-07-16 M Asia Offline 2014-07-24 4217818.22 1390971.89 5608790.11 9 39 731120240 Saint Lucia Fruits 2015-12-12 L Central America and the Caribbean Offline 2016-01-12 24780.52 8630.21 33410.73 40 297876536 South Korea Meat 2016-03-16 L Asia Offline 2016-04-20 2604251.29 408465.2 3012716.49 9 41 563681733 Togo Cosmetics 2015-09-08 M Sub-Saharan Africa Online 2015-09-09 1265561.98 835619.22 2101183.22					М						
39 731120240 Saint Lucia Fruits 2015-12-12 L Central America and the Caribbean Offline 2016-01-12 24780.52 8630.71 33410.73 40 297876536 South Korea Meat 2016-03-16 L Asia Offline 2016-04-20 26604251.29 408465.2 3012716.49 41 563681733 Togo Cosmetics 2015-09-08 M Sub-Saharan Africa Online 2015-09-09 1265563.98 835619.22 2101183.2											
40 297876536 South Korea Meat 2016-03-16 L Asia Offline 2016-04-20 2604251.29 408465.2 3012716.49 3 1 563681733 Togo Cosmetics 2015-09-08 M Sub-Saharan Africa Online 2015-09-09 1265563.98 835619.22 2101183.2 2					м						
41 563681733 Togo Cosmetics 2015-09-08 M Sub-Saharan Africa Online 2015-09-09 1265563.98 835619.22 2101183.2 2											
	42 265081918	Sweden				Europe			78998.15	38915.1	117913.25
43 839094388 Tonga Baby Food 2016-05-11 L Australia and Oceania Online 2016-05-31 881752.02 530201.66 1411953.68 1											
44 7390080800 Tanzania Cosmetics 2016-05-23 L Sub-Saharan Africa Offline 2016-05-24 2045547.44 1350622.16 3396169.6 2											
45 710296428 Kazakhstan Snacks 2013-09-08 L Asia Online 2013-10-25 131738.88 74549.28 206288.16											
46 888811536 Djibouti Clothes 2017-05-17 H Sub-Saharan Africa Offline 2017-07-02 20142.08 41273.28 61415.36		Djibouti	Clothes	2017-05-17	H	Sub-Sanaran Atrica	Offline		20142.08	412/3.28	61415.36
	4)

51	425793445	Seychelles	Reverages	2013-01-18	М	Sub-Saharan Africa	Online	2013-02-16	18978.63	9349.02	28327.65	= ^
52	498071897	Taiwan		2010-04-11	H	Asia	Online	2010-05-26		832480.23	1932962.9	11
53	368977391	Canada		2011-05-09		North America	Online	2011-06-02		1297765.68	3263260.8	26
54	494570004	Madagascar	Clothes	2016-10-17		Sub-Saharan Africa	Online	2016-10-26	111462.4	228398.4	339860.8	
55	761723172	Algeria	Cosmetics	2011-02-18	M	Middle East and North Africa	Online	2011-02-24	2546137.77	1681149.03	4227286.8	26
56	757257401	Finland	Household	2016-01-15	н	Europe	Offline	2016-01-31	4094695.92	1350368.04	5445063.96	56
57	363086831	Mali	Household	2010-08-19	м	Sub-Saharan Africa	Offline	2010-09-07		715456.41	2884921.59	56
58	343752610	Nicaragua		2016-11-11		Central America and the Caribbean	Online	2016-11-16	460883.22	277131.26	738014.48	15
59	584356629	Democratic Republic of the Congo		2012-10-07	M	Sub-Saharan Africa	Online	2012-10-25	781300.11	515872.29	1297172.4	26
60	752525556	Albania		2012-07-19	н	Europe			1257823.8	756335.4	2014159.2	15
61	862861335	The Gambia		2011-11-20		Sub-Saharan Africa	Online	2011-11-22	60197.08	20964.59	81161.67	~~
62	314505374	Vietnam	Personal Care		M	Asia	Online	2010-05-06	452453.28	200079.04	652532.32	
63	791778934	Ghana		2011-11-02	м	Sub-Saharan Africa	Online	2011-12-01	137482.24	281715.84	419198.08	
64	135178029	United Kingdom		2015-05-01		Europe	Online	2015-05-16	273336.54	180477.06	453813.6	26
65	180908620	Moldova		2013-01-27		Europe	Online	2013-03-03	25853.12	9003.76	34856.88	- "
66	887409770	Italy		2015-01-27		Europe	Online	2015-12-05	366085.86	276932.34	643018.2	11
67	450544869	Malawi	Meat	2016-03-01	н	Sub-Saharan Africa	Offline	2016-03-12	1857730.86	291376.8	2149107.66	36
