MSDS 420 Final Project Phase 2 – Design & Development

Requirement 1: (10 Points) **Create** a **table** that has the list of **queries** for the group that you selected from the groups (**Group A, Group B, Group C**) listed in the **Final Project - Requirements Specification.pdf**, and add to it the **3 queries** that your created in **Phase 1** that belong to the group you selected.

Query
How many reviews for asin ID B000FPDHKA received an overall rating of 5?
How many reviews were submitted in January of 2014?
How many reviews received a helpfulness score?
How many products are there in every product subcategory?
How many product subcategories are in the provided datasets?
What is the average review rating of all reviews?
How many unique reviewers?
How many reviews for every product subcategory?
What is the average size (characters/words) of the review text/body?
How many reviews submitted every January for years: 2011, 2012, 2013, 2014?
How many reviews submitted for every product subcategory every May for years: 2011, 2012, 2013, 2014?
What is the average price of every product subcategory that has an average overall rating that is greater than 3?
What are the top 3 reviewed products names in every product subcategory?

Requirement 2: (10 Points) *Which database that you have selected to implement the queries above? What was your* **benchmark-metrics** *for the* **database selected***?*

I have selected PostgreSQL, specifically PGAdmin to conduct the queries in the chart. The benchmark performance metrics used in my selection of PGAdmin were design, response time and query performance. PGAdmin allowed for easy importing of the cleaned data. After cleaning the data using Python, I was able to easily import the data in the necessary tables. When I came across issues, PGAdmin was clear in defining what needed to be addressed to complete upload. Previous assignments solidified my preference for PGAdmin's interface compared to others. PGAdmin is very user friendly, specifically the ability to expand tables to see columns to ensure data is coded correctly. In addition, the ERD Diagram option that provides a visual of the schema. Lastly, PGAdmin's performance is fast and efficient.

Requirement 3: *(10 Points) Use the database you selected above, **design** and **develop** a **database application** (insert the data into the database) to host Amazon datasets (Reviews and Metadata).*

To design and develop a data application within PGAdmin I first had to clean and pre-process the data for import. I used python/jupyter notebook and the pandas library to clean the data.

Cleaning Metadata:

I used pandas to convert the previous csv to an excel and remove the lines with null spaces. I used Microsoft Excel to remove additional commas and quotations that would prevent PGAdmin from importing.

```
[59]: import pandas as pd

      # Read the Excel file into a DataFrame
      df = pd.read_excel('data.xlsx')

      # Display the first few rows of the dataframe
      print(df.head())
```

```
          asin  price                                     imUrl  \
0   0970408285  40.75  http://ecx.images-amazon.com/images/I/41kQjPIF...
1   7301113188    NaN  http://ecx.images-amazon.com/images/I/41EfFOPw...
2   B00002N7HY   2.29  http://ecx.images-amazon.com/images/I/316Y1KbT...
3   B00002NATH   9.13  http://ecx.images-amazon.com/images/I/41srC2QF...
4   B00004SQH9  16.29  http://ecx.images-amazon.com/images/I/41eg0Hvy...

                                         description  \
0   High-pressure hose 90 end & hose washer instal...
1                                               NaN
2   Built of durable thermoplastic, Leviton Power  ...
3   Built of durable thermoplastic, Leviton Power  ...
4   Coleman Cable 3536 14/3 General-Use Appliance ...

                                          categories  \
0   [['Appliances', 'Parts & Accessories', 'Washer...
1       [['Appliances', 'Freezers', 'Chest Freezers']]
2   [['Appliances', 'Parts & Accessories', 'Range  ...
3   [['Appliances', 'Parts & Accessories', 'Range  ...
4   [['Appliances', 'Parts & Accessories', 'Refrig...

                                              title        brand  \
0                                               NaN          NaN
1                                               NaN          NaN
2   Leviton 5050 50 Amp, 125/250 Volt, NEMA 10-50R...      Leviton
3   Leviton 7313 30 Amp, 125 Volt, NEMA Tt-30R, 2P...      Leviton
4   Coleman Cable 3536 14/3 General-Use Appliance ...  Coleman Cable

                                            related salesRank
0                                               NaN       NaN
1                                               NaN       NaN
2   {'also_bought': ['B000BPFZHM', 'B000VU1KC6', '...       NaN
3   {'also_bought': ['B0020UMU66', 'B007HFT034', '...       NaN
4   {'also_bought': ['B000XSNDS0', 'B0022NH420', '...       NaN
```

```
[60]: df1 = df.dropna()
```

```
[61]: print(df1.head())
```

```
          asin  price                                     imUrl  \
8   B00004TBK4   8.54  http://ecx.images-amazon.com/images/I/51qKi62b...
10  B00004TBJT  15.61  http://ecx.images-amazon.com/images/I/51oEVW5w...
13  B00004UE6V  12.74  http://ecx.images-amazon.com/images/I/31K6MMRC...
14  B00004W4UJ  13.95  http://ecx.images-amazon.com/images/I/31Cf6Wj%...
15  B00004W4UK  13.95  http://ecx.images-amazon.com/images/I/31Cf6Wj%...

                                         description  \
8   Springfield has been producing thermometers an...
10  The 90078 Springfield 13.25 inch Thermometer w...
13  Here's a nifty little item for consumers of ca...
14  Heat tamers are made of heavyweight steel to p...
15  Heat tamers are made of heavyweight steel to p...

                                          categories  \
8    [['Appliances', 'Parts & Accessories', 'Humidi...
10   [['Appliances', 'Parts & Accessories', 'Humidi...
13               [['Appliances', 'Trash Compactors']]
14   [['Appliances', 'Parts & Accessories', 'Range  ...
15   [['Appliances', 'Parts & Accessories', 'Range  ...

                                              title        brand  \
8   Springfield 90113-1 Color Track Humidity Meter...  Springfield
10  Springfield 90078 Round 13.25inch Outdoor Ther...  Springfield
13                     Norpro 1305 Can Crusher           Norpro
14  Nordic Ware 8 Inch Heat Tamer and Burner Plate  Nordic Ware
15  Nordic Ware 8 Inch Heat Tamer and Burner Plate  Nordic Ware

                                            related  \
8   {'also_bought': ['B0030SZ4P0', 'B006Z70C0K', '...
10  {'also_bought': ['B000AS22P8', 'B00004TBJI', '...
13  {'also_viewed': ['B000Q6ST3S', 'B002718IE0', '...
14  {'also_bought': ['B000W24RW8', 'B000I1WO8C', '...
15  {'also_bought': ['B000W24RW8', 'B000I1WO8C', '...

                      salesRank
8    {'Home &amp; Kitchen': 17812}
10    {'Home &amp; Kitchen': 5100}
13  {'Industrial & Scientific': 6625}
14       {'Kitchen & Dining': 3723}
15       {'Kitchen & Dining': 3723}
```

```
[63]: df1.to_excel('findata.xlsx', index=False)
```

Cleaning Appliance Review Data:

