ST2187 COURSEWORK

REPORT

SRN:

Word Count: 1342

EXECUTIVE SUMMARY

This report will describe the key insights of the Tableau story created, including recommendations to be endorsed by the senior management team. It includes screenshots of the sheets created in Tableau for convenience and the findings will be written in the respective sections.

The report contains six sections, where each section will go through different parts of the dataset, including the overview and recommendations. The first section contains the overview such as summary on measurable values, global market on profits and sales, and yearly sales by category and by segment. Next, measures on categorical items and its sub-categories will be reviewed before heading on to descriptions related to shipping, seasonality on tables, and forecasting trends. Lastly, three recommendations to be endorsed are suggested.

Table of Contents

1. Overview

1.1 Summary on Measurable Values

Profit	Sales	Quantity	Shipping Cost	Profit Ratio
1,466,437	12,629,244	178,089	1,351,275	11.6%

Figure 1.1: Overview on Measurable Values

Figure 1.1 shows the summary of the whole dataset, which includes the total profit, sales, quantity, shipping costs and profit ratio. Profit ratio is calculated by SUM(profit)/SUM(sales), where for every unit of sale is made, there is a profit of 0.116. It serves as an effective measure of financial performance, with higher profit ratios correlating to stronger overall performance.
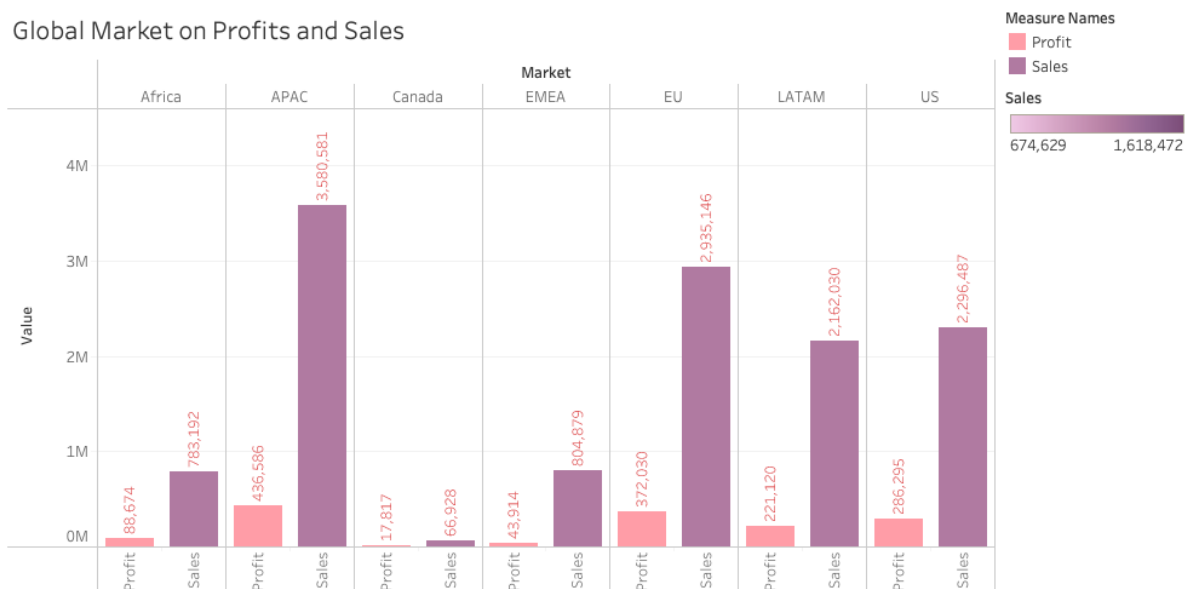
1.2 Global Market on Profits and Sales

Figure 1.2: Global Market on Profits and Sales

It can be observed from Figure 1.2 that all markets have a higher number of sales as compared to the profit made. Asia-Pacific (APAC) and the European Union (EU) has the highest number of sales and profits while the Canadian market has the lowest number of sales and profits. However, higher sales does not correlate to higher profits and vice versa. This can be shown in the African and Europe, the Middle East, and Africa Market (EMEA). Despite having lower profits compared to the African market, the sales performance in the EMEA market is higher than that of the African market.

