National College of Ireland

Project Submission Sheet

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Programme: MSc in Data Analytics

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Word Count:

I hereby certify that the information contained in this (my submission) is information pertaining to research I conducted for this project. All information other than my own contribution will be fully referenced and listed in the relevant bibliography section at the rear of the project.

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Signature: Bolormaa Mendbayar, Akash Narayan Pal, Mitali Vilas Sopte

Date: 06/12/2023

AI Acknowledgement Supplement

[Insert Module Name]

[Insert Title of your assignment]

Your Name/Student Number	Course	Date
N/A		

This section is a supplement to the main assignment, to be used if AI was used in any capacity in the creation of your assignment; if you have queries about how to do this, please contact your lecturer. For an example of how to fill these sections out, please click here.

AI Acknowledgment

This section acknowledges the AI tools that were utilized in the process of completing this assignment.

Tool Name	Brief Description	Link to tool
	N/A	

Description of AI Usage

This section provides a more detailed description of how the AI tools were used in the assignment. It includes information about the prompts given to the AI tool, the responses received, and how these responses were utilized or modified in the assignment. **One table should be used for each tool used**.

[Insert Tool Name]	
[Insert Description of use]	
[Insert Sample prompt]	[Insert Sample response]

Evidence of AI Usage

This section includes evidence of significant prompts and responses used or generated through the AI tool. It should provide a clear understanding of the extent to which the AI tool was used in the assignment. Evidence may be attached via screenshots or text.

Additional Evidence:

[Place evidence here]

Additional Evidence:

[Place evidence here]

Sephora Mini Business Intelligence & Business Analysis

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Statistics for Data Analytics

Master's of Science in Data Analytics

National College of Ireland

Dublin, Ireland

Abstract—**Beauty market is one of the sectors which is highly in demand, and it generates consistent revenue which draws attention to it. Among the beauty products Sephora has been leading the market with ample of categories and brand products under one roof. This helps a lot of customers to get experience of a wide range of products.**

Sephora has established new mini stores called the Sephora mini which had good sales but are facing issues with the sales and overall performance. They have hired our team to find the business solution for enhancing the sales and finding ways to manage the organization.

First we started with Balanced Score card which gave us the insight of the requirement for the organisation and then we worked on the gap Analysis. The database management was carried out for visualisation and the tool used for the same were Tableau and Power BI.

For Future scope we can incorporate CRM system to increase the sales by sending promotional offers of least used products to customer.

Finally after the implementation the result of the action executed are compared with the initial phase to get better understanding of achieved goals

I. BACKGROUND INFORMATION

1.1 Organization

Sephora is a global retailer that offers cosmetics and personal hygiene items. They have launched a new project by establishing small showrooms called Sephora mini that will be run by another independent contractor. Sephora mini is currently managing their database with an old client database from Sephora. The company's sales were good but recently they have been seeing fewer sales than they did three years ago. In addition to that they are also experiencing lower weekend sales.

Considering the above-mentioned reasons, this store wants to implement some system which will help them to monitor all the details of their sales with the new customer database.

1.2 Marketplace

Sephora mini is facing problems since it is using an outdated database which affects the ability to track and analyze customer interactions and preferences. Also, the inventory management is not good septically the products on demand are not analyzed resulting in out of stock especially in weekends.

1.3 Scope of Process

To implement a system where they can monitor everything Tableau and Power BI will be a beneficial tool. This will not only show the sales but will also have different dashboards which will keep track of sales and customer interests.

Tableau and Power BI will be helpful for visualizations fit will display their hourly, weekly, monthly, and yearly sales. Also, it will display data related to the customer's interested product which will help to promote these products and get the statistics of other product sales. These dashboards will give a brief idea of how the sales can be managed more efficiently.

II. BALANCED SCORE CARD

The below Fig 1 shows the Balance Score card for the organization which gives us the insights of Sephora mini- Finance, Learning/Growth, internal Processes and Customer perspective targets. The KPI's mentioned would be analyzed and achieved for the betterment of the organization.
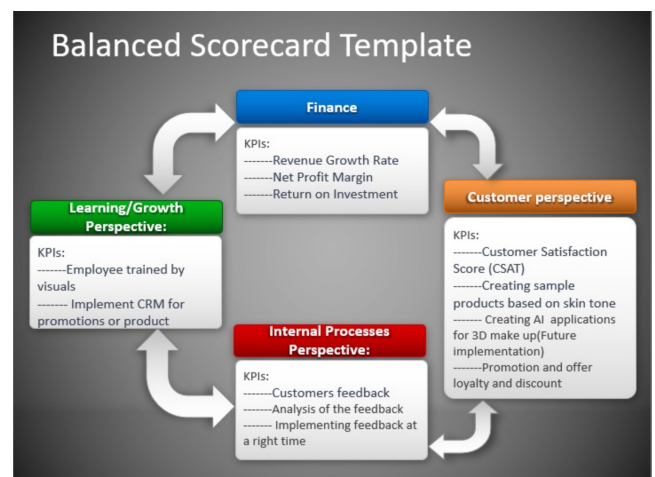

Fig 1. Balanced score card

For the growth and development of Sephora mini stores we will be deploying Tableau and PowerBI dashboard to achieve the KPI's. Below given are the advantages of using Power BI and Tableau to meet Balanced Scorecard goals.

