National College of Ireland

Project Submission Sheet

Student Name:	Aafreen shan Asmath, Naveen Kumar Ramesh, Sai Teja Pusarla
Student ID:	x23231335, x23103922, x23193638
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Signature:	Aafreen shan Asmath, Naveen Kumar Ramesh, Sai Teja Pusarla
Date:	17 May, 2024

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SAM'S SHOE STORE – BUSINESS ANALYSIS AND STRATEGY CONSULTANT

Business Intelligence and Business Analytics - CA2

Specification Report

Prepared by,

Aafreen Shan Asmath
Student number: x23231335
Master of Science in Data Analytics
Business Intelligence and Business Analytics
Email: x23231335@student.ncirl.ie

Naveen Kumar Ramesh
Student number: x23103922
Master of Science in Data Analytics
Business Intelligence and Business Analytics
Email: x23103922@student.ncirl.ie

Sai Teja Pusarla
Student number: x23193638
Master of Science in Data Analytics
Business Intelligence and Business Analytics
Email: x23193638@student.ncirl.ie

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1. Abstract

The contents of this specification report can be exploited for inferring on how Sam's shoe store implements a comprehensive BI for that matter a business analytics systems. The three main objectives are enhancing decision making capabilities, enhancing organizational efficiency and encouraging institutional development. Considering the strategic objectives of Sam's shoe store, the suggested plan emphasizes on cost in addition to time taken in implementation and scalability.

2. Problem Statement

The current system in place within Sam's shoe store does not have any centralized data analytics or reporting mechanisms, which consequently impacts decision making in a negative way because there are no systems established for this purpose. Consequently, its inability to engage in real time reporting reduces capacity to see ahead of time changes within markets as well as manage stock levels optimally or render tailor made services for their clients due to lack thereof robust analytics capabilities on board with them. In consequently, there is real danger that Sam's shoe store could be overtaken by other companies using information driven decision making as growth strategies.

- The organization finds it hard to have a complete view of what happens within its operations, the preferences of its clients as well as trends in the market due to the divisions emanating from the varied data sources and separate systems at Sammy's Sport where data is drawn from. The consequence of the restrictions therefore is that data gets scattered in diverse departments and sections.

- For instance, Sam's shoe store uses manually produced reports with regard to business knowledge and analytics. In response to changing market conditions, timely decisions cannot be made as the company cannot access current data.

- Due to insufficient ability in predicting demand and having a little insight into what the customer really wants, Sam's shoe store is finding it quite difficult to manage its inventory levels properly. Because of this they are unable to meet their client's demands sometimes, leading to overstocking, out of stock situations and loss of sales in some instances thus resulting in lower profits as well as reducing the level of satisfaction among customers all which affect negatively on company performance.

- Even though it has collected a lot of data from consumers, Sam's shoe store does not possess the necessary tools and abilities to analyze it so as to get useful observations. This comes as a challenge for the company which is unable to determine what its customers prefer, how they carry themselves as well as how much their lifetime is worth thereby making it impossible for them to provide individualized experience or generate promotional materials aimed at a particular market segment.

3. Gap Analysis

A detailed review shows important aspects where Sam's shoe store current data management and analytics practices are lagging. Restrictions on observation into sales trends, consumer favorites, and inventory output's performance. Data silos that are not useful and manual production of reports that take too long. Poor demand projections and inability to maintain appropriate inventory levels. The inability to generate targeted marketing strategies in relation to clients' segmentation. Inability to follow up on customerinteraction (the targeted goals or standards), organizations can pinpoint specific areas requiring attention and improvement.

3.1. Gap Analysis: As-Is and To-Be

Aspect	**As-Is State**	**To-Be State**
Data Integration and Centralization	Data is all fragmented through some different systems as well as some departments. And there are manual procedures for data extraction as well as reporting.	Ensure data integration is automated by performing Extract, Transform & Load (ETL) processes and centralizing data in a single data store.
Analytics Capabilities	There are restrictions on analytic functions, that's why they depend solely upon simple report generation software.	Implement a variety of advanced analytics tools and techniques, predictive modeling, machine learning, and data visualization to be applied on business data.
Decision-Making Processes	Decision-making that is intuitive and based on historical trends	Enable proactive decision-making through the use of real-time insights and predictive analytics. Empower decision-makers with capabilities to analyze data themselves.
Inventory Management	Stock outs and excess inventory create a waste in working capital and operating cost due to poor management of stock.	Implementing predictive analytics is necessary for having an accurate forecast of demand and optimizing stock. Minimization of carrying costs and maximization of sales opportunities through inventory planning.
Customer Understanding	A restricted comprehension of clients' tastes and attitudes.	Create comprehensive customer profiles and divisions. Utilize cutting-edge analytics to analyze customer interactions and personalize marketing campaigns.
Competitive Positioning	Behind in analytics and innovations is what makes competitors ahead.	Enhance competitive advantage through data-driven strategies, innovation, and excellent customer experience. Use analytics to distinguish yourself in the marketplace.

4. Scope of Process

The following scope of processes are a part of the wider asked for Business Intelligence and Business Analytics system. Creating a central repository where all data will be stored before being used. Sources like transactions from different departments can be aggregated there. Coming up with means of making reports about sales, inventory control through visualization by graphs or even charts, customer decisions could also help to design marketing approaches. Using predictive analysis models helps departments like production know how much goods need to be produced depending on estimated demand patterns which are derived from previous data (history). Thereafter, this also provides answers as per what item should not be produced anymore so long its demand does not exceed zero. BI system's customer facing strategy involves developing diverse targets basedon different criteria fitting these into pre-made groups depending on demography; then personalizing all interactions as a result of this information gathered over time.

4.1. Data Integration and Centralization

- Current State: Data is fragmented because it is dispersed in different systems like the POS, CRM, and ERP systems.