1.3 Yearly Sales by Category and by Segment

Category	Order Date			
	2019	2020	2021	2022
Furniture	751,907	861,533	1,117,433	1,376,005
Office Supp..	674,629	788,492	1,014,671	1,306,308
Technology	825,175	1,024,486	1,270,134	1,618,472

Figure 1.3.1: Yearly Sales by Category

Segment	Order Date			
	2019	2020	2021	2022
Consumer	1,173,671	1,459,663	1,722,647	2,148,477
Corporate	687,514	773,295	1,068,208	1,287,262
Home Office	390,525	441,553	611,384	865,046

Figure 1.3.2: Yearly Sales by Segment

It can be evident from Figure 1.3.1 that Technology products have consistently shown high demand over the four-year period, while Office Supplies have consistently shown the lowest demand. Likewise, in Figure 1.3.2, Consumers have also consistently shown high demand over the four-year period while Home Office users have consistently shown the lowest demand. All categories and segments have shown increasing demand over the years, with Technology having the highest increase of 793,297 sales, and Consumer with an increase of 974,806 sales from 2019 to 2022.

2. Measures on Categorical items and its Sub-Categories

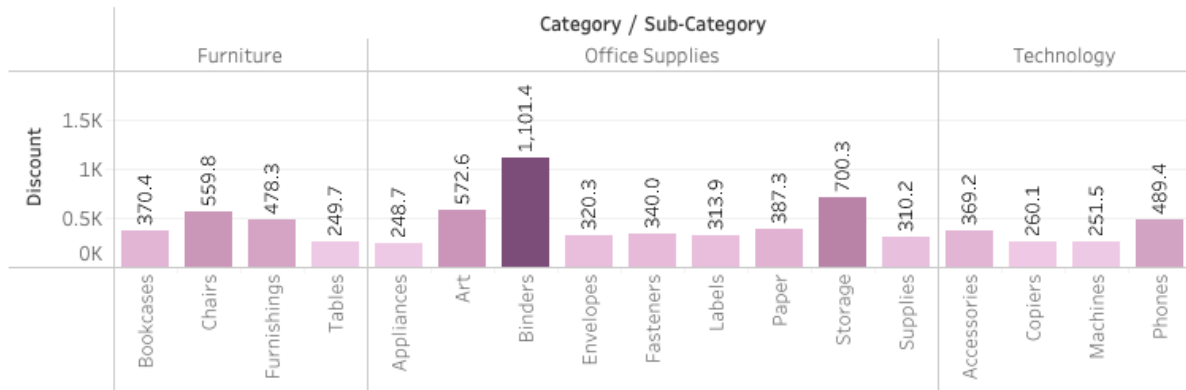## 2.1 Discounts on Categories

Figure 2.1: Discounts on Categories

Office Supplies receives the highest average discount totalling to 477.19, whereas Technology has the lowest average discount totalled to 342.55. Amongst the sub-categories of all categories, Binders has the highest discount of 1,101.4 and Appliances has the lowest discount of 248.7. Even though Office Supplies has the highest average discount, it does not have the highest sales (as shown in Figure 1.3.1). Similarly for Technology, it had the highest sales but the least average discount applied. This shows that Technology has become a sort of need for the customer that they are willing to purchase Technology-related goods even if it comes at an expense.

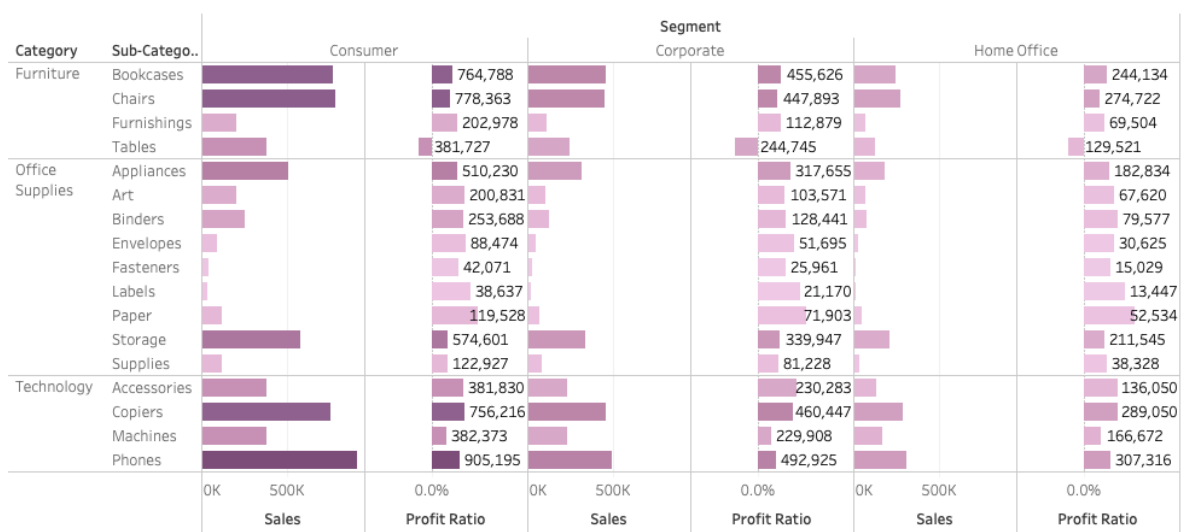## 2.2 Sales and Profit Ratio on Categories

