



Research Proposal: PROBABILITY AND STATISTICS (MT-0205)

Title: SUPERMARKET SALES ANALYSIS

Objective: Revenue and sales market in business is considered a key element for growth. So, we are interested in **finding how different factors contributes to higher sales in particular supermarket of a particular city**. The question is interesting because:

- 1- Research regarding various factors affecting higher sales could also help to create products that provide solutions, market to consumers effectively, and increase your chances for success.
- 2- Retail research helps in the process of critical self-evaluation and lets retailers look at the services provided by them to customers in the market. It also provides brief foresight of the market to the company.

As queues in supermarkets seem to be inevitable, we are trying to speed up the checkouts.

Data Source: <https://www.kaggle.com/datasets/aungpyaeap/supermarket-sales>

Data Collection Methodology of Kaggle:

- 1- The growth of supermarkets in most populated cities are increasing, in addition, market competitions are also high.
- 2- This dataset is one of the historical sales of supermarket company.
- 3- It is recorded in 3 different branches for 3 months data.

Variable Names:

- Invoice ID Computer generated sales slip invoice identification number	- Branch Branches of supermarkets	- City Location of supermarket etc.	- Customer Type of customers (Members: Using member card, Normal: Shopping without member card.	- Product Line General item categorization groups (Electronic accessories, Fashion accessories, Food and beverages, Health and beauty, Home and lifestyle, Sports, and travel)		
- Quantity Number of products purchased by customer	- Gender Gender of customer	- Unit Price Price of each product in \$.	- Tax 5% tax fee on customer's shopping	- Total Total price including tax	- Date Date of purchase (Record available from January 2019 to March 2019).	- COGS Cost of goods sold.
- Payment Payment used by customer for purchase (Cash, Credit card and E-wallet)	Gross Margin Percentage Gross margin percentage	- Gross Income Gross income	- Rating Customer's rating on their overall shopping experience (1 to 10).	- Time Purchase time (10am to 9pm)		

Software Used: Google Collab (Online Python Compiler)

References Of Latest Articles Associated with Our Objective:

- 1- <https://www.vendhq.com/blog/how-to-increase-sales-retail/> (March 22, 2022)
- 2- <https://www.investopedia.com/ask/answers/042815/which-economic-factors-most-affect-demand-consumer-goods.asp> (March 17, 2022)
- 3- <https://www.gofrugal.com/blog/10-ways-to-boost-sales-in-your-supermarket/> (March 19, 2021)
- 4- <https://sasjournals.com/wp-content/uploads/2018/05/SJEBM-54-286-294-c.pdf> (April 30, 2018)
- 5- <https://www.sba.gov/blog/10-ways-get-new-customers> (April 07, 2017)