- The upcoming State: Put into practice ETL procedures using platforms such as Apache Spark or Talend that draw out, convert, and upload information into a set place for storing data (for instance, Snowflake, Amazon Redshift) thus having clean and orderly information.

4.2. Analytics Capabilities

- Current State: Working with essential reporting systems (such as Excel, manual SQL queries) that offer limited analytics features.
- The advanced analytics platforms to deploy are Tableau, SAS or IBM Watson Analytics. Also employed is predictive modeling, machine learning algorithms and data visualization techniques for unearthing actionable insights from data.

4.3. Decision-Making Processes

- The current state is that we make decisions after it has happened basing on feelings and past experiences.
- The decision-make can be enabled through real-time analytics, predictive modeling, such that is proactive with their decision-making. With on-the-fly analysis options, give self-service analytics tools that will make use of interactive dashboards to enable decision-makers empower themselves.

4.4. Inventory Management

- When a company having an imperfect inventory control system, a situation characterizedby stock out as well as overstock.
- There is a need to implement predictive analytic models for demand forecasting in the future states. This will leverage on historical sales data, market trends and other external factors which will be included in the inputs. Optimization algorithms should be used here so as to establish the best inventory levels as well as reorder points that could be applied over time.

4.5. Customer Understanding

- Customer preferences and behavior are not understandable to some extent.
- Future state for the development of a detailed customer profile and segment based on demographics, purchase history and behavior data where advanced analytics techniques such as clustering and propensity modelling should be appliedin order to personalize marketing campaigns and promotions.

4.6. Competitive Positioning

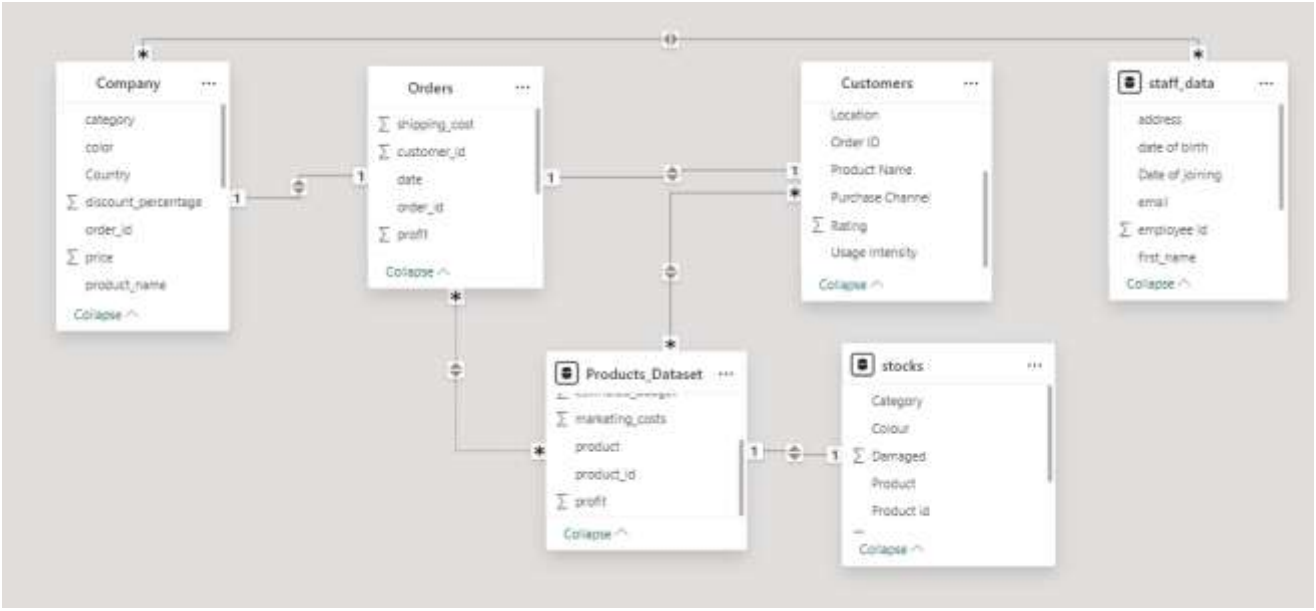
- Our analytics capabilities and innovation is really affected because we are falling behind competitors.
- Be ahead of your competition by making use of data-derived strategies for enhancing operations, enhancing customer experience besides distinguishing yourself in the market. Stay ahead of rival companies by committing to continuous improvement and investing in innovation.

5. Database Design

- The company should consider designing entity-relationship diagrams showing how the customers relate to other data entities such as products for sale or past transactions. Moreover, there ought to be a data dictionary showing the attributes that define each entity, and how they relate with others in the system.

- Appropriate selection of database management systems such as Microsoft SQL Server 2014 or Oracle 12c should be done so that it becomes possible for data to scale up while ensuring we have better returns at the end of day session times. Furthermore, it is important for our organization when implementing normalization techniques because this reduces duplication within its systems while maintaining accuracy of information stored at various points in time.

5.1. ER Diagram



6. Salesforce to connect (CRM Tool)

It's a CRM tool that revolutionizes how businesses connect with their customers.Offering a cloud-based platform, Salesforce enables companies to manage and analyze customer interactions, streamline sales processes, and enhance overall customer satisfaction.

6.1. Objects/Tabs

- Account - Central hub for storing details about organizations or individuals, facilitating comprehensive customer relationship management.
- Contact - Manages individual connections within an Account, capturingkey details and interactions, ensuring personalized engagement.
- Leads - Tracks potential customers, representing early-stage opportunitiesfor conversion into Accounts and Contacts.
- Opportunities - Drives sales effectiveness by managing potential revenue-generating deals, providing insights into the sales pipeline and forecasting.

