

# MYANMAR SUPERMARKET

## RETAIL ANALYSIS

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# BUSINESS OBJECTIVE

As a business we wanted to better understand our shoppers across the 3 major branches in Myanmar by determining:

- 1) the highest spending profile and
- 2) their spending habits

These insights will help us drive sales revenue.



# HYPOTHESES



**Denser cities have higher rate of sales**

**Cash is KING!**

**Members are bigger spenders than normal consumers across all product lines**



# DATA ACQUISITION, ENRICHMENT, AND EXAMINATION

## Data Sources:

- 1) **Kaggle** ([Link](#)) for the supermarket data
- 2) **Web scraping** from Worldometer for the population data

```
[99]: city = [i.get_text() for i in city_element]
city
['Myingyan',
'Dawei',
'Pyay',
'Hinthada',
'Lashio',
'Pakokku',
'Thaton',
'Pyin Oo Lwin',
'Yenangyaung',
'Taungoo',
'Thayetmyo',
'Pyinmana',
'Magway',
'Myitkyina',
'Chauk',
'Mogok',
'Nyaunglebin',
'Mudon',
'Shuaha']

[103]: city_population = soup.find_all("td", style = " font-size:17px; text-align:left; padding-left:10px; padding-top:5px; padding-bottom:5px")
population = [i.getText() for i in city_population]
population
['4,477,638', ***]

[107]: df = pd.DataFrame ({"City":city, "Population":population})
df

[107]:
   City  Population
0    Yangon     4,477,638
1  Mandalay     1,208,099
2   Nay Pyi Taw      925,000
3  Mawlamyine      438,861
4  Kyain Seikgyi Township      246,065
...        ...
62   Letpandan      38,936
63   Thanatpin      38,059
64    Paungde      36,971
65     Hakha      20,000
66     Loikaw      17,293
```

67 rows x 2 columns

## Main Cities by Population in Myanmar

(includes boroughs, districts, urban agglomerations, etc.)

#	CITY NAME	POPULATION
1	<b>Yangon</b>	4,477,638
2	<b>Mandalay</b>	1,208,099
3	<b>Nay Pyi Taw</b>	925,000
4	<b>Mawlamyine</b>	438,861
5	<b>Kyain Seikgyi Township</b>	246,065
6	<b>Bago</b>	244,376
7	<b>Pathein</b>	237,089
8	<b>Monywa</b>	182,011
9	<b>Sittwe</b>	177,743
10	<b>Meiktila</b>	177,442
11	<b>Myeik</b>	173,298
12	<b>Keng Tung</b>	171,620
13	<b>Taunggyi</b>	160,115
14	<b>Myingyan</b>	141,713
15	<b>Dawei</b>	136,783
16	<b>Pyay</b>	135,308