Figure 2.2: Sales and Profit Ratio on Categories

Bookcases, chairs, copiers and phones are highly sought-after by Consumers, Corporate and Home Office users with Consumers having the highest demand for those sub-categories. All three segments also have the same pattern of sales and profit ratio for categories. Tables are the only sub-category that has a negative profit ratio with positive sales across all segments. This means that for every unit of table sold, profit will drop by 0.065, where cost of producing tables are more than the revenue being generated. Despite having the highest discount for Binders, their sales figures remains relatively low as compared to Storage who has the second highest discount. However, low discount appears to yield higher profit ratio, particularly evident in Labels and Paper where their profit ratio is higher despite having lower discounts as compared to Appliances.

3. Description relating to Shipping
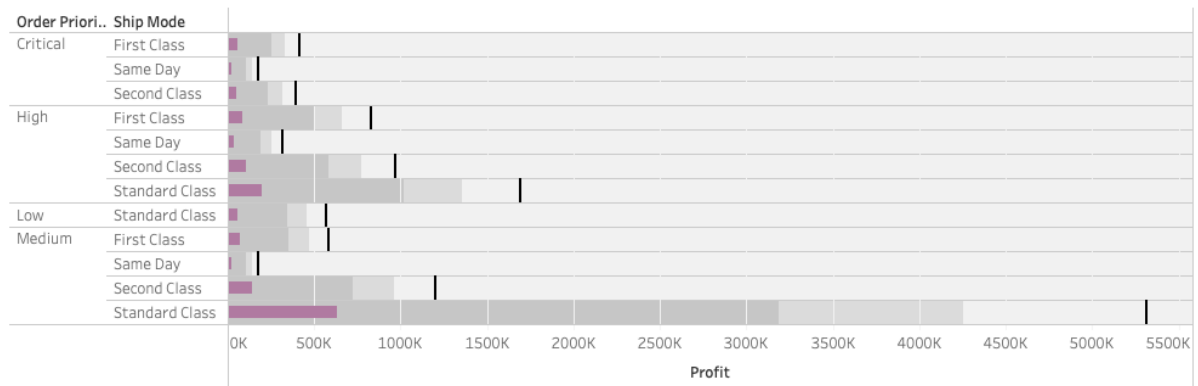
3.1 Sales and Profit on Shipping Mode

Figure 3.1: Sales and Profit on Shipping Mode

Observe that Medium order priority has the highest average sales and profit, and Standard Class ship mode has an overwhelmingly high sales and profit as compared to the other ship modes. Same Day ship modes are the least popular amongst Critical, High and Medium order priority.
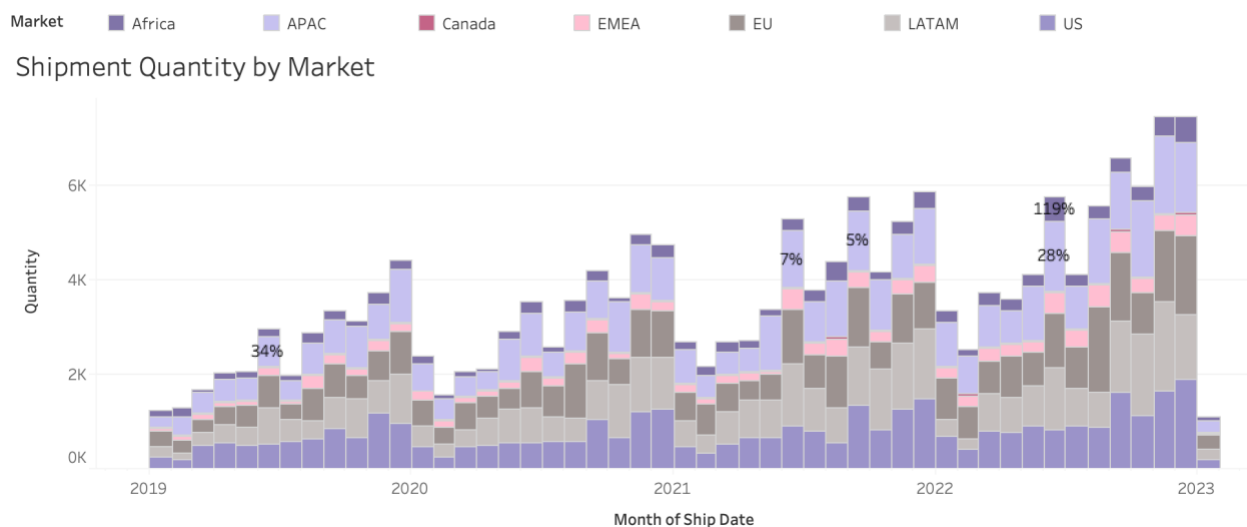
3.2 Shipment Quantity by Market