7. References:

1. https://moodle2023.ncirl.ie/course/view.php?id=2109
2. https://www.kaggle.com/datasets/vinesposito/sammys-sports-online-sales-and-customer-analysis
3. www.google.com

SAM'S SHOE STORE – BUSINESS ANALYSIS AND STRATEGY CONSULTANT

Business Intelligence and Business Analytics - CA2

Implementation Report

Prepared by,

Aafreen Shan Asmath
Student number: x23231335
Master of Science in Data Analytics
Business Intelligence and Business Analytics
Email: x23231335@student.ncirl.ie

Naveen Kumar Ramesh
Student number: x23103922
Master of Science in Data Analytics
Business Intelligence and Business Analytics
Email: x23103922@student.ncirl.ie

Sai Teja Pusarla
Student number: x23193638
Master of Science in Data Analytics
Business Intelligence and Business Analytics
Email: x23193638@student.ncirl.ie

I. Business Problem

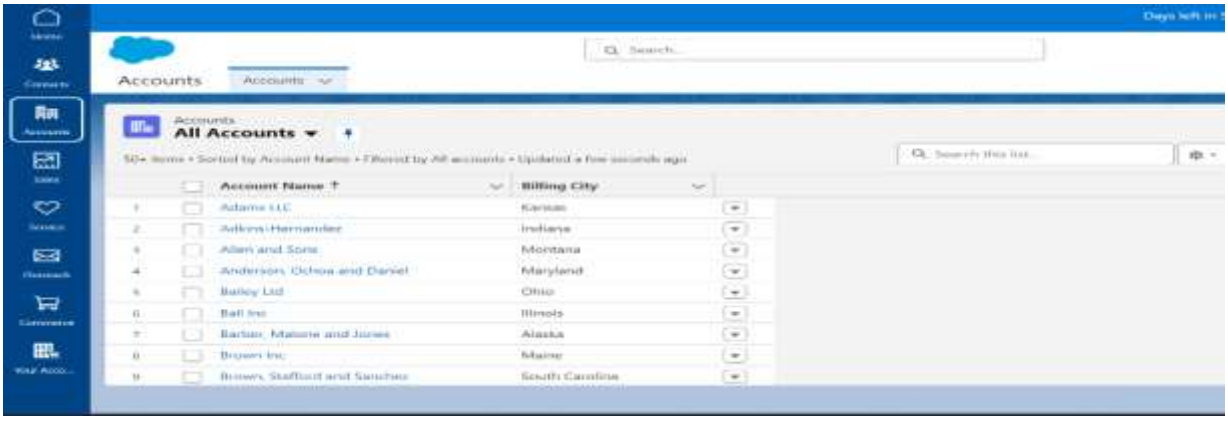
The management team from the Sam's shoe store requires assistance in their analysis of their business process and identifying the problems that limiting the overall profitability of the shop's total revenue. There has been in increase of shops grown recently in the United States. So we will be mainly focusing on the business's last year total sales, profits and other potential contributing factor. With these evaluation and investigation, we can able to provide better assistance to the business by analyzing the data we got from the IT department of the Sam's shoe store.

II. CRM Implementation

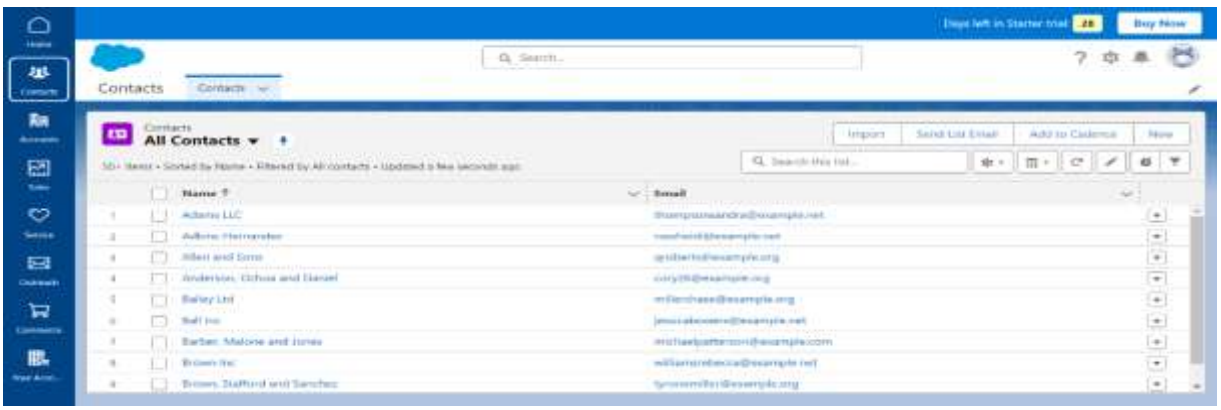
The customer relationship management tool we have deployed in the process is the Salesforce CRM. It includes various multiple distinct steps in the project. By creating various system entities such as leads on customer information, campaigns, sales operations, inventory stocks and other factors will be the initial step after importing the dataset. With the help of the CRM, data handling and complete data management can be possible with correspondingly increasing the overall data representation of the gathered data. Making the full usage of these entities, we can easily track, analyze and utilize the data crucial to the business development with the use of this Salesforce platform.

A. Accounts and Contacts

The primary location for managing and handling the associate data relating to the different branches, accounts or sectors that the customer business had deals with the accounts. The main goal of this process is to gather and view the detailed view of the each and every account management, having faster and efficient communication with the clients, and help in strategic decision- making.