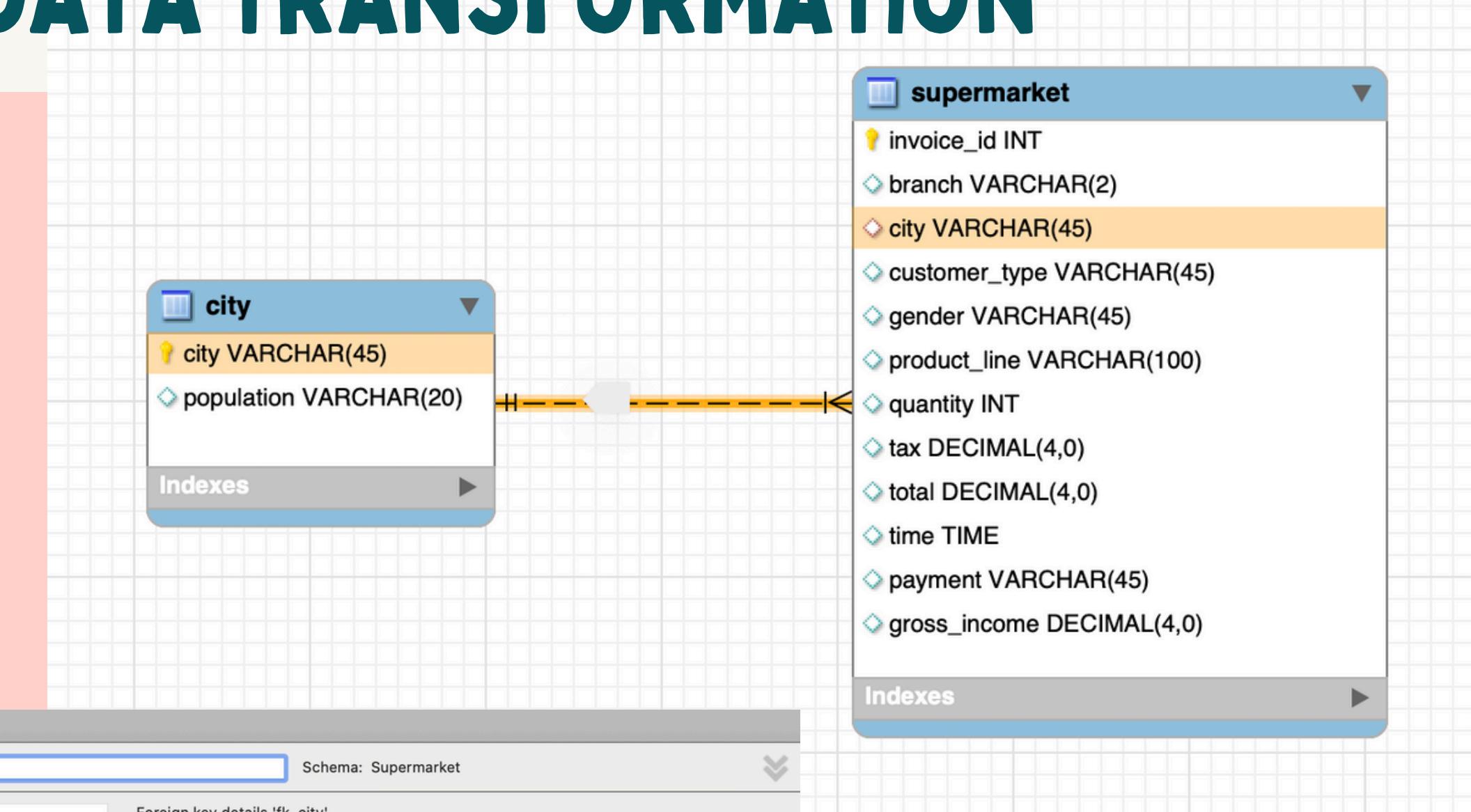
# DATABASE DESIGN & DATA TRANSFORMATION

## Manipulating the data:

1. Building the schema
  - a. Parent: City data
  - b. Child: Supermarket data
2. Creation of the foreign key
  - a. City was the foreign key
3. Importing the data
  - a. cleaned the data
  - b. ended up dropping columns (COGS, date, rating, etc.)

The screenshot shows a database interface with the following details:

- Table:** supermarket
- Schema:** Supermarket
- Foreign Key:** fk\_city
- Referenced Table:** `Supermarket`.`city`
- Column:** city
- On Update:** RESTRICT
- On Delete:** RESTRICT



# SQL INSIGHTS & ANALYSIS

## Manipulating the data:

- Generated the queries
- Created views to export the data as CSV files
- Generated graphs within Python

```
1 • USE Supermarket;
2
3 • CREATE VIEW rate_of_sales AS
4   select city, count(invoice_id), sum(total) AS total_spend, round(100000*sum(total)/city.population,2) AS rate_of_sales
5   from supermarket
6   inner join city
7   using (city)
8   group by city
9   order by sum(total) desc;
10
11
12 • CREATE VIEW payment_type AS
13   SELECT
14     payment,
15     SUM(total) AS total_spend,
16     (SUM(total) / (SELECT SUM(total) FROM supermarket) * 100) AS percentage_of_total
17   FROM
18     supermarket
19   GROUP BY
20     payment;
21
22 • CREATE VIEW payment_type_city AS
23   SELECT
24     city,
25     payment,
26     SUM(total) AS total_spend,
27     (SUM(total) / (SELECT SUM(total) FROM supermarket WHERE city = s.city) * 100) AS percentage_of_total
28   FROM
29     supermarket s
30   GROUP BY
31     city,
```

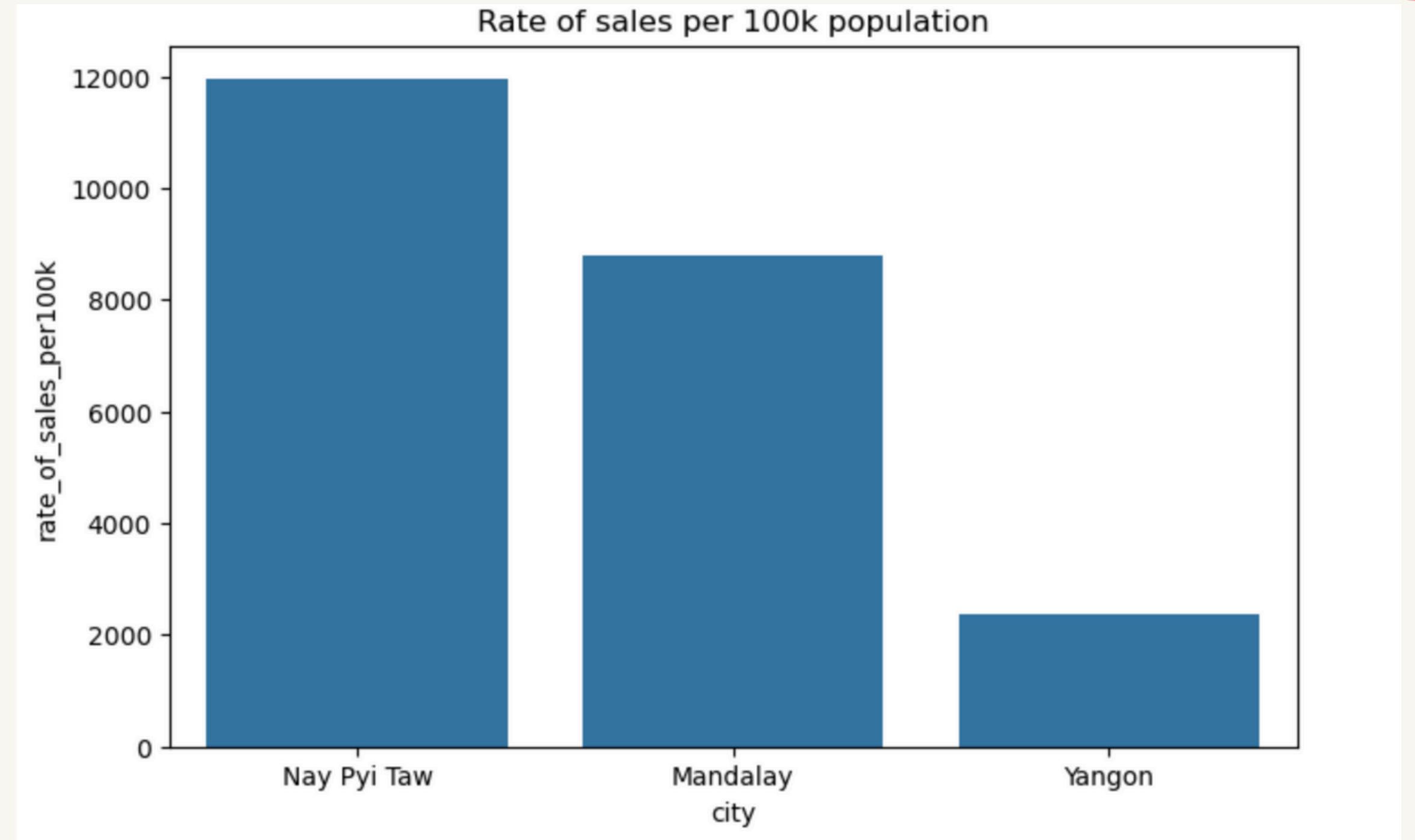
# DENSER CITIES HAVE HIGHER RATE OF SALES