I attempted this first; it took a bit of trial and error. I encountered encoding issues that were preventing pandas from reading the provided file. I had pandas ignore and replace the values that were causing that error to occur. Then, I went on to clean the data by dropping the null values. Again I used Microsoft excel to remove the unwanted values to make upload to PGAdmin easier.

```python
[34]: import pandas as pd
```

```python
[13]: with open('Amazon_Appliances_Reviews.xls') as f:
          print(f)

      <_io.TextIOWrapper name='Amazon_Appliances_ReviewsCSV.csv' mode='r' encoding='cp1252'>
```

```python
[14]: df=pd.read_csv('Amazon_Appliances_ReviewsCSV.csv', encoding="cp1252")
```

```python
[15]: import pandas as pd

      # Specify the file path
      file_path = 'C:/Users/jamia/MSDS 420/Final Project/Phase 1/Final_Project_Phase_1/Amazon/Amazon_Appliances_ReviewsCSV.csv'

      # Read the CSV file line by line to handle errors
      lines = []
      with open(file_path, 'r', encoding='cp1252', errors='replace') as file:
          for line in file:
              lines.append(line)

      # Convert lines to a single string
      data = ''.join(lines)

      # Read the CSV data into a dataframe
      from io import StringIO
      df1 = pd.read_csv(StringIO(data))

      # Display the first few rows of the dataframe
      print(df.head())
```

```
        reviewer_id     asin_id                   reviewer_name  \
0   A27HOWZBUBJ8FF   970408285                            Steve
1   A24HQ894NFSTF5  7301113188  Maha Saqfalhait shopaholic! ;)
2    AXE83MK90ZEVZ  B00002N7HY                           Strom
3   A2J7X7ZIH2EWB1  B00002NATH                             NaN
4   AJQFNOFTZ7GOX   B00002NATH                       Barthbill

   helpful_numerator  helpful_denominator  \
0                  0                    0
1                  0                    0
2                  0                    0
3                  0                    0
4                  1                    1

                                              review  overall  \
0  Could have been longer though. well made and e...        4
1  I like these containers so much i have ordered...        5
2  It works, no fires, etc.  Why not 5 stars?  Ho...        4
3                      Fast shipping. Works great           5
4  What can I say? It is the usual Leviton high q...        5

                        summary  unix_review_time  review_time
0                      Good fit        1387152000  12 16, 2013
1   I Love the Freezer storage line..  1236902400  03 13, 2009
2          expectations achieved.        1389052800  01 7, 2014
3                    Five Stars        1405814400  07 20, 2014
4     good product at a good price.  1277164800  06 22, 2010
```

```python
[18]: import pandas as pd

      # Read the file with potential encoding issues
      file_path = 'C:/Users/jamia/MSDS 420/Final Project/Phase 1/Final_Project_Phase_1/Amazon/Amazon_Appliances_ReviewsCSV.csv'

      # Open the file with cp1252 encoding and read into pandas
      with open(file_path, 'r', encoding='cp1252', errors='replace') as file:
          df2 = pd.read_csv(file)

      # Display the first few rows of the dataframe
      print(df2.head())
```

```
        reviewer_id     asin_id                   reviewer_name  \
0   A27HOWZBUBJ8FF   970408285                            Steve
1   A24HQ894NFSTF5  7301113188  Maha Saqfalhait shopaholic! ;)
2    AXE83MK90ZEVZ  B00002N7HY                           Strom
3   A2J7X7ZIH2EWB1  B00002NATH                             NaN
4   AJQFNOFTZ7GOX   B00002NATH                       Barthbill

   helpful_numerator  helpful_denominator  \
0                  0                    0
1                  0                    0
2                  0                    0
3                  0                    0
4                  1                    1

                                              review  overall  \
0  Could have been longer though. well made and e...        4
1  I like these containers so much i have ordered...        5
2  It works, no fires, etc.  Why not 5 stars?  Ho...        4
3                      Fast shipping. Works great           5
4  What can I say? It is the usual Leviton high q...        5

                        summary  unix_review_time  review_time
0                      Good fit        1387152000  12 16, 2013
1   I Love the Freezer storage line..  1236902400  03 13, 2009
2          expectations achieved.        1389052800  01 7, 2014
3                    Five Stars        1405814400  07 20, 2014
4     good product at a good price.  1277164800  06 22, 2010
```

```python
[19]: # Specify the file path to save the CSV file
      output_file_path = 'Amazon_App_ReviewsNEW.csv'

      # Save the modified DataFrame to a new CSV file
      df2.to_csv(output_file_path, index=False)
```

```python
[20]: with open('Amazon_App_ReviewsNEW.csv') as f:
          print(f)

      <_io.TextIOWrapper name='Amazon_App_ReviewsNEW.csv' mode='r' encoding='cp1252'>
```

<u>Creating Tables</u>

I then created the database within PGAdmin and populated the tables with the necessary information found in the excel files. Below are the table schemas:
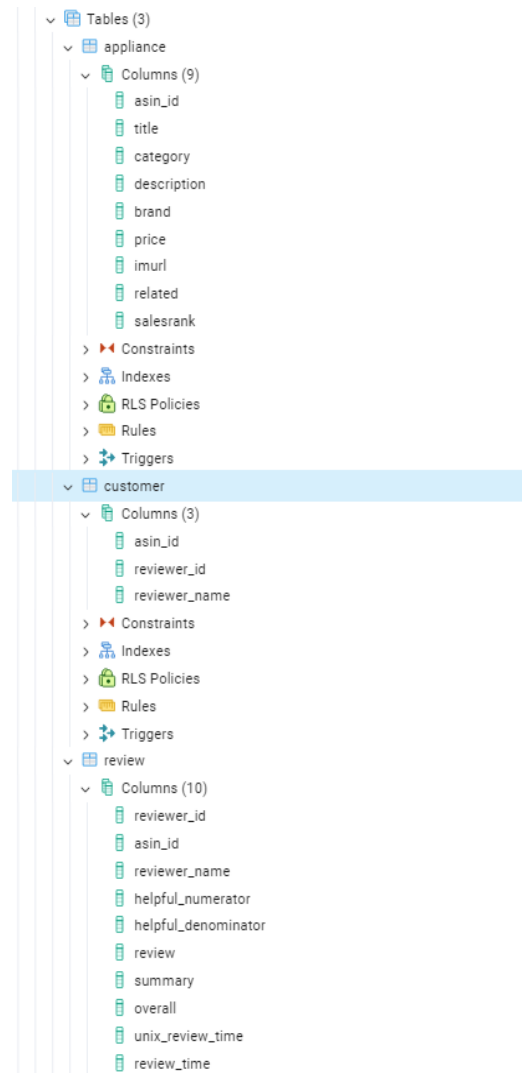
CREATE TABLE Appliance
(asin_id VARCHAR (255) PRIMARY KEY,
 title VARCHAR (255),
 category VARCHAR (255),
 description TEXT,
 brand VARCHAR (255),
 price DECIMAL (10,3),
 imURL TEXT,
 related TEXT,
 salesrank INTEGER);