68	156295812	East Timor		2015-12-07	м.	Australia and Oceania	Offline	2015-12-30	30331.49	22944.81	53276.3	11
69	601245963		Office Supplies			Sub-Saharan Africa	Online	2017-04-15	470364.16	113120.0	583484.16	52
70	732588374	Taiwan		2014-02-09	M	Asia		2014-02-23	55595.28	19361.94	74957.22	- 72
71	246248090	The Bahamas	Personal Care			Central America and the Caribbean	Online	2011-02-21	517793.79	228973.22	746767.01	
72	647164094	Papua New Guinea		2011-06-20		Australia and Oceania	Offline	2011-07-14	325857.28	667716.48	993573.76	- 5
73	548299157	Sao Tome and Principe	Clothes	2015-11-11		Sub-Saharan Africa	Offline	2015-12-28	98918.4	202694.4	301612.8	- 5
74	153842341	Brunei		2013-11-11		Asia		2013-12-28	494438.42	374026.98	868465.4	11
75	940995585	Papua New Guinea		2015-05-15	M	Australia and Oceania	Offline	2015-06-04	131288.4	20592.0	151880.4	36
76	797385394	Italy	Office Supplies		н	Europe	Online	2011-04-11		367766.25	1896974.73	52
77	479969346	Tunisia		2011-03-29	ä	Middle East and North Africa	Offline	2012-07-20	645158.5	425981.5	1071140.0	26
78	807785928	Ethiopia		2011-07-07	M	Sub-Saharan Africa	Online	2011-07-25	174324.46	115101.94	289426.4	26
79	500371730	Pakistan	Meat		M	Middle East and North Africa	Online	2011-07-25	3635594.61	570226.8	4205821.41	26
80	324669444	France		2015-12-28	m M	Europe	Online	2014-02-15		1001143.46	2517397.6	26
81	425418365	United Arab Emirates			M	Middle East and North Africa	Online	2010-01-18		1212378.75	6253569.63	20
81	756839835	Onited Arab Emirates Romania			m M	Furope	Online	2012-07-00	145629.99	71738.46		24
				2012-02-19							217368.45	- 5
83 84	459386289 101328551	Kuwait Solomon Islands		2011-06-13 2010-12-17	M.	Middle East and North Africa Australia and Oceania	Offline Online	2011-07-21 2010-12-28	736723.64 2123231.5	242960.18 700209.25	979683.82	56
85	642134416				M (Offline	2010-12-28	63469.14	44064.74	2823440.75	36
		Finland		2012-10-09	C H	Europe					107533.88	20
86 87	887124383 222504317	Greece		2015-08-22	H	Europe	Online	2015-10-08	1015812.14	768429.66 70844.62	1784241.8	11
		Belgium	Personal Care			Europe	Online	2011-11-20			231050.71	3
88	633134210	Romania		2015-04-16		Europe	Online	2015-04-18	859236.07	649984.83	1509220.9	11
89	371502530	Israel		2013-09-08	н	Middle East and North Africa	Offline	2013-10-13	149699.11	73742.94	223442.05	=
90	496523940	Ghana		2016-05-29		Sub-Saharan Africa	Offline	2016-06-04	9155.16	3188.43	12343.59	
91	174590194	Slovakia		2016-10-26		Europe	Offline	2016-12-04	126301.67	62217.18	188518.85	
92	438011872	Dominica		2012-06-12		Central America and the Caribbean	Online	2012-07-18	200308.79	98673.66	298982.45	- 3
93	699160754	Rwanda		2012-09-05		Sub-Saharan Africa	Online	2012-09-15	41928.28	14602.19	56530.47	
94	252889239	Thailand		2015-02-04		Asia	Online			251737.2	1856737.89	36
95	830192887	Sri Lanka		2011-11-07		Asia	Online	2011-12-18	9542.68	3323.39	12866.07	
96	925136649	Serbia	Clothes	2016-07-06		Europe	Offline	2016-07-13	263352.32	539637.12	802989.44	
97	824714744	Dominican Republic	Baby Food	2011-08-25		Central America and the Caribbean	Offline	2011-09-24	43681.08	26265.64	69946.72	15
98	572335612	Vanuatu	Cereal	2014-06-20	c	Australia and Oceania	Offline	2014-08-05	665301.91	503279.79	1168581.7	11

GOLD LEVEL TABLE:-

(i) Gold Table 1 (Show aggregated sales by region):-

```
#Table to show sales by region
cloud config= {
with open("architecture-token.json") as f:
    secrets = json.load(f)
CLIENT ID = secrets["clientId"]
CLIENT SECRET = secrets["secret"]
auth_provider = PlainTextAuthProvider(CLIENT ID, CLIENT SECRET)