## RATE OF SALES PER 100K

Rate of Sales is highest in Yangon, the lowest populated city.

Yangon	4,477638
Mandalay	1,208099
Nay Pyi Taw	925,000

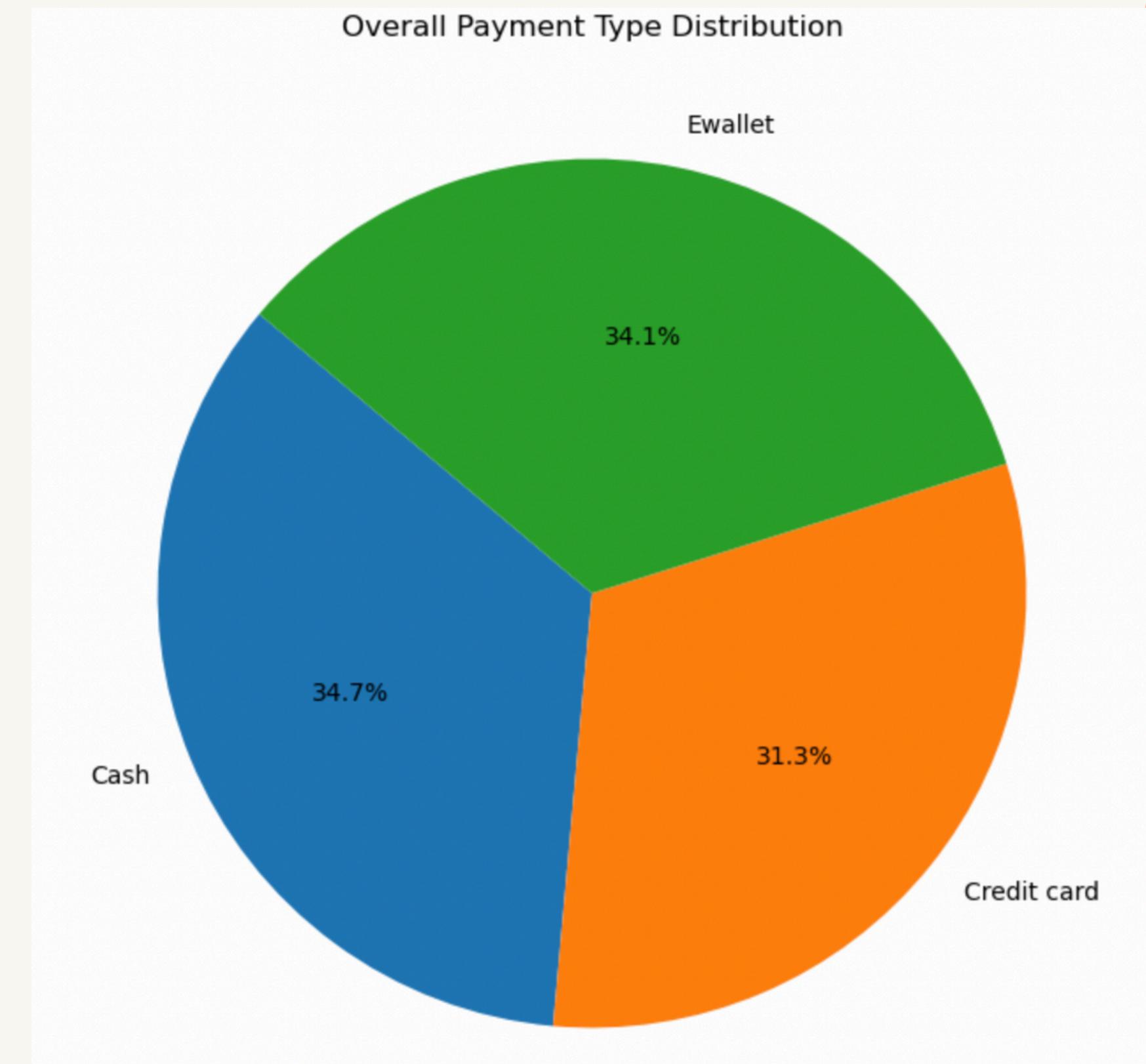
source: [worldometers.info](http://worldometers.info)



