NAAC B++ Accredited and ISO 9001:2015 Certified Institute

Sant Gajanan Maharaj College of Engineering

Site Chinchewadi, Mahagaon. Tal: Gadhinglaj, Dist: Kolhapur

Academic Year 2023-24

Department of Computer Science and Engineering

Final Year B. Tech Project Synopsis

On

"Uncovering Industrial Trends by analysing data Using Power BI"

Submitted By

Group No: SGMCOE/CSE/23-24/PRJ-I/13

Sr. No.	Name of the Student	PRN	Sign
1	Borgave Revati Sanjay	2020076665	
2	Patil Devendra Sunil	2020081860	
3	Sutar Abhishek Rajaram	2021076912	
4	Goilkar Rohan Ravindra	2020080792	

Table of Contents

Abstract

This project aims to address the sales optimization and return reduction challenges faced by a skateboard company by developing an interactive analytics dashboard. By leveraging data-driven insights, the dashboard will empower the company to make informed decisions, identify regional trends, and enhance marketing strategies. Ultimately, this initiative seeks to boost sales and minimize returns, resulting in improved operational efficiency and profitability for the company.

Introduction

Transforming Skateboard Company through Data-Driven Excellence

In today's dynamic business landscape, success is increasingly defined by an organization's ability to adapt, innovate, and make decisions based on accurate, real-time insights. For Skateboard Company, a forward-thinking enterprise with a passion for skateboarding and a commitment to customer satisfaction, this pursuit of excellence is no exception.

Skateboard Company recognizes that the key to remaining competitive in the skateboard industry lies not only in crafting exceptional products but also in understanding and responding to the ever-evolving demands of its diverse customer base. To this end, the company has embarked on a transformative journey to leverage the power of data analytics.

The Challenge: The skateboard industry, like many others, faces challenges in optimizing sales operations and minimizing product returns. Understanding the intricacies of consumer behaviour, regional preferences, and return patterns is paramount for growth and sustainability. However, these challenges can be formidable when navigating vast datasets and complex market dynamics.

The Solution: In response to these challenges, Skateboard Company introduces its visionary project: the development of an interactive Sales & Return Analytics Dashboard. This dashboard represents a strategic initiative to not only streamline data analysis but also to empower the company with actionable insights.

Rationale

In a competitive market landscape, Skateboard Company recognizes the imperative of data-driven decision-making. The development of an interactive Sales & Return Analytics Dashboard is driven by the need to optimize operations and drive profitability. This project seeks to unlock the power of data, offering insights into sales patterns, return trends, and regional variations.

By transitioning from intuition to informed decisions, the company aims to enhance product offerings, reduce returns, and align marketing efforts more effectively. The seamless integration of Power Apps ensures that insights translate into actionable strategies, ultimately enabling Skateboard Company to not only stay competitive but also excel in the dynamic skateboard industry.

Objective

- Data-Driven Decisions:

  -Enable informed choices with real-time insights.

- Boost Sales:

  - Optimize product offerings and marketing based on trends.

- Cut Returns:

  - Minimize returns and improve product quality.

- Targeted Marketing:

  -Enhance market engagement through regional insights.

Literature Review

Title	Data Visualization for Developing Effective Performance Dashboard with Power BI
Author	Gurpreet Singh; Ankul Kumar; Jaspreet Singh; Jagdeep Kaur
Publisher	IEEE (2023 International Conference on Innovative Data Communication Technologies and Application (ICIDCA)

Abstract

Data visualization is a very important step in data analysis as it provides insight into the data in a more effective manner that is interesting, simple, and understandable to every-one without any language barrier. It can also represent a huge amount of data in a small space very easily. In the previous two years, the whole world has suffered from a very terrifying nightmare known as COVID-19. Known to be starting from the country of China, the pandemic affected not only the health and well-being of mankind, but also had serious impacts on the economies of various countries. Hence, a visualization of the data set of the pandemic might provide beneficial insights for finding a possible solution and can help in overcoming the impacts of the pandemic.

Microsoft Power BI is a very famous tool for analysing data. Power BI provides a different way to visualize the data. This paper has been analysed the covid-19 data by using Power BI to understand the trends and patterns of the Pandemic. With the help of visualizing the data, it can be represented in stacked column charts, tables, and maps. These three ways are easy and simple to understand the patterns of the pandemic. It also helps to understand how covid impact the world. This research with power BI dashboard by using a dashboard feature that connects different pieces of visual graphs.

Title	Improving Company Performance by The Correctness of Management Decision through Implementation Dashboard using Power BI Tools (Case Study at Company Y)
Author	Ihsanul Wahyudi; Yohana Dewi Lulu Widyasari
Publisher	2022 8th International Conference on Education and Technology (ICET)

Abstract

Making the right decisions is one of the important things in supporting the performance of a company. Companies need good data analysis in order to produce insightful information that can be used as the basis for making the right decisions. Data needs to be extracted, processed and visualized on analytical panels (dashboard) so that it can be analysed and become useful information for company management in making decisions. This paper is about dashboard implementation using Power BI (Business Intelligence) in a case study company Y. The goals are to understand how dashboard implementation using Power BI and improve business performance with precision management decisions that can help business enterprises to look back in history and assist with forward planning.

