

June 2020

Category review: Chips

Retail Analytics



Classification: Confidential



Our 17 year history assures best practice in privacy, security and the ethical use of data

We all have a responsibility to use data for good

Privacy

- We have built our business based on privacy by design principles for the past 17 years
- Quantum has strict protocols around the receipt and storage of personal information
- All information is de-identified using an irreversible tokenisation process with no ability to re-identify individuals.

Security

- We are ISO27001 certified - internationally recognised for our ability to uphold best practice standards across information security
- We use 'bank grade' security to store and process our data
- Comply with 200+ security requirements from NAB, Woolworths and other data partners
- All partner data is held in separate restricted environments
- All access to partner data is limited to essential staff only
- Security environment and processes regularly audited by our data partners.

Ethical use of data

Applies to all facets of our work, from the initiatives we take on, the information we use and how our solutions impact individuals, organisations and society.

Quantum believes in using data for progress, with great care and responsibility. As such please respect the commercial in confidence nature of this document.

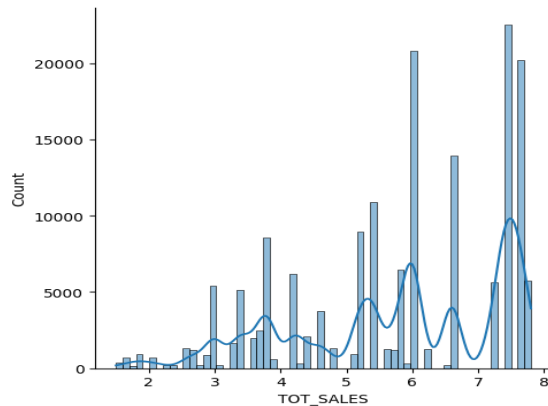
Executive summary

01

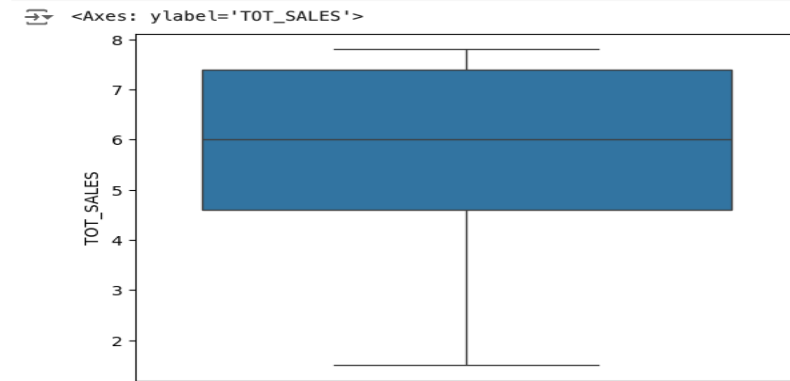
Task 1 Here, the tasks accomplished were checking for data types, checking for null values, and outlier detection. After checking for data types and null values, there is no detection of outliers.

```
1 sns.displot(x.TOT_SALES,kde=True)
2 #from 1-8, there is no evidence of having outliers as there are multiple values being located
```

<seaborn.axisgrid.FacetGrid at 0x7f8dcd240610>



```
1 sns.boxplot(x.TOT_SALES)
2 #there are no outliers in the dataset
```



02

Task 2 Here, the tasks accomplished were to calculate total sales, total number of customers, and average number of transactions per customer

```
[ ] 1 #we calculate total sales
    2 total_sales=sum(data['TOT_SALES'])
    3 print(total_sales)
```

1933114.9999996515

```
1 #total number of customers=241584
2 data.describe()
```