- Finance

- o Growth in Revenue rate as the dashboards will highlight the key factors affecting the sales.
- o Net Profit Margin will be increased when perfect analysis is done
- o Proper management of stocks and sales will result in returns on investment

- Customer Perspective
  - o Customer satisfaction will be highlighted in the dashboard by Love count, Rating and reviews.
  - o Products which have less sales can be identified from the dashboards so that sample testing products can be manufactured for customer feedback.
  - o After analyzing makeup products, it can be further used for creating AI.
  - o Can offer Loyalty, offers, and Discount coupons for Customers.

- Internal
  - o The feedback received from the customer will help to evaluate and increase the overall internal process

- Learning and Growth
  - o Deployment of CRM system as further perspective to increase more sales
  - o Employees will be trained by analyzing the dashboards resulting in less workload pressure

III. GAP ANALYSIS

The Gap Analysis approach will be our first step in providing insights into the existing situation and the solutions that have been developed as a result. We can get a full summary of the issue in the table below:

GAP Analysis		
Current State	Desired Solution	Action items
1.Ineffective sales tracking results from Sephora Mini's dependence on an old customer database from Sephora. 2.A recent drop in total sales, particularly on weekends, suggests that a new strategy is required. 3. More material is wasted because inventory is arranged according to past internal stocks. 4.Not all staff members are acquainted with the balance sheets that are used for monitoring growth in Sales	1.Continuous evaluation to improve forecasting integrating dashboards and visualizations. 2.Dashboards showing Cost and Sales Analysis of Products and Brands 3.Improved inventory control by detecting variation in market demand for Sephora mini Products. 4.Future implementation of CRM to promote the Sales by giving promotional offers.	1.Implementation of Sales Dashboard using Tableau and power BI for visualization of different products and their Brand names. 2.Dashboard showing yearly charts according to the sales. 3.Dashboard for brand analysis with ratings. Dashboard with country wise sales so get the better understand worldwide.

Table 1. Gap Analysis

IV. SYSTEM DESIGN

4.1 Process Design

For creating the system design for this organization, we started with the data gathering part which was saved in the RDBMS as seen in Fig 2. After that, to tackle our main issue related to sales, we tried to analyze the data according to the key columns. These columns were then used to get important information on how the sales can be increased or how the organization can be set up in a more systematic manner. For getting the insights we three different Dashboards which focusses on 3 parts as below

- ▪ Sales
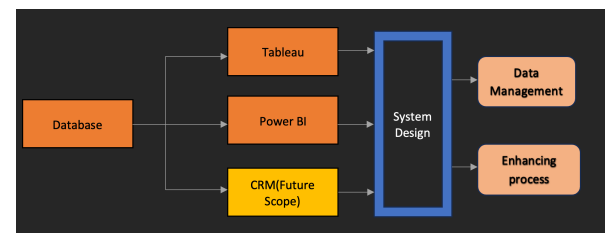- ▪ Products
- ▪ Countries

Fig 2. System Design

4.2 Data Capture Points

❖ Sales and Revenue
- ▪ Gather data of sales of various products can be used to increase net profit and revenue.

❖ Customer Engagement
- ▪ Customer feedback can be gathered and tracked to get the better understanding of the product market.

❖ Inventory and Supply Chain
- ▪ Analysis of the products in demand can be stocked up and accordingly inventory can be updated.

❖ Data Analytics
- ▪ Dashboards giving insightful information on the overall growth of the company.

❖ Future Scope
- ▪ Data in the database of the customer can be used to create CRM for promoting products.

4.3 Dashboards Analyses

The dashboards for Sephora mini are discussed as below:
- o Sales Performance Dashboard
  - ▪ Yearly total and average sales are being monitored visually.
  - ▪ Weekend versus Weekday (yearly) comparison for sales.
  - ▪ Display sales by product category or brand.

- o Product Analysis Dashboard
  - Show the distribution of sales across various products.
  - Highlight top-selling and low-selling products.
  - Categorize the product according to gender.

- o Countywide Dashboard
  - Country-wise product and sales distribution.
  - Country wise love count on products.
  - Highest sales item in each country

V. DATABASE DESIGN

The database was taken from Kaggle, and the final database was created by arranging the data in Mockaroo. The final database of Sephora mini used Relational Database Management architecture to connect to other important datasets. The main database had ID which was the primary key. Once a particular foreign key was called it goes to the other connect database to fetch the data. Below given are the major attributes on how the dataflow is managed.