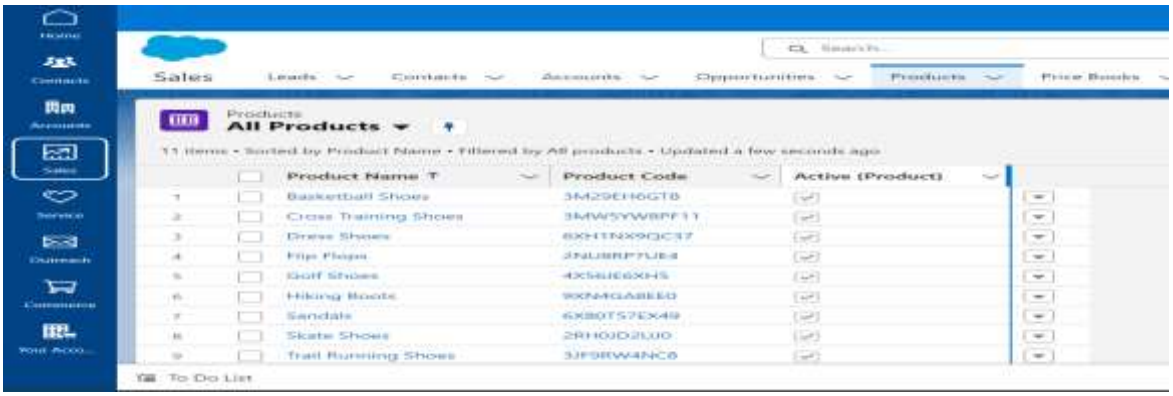


Salesforce will also help to represent the individuals or companies associated with the businesses. We can able to continues track on the customers with managing the customer contact details, recent activities, interactions and relevant documents with this entity.



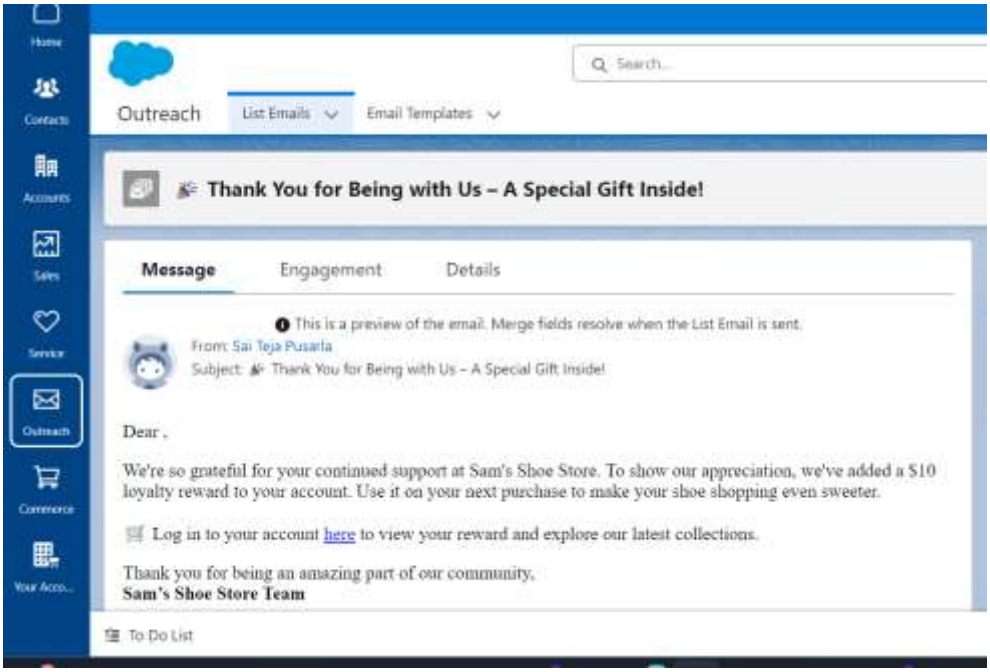
B. Products and Sales:

The second entity shows the people who have shown interest in the products and services, but still havent made any purchase or made a purchase in a long time will be noted as leads or potentital customers. We can manage the data of those leads, estimating the quality leads and informing with the new opputunities of the sales and products.



C. Customer relationship management:

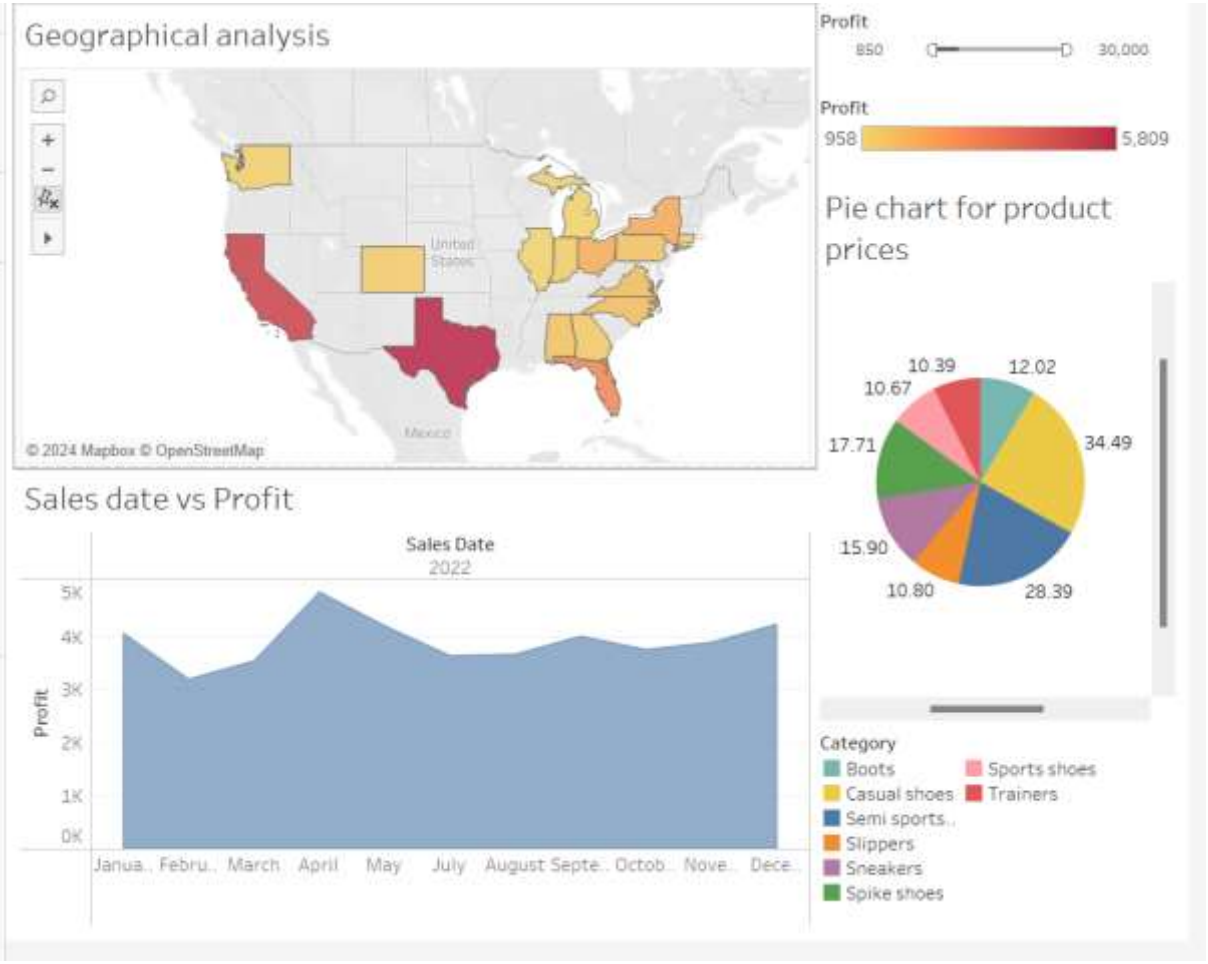
By the example interactions with the leads, we can have a strong relationship with the leads making them aware of the new sales and improvements made in the store.



