



AMAZON SALES ANALYSIS CAPSTONE PROJECT

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Project Purpose

The purpose of this Amazon Sales Analysis project is to unlock valuable insights from the extensive sales data to understand the multifaceted dynamics influencing performance across various branches. By delving into this data, we aim to unravel the intricate relationships between product performance, customer behavior, and sales trends. The project seeks to enhance decision-making processes through a comprehensive analysis that includes meticulous data preprocessing and exploratory data analysis. Ultimately, the goal is to provide standardized recommendations that empower the company to optimize its sales strategies, elevate customer satisfaction, and foster sustainable growth in a competitive e-commerce environment.

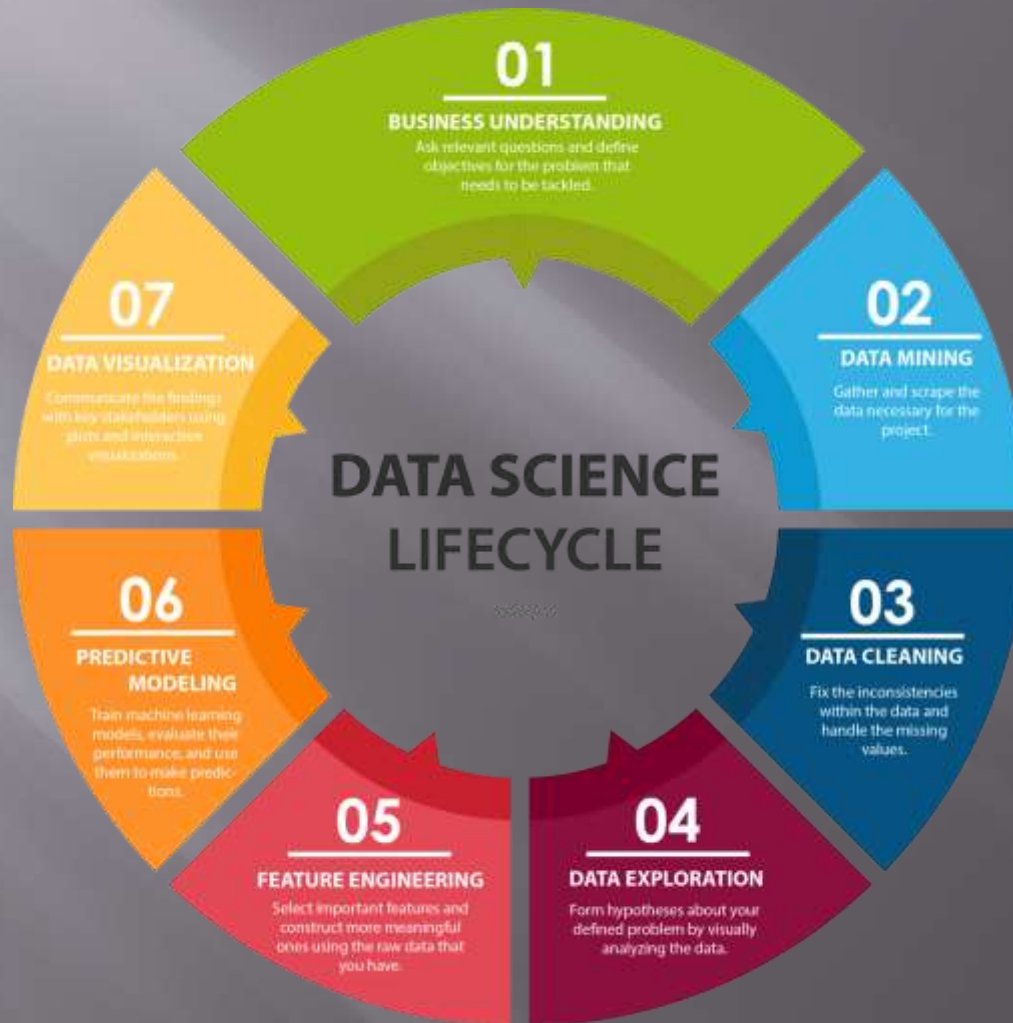
Objective

- ▣ The primary objective of the Amazon Sales Analysis project is to extract actionable insights from the sales data, pinpointing the key factors that influence performance across various branches. This analysis aims to inform the creation of targeted strategies designed to enhance sales effectiveness and drive overall business success. By understanding the underlying dynamics of sales trends and customer interactions, we aspire to develop informed approaches that not only boost sales figures but also contribute to the long-term growth and sustainability of the business

Business Challenges

- ▣ The company is currently navigating a series of business challenges that hinder its ability to maximize sales across its three unique branches. Each branch encounters its own set of customer preferences and market dynamics, complicating efforts to implement a unified sales strategy. Additionally, the increasing competitiveness of the e-commerce sector heightens the urgency to enhance customer satisfaction and retention. As consumer expectations evolve, understanding the specific factors that influence purchasing decisions has become paramount. By dissecting sales data, the company aims to uncover actionable insights that will drive sales optimization, improve customer engagement, and ultimately secure a stronger foothold in the marketplace.