cluster = Cluster(cloud=cloud config, auth provider=auth provider)
session = cluster.connect()
session.execute("""CREATE TABLE IF NOT EXISTS architecture.sales by region
import pandas as pd
from cassandra.cluster import Cluster
query = """
    FROM architecture.silver
rows = session.execute(query)
```

```
Load the data into a Pandas DataFrame
df = pd.DataFrame(rows)
Aggregate data by Region
aggregated df = df.groupby('region').agg(
    Total Revenue=('total revenue', 'sum'),
    Total Cost=('total cost', 'sum'),
    Total Profit=('total profit', 'sum')
).reset index()
Insert aggregated data into 'sales by region' table
for , row in aggregated df.iterrows():
    insert query = """
Total Cost, Total Profit)
    session.execute(insert query, (row['region'], row['Total Revenue'],
row['Total Cost'], row['Total Profit']))
#Print Data
rows = session.execute("SELECT * FROM architecture.sales by region")
data = [row. asdict() for row in rows]
df = pd.DataFrame(data)
# Print the DataFrame
print(df.to string(index=True))
```

```
region total cost total profit total revenue
0
             Australia and Oceania
                                   7224318.1 3486940.03
                                                           10711258.13
1
                           Europe 23697468.8 11267281.03
                                                            34964749.83
       Middle East and North Africa 18250865.54 6514261.71
                                                            24765127.25
3 Central America and the Caribbean 13318535.25 4252300.17 17570835.42
4
                             Asia 22090915.95 6749896.24 28840812.19
5
                Sub-Saharan Africa 16573545.57 7651891.85 24225437.42
6
                     North America
                                   2207136.0 1404621.52
                                                            3611757.52
```

(ii) Gold Table 2 (Show aggregated sales by item type):-

```
#Table to show sales by item type
cloud config= {
with open("architecture-token.json") as f:
    secrets = json.load(f)
CLIENT ID = secrets["clientId"]
CLIENT SECRET = secrets["secret"]
auth provider = PlainTextAuthProvider(CLIENT ID, CLIENT SECRET)
cluster = Cluster(cloud=cloud config, auth provider=auth provider)
session = cluster.connect()
session.execute("""CREATE TABLE IF NOT EXISTS
architecture.sales by product (
import pandas as pd
from cassandra.cluster import Cluster
query = """
rows = session.execute(query)
```

```
df = pd.DataFrame(rows)
aggregated df = df.groupby('item type').agg(
    Total Units Sold=('units sold', 'sum'),
    Total Revenue=('total revenue', 'sum'),
   Total Cost=('total cost', 'sum'),
   Total Profit=('total profit', 'sum')
).reset index()
for , row in aggregated df.iterrows():
   insert query = """
Total Units Sold, Total Revenue, Total Cost, Total Profit)
    session.execute(insert query, (row['item type'],
row['Total Units Sold'], row['Total Revenue'], row['Total Cost'],
row['Total Profit']))
#Print Data
rows = session.execute("SELECT * FROM architecture.sales by product")
data = [row. asdict() for row in rows]
df = pd.DataFrame(data)
# Print the DataFrame
print(df.to string(index=True))
```

```
total cost total profit total revenue total units sold
         item type
        Household 28966405.6
                                9552677.2
0
                                            38519082.8
                                                                 57640
1