	LYLTY_CARD_NBR	STORE_NBR	TXN_ID	PROD_NBR	PROD_QTY	TOT_SALES	PACK_SIZE
count	2.648340e+05	264834.000000	2.648340e+05	264834.000000	264834.000000	264834.000000	264834.000000
mean	1.355488e+05	135.079423	1.351576e+05	56.583554	1.905813	7.299346	182.425512
std	8.057990e+04	76.784063	7.813292e+04	32.826444	0.343436	2.527241	64.325148
min	1.000000e+03	1.000000	1.000000e+00	1.000000	1.000000	1.500000	70.000000
25%	7.002100e+04	70.000000	6.760050e+04	28.000000	2.000000	5.400000	150.000000
50%	1.303570e+05	130.000000	1.351365e+05	56.000000	2.000000	7.400000	170.000000
75%	2.030940e+05	203.000000	2.026998e+05	85.000000	2.000000	9.200000	175.000000
max	2.373711e+06	272.000000	2.415841e+06	114.000000	5.000000	29.500000	380.000000

average number of transactions per customer

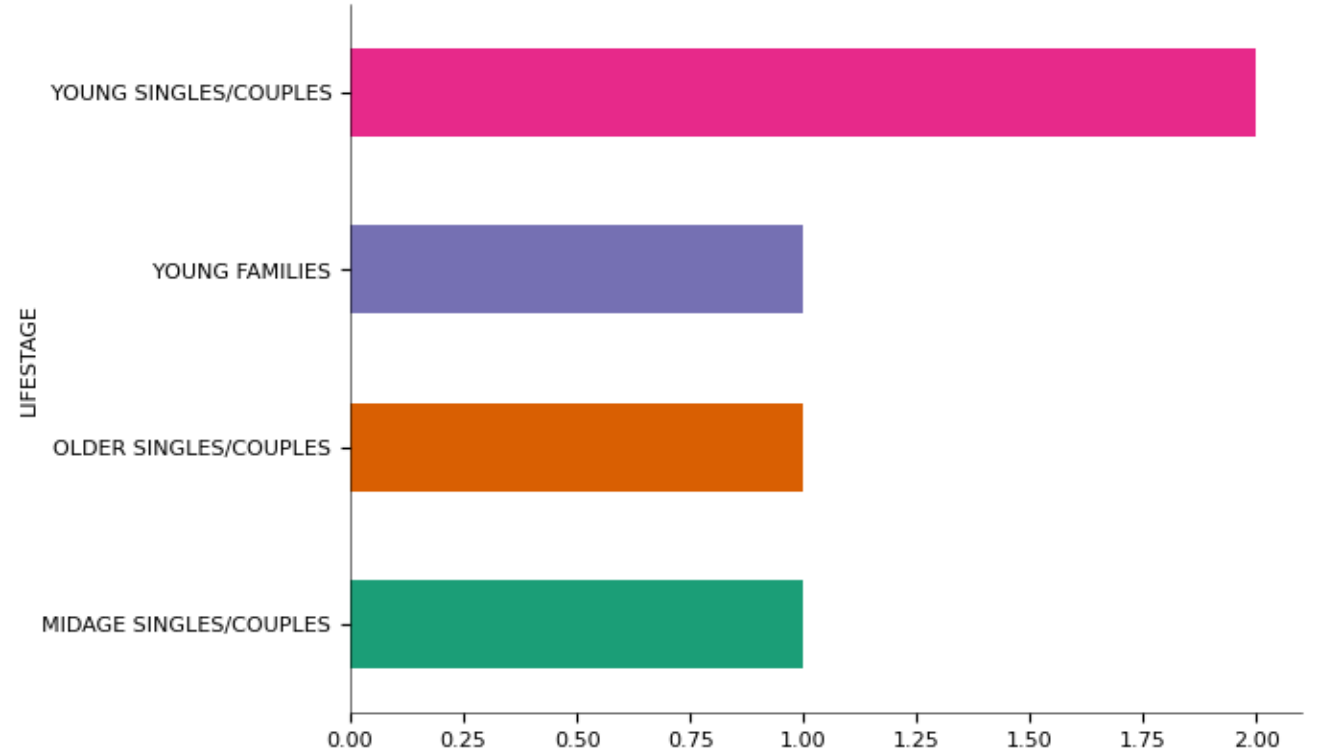
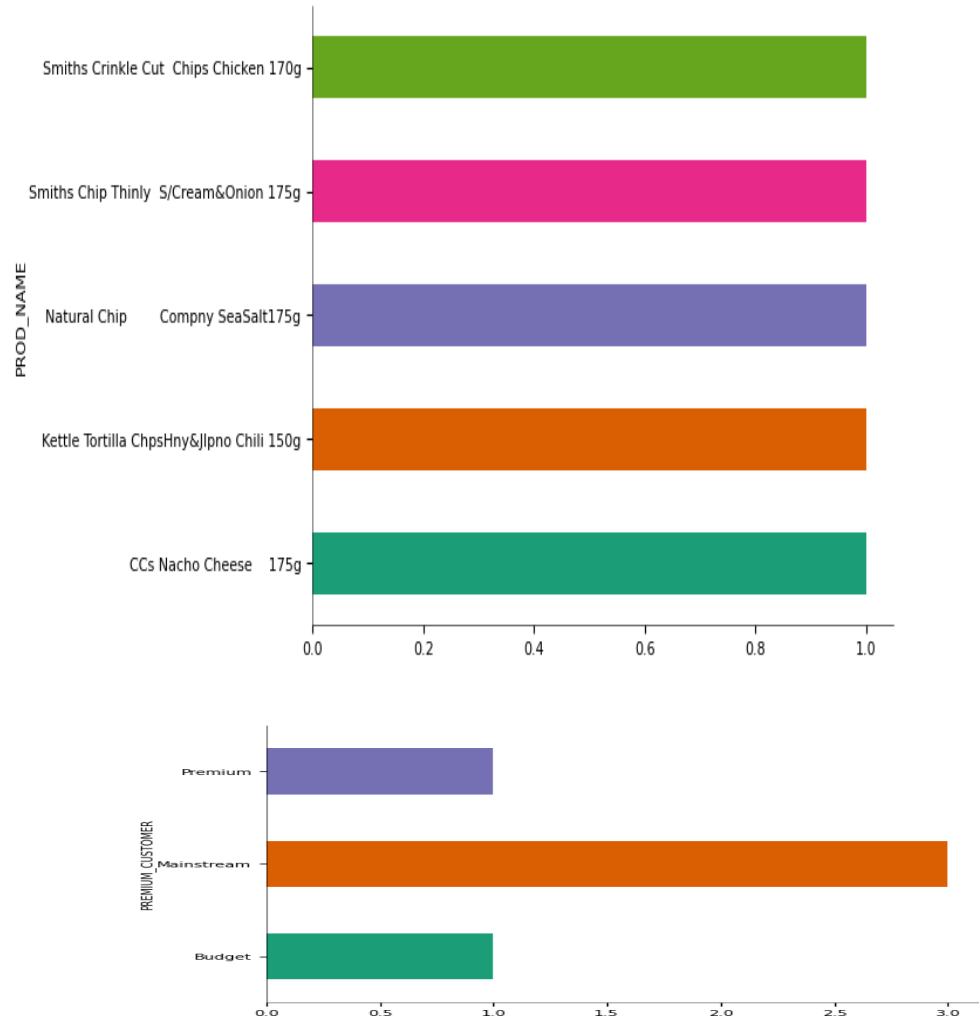
```
[ ] 1 total_customers=241584
    2 transactions=264834
    3 avg_transactions=total_customers/transactions
    4 print(avg_transactions)
```