CREATE TABLE Review (
    reviewer_id VARCHAR(255),
    asin_id VARCHAR(255),
    reviewer_name VARCHAR(255),
    helpful_numerator INT,
    helpful_denominator INT,
    review TEXT,
    summary TEXT,
    overall DECIMAL(2,1) CHECK (overall >= 0 AND overall <= 5),
    unix_review_time BIGINT,
    review_time DATE,
    PRIMARY KEY (asin_id, reviewer_id));

CREATE TABLE Customer
(asin_id VARCHAR (255),
 reviewer_id VARCHAR (255),
 reviewer_name VARCHAR (255),
 PRIMARY KEY (reviewer_id, asin_id));

Lastly, I uploaded the clean data into the appropriate tables in PGAdmin. See below. I pulled the appropriate columns from the review data to create a new dataset to import into the customers table. Unfortunately, I deleted the record below, but they are present in the table as you will see in the queries.

			PID	Type	Server	Object	Start Time ⌄	Status	Time Taken (sec)
☐	✕	🖹	89344	Import Data	PostgreSQL 14 (localhost:5432)	Amazon Reviews and Metadata/public.appli...	5/27/2024, 1:41:09 PM	Finished	0.22
☐	✕	🖹	19676	Import Data	PostgreSQL 14 (localhost:5432)	Amazon Reviews and Metadata/public.custo...	5/27/2024, 11:30:37 AM	Finished	2.14

Requirement 4: *(20 Points)* **Create code** *for the* **queries** *listed in Requirement_1 using the database you selected in Requirement_2. You are allowed to use gpt-3.5-trubo to assist you in the code generation.*

-and-

Requirement 5: *(25 Points)* **Execute** *the* **code** *for every* **query** *you created in Requirement 4.*

Query 1: How many reviews for asin ID B000FPDHKA received an overall rating of 5?

```
1  SELECT COUNT(*)
2  FROM review
3  WHERE ASIN_ID = 'B000FDHKA'
4  AND OVERALL = 5;
5
```

Data Output   Messages   Notifications

count bigint
0

Query 2: How many reviews were submitted in January of 2014?

```
1  SELECT COUNT(*)
2  FROM review
3  WHERE review_time >= '2014-01-01' AND review_time <= '2014-01-30';
4
```

Data Output   Messages   Notifications

count bigint
6538

Query 3: How many reviews received a helpfulness score?

```
1  SELECT COUNT(*)
2  FROM review
3  WHERE helpful_denominator IS NOT NULL;
```

Data Output   Messages   Notifications

count bigint
142968

Query 4: How many products are there in every product subcategory?

The output for this query has 78 rows, it is shown in Panopto video

```
Query   Query History
1   SELECT
2       category AS product_subcategory,
3       COUNT(asin_id) AS product_count
4   FROM
5       Appliance
6   GROUP BY
7       category;
8
```