Figure 3.2: Shipment Quantity by Market

The percentage shown is the percentage difference in quantity from the previous bin, such as the APAC market in June 2019 having a 34% increase in quantity from May 2019. From the big picture, the quantity of shipment can be seen increasing over the four-year period. One anomaly evident is January of 2023, where shipment quantity is lower when contrasted with the same month but different years. There is also a seasonal trend whereby markets tend to purchase larger quantities of goods in the second half of the year compared to the first half.

4. Seasonality on Tables

4.1 Seasonality of Sales and Profits on Tables

Figure 4.1.1: Seasonality of Sales and Profits on Tables

Note that sales of tables are increasing through the year while profits are decreasing. The second half of the year has more sales than the first half, which coincides with the seasonal trend in found in Figure 3.2. A seasonal pattern is also observed for the two halves of the year where June and December will receive higher volume of sales, with December receiving the highest amongst all months. July will receive a significantly lower volume of sales. Additionally, Tables are the only sub-category with negative profit ratio (Figure 2.2), and this can be further evident in the increasing sales but decreasing profits in Figure 4.1.1.
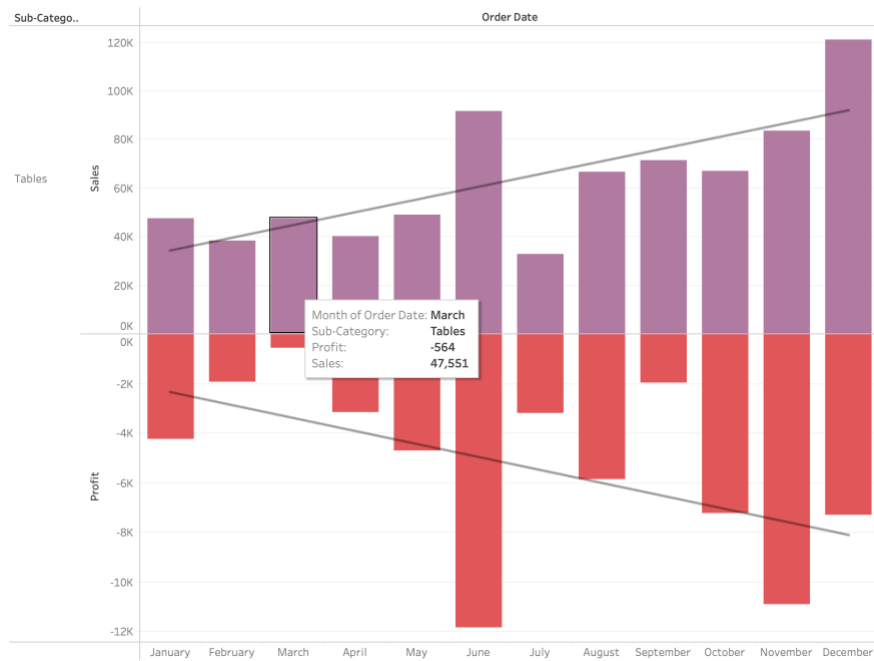
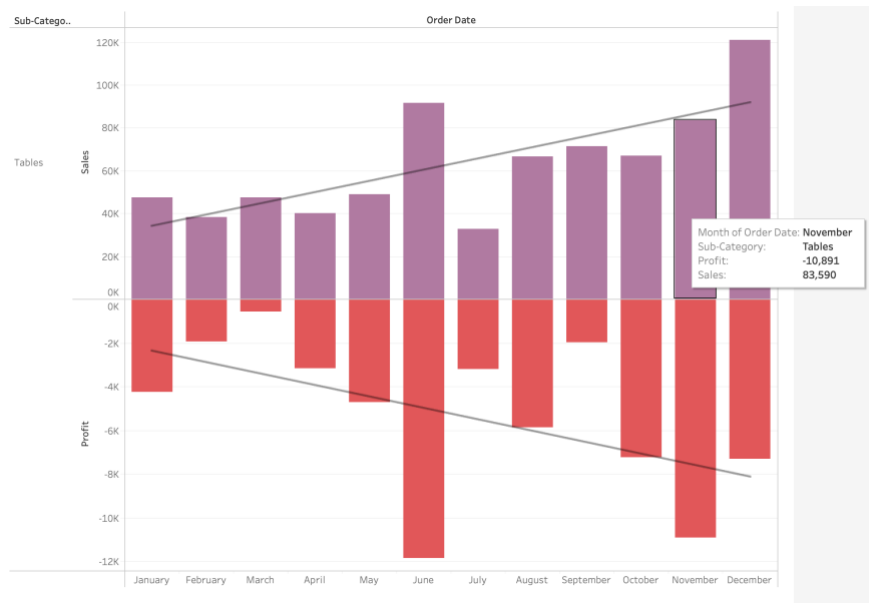*Figure 4.1.2: Details of Figure 4.1.1 for the month of March*