   Office Supplies 22475637.44
                               5405267.5
                                           27880904.94
                                                                 42814
2
        Vegetables
                   669972.24 465141.84
                                           1135114.08
                                                                  7368
3
           Snacks 1400894.88 792747.78
                                           2193642.66
                                                                 14377
4
     Personal Care 2212680.15
                                978467.7
                                           3191147.85
                                                                 39045
5
             Meat 18393869.53 2884996.4 21278865.93
                                                                 50437
                                158867.2
6
           Fruits
                    456166.4
                                             615033.6
                                                                65920
        Beverages 1437098.74
                               707925.96
                                             2145024.7
                                                                 45206
           Cereal 5360827.36 4055295.84
                                                                 45776
8
                                            9416123.2
9
        Cosmetics 17302624.31 11424476.09
                                           28727100.4
                                                                65707
10
        Baby Food 3247704.24 1952859.92
                                           5200564.16
                                                                 20372
11
          Clothes 1438904.32 2948469.12 4387373.44
                                                                 40148
```

(iii) Gold Table 2 (Show aggregated sales by order priority):-

```
#Table to show sales by order priority
cloud_config= {
    'secure_connect_bundle': 'secure-connect-architecture.zip'
}

# This token JSON file is autogenerated when you download your token
with open("architecture-token.json") as f:
    secrets = json.load(f)

CLIENT_ID = secrets["clientId"]
CLIENT_SECRET = secrets["secret"]

auth_provider = PlainTextAuthProvider(CLIENT_ID, CLIENT_SECRET)
cluster = Cluster(cloud=cloud_config, auth_provider=auth_provider)
session = cluster.connect()

session.execute("""CREATE TABLE IF NOT EXISTS
architecture.sales_by_priority (
    Order_Priority TEXT PRIMARY KEY,
    Total_Revenue DECIMAL,
    Total_Cost DECIMAL,
```

```
import pandas as pd
from cassandra.cluster import Cluster
query = """
Total Profit
    FROM architecture.silver
rows = session.execute(query)
Load the data into a Pandas DataFrame
df = pd.DataFrame(rows)
Aggregate data by Order Priority
aggregated df = df.groupby('order priority').agg(
    Total Revenue=('total revenue', 'sum'),
    Total Cost=('total cost', 'sum'),
   Total Profit=('total profit', 'sum')
).reset index()
for , row in aggregated df.iterrows():
    insert query = """
Total Revenue, Total Cost, Total Profit)
    session.execute(insert query, (row['order priority'],
row['Total Revenue'], row['Total Cost'], row['Total Profit']))
#Print Data
rows = session.execute("SELECT * FROM architecture.sales by priority")
data = [row. asdict() for row in rows]
df = pd.DataFrame(data)
```

```
# Print the DataFrame
print(df.to_string(index=True))
```