BUSINESS DATA MANAGEMENT

CAPSTONE PROJECT

PROPOSAL

"Optimizing Retail Performance:

An Analysis of a Fashion Shop"

NAME: VIVEK KUMAR

ROLL NO: 21F3000834

INDIAN INSTITUTE OF TECHNOLOGY, MADRAS

CHENNAI, TAMIL NADU - 600036

1. Executive Summary:

The Business Data Management Capstone Project is a project a part of the Diploma course of BS in Data Science and Applications offered by the IIT Madras. This capstone project explores the use of business data management and data science techniques to analyze the performance of a retail fashion shop. The project aims to identify the business problems and develop a solution or recommendations that address the business problem.

The project focuses on three key areas: customer behavior analysis, inventory management, and sales data analysis. Using the various data from the shop, I conduct a detailed analysis of customer buying patterns, inventory rates, and sales trends over three months period.

Overall, this project helps to identify areas for improvement in the shop's operations. By using data to gain insights into various trends, owners can make changes that aim to increase sales and profitability.

2. Organization Background:

The 'Flying Colours of Fashion' is a retail shop or B2C type of business located in Ranchi, Jharkhand. It sells readymade fashion-related products mainly for Men such as shirts, jeans, trousers, shoes, etc. This shop was started in Oct 2020, three years ago. The shop is run mainly by the owner of the shop, but one or two additional staff works mainly in the season as required.

3. Problem Statement:

The shop owner is interested in keeping up with the increasing competition in this sector. But, several challenges or problems draw the shop's inability to adapt to changing customer needs and preferences.

Objectives:

1. Detailed analysis of sales data to find customer behavior patterns and preferences to understand their needs.
2. Analyze the shop's revenue and expenditure to maximize the revenue.
3. Optimize inventory management to reduce its average inventory days.
4. Provide solutions or recommendations to improve the shop's operations to increase sales and profitability.

4. Background of the Problem:

The retail fashion industry is a highly evolving, and competitive market that requires businesses or shops to regularly adapt to changing customer needs and preferences. The COVID-19 pandemic has further accelerated the pace of change, with more and more customers shopping online and tilted toward online shopping because it is very convenient not going to stores, very quick, saves time, and also offers next-day delivery.

Despite offering a wide range of fashion items and having a customer base, a retail fashion shop is experiencing declining sales and profitability. In the discussion or chat with the owner and various sales and marketing men in my contact, they all say that the online shopping industry somehow killing the retail market. For this, retail fashion shops must have the ability to use data and analytics to make a decision or invest in the right direction and stay ahead of the competition.

The shop is facing challenges in managing inventory, understanding customer behavior, and assuming sales trends. As a result, the shop or business may face loss and less customer attraction.

5. Problem-Solving Approach:

To solve the problems or challenges facing the shop, the project will follow a structured problem-solving approach.

<u>Details about the methods used with justification:</u>

1. Data Collection and Cleaning:
   The first step is to collect relevant data on sales, inventory, and customer behavior. The data will be cleaned and prepared for analysis by removing any outliers and missing values to ensure the accuracy of the data.
2. Data Analysis:
   The second step is to analyze the patterns and trends in customer behavior, inventory, and sales. Various factors like volume, profit, revenue, quantity sold, etc. will be analyzed. It includes the use of visualizations such as histograms, graphs, scatterplots, etc. to understand the data.
3. Actionable recommendations:

The last step is to provide the solution to the business problem and recommendations based on insights that could help us to determine the areas of improvement.

Details about the intended data collection with justification:

1. After making several attempts to reach out to shop owners, one of them agreed to share their data with me. During our discussion, we examine various business problems faced by the shop.
2. However, the data is currently stored in books and bills to a certain extent. To manage the data, I will need to enter it into a spreadsheet in an organized manner, grouping the data based on items category.
3. I will need to collect sales, inventory, and customer data for three months.

Details about the analysis tools with justification:

To analyze the data collected from the retail shop, I am planning to use primarily MS – Excel to create various pivot tables, charts, and graphs.

6. Expected Timeline:

Work Breakdown Structure:

1. Project Initiation and Research (Jan 1st, 2023 – Feb 15th, 2023)
   1.1. Discussion with the shop owner
   1.2. Identify the business problem
   1.3. Develop project objectives and goals
2. Data Collection (By Feb 22nd, 2023)
   2.1. Gather data
   2.2. Clean and process data
3. Data Analysis and Research (Feb 23rd – Mar 12th)
   3.1. Analyze the collected data using statistical and analytics tools
   3.2. Identify the trends, patterns, etc.
4. Evaluation and Recommendations (By Mar 12th)
   4.1. Evaluate the results and findings
   4.2. Suggest recommendations for improvement
5. Report and Presentation (By Apr 1st)
   5.1. Make the final report and presentation
   5.2. Present findings, solutions, and recommendations

Gantt Chart:

Task ⬇ Week ➡	Jan				Feb				Mar				Apr
	1	2	3	4	5	6	7	8	9	10	11	12	13
Project Initiation	X	X	X	X	X	X	X						
Data Collection							X	X					
Data Analysis								X	X	X	X		
Evaluation										X	X	X	
Report & Presentation													X

7. Expected Outcome:

1. Improved inventory management.
2. Increased customer satisfaction.
3. Data-driven trends, graphs, plots, etc.
4. Identify areas where the owner can improve margins, reduce costs or increase revenue.
5. Automating data collection and analysis.