III. Data Exploration & Analysis

With the help of data exploration and analysis of the large amount of data we collected, we are using the tool Tableau for the data visualization and then we can able to easily evaluate and understand the total information in the dataset. The data we gathered consists of all the products sales, profits, complete information on the store from 2022 to 2023 with each product classifications selling in the store.

Dashboard 1: Analysis of sales by state, each product and year.



A. Profits by States analysis

Initially, we investigated on the performance of the business by the overall profit in various states of the Country. We are using the Tableau tool to create a Map chart for the better understanding of the sales on all the state in figure 2. The total profit has been shown with the geographical areas highlighting the states darker with the maximum profits and light shaded for lower profits. For investigating deeply with the product levels we decided to find the regional level sales of the business. From the map created, we can able to see where the most number of profits made. Upon initial observing of the map graph, we observed that the California and Texas have generally higher profits for the shoe products, while states along with Florida, New York and North Carolina have a moderate profit in the business. The states like Louisiana, Illinois and Michigan showing the lowest profits been made. The most of higher profit locations are found to be in the South and West parts of the country. The East part has the large number of shops selling the goods but indicating a lower amount of profit margin comparatively to south and west part of the country. We also discovered that the product Running shoes contributing to the lowest profit of all the sales in the shops. From the geographical view, Michigan area code having the overall lower profit margin for the Running shoes product.

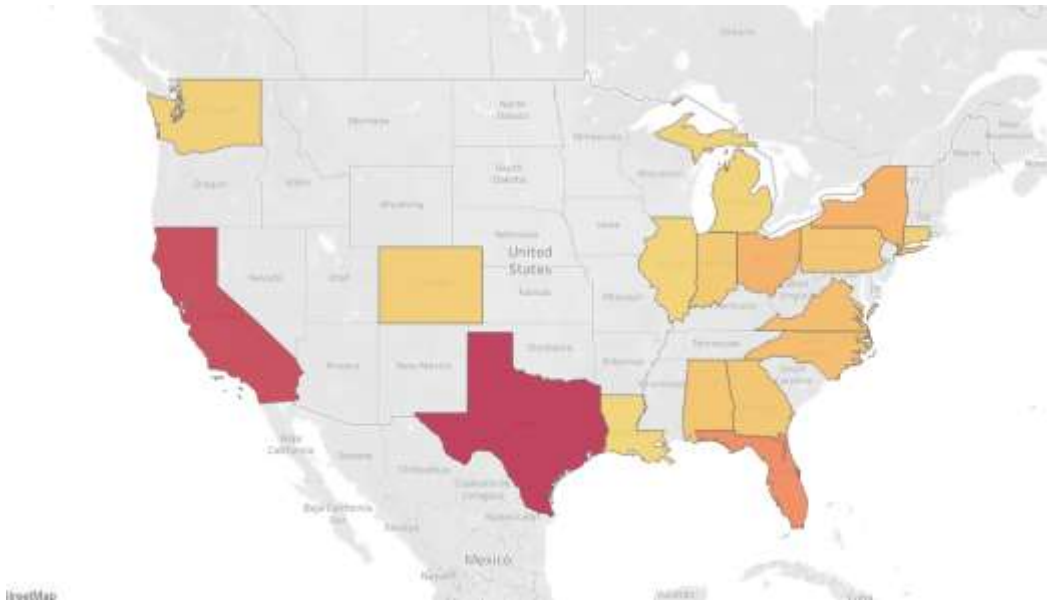


Figure 1. National Product Profits

B. Product vs Sales & Profit

We then decided to compare the profit and sales of each product from the overall data obtained from the business management. We can able to discover that the Trainers/ Sports shoes were falling shortly compared to the other products with the estimated sales figure. It also seems that every other product category was achieving the expected targeted margin. We also contrasted the profits between all over the products that has been selling in the shops, showing a lower profit margin for the category Trainers as seen in Figure 2. Using the fetched data, we can suggest the best course of action would be the focusing on learning the reason behind the product's poor performance.