Figure 4.1.3: Details of Figure 4.1.1 for the month of November

Having higher sales does not correlate to higher profits and vice versa (1.2 Global Markets on Profits and Sales), and this can be further evident in Figure 4.1.2 and Figure 4.1.3. March has nearly half the sales volume compared to November, yet profit loss is not as significant.

5. Forecasting Trends

In the upcoming forecasting figures, we will be projecting performance one year into the future. The year will separated into quarters denoted as Q.
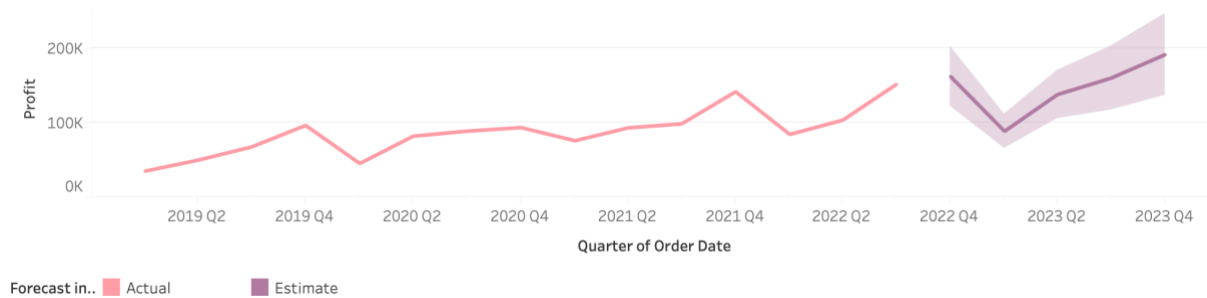
5.1 Profit, Segment and Category Forecast

