

Case Study: MS Excel Basics

Note: There's no strict method for conducting analysis via Excel, only the output matters and the sample solution of which is provided along with the dataset. Grading rubric is provided in the table below.

Case Study Number & Title	1. Analysing the supermarket sales for drawing inferences
Introduction	The growth of supermarkets in most populated cities are increasing and market competitions are also high. In order to understand what is driving the sales, XYZ supermarket has collected data on historical sales across three different branches spanning three months and directed the Analytics team to discover insights on the sales drivers and on the company's turnover as well as growth.
Learning Outcomes	<ul style="list-style-type: none">● Analyse sales data using MS Excel functionalities and draw meaningful insights on the supermarket operations● Use MS Excel efficiently whilst dealing with various business problems to facilitate effective decision making
Background Information	XYZ is a supermarket retail chain that has been in business for a little over a decade. With three branches in operation, they wish to investigate their growth prospects and shortcomings in their functions. They have six product lines in place - Electronic accessories, Fashion accessories, Food and beverages, Health and beauty, Home and lifestyle, Sports and travel.
Scenario	The company has set the wheels in motion to open a new branch and is relying on the analytics results to further propel their growth. Also, XYZ wishes to develop new products and is reliant on this investigation procedure to kickstart the R&D depending on the outcomes.
Problem Statement/ Business objectives	Analyse the three-month sales of the supermarket chain and depict the strategies that can be implied in the near future to improve the product sales along with the customer provided ratings, with the ultimate objective of catering to increased business performance and company growth.
Data, Information for case analysis	Data is provided as an xlsx file. Below is the source and attribute information. Source Link: https://www.kaggle.com/datasets/aungpyaeap/supermarket-sales

	<p>Data Description</p> <p>Invoice id: Computer generated sales slip invoice identification number</p> <p>Branch: Branch of supercenter (3 branches are available identified by A, B and C).</p> <p>City: Location of supercenters</p> <p>Customer type: Type of customers, recorded by Members for customers using member card and Normal for without member card.</p> <p>Gender: Gender type of customer</p> <p>Product line: General item categorization groups - Electronic accessories, Fashion accessories, Food and beverages, Health and beauty, Home and lifestyle, Sports and travel</p> <p>Unit price: Price of each product in \$</p> <p>Quantity: Number of products purchased by customer</p> <p>Tax: 5% tax fee for customer buying</p> <p>Total: Total price including tax</p> <p>Date: Date of purchase (Record available from January 2019 to March 2019)</p> <p>Time: Purchase time (10am to 9pm)</p> <p>Payment: Payment used by customer for purchase (3 methods are available – Cash, Credit card, and Ewallet)</p> <p>COGS: Cost of goods sold</p> <p>Gross margin percentage: Gross margin percentage</p> <p>Gross income: Gross income</p> <p>Rating: Customer stratification rating on their overall shopping experience (On a scale of 1 to 10)</p>
Questions	<ol style="list-style-type: none"> 1. Certain records under the “Date” column aren’t recognized as date type. How do you solve this? 2. Sort the data and find the highest rated product line. 3. Highlight those values whose quantity sold are greater than 6 units in green colour. 4. Calculate the average gross income across all three branches. 5. Create a new column called “Income Status” wherein the values would be “Goal Achieved” if the gross income value exceeds the average gross income computed in the previous step; else, it would be “Need Improvement”. 6. Compute the total quantity sold for each branch of the supermarket chain. What can you conclude from these results? 7. What is the average rating for each product line? Note down the observations. 8. What is the customer type who placed a purchasing order with the invoice ID 868-52-7573?

	<p>9. Use suitable visualization(s) available in Excel to analyse the gender wise average rating given by the customers. What is your take on the displayed results?</p> <p>10. Visualize the total quantity sold over the span of three months in relation to the product line. Write down the inferences which you can glean from the same.</p>
Deliverables for Solution and Rubric	<p>Graded assessment:</p> <ul style="list-style-type: none"> ● Required deliverables – an Excel workbook with each sheet dedicated for the solution of each question; the inferences, if applicable, are to be included in the respective sheets ● Submission templates – N/A ● Student facing and faculty rubrics – Total of 20 points where: <ul style="list-style-type: none"> - Questions 1 and 2 carry 1 point each – 2 points cumulative - Questions 3 to 8 carry 2 points each – 12 points cumulative - Questions 9 and 10 carry 3 points each – 6 points cumulative ● Sample solution - There's no one-correct-way for tackling this exercise, but the outputs must be in accordance with the sample solution provided with the dataset.
Key Takeaways/Results	Analysing data using MS Excel and deriving meaningful insights which aids in decision making.