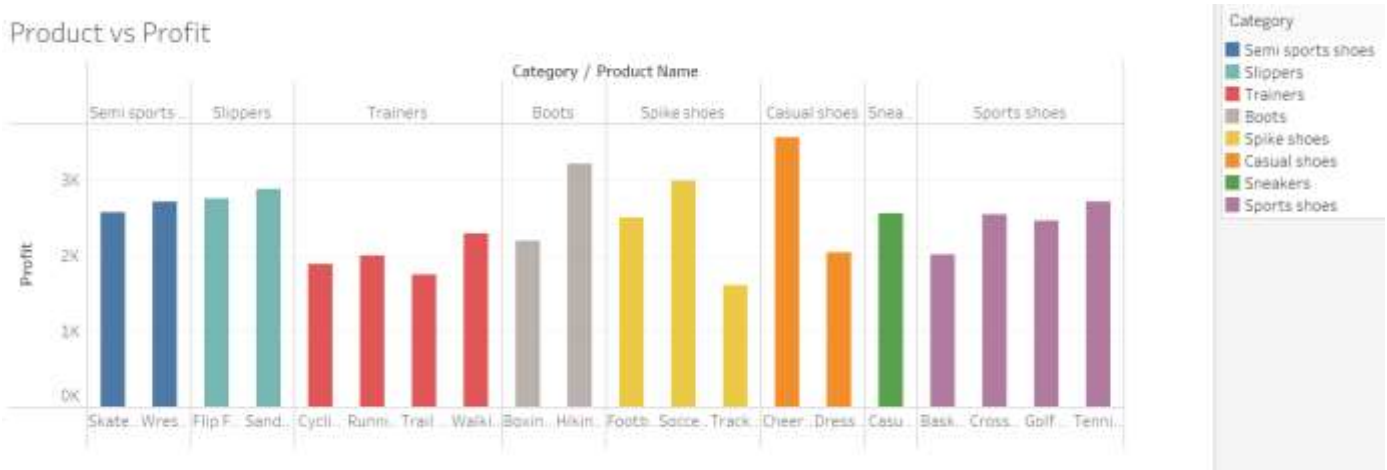


Figure 2. Sales & Profit vs. Product

With the further analsyis of the product level comparing to the estimated budget product, we represented a graph for the actual vs the estimation of the profits. We can see that the six other prodcuts fails to meet the estimated profit, in the overall, the products Trainers and Sports shoes was performing poorly once more. Loafers, High heels and Boots are the other products that were remaining underperforming products. Figure 3 demonstrates the difference in cost from the expectations, the Trainers products having a margin lower than a budgeted profit. With the information obtained, the evaluation of the product's poor sales has to been investigated in depth with other factors.

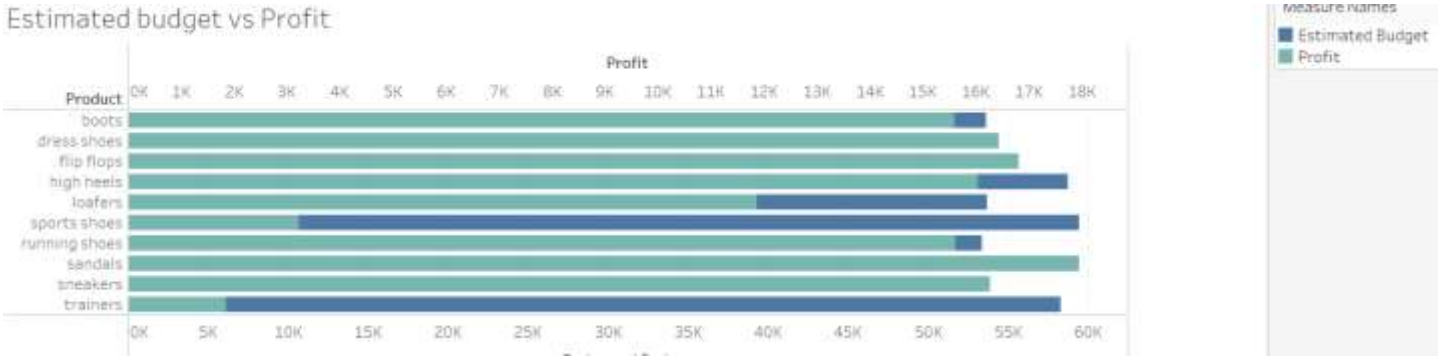
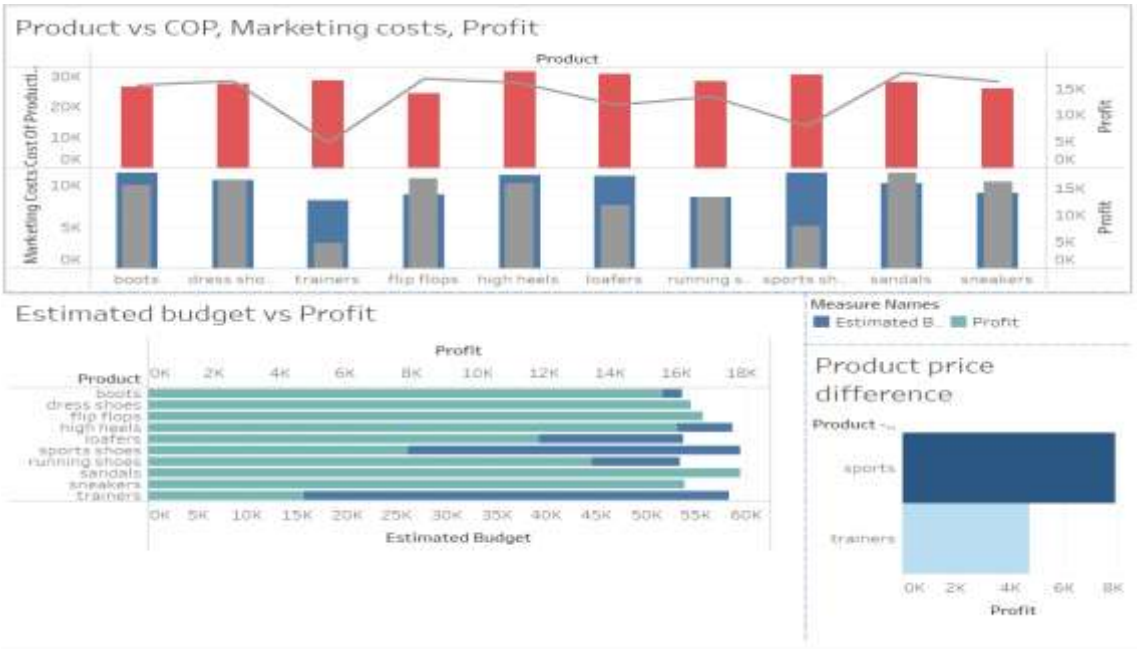