Project Diagram



Data Collection And Understanding

- **Data Collection:**
 - Primary data was collected and imported into Excel.
- **Data Dimensions:**
 - **Columns:** 17
 - **Rows:** 1000
- **Added Columns for Analysis:**
 - Day_Name
 - Month_Name
 - Time_of_Day

Data Dictionary

- **Data Dictionary:**
 - **Key Columns:**
 - Invoice_ID
 - Branch
 - City
 - Customer_Type
 - Gender
 - Product_Line
 - Unit_Price
 - Quantity
 - Tax_pct
 - Total
 - Date
 - Time
 - Payment
 - COGS (Cost of Goods Sold)
 - Gross_Margin_Percentage
 - Gross_Income
 - Rating

Product Analysis Insights

	avg_rating	product_line
	7.11	Food and beverages
	7.03	Fashion accessories
	7	Health and beauty
	6.92	Electronic accessories
	6.92	Sports and travel
▶	6.84	Home and lifestyle

- **Top Product Categories:**
 - **Food and Beverages:** High demand, Avg. Rating: 7.11.
 - **Fashion Accessories:** Second highest, Avg. Rating: 7.03.
 - **Health and Beauty:** Third in sales.
 - **Home and Lifestyle:** Lowest sales and ratings; requires improvement.

Sales Analysis Insights

- **Sales Trends:**
 - Peak sales observed on Wednesday afternoons.
 - Naypyitaw generates the highest revenue compared to other cities.
 - January shows the highest cost of goods sold.

	time_of_day	total_sales
►	Afternoon	53
	EVENING	43
	Morning	22
	NIGHT	15

	month	cogs
•	January	110754.16000000002
	March	104243.33999999997
	February	92589.88

	city	Total_revenue
►	Naypyitaw	110568.70649999994
	Yangon	106200.37050000001
	Mandalay	106197.67199999996

Customer Analysis Insights

- **Customer Behavior Insights:**Female customers order more products than male customers.
- Members generate higher revenue than non-members.

	gender	product_line	total_cnt
▶	Female	Fashion accessories	96
	Female	Food and beverages	90
	Male	Health and beauty	88
	Female	Sports and travel	88
	Male	Electronic accessories	86
	Female	Electronic accessories	84
	Male	Food and beverages	84
	Male	Fashion accessories	82
	Male	Home and lifestyle	81
	Female	Home and lifestyle	79