Data Output   Messages   Notifications

product_subcategory character varying (255)	product_count bigint
1	[[Appliances Parts & Accessories Range Parts & Accessories Knobs]]	7
2	[[Appliances Parts & Accessories Dryer Parts & Accessories Plug Receptacles]]	3
3	[[Appliances Appliance Services]]	1
4	[[Appliances Parts & Accessories Humidifier Parts & Accessories Replacement Wick…	44
5	[[Appliances Parts & Accessories Washer Parts & Accessories Drain Pumps]]	3
6	[[Appliances Parts & Accessories Humidifier Parts & Accessories Humidity Meters]]	42
7	[[Appliances Range Hoods]]	13
8	[[Appliances Beverage Refrigerators]]	3
9	[[Appliances Parts & Accessories Range Parts & Accessories Paneling]]	3
10	[[Appliances Parts & Accessories Wine Cellar Parts & Accessories]]	4
11	[[Appliances Parts & Accessories Refrigerator Parts & Accessories]]	40
12	[[Appliances Washers & Dryers Washers]]	2
13	[[Appliances Parts & Accessories Trash Compactor Parts & Accessories]]	1
14	[[Appliances Parts & Accessories Dishwasher Parts & Accessories]]	10
15	[[Appliances Parts & Accessories Range Parts & Accessories Burners]]	2
16	[[Appliances Parts & Accessories Freezer Parts & Accessories Ice Maker Parts]]	8
17	[[Appliances Parts & Accessories Range Hood Parts & Accessories]]	5
18	[[Appliances Parts & Accessories Range Parts & Accessories Drip Pans]]	3
19	[[Appliances Parts & Accessories Humidifier Parts & Accessories]]	27
20	[[Appliances Washers & Dryers All-in-One Combination Washers & Dryers]]	1
21	[[Appliances Warming Drawers]]	4
22	[[Appliances Parts & Accessories Range Parts & Accessories Burner Rings]]	4
23	[[Appliances Parts & Accessories Refrigerator Parts & Accessories Doors]]	1
24	[[Appliances Parts & Accessories Range Parts & Accessories Plug Receptacles]]	2
25	[[Appliances Dishwashers]]	3
26	[[Appliances Parts & Accessories Washer Parts & Accessories]]	10
27	[[Appliances Parts & Accessories Range Parts & Accessories Power Cords]]	2
28	[[Appliances Parts & Accessories Range Hood Parts & Accessories Blowers]]	2
29	[[Appliances Parts & Accessories Refrigerator Parts & Accessories Water Filters]]	105

Query 5: How many product subcategories are in the provided datasets?

```
Query   Query History
1   SELECT COUNT(DISTINCT category) AS categories_
2   FROM Appliance;
3
```

Data Output   Messages   Notifications

categories_ bigint
1	78

Query 6: What is the average review rating of all reviews?

```
1  SELECT AVG(overall) AS avg_rate
2  FROM Review;
3
```

Data Output   Messages   Notifications

avg_rate numeric
4.0836201107940238

Query 7: How many unique reviewers?

Query   Query History

```
1  SELECT COUNT(DISTINCT reviewer_id) AS Unique_Reviewers
2  FROM Review;
3
```

Data Output   Messages   Notifications

unique_reviewers bigint
131376

Query 8: How many reviews for every product subcategory?
The output for this query has 78 rows, it is shown in Panopto video

```
1  SELECT
2      appliance.category AS subcategory,
3      COUNT(review.asin_id) AS review
4  FROM
5      appliance
6  LEFT JOIN
7      review ON appliance.asin_id = review.asin_id
8  GROUP BY
9      appliance.category;
```

Data Output   Messages   Notifications

	subcategory character varying (255)	review bigint
1	[[Appliances Parts & Accessories Range Parts & Accessories Knobs]]	33
2	[[Appliances Parts & Accessories Dryer Parts & Accessories Plug Receptacles]]	10
3	[[Appliances Appliance Services]]	3
4	[[Appliances Parts & Accessories Humidifier Parts & Accessories Replacement Wick...]	839
5	[[Appliances Parts & Accessories Washer Parts & Accessories Drain Pumps]]	50
6	[[Appliances Parts & Accessories Humidifier Parts & Accessories Humidity Meters]]	1998
7	[[Appliances Range Hoods]]	44
8	[[Appliances Beverage Refrigerators]]	65
9	[[Appliances Parts & Accessories Range Parts & Accessories Paneling]]	1668
10	[[Appliances Parts & Accessories Wine Cellar Parts & Accessories]]	19

Query 9: What is the average size (characters/words) of the review text/body?

```
1  SELECT AVG(LENGTH(review.review)) AS Avg_Review_Length
2  FROM Review;
3
```

Data Output   Messages   Notifications

	avg_review_length numeric
1	385.2724614771240916

Query 10: How many reviews submitted every January for years: 2011, 2012, 2013, 2014?