Feasibility Study

Introduction:

The feasibility study represents the crucial initial phase of software engineering, wherein the viability, necessity, and significance of the project are assessed. This study provides the foundation for informed decision-making and project planning.

- Feasibility Assessment:

1.Technical Feasibility: We will evaluate the technical requirements and capabilities needed for project development. This includes assessing whether the necessary technology, tools, and expertise are available or can be acquired within the project's constraints.

2.**Financial Feasibility:** A detailed financial analysis will be conducted to estimate the project's budget, resource needs, and potential revenue streams. This assessment will determine the project's cost-effectiveness and financial sustainability.

3.**Operational Feasibility:** We will consider the practical aspects of implementing and operating the software. This includes evaluating staffing requirements, training needs, and resource allocation to ensure smooth project execution.

4.**Legal and Regulatory Feasibility:** We will examine the legal and regulatory landscape to identify any potential hurdles, compliance requirements, and permits/licenses necessary for project development. Ensuring adherence to all legal standards is imperative.

5.**Conclusion:** The feasibility study is a critical initial step in software engineering, guiding the decision to proceed with the project. It will provide a comprehensive assessment of the project's feasibility, laying the groundwork for further project planning and development.

Methodology/Planning of Work

Methodology

1. **Project Scope and Objectives:**

- Define the scope, objectives, and key performance indicators (KPIs) for the analytics dashboard.

- Identify stakeholders and gather their requirements.

2. **Data Collection and Integration:**

 - Collect historical sales data, return data, and any relevant datasets.

 - Clean, preprocess, and integrate data from various sources into a centralized database.

3. **Data Analysis and Exploration:**

 - Perform exploratory data analysis (EDA) to understand the data distribution and outliers.

 - Identify key metrics and variables affecting sales and returns.

4. **Dashboard Design:**

 - Select a suitable dashboarding tool (e.g., Tableau, Power BI, or custom web development).

 - Design the dashboard layout, including charts, graphs, and filters.

5. **Data Visualization:**

 - Create interactive visualizations like bar charts, line graphs, heatmaps, and maps.

 - Visualize regional trends, product performance, and customer demographics.

6. **Deployment:**

 - Prepare, stage, and deploy the system.

7. User Training:

-Conduct training sessions and provide documentation.

8. **Monitoring & Maintenance:**

-Implement monitoring, update, and support.

9. **Closure:**

-Evaluate project success, document outcomes, and seek feedback.

Planning of Work:

- Create a detailed project schedule with tasks and milestones.

- Efficiently allocate resources and monitor progress.

- Maintain open communication with the project team and stakeholders.

Facilities required for proposed work

- **Hardware Requirements**

For the hardware requirements, a robust server infrastructure equipped with high-performance servers forms the backbone of the proposed work, enabling efficient hosting of the software application and data processing. Complementing this, individual workstations or laptops provide the necessary environment for development, testing, and administrative tasks. Networking equipment, including routers, switches, and firewalls, ensures reliable connectivity, while adequate storage capacity and backup solutions safeguard data integrity and business continuity. User devices, such as desktop computers, tablets, or smartphones, facilitate seamless access for end-users.

- **Software Requirements**

On the software front, a well-chosen operating system, development tools like integrated development environments (IDEs), and a suitable database management system (DBMS) lay the foundation for software development and data management. Coupled with web server software and application frameworks, the software stack is equipped to handle hosting web-based applications effectively. Robust security tools, collaboration platforms, version control systems, and testing frameworks ensure software quality and security. Furthermore, deployment and automation tools streamline processes, while documentation tools aid in creating user manuals and technical guides. Finally, adherence to software licensing and compliance, along with backup and recovery software, completes the software ecosystem, ensuring both legal and data resilience aspects are addressed. Careful consideration and provisioning of these hardware and software components are essential for the project's success.

Expected Outcomes

The successful completion of this project is anticipated to yield a fully functional software system that enhances operational efficiency, streamlines workflows, and improves user experience. With accurate data handling and robust security measures, the system is poised to reduce costs, increase productivity, and foster customer satisfaction. Timely project delivery, stakeholder alignment, comprehensive documentation, and knowledge transfer will collectively ensure the project's success and long-term sustainability.

References

Papers:

1. Title: Data Visualization for Developing Effective Performance Dashboard with Power BI

   Author: Gurpreet Singh; Ankul Kumar; Jaspreet Singh; Jagdeep Kaur

   Publisher: 2023 International Conference on Innovative Data Communication Technologies and Application (ICIDCA)

2. Title: Improving Company Performance by The Correctness of Management Decision through Implementation Dashboard using Power BI Tools (Case Study at Company Y)

   Author: Ihsanul Wahyudi; Yohana Dewi Lulu Widyasari

   Publisher2022 8th International Conference on Education and Technology (ICET)

Websites:

1. https://data.world/datasets/skate
2. https://www.microsoft.com/en-us/research/project/microsoft-research-open-data/
3. https://www.technavio.com/report/skateboard-market-analysis

Project Planning

Sr. No	Project Activity/Task Name	Project activity start date	Project activity complete date