Figure 3. Estimated budget vs Profit

After analyzing the product level, we decided the investigate the profit level for the year. In the figure 4, the estimated sales for the business has been pretty much high in last of March, April and May which has been recorded as the most profitable months and followed by June, July, August. Continuing with the moderate profit margins for the last months of the year.

Figure 4. Sales vs Profit

Dashboard 2: Analysis of profit by marking cost, production cost and budget



C. Analysis for Profit, COP and Marketing costs

The next step of investigation is to analyze the ratio between the cost of production and the profit of each category of products. The below figure 5 shows the profit for each product with comparison to the production cost. We can able to see the marketing cost of the products Trainers and Sports shoes were almost $30,000 and the profit of the products were almost $15,000 and below. So we can assume that these products have generating a lower return comparably. It is noted that the number of sales per every month is quite constant, but even the marginal profit for these products is low.

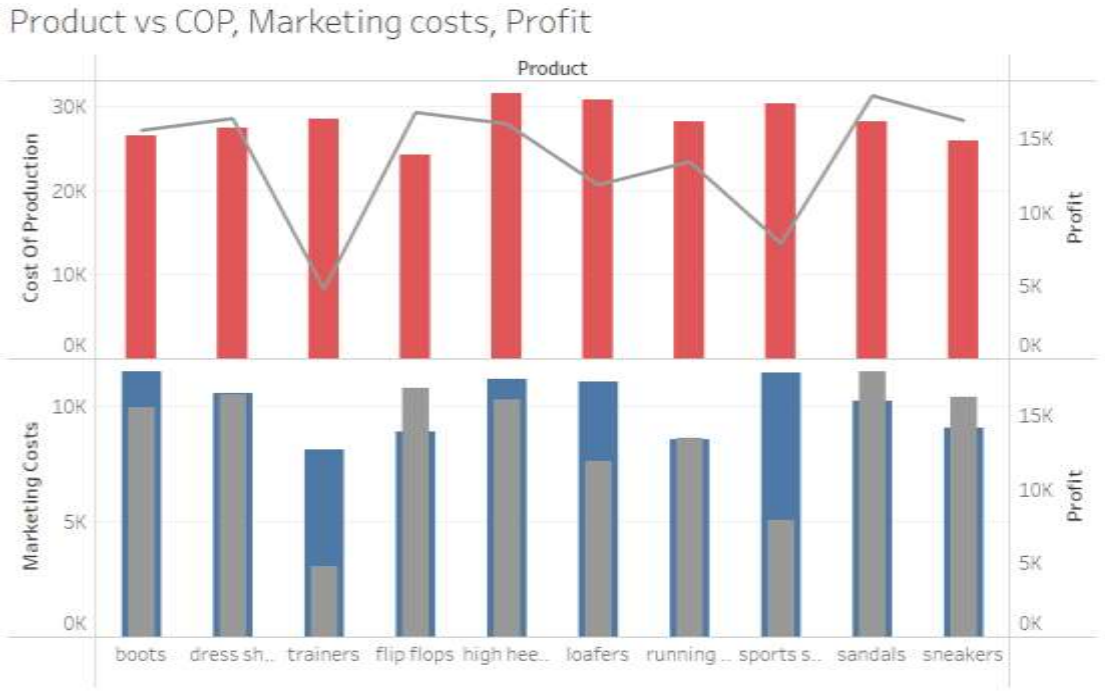


Figure 5. Product vs COP, Marketing costs, Profit

The Marketing costs were also calculated with comparison of the profit of each product. As the total cost used for marketing is very high, profit obtained is very les in figure 5. Other products like Sneakers, Sandals, running shoes and flip-flops were showing a high margin from the marketing cost spent for those products. So the average difference between the market price and the sales is very minimum, we can illustrate that the cost spending for the marketing of the products is not sufficiently analyzed and not particularly targeted for sales growth.

Figure 6. Pie chart for product prices

The above pie chart shown in figure 6 shows the minimum price for each product stocked in the store. With the current analysis, the sales can also be evaluated with the starting price of the product and the quantity of sales over the year. The maximum starting price for the product is the Casual shoes pricing at $ 34.49 and the product with the least price is the Trainers ($10.39).

D. Analysis of Profit Vs Revenue

The calculation between the total revenue earned can be seen higher over the mid months of the year. Like April, May and June are the most revenue generated years and has been slowing down in the next last month of the years. As higher the revenue generated in the months, there also been increase in profit. So we can mainly focus on the months, whether we can expect a high number of sales in the mid of year.

Figure 7. Yearly profit & revenue difference

E. Analysis of Purchase type of products

Further analysis of the marketing costs, production cost and the revenue, we can evaluate the amount of products sold either by customer visiting the store or by online. The below figure 6 shows the quantity of orders made online is very low compared to the orders that been made with customers visiting the store for buying the products.