Query   Query History

```
1  SELECT EXTRACT(YEAR FROM review_time) AS year_, EXTRACT(MONTH FROM review_time) AS month_, COUNT(*) AS count_
2  FROM review
3  WHERE EXTRACT(YEAR FROM review_time) >= 2011
4    AND EXTRACT(YEAR FROM review_time) <= 2014
5    AND EXTRACT(MONTH FROM review_time) = 1
6  GROUP BY EXTRACT(MONTH FROM review_time), EXTRACT(YEAR FROM review_time)
7  ORDER BY month_, year_;                          YEAR
8
```

Data Output   Messages   Notifications

	year_ numeric	month_ numeric	count_ bigint
1	2011	1	868
2	2012	1	1635
3	2013	1	4973
4	2014	1	6741

Query 11: How many reviews submitted for every product subcategory every May for years: 2011, 2012, 2013, 2014?

The output for this query has 135 rows, it is shown in Panopto video

Query   Query History

```
1  SELECT category, EXTRACT(YEAR FROM review_time) AS year, COUNT(*) AS count_
2  FROM review
3  JOIN appliance on appliance.asin_id = review.asin_id
4  WHERE EXTRACT(YEAR FROM review_time) IN (2011, 2012, 2013, 2014)
5    AND EXTRACT(MONTH FROM review_time) = 5
6  GROUP BY category, EXTRACT(YEAR FROM review_time)
7  ORDER BY category, year ASC;
8
```

Data Output   Messages   Notifications

	category character varying (255)	year numeric	count_ bigint
1	[[Appliances Beer Keg Refrigerators]]	2012	1
2	[[Appliances Beer Keg Refrigerators]]	2013	2
3	[[Appliances Beverage Refrigerators]]	2011	1
4	[[Appliances Beverage Refrigerators]]	2012	4
5	[[Appliances Beverage Refrigerators]]	2013	1
6	[[Appliances Beverage Refrigerators]]	2014	1
7	[[Appliances Cooktops]]	2011	2
8	[[Appliances Cooktops]]	2012	1
9	[[Appliances Cooktops]]	2013	5
10	[[Appliances Cooktops]]	2014	3

Query 12: What is the average price of every product subcategory that has an average overall rating that is greater than 3?

The output for this query has 75 rows, it is shown in Panopto video

Query   Query History

```sql
1   SELECT
2       appliance.category AS subcategory,
3       AVG(appliance.price::numeric) AS average_price
4   FROM
5       Appliance
6   JOIN
7       Review ON appliance.asin_id = review.asin_id
8   WHERE
9       review.overall > 3
10  GROUP BY
11      appliance.category
12  ORDER BY
13      appliance.category;
14
```

Data Output   Messages   Notifications

subcategory character varying (255)	average_price numeric
[[Appliances Appliance Services]]	6.1800000000000
[[Appliances Beer Keg Refrigerators]]	210.5235714285714
[[Appliances Beverage Refrigerators]]	442.4281818181818
[[Appliances Cooktops]]	196.4168085106382
[[Appliances Dishwashers]]	408.0100000000000
[[Appliances Freezers Chest Freezers]]	322.7172727272727
[[Appliances Ice Makers]]	167.8959016393442
[[Appliances Parts & Accessories Cooktop Parts & Accessories]]	44.8139705882352
[[Appliances Parts & Accessories Dishwasher Parts & Accessories Baskets]]	37.8650000000000
[[Appliances Parts & Accessories Dishwasher Parts & Accessories Door Springs]]	19.9500000000000
[[Appliances Parts & Accessories Dishwasher Parts & Accessories Panels]]	54.7700000000000
[[Appliances Parts & Accessories Dishwasher Parts & Accessories Racks]]	48.3072591006423
[[Appliances Parts & Accessories Dishwasher Parts & Accessories Trim Kits]]	17.6161904761904
[[Appliances Parts & Accessories Dishwasher Parts & Accessories]]	6.6182234957020
[[Appliances Parts & Accessories Dryer Parts & Accessories Lint Screens]]	17.3765060240963
[[Appliances Parts & Accessories Dryer Parts & Accessories Plug Receptacles]]	15.7122222222222
[[Appliances Parts & Accessories Dryer Parts & Accessories Power Cords]]	21.2600000000000
[[Appliances Parts & Accessories Dryer Parts & Accessories Vents]]	16.5035820895522
[[Appliances Parts & Accessories Dryer Parts & Accessories]]	43.7279565217391
[[Appliances Parts & Accessories Fasteners]]	4.4000000000000
[[Appliances Parts & Accessories Food Waste Disposer Parts & Accessories]]	79.9900000000000
[[Appliances Parts & Accessories Freezer Parts & Accessories Ice Maker Parts]]	61.7478260869565

Query 13: What are the top 3 reviewed products names in every product subcategory?