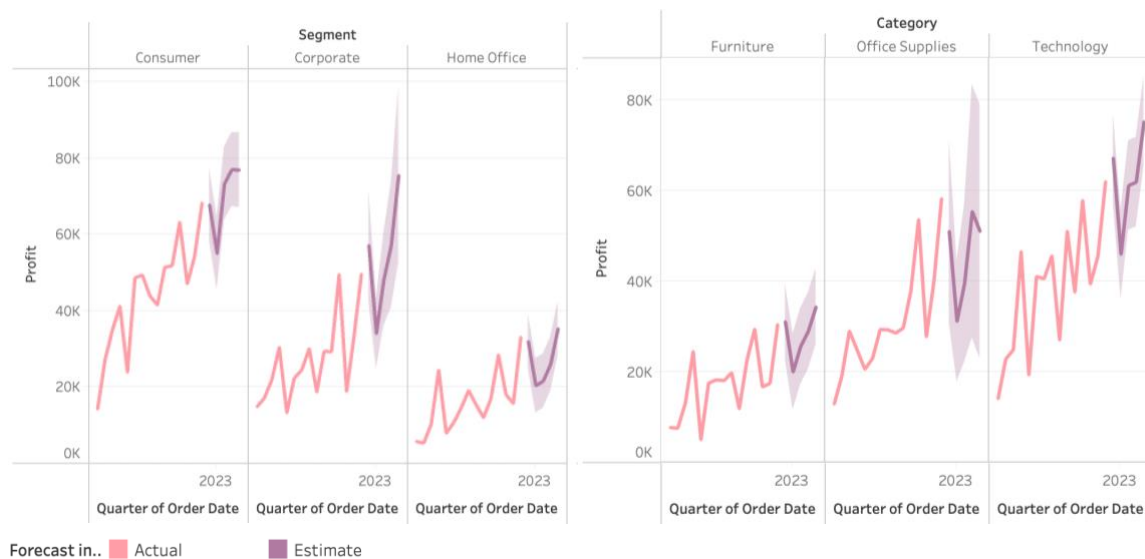*Figure 5.1.1: Profit Forecast*

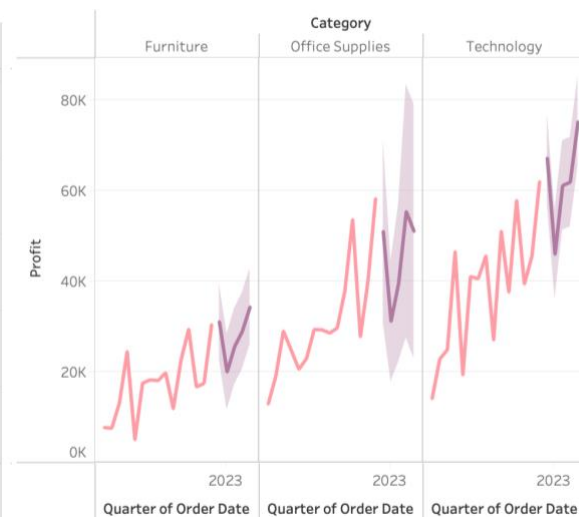*Figure 5.1.2: Segment Forecast*   *Figure 5.1.3: Category Forecast*

The actual forecast is coloured in pink from Q1 of 2019 to Q3 of 2022, while the estimated forecast is coloured in purple from Q4 of 2022 to Q4 of 2023. In Q4 of 2022, the profit forecast for both Segment and Category (Figure 5.1.2 and Figure 5.1.3 respectively) is approximately comparable to the actual Q3 of the same year. This aligns with the overall profit forecast in Figure 5.1.1. Profits are also generally expected to increase from Q4 2022 to Q4 2023 with an exception for Office Supplies. Regarding office supplies, profit forecast for Q4 2023 shows that it will produce around the same profit as Q4 2022, which is also lower than the actual profit generated in Q3 2022. Additionally, for all forecasts, there is a significant decrease in profit in Q1 2023 which aligns with the lower shipment quantity shown in Figure 3.2.

6. Recommendations

Mentioned in Figure 1.2 that all markets have a higher number of sales as compared to the profit made. This could be due to higher production or operating costs which is barely being covered by the amount earned through sales. To help markets earn more profits, reducing the discount given could help increase profit. Less money will be allocated for discounts, thus increasing the profit earned through per sale and improving the overall profit of markets. Also mentioned in Figure 2.2, some sub-categories yield higher profit ratio when low discounts are given. These sub-categories can be focused on to help markets increase profit.

From Figure 3.1, Standard Class in Medium Order Priority brings in the most profit and sales, which might indicate that customers generally only require their products to be delivered in an appropriate time using an ordinary method. The other shipping mode and order priority can be pushed further to generate even more sales and profit. As order priority depends on a customer's urgency level, shipping deals such as "Buying a certain amount and above will result in a cheaper shipping fee" can be given out to customers' accounts in advance, so that when a product needs to be delivered as soon as possible, they can use that deal. Additionally, information about the difference in shipping modes can be made known through advertisements or search engines so that more customers are aware of the extra benefits if one chooses a higher shipping mode. This might entice customers to choose a more high-class shipping mode other than the ordinary ones as their products might come with a tracking notice, or overall, a safer delivery.

From Figure 4.1.1, sales are increasing but profit is decreasing. To generate more profits, the table sector can expand more into consumer and corporate segment. Figure 5.1.2 shows that the estimated profit forecast for consumer and corporate are likely to increase by a substantial amount. With appropriate campaigns and marketing such as Black Friday sales and Monthly Specials, more customers will be attracted to buying tables. Innovation of tables can also help boost sales and profits. As the world progresses, different designs of tables will pique customer's interest into trying out the product, and strong marketing of using the Internet and popular apps such as TikTok can push the knowledge far and wide, attracting an even wider scale of customers.