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A project Report

on

E-COMMERCE REVENUE TRACKER DASHBOARD

Submitted in partial fulfilment of requirements for the award of the

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BACHELOR OF TECHNOLOGY

in

ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

Under the Guidance of

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BONAFIDE CERTIFICATE

This is to certify that the project report entitled **"E-Commerce Revenue Tracker