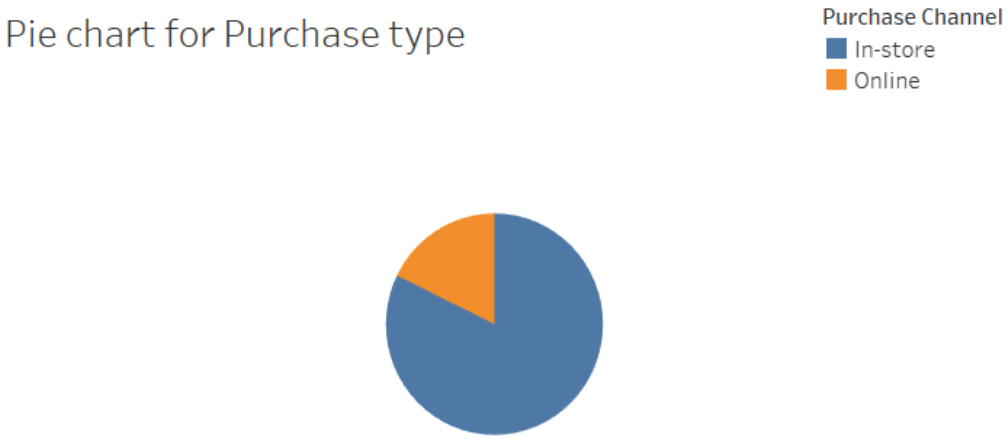


Figure 8. Pie chart for purchase type

By improving the online shopping experience of the store by adding more user friendly options, the number of sales by online will increase as subsequently increasing the total profit of the store. From this, we can conclude that the customers are not aware of the online availability of the store or the business haven't reached to the people whom far enough from the store located.

F. Customer classification analysis

The classification of customers has been displayed in below figure 7. With the graph, we can confirm the most number of customers buying the products are Men, which is twice the number of Women customers.

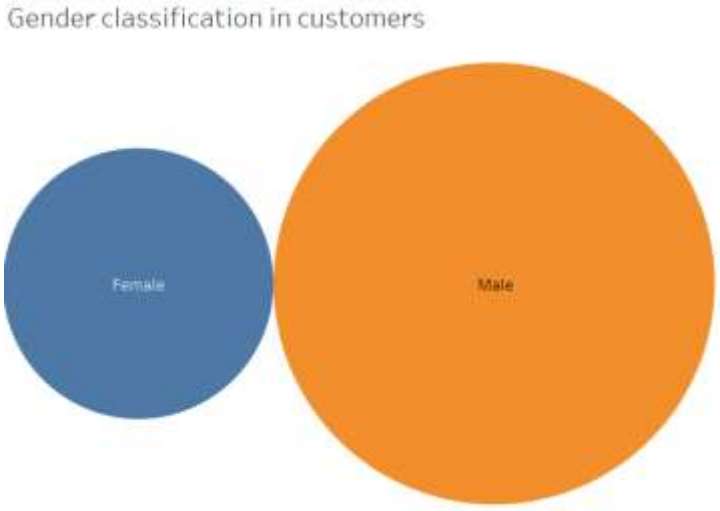


Figure 9. Gender classification analysis

This analysis indicating the the potential oppurtunity to developing and planning several marketing strategies to attract more female customers. By understanding the reasons behind the gender disparity can eventually help in increasing the sales of the products and making efficient marketing strategies effectively. By making certain developments or changes according to the preferences and shopping experiences of Women customers we can increase the potential growth of sales in the store.

IV. Conclusion & Recommendations

In conclusion, the detailed analysis of the shoe store's performance was evaluated across various factors has given important information about the day to day operations, profitability and customer relationships. The initial examinations of the sales and profit across the states is explored by the geographical graph, with California and Texas listing as the top performing regions and states like Louisiana, Illinois and Michigan were lagging comparatively. This explains us in understanding the importance of various marketing strategies for the specific regions. Additionally, the overall profits differences among the product categories shows the underperformance of some products such as Trainers and Sport shoes, which facing a low quantity sale due to high competition with the famous brands for those products. With the analysis of the marginal profit with the production and marketing cost providing information on the low efficiency in the cost management across the production expenses and marketing expenses and indicating a high optimization of cost allocation. Analysis of seasonal variations also helps to navigate the profits movement across each month and make strategic planning and inventory management to capitalize the peak seasons and control lower runs. We also had analysis over the purchase type of the products and the classification of customers visited the store over the year.

Based on the findings, we can able to make several optimizations on the store performance and improve the competitiveness among the other leading business in the market. Initially, the business has to cover the underperforming regions by implementing locational strategies to capitalize high performing markets by doing several marketing campaigns and promotional activities with addressing the challenges. As we can see there is a large competitive base for the products, Trainers and Sport shoes, as so many successful brands already having a huge market on the sale of the products. In order to compete with those huge brands, we should implement several product improvements, pricing strategies and introducing special features which improves the customer satisfaction of the product usage. Thirdly, by optimizing the cost management, particularly in production and marketing can also improve the profit margins and the overall financial performance. This includes renegotiating supplier contracts, optimizing marketing expenditure, and investing in cost-effective promotional activities. With strategic inventory management and seasonal planning can help to navigate the profits movement across each month and make strategic planning and inventory management to capitalize the peak seasons and control lower runs. Additionally, enhancing the online shopping experience by expanding the digital marketing efforts will increase the ecommerce market and eventually increases the online sales. Lastly, making certain campaigns on with specific to the location based and customer specific marketing will attract more customer eventually increasing the sales and profit of the business. By making equal collection of the gender based products and store ambiance with relevant marketing strategies will help to attract the customer base equally and direct long term sales growth.

In summary, by implementing these suggestions and leveraging the insights gained from the analysis, the Sam's shoe store can optimize its operations, improve profitability, and strengthen its competitive position in the market, ultimately driving sustainable growth and success in the shoe retail industry.