Result 20

	customer_type	total_revenue
▶	Normal	158743.31
	Member	164223.44

1642

Screenshort Collected Data

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
Invoice_ID	Branch	City	Customer	Gender	Product_ID	Unit_price	Quantity	Tax_pct	Total	Date	Time	Payment	cogs	gross_marg	gross_incc	Rating		
750-67-84	A	Yangon	Member	Female	Health and	74.69	7	26.1415	548.9715	5/1/2019	13:08:00	Ewallet	522.83	4.761905	26.1415	9.1		
226-31-30	C	Naypyitav	Normal	Female	Electronic	15.28	5	3.82	80.22	8/3/2019	10:29:00	Cash	76.4	4.761905	3.82	9.6		
631-41-31	A	Yangon	Normal	Male	Home and	46.33	7	16.2155	340.5255	3/3/2019	13:23:00	Credit card	324.31	4.761905	16.2155	7.4		
123-19-11	A	Yangon	Member	Male	Health and	58.22	8	23.288	489.048	27-01-201	20:33:00	Ewallet	465.76	4.761905	23.288	8.4		
373-73-79	A	Yangon	Normal	Male	Sports and	86.31	7	30.2085	634.3785	8/2/2019	10:37:00	Ewallet	604.17	4.761905	30.2085	5.3		
699-14-30	C	Naypyitav	Normal	Male	Electronic	85.39	7	29.8865	627.6165	25-03-201	18:30:00	Ewallet	597.73	4.761905	29.8865	4.1		
355-53-59	A	Yangon	Member	Female	Electronic	68.84	6	20.652	433.692	25-02-201	14:36:00	Ewallet	413.04	4.761905	20.652	5.8		
315-22-56	C	Naypyitav	Normal	Female	Home and	73.56	10	36.78	772.38	24-02-201	11:38:00	Ewallet	735.6	4.761905	36.78	8		
665-32-91	A	Yangon	Member	Female	Health and	36.26	2	3.626	76.146	#####	17:15:00	Credit card	72.52	4.761905	3.626	7.2		
692-92-55	B	Mandalay	Member	Female	Food and	54.84	3	8.226	172.746	20-02-201	13:27:00	Credit card	164.52	4.761905	8.226	5.9		
351-62-08	B	Mandalay	Member	Female	Fashion ac	14.48	4	2.896	60.816	6/2/2019	18:07:00	Ewallet	57.92	4.761905	2.896	4.5		
529-56-39	B	Mandalay	Member	Male	Electronic	25.51	4	5.102	107.142	9/3/2019	17:03:00	Cash	102.04	4.761905	5.102	6.8		
365-64-05	A	Yangon	Normal	Female	Electronic	46.95	5	11.7375	246.4875	#####	10:25:00	Ewallet	234.75	4.761905	11.7375	7.1		
252-56-26	A	Yangon	Normal	Male	Food and	43.19	10	21.595	453.495	7/2/2019	16:48:00	Ewallet	431.9	4.761905	21.595	8.2		
829-34-39	A	Yangon	Normal	Female	Health and	71.38	10	35.69	749.49	29-03-201	19:21:00	Cash	713.8	4.761905	35.69	5.7		
299-46-18	B	Mandalay	Member	Female	Sports and	93.72	6	28.116	590.436	15-01-201	16:19:00	Cash	562.32	4.761905	28.116	4.5		
656-95-93	A	Yangon	Member	Female	Health and	68.93	7	24.1255	506.6355	#####	11:03:00	Credit card	482.51	4.761905	24.1255	4.6		
765-26-69	A	Yangon	Normal	Male	Sports and	72.61	6	21.783	457.443	1/1/2019	10:39:00	Credit card	435.66	4.761905	21.783	6.9		
329-62-15	A	Yangon	Normal	Male	Food and	54.67	3	8.2005	172.2105	21-01-201	18:00:00	Credit card	164.01	4.761905	8.2005	8.6		
319-50-33	B	Mandalay	Normal	Female	Home and	40.3	2	4.03	84.63	#####	15:30:00	Ewallet	80.6	4.761905	4.03	4.4		
300-71-46	C	Naypyitav	Member	Male	Electronic	86.04	5	21.51	451.71	25-02-201	11:24:00	Ewallet	430.2	4.761905	21.51	4.8		
271-85-57	B	Mandalay	Normal	Male	Health and	87.98	2	12.187	277.127	5/2/2019	10:40:00	Ewallet	262.94	4.761905	12.187	5.1		

Amazon_sales_data

Video

```
4 • USE AMAZON;
5   -- Data Wrangling
6   -- checking null values so null values are present in this dataset.
7 • CREATE TABLE amazon_sales_data(
8   invoice_id VARCHAR(30) NOT NULL PRIMARY KEY,
9   branch VARCHAR(5) NOT NULL,
10  city VARCHAR(30) NOT NULL,
11  customer_type VARCHAR(30) NOT NULL,
12  gender VARCHAR(10) NOT NULL,
13  product_line VARCHAR(100) NOT NULL,
14  unit_price DECIMAL(10,2) NOT NULL,
15  quantity INT(20) NOT NULL,
16  tax_pct FLOAT(6,4) NOT NULL,
17  total DECIMAL(12, 4) NOT NULL,
18  date DATETIME NOT NULL,
19  time TIME NOT NULL,
20  payment VARCHAR(15) NOT NULL,
21  cogs DECIMAL(10,2) NOT NULL,
22  gross_margin_pct FLOAT(11,9),
```

Business Recommendation

- ▣ To enhance sales performance and customer satisfaction, it is essential to implement a multifaceted strategy. First, prioritizing high-demand product categories such as Food, Fashion, and Beauty will align offerings with consumer interests. Addressing the underperformance of items in the Home category can help balance the product range and attract diverse customers. Strategic promotions on Wednesday afternoons in Naypyitaw should be introduced to capitalize on peak shopping times. Furthermore, understanding and catering to the preferences of female customers can drive increased sales in key demographics. Encouraging membership upgrades will not only boost revenue but also foster deeper customer loyalty. Additionally, optimizing marketing initiatives to align with seasonal trends, especially in January, will capture critical sales opportunities. Lastly, investing in product quality and performing rigorous durability assessments will ensure that customer expectations are met, ultimately leading to enhanced satisfaction and repeat business.

Conclusion

- The analysis uncovers vital insights for optimizing sales strategies and enhancing customer satisfaction.
- Addressing the identified challenges will contribute to sustainable growth in the e-commerce market.



THANK YOU.