- o Final Database (Transactional)- Final datasets consist of the transactional entity which is the Primary Key ID. And the other Foreign Key like "Product_ID"," Brand_ID"," Account ID". It also consists of other data like Date, Time, Sales, Quantity and Price.

- o Product Database – Product Database consist of main primary key ID along with other data like "product_name ", "rating", "review", "size", "variartion_type, "variation_value", "variation_desc","ingredients". These are the list of the products which are sold by Sephora mini store.

Products Database									
product_id	product_nam	loves_count	rating	reviews	size	variation_typ	variation_val	variation_des	ingredie

Fig 3. Product database

- o Brand Database – The Brand table will have the columns called "Brand_name", " limited_edition","new", "out_of_stock", "sephora_exclusive"," highlights", "primary_category", "secondary_category", "tertiary_category". It will have Brand_id which will be in transactional Database as a foreign Key.

Brand Database									
brand_id	brand_name	limited_editio	new	online_only	out_of_stock	sephora_excl	highlights	primary_cate	secondary_c	tertiary_categ

Fig 4. Brand Database

- o Customer Database – The Customers table database stores the information of the customer for future processes like giving promotions, getting feedback etc. It had primary Key ID and other columns like "First_name"," Phone_Number".

Customer Database		
author_id	First_name	Phone Number

Fig 5. Customer Database

- o Countries Database – The Countries dabase has the ID, "Country_Name" columns. It gives us insights into sales countrywide for analysis.

Countrywide Database	
Country_id	Country_name

Fig 6. Countyr-wide Database

VI. ER DIAGRAM

The ER diagram in Fig 7 gives us the entity relational ship between the different databases. The below given fig shows the columns and the databases for Sephora mini. It has the primary Key in the final database which will be the transactional database and other foreign Keys which are used to call the IDs in other databases. It depicts many to one relation among the databases.
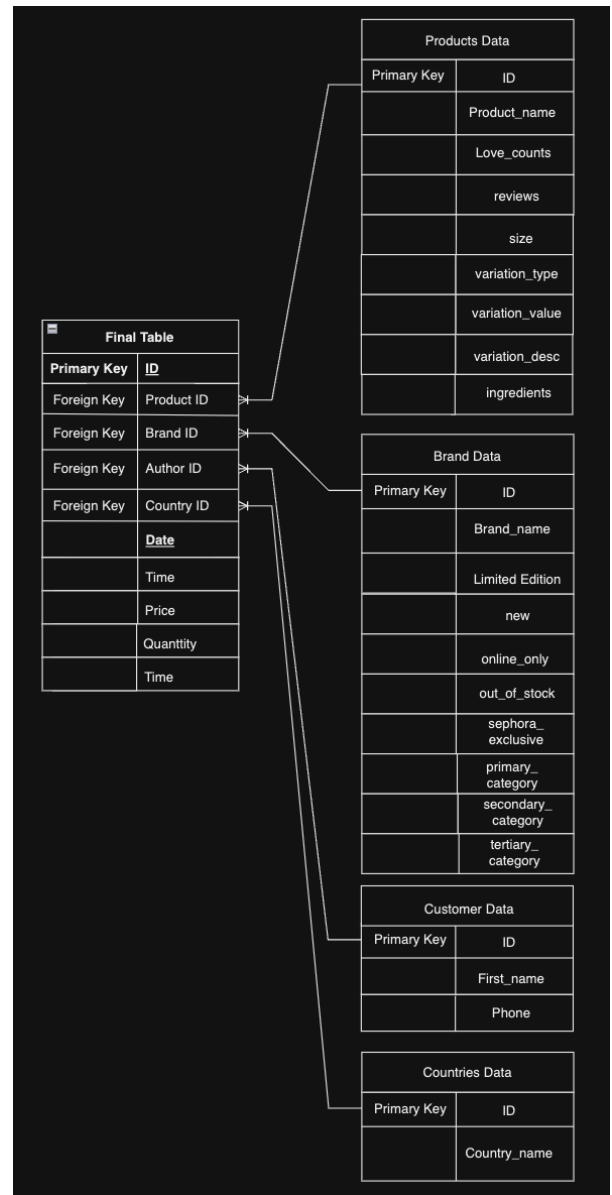

Fig 7. ER Diagram

VII. IMPLEMENTATION OF COST DIAGRAM

The cost for this project will be considered for the applications used. It will be low cost since we are using Tableau and Power BI which will be effective for the initial stage to analyze the sales growth. For future implementation we will be incorporating CRM to promote the products through promotions and offers.

VIII. IMPLEMENTATION OF COST DIAGRAM

- o Vishnu Singh Khatuwal, Digvijay Puri | Business Intelligence Tools for Dashboard development | [Publication Date]: 17 August 2022
- o Vlad-Valentin Fireteanu | Integrating Tableau with Internet of Things Acquiring Projects | [Publication Date]: 16 October 2020
- o Tableau Dashboard - https://www.tableau.com/data-insights/dashboard-showcase