# CASH IS KING!

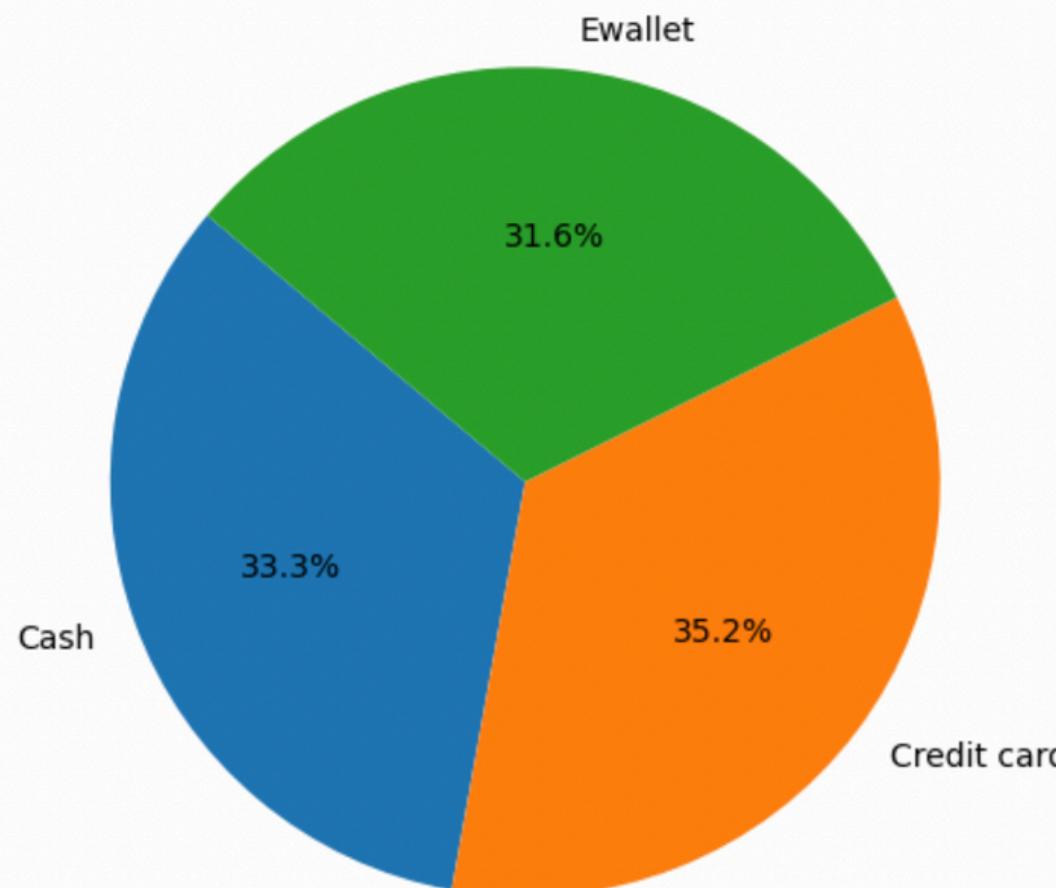
Overall...CASH IS KING, but only marginally!