The output for this query has 186 rows, it is shown in Panopto video

```
1   SELECT
2       category,
3       title,
4       review_count AS reviews_
5   FROM (
6       SELECT
7           a.category,
8           a.title,
9           COUNT(r.asin_id) AS review_count,
10          ROW_NUMBER() OVER (PARTITION BY a.category ORDER BY COUNT(r.asin_id) DESC) AS rank
11      FROM
12          Appliance a
13      JOIN
14          Review r ON a.asin_id = r.asin_id
15      GROUP BY
16          a.category, a.title
17  ) ranked
18  WHERE rank <= 3
19  ORDER BY category, rank;
20
```

Data Output | Messages | Notifications

category character varying (255)	title character varying (255)	reviews_ bigint
1	[[Appliances Appliance Services]]	Kirby Rug Renovator/Carpet Shampooer Belt Number on belt 301289 Fits: all Kirby Rug Renovator Carpet S...	3
2	[[Appliances Beer Keg Refrigerators]]	Avanti 1.7-Cubic Foot Beer Dispenser Black W/Platinum Finish Door	18
3	[[Appliances Beer Keg Refrigerators]]	HS-185C 5.0 cu. ft. Chest Freezer	7
4	[[Appliances Beer Keg Refrigerators]]	Tail Piece Chrome Plated Brass 3/16"	1
5	[[Appliances Beverage Refrigerators]]	Avanti BCA31SS Beverage Center (BCA31SS)	29
6	[[Appliances Beverage Refrigerators]]	Danby DBC514BLS 5.3 Cu. Ft. Silhouette Beverage Center - Black/Stainless	22
7	[[Appliances Beverage Refrigerators]]	Avanti : WC1500DSS 15 Built-Avanti : WC1500DSS 15 Built-in Wine Cooler with 30-Bottle Capacity	14
8	[[Appliances Cooktops]]	Broil King CSR-3TB Professional Single Hot Plate Hi Power 14-Inch by 4-1/8-Inch by 12-1/4-Inch Grey	84
9	[[Appliances Cooktops]]	Cooktop Single Induction 1600-Watt/120-Volt	22
10	[[Appliances Cooktops]]	11.5" Induction Cooktop	8
11	[[Appliances Dishwashers]]	SPT SD-9241W 18" Portable Dishwasher in White	5
12	[[Appliances Dishwashers]]	Hamilton Beach 97500 Commercial Glass Washer Black	3
13	[[Appliances Dishwashers]]	Magic Chef Mcscd6W1 Countertop Dishwasher	1
14	[[Appliances Freezers Chest Freezers]]	GE FCM5SUWW 5.0 cu. Ft. Chest Freezer - White	19
15	[[Appliances Freezers Chest Freezers]]	GE FCM7SUWW 7.0 Cu. Ft. White Chest Freezer	10
16	[[Appliances Ice Makers]]	Polar PIM10BLS Stainless Steel Portable Ice Maker	48
17	[[Appliances Ice Makers]]	MaxiMatic MIM-5802 Mr Freeze Portable Ice Maker Stainless Steel	35
18	[[Appliances Ice Makers]]	Oster OSIM22SV 27-Pound Portable Ice Maker	30
19	[[Appliances Parts & Accessories Cooktop Parts & Accessories]]	Anolon Nouvelle Copper Stainless Steel 4-Quart Covered Casserole	75

Total rows: 186 of 186   Query complete 00:00:00.700

Requirement 6: *(25 Points) Provide and **record** a **live run** with a walkthrough that demonstrates the **correctness** of the **output** produced for every **query** that you executed in Requirement 5.*

Link to video:

https://northwestern.hosted.panopto.com/Panopto/Pages/Viewer.aspx?id=ea880d88-a555-4763-b9e0-b17e0123c21a