0.9122091574344684

01

Category

Overview:



Affluence and its effect on consumer buying for the category of chips

Analysis of Affluence

1. Premium Customers:

1. Premium customers are likely to purchase higher-priced items or larger quantities, leading to higher total sales per transaction.
2. Premium brands like "Natural Chip Compny" are more prevalent among Premium customers.

2. Mainstream and Budget Customers:

1. Mainstream and Budget customers might prefer lower-priced items or smaller pack sizes, resulting in lower total sales per transaction.
2. Mainstream brands like "RRD" and Budget brands like "Grain Waves" are more common among these segments.

3. Brand Preference and Pack Size:

1. Affluent customers (Premium) tend to buy more premium brands and possibly larger pack sizes.
2. Non-premium customers (Mainstream and Budget) might opt for more affordable brands and smaller pack sizes.

4. Lifestage Influence:

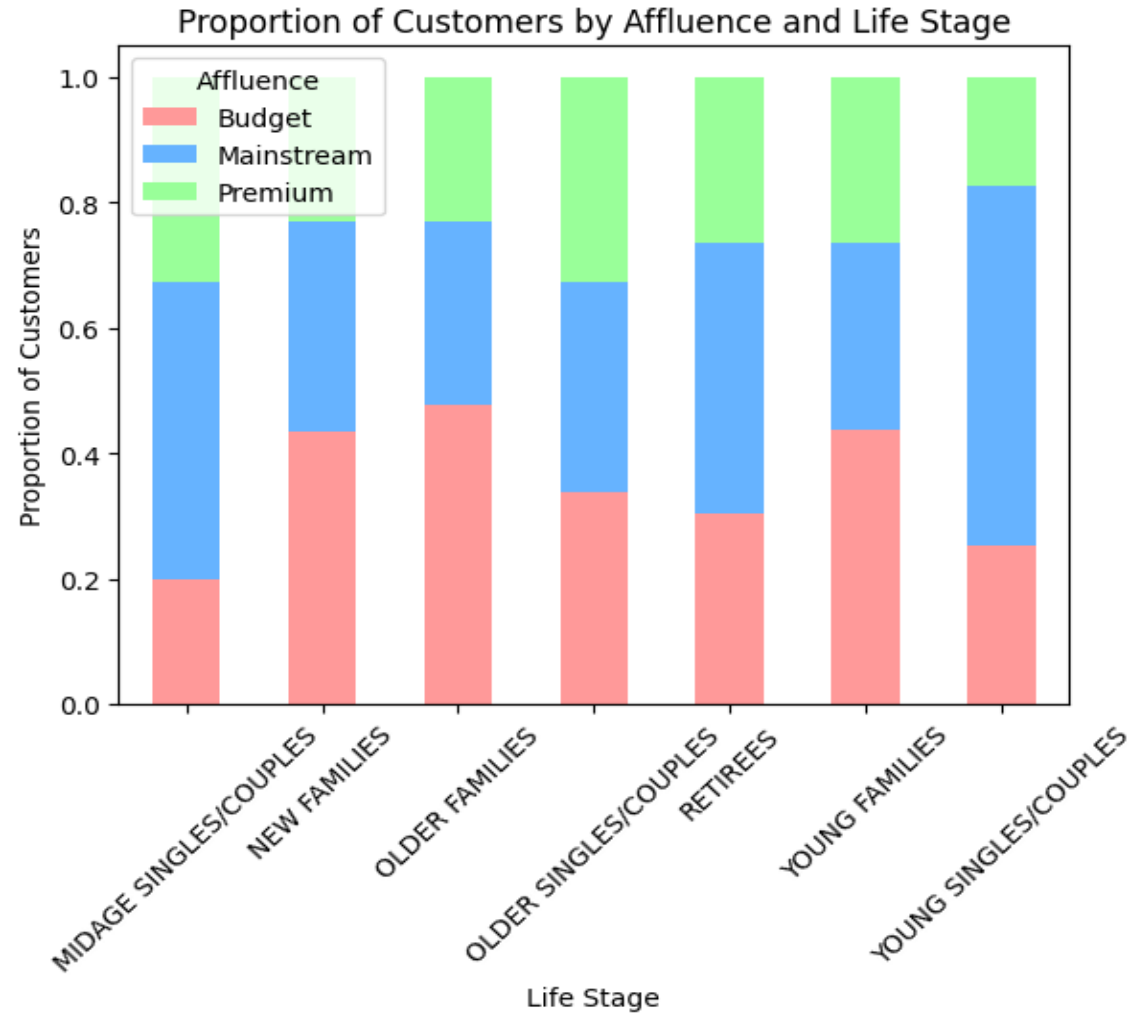
1. Young Singles/Couples: Likely to spend on convenience and variety, reflected in purchases of different brands and pack sizes.
2. Young Families: Might focus on budget-friendly options due to family expenses, hence showing higher Budget category purchases.
3. Older Singles/Couples: Could exhibit varied purchasing behavior, balancing between premium and mainstream products.

Conclusion

Affluence significantly impacts consumer buying behavior for chips. Premium customers, indicative of higher affluence, tend to spend more on premium brands and larger pack sizes, leading to higher total sales per transaction. In contrast, mainstream and budget customers are more price-sensitive, opting for affordable brands and smaller pack sizes. Additionally, the lifestage of consumers further influences purchasing patterns, with younger singles/couples and families exhibiting distinct preferences aligned with their life circumstances.

This analysis highlights the importance of targeting strategies for retailers and brands, aiming premium products and larger pack sizes at affluent segments while offering value-for-money options to mainstream and budget-conscious consumers.

Visualising the proportion of customers by affluence and life stage



The graph indicates that affluence significantly varies across different life stages. Premium customers are more prevalent among singles and older demographics, whereas Budget customers are more common among families, particularly younger ones. Mainstream customers are relatively evenly distributed but are particularly dominant among older and retired individuals.

This insight can be valuable for targeted marketing and product positioning strategies, helping brands and retailers cater to the specific needs and preferences of different customer segments based on their life stage and affluence level.

02

Trial store performance

Explanation of the control store vs other stores

By analyzing

- total sales,
- average transactional value,
- total product quantity, and
- customer Distribution by Affluence and Life Stage

We can consider control store vs other stores.

Call out of the performance in the trial store, determining if it was successful

```
[ ] 1 #we calculate total sales
    2 total_sales=sum(data['TOT_SALES'])
    3 print(total_sales)
```

➞ 1933114.9999996515

average number of transactions per customer

```
[ ] 1 total_customers=241584
    2 transactions=264834
    3 avg_transactions=total_customers/transactions
    4 print(avg_transactions)
```

➞ 0.9122091574344684

```
1 #total number of customers=241584
2 data.describe()
```

	LYLTY_CARD_NBR	STORE_NBR	TXN_ID	PROD_NBR	PROD_QTY	TOT_SALES	PACK_SIZE
count	2.648340e+05	264834.000000	2.648340e+05	264834.000000	264834.000000	264834.000000	264834.000000
mean	1.355488e+05	135.079423	1.351576e+05	56.583554	1.905813	7.299346	182.425512
std	8.057990e+04	76.784063	7.813292e+04	32.826444	0.343436	2.527241	64.325148
min	1.000000e+03	1.000000	1.000000e+00	1.000000	1.000000	1.500000	70.000000
25%	7.002100e+04	70.000000	6.760050e+04	28.000000	2.000000	5.400000	150.000000
50%	1.303570e+05	130.000000	1.351365e+05	56.000000	2.000000	7.400000	170.000000
75%	2.030940e+05	203.000000	2.026998e+05	85.000000	2.000000	9.200000	175.000000
max	2.373711e+06	272.000000	2.415841e+06	114.000000	5.000000	29.500000	380.000000



Disclaimer: This document comprises, and is the subject of intellectual property (including copyright) and confidentiality rights of one or multiple owners, including The Quantum Group Pty Limited and its affiliates (**Quantium**) and where applicable, its third-party data owners (**Data Providers**), together (**IP Owners**). The information contained in this document may have been prepared using raw data owned by the Data Providers. The Data Providers have not been involved in the analysis of the raw data, the preparation of, or the information contained in the document. The IP Owners do not make any representation (express or implied), nor give any guarantee or warranty in relation to the accuracy, completeness or appropriateness of the raw data, nor the analysis contained in this document. None of the IP Owners will have any liability for any use or disclosure by the recipient of any information contained in, or derived from this document. To the maximum extent permitted by law, the IP Owners expressly disclaim, take no responsibility for and have no liability for the preparation, contents, accuracy or completeness of this document, nor the analysis on which it is based. This document is provided in confidence, may only be used for the purpose provided, and may not be copied, reproduced, distributed, disclosed or made available to a third party in any way except strictly in accordance with the applicable written terms and conditions between you and Quantum, or otherwise with Quantum's prior written permission