1. Cash @ 34.7%
2. E-wallet @ 34.1%
3. Credit card @ 31.3%

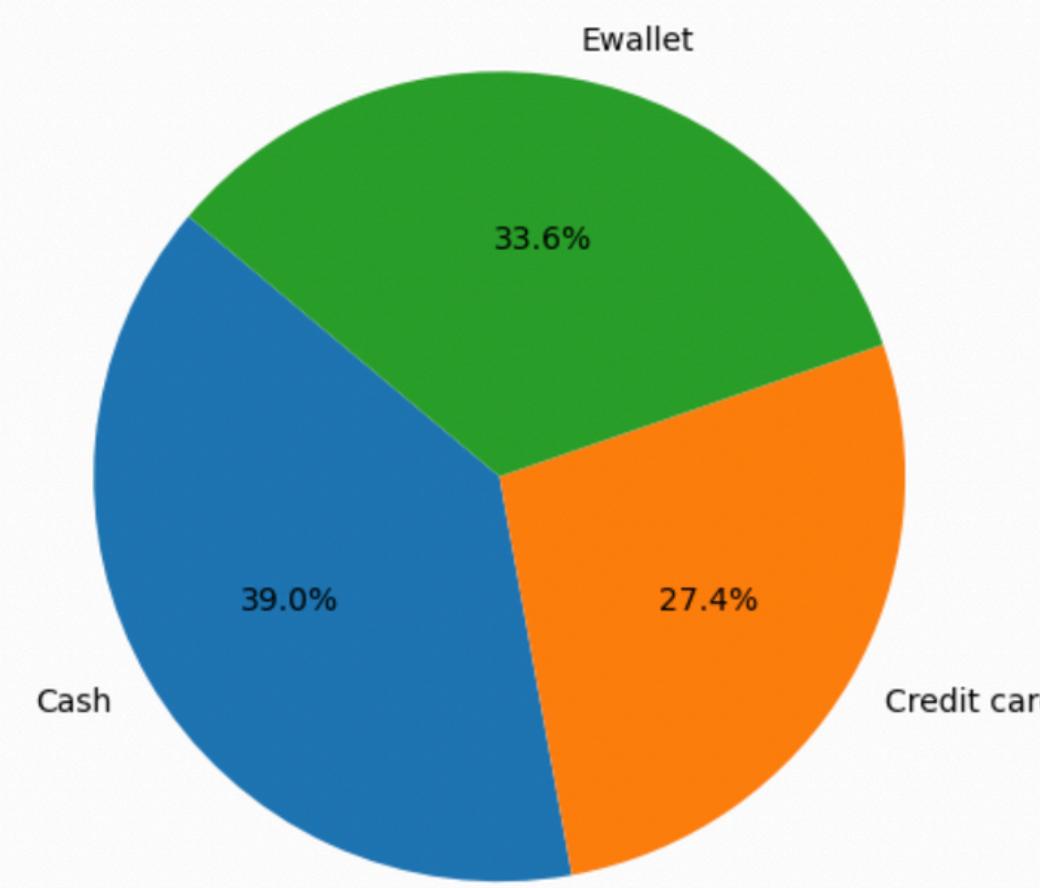


# CASH IS KING - BROKEN DOWN BY CITY

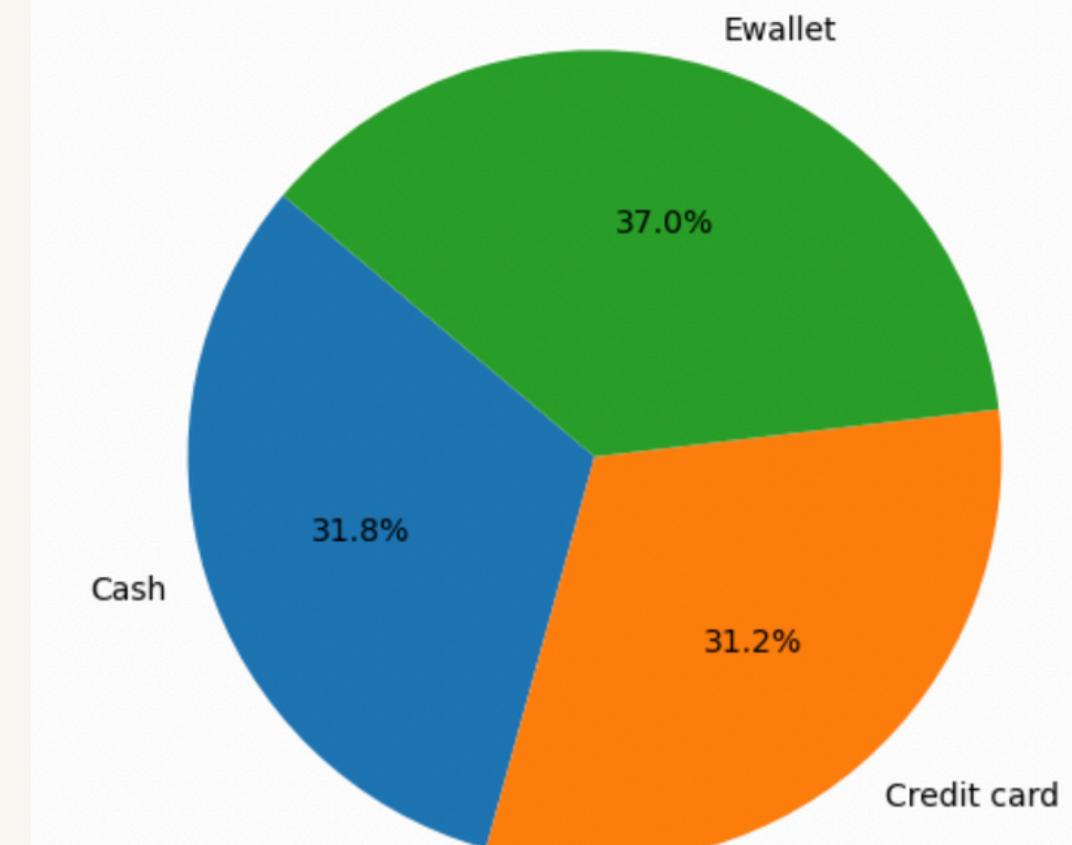
Payment Type Distribution in Mandalay



Payment Type Distribution in Nay Pyi Taw



Payment Type Distribution in Yangon



- 1) Mandalay: **Credit Card @ 35.2%** is the most popular payment method, followed by cash and e-wallet.
- 2) Nay Pyi Taw: **Cash @ 39%** is the most popular payment method, followed by e-wallet and credit card.
- 3) Yangon: **Ewallet @ 37%** is the most popular payment method, followed by cash and credit card.

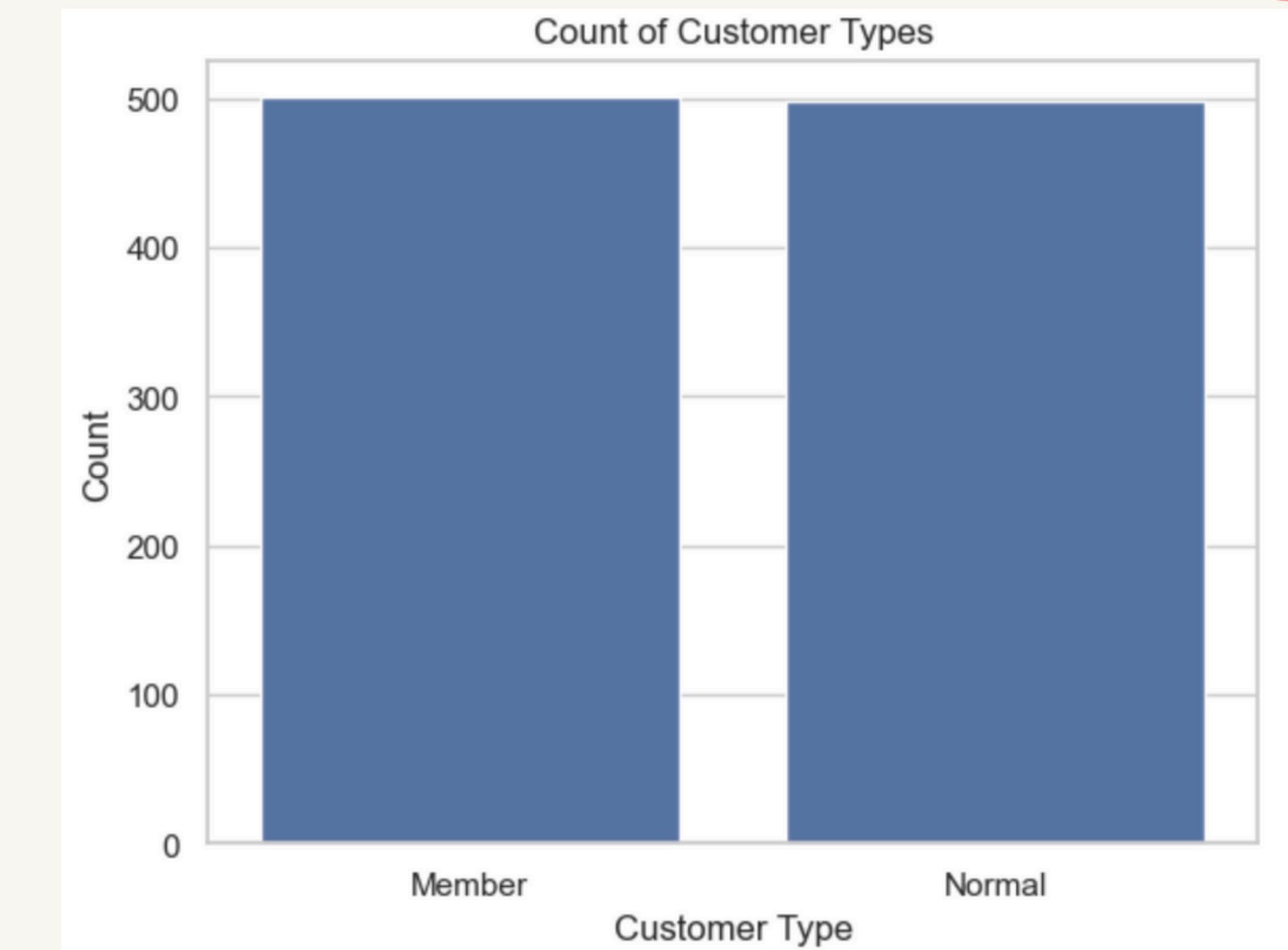
# CASH IS KING - TOTAL SPEND BY TYPE

Even though the population of Nay Pyi Taw is the lowest out of the 3 cities, it has the both the highest rate of sales and spend in cash.



# MEMBERS ARE BIGGER SPENDERS THAN NORMAL CONSUMERS ACROSS ALL PRODUCT LINES

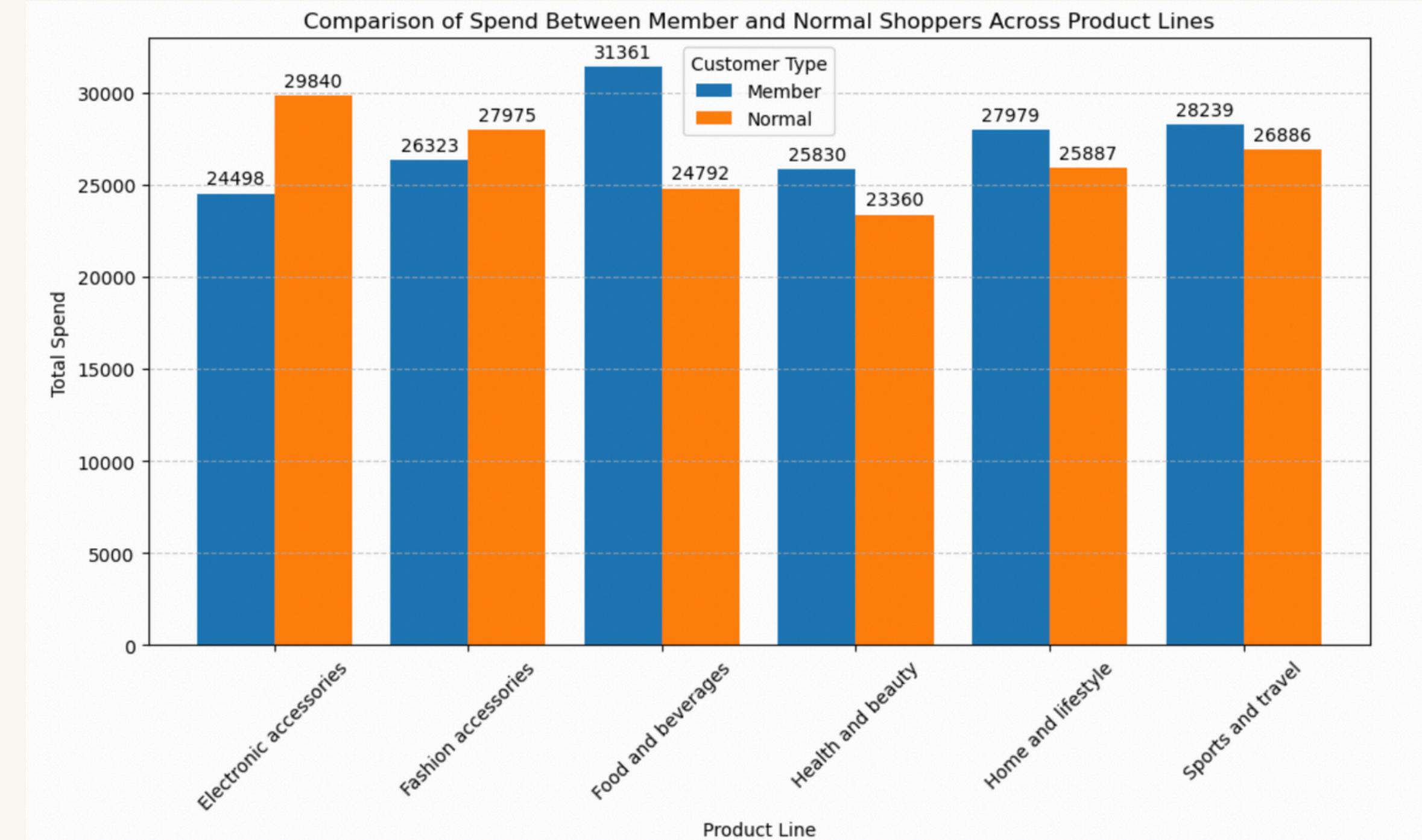
The count of members and non members is almost equal.



# MEMBERS ARE BIGGER SPENDERS THAN NORMAL CONSUMERS ACROSS ALL PRODUCT LINES

Regular shoppers use their memberships for groceries however buy electronics the least.

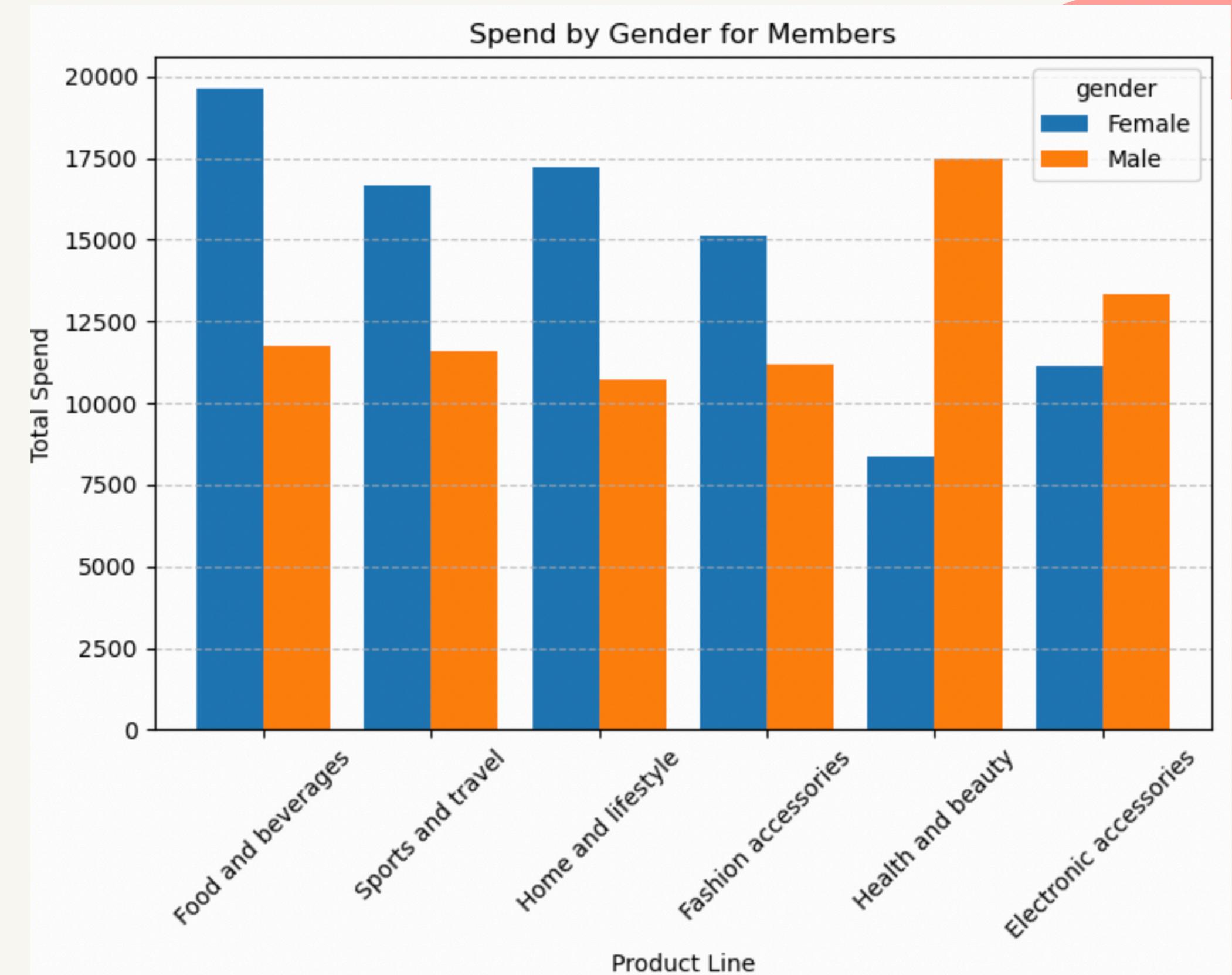
Electronics are the highest item purchased by non members



# MEMBERS ACROSS ALL PRODUCT LINES (SPLIT BY GENDER)

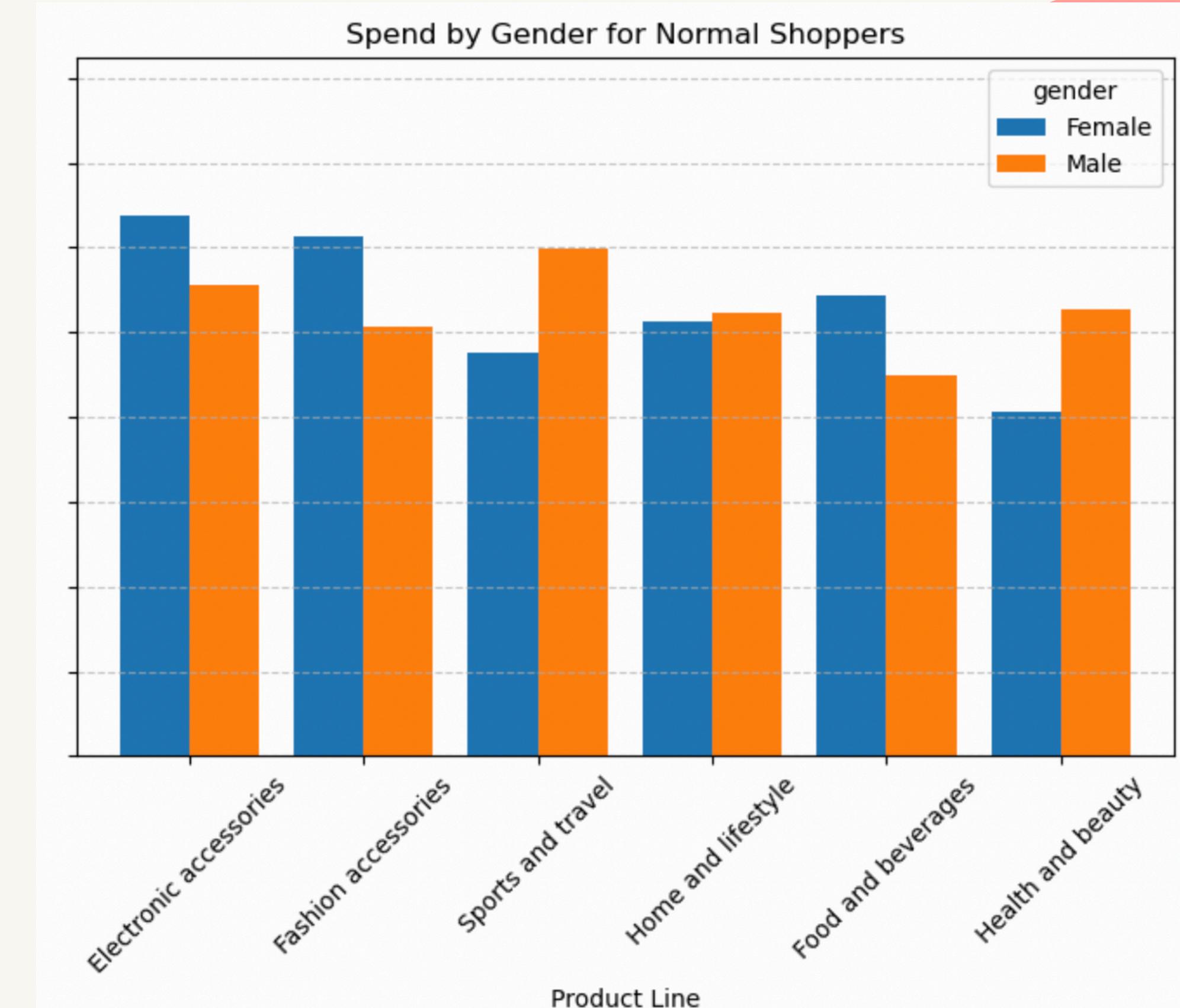
Male members are the majority cohort for Health & Beauty and Electronics

Female members are the highest cohort purchasing all other categories.



# NORMAL SHOPPER ACROSS ALL PRODUCT LINES (SPLIT BY GENDER)

Within most categories Female shoppers are the majority. however in Sports and Travel, Home and lifestyle, Health & beauty categories the majority is male.



# CONCLUSION

FALSE

Denser cities have higher rate of sales

TRUE

Cash is KING!

TRUE

Members are bigger spenders than normal consumers across all product lines



# OBSTACLES

- 
1. Some of the data was incorrectly calculated e.g. Tax and Gross Income are the same
  2. Importing some of the columns into the tables was very time consuming
  3. Had to research how to do some of the graphs in Python
  4. Majority of time spent on data prep, insufficient time for analysis.

# THANK YOU

Project Title: Supermarkets in Myanmar

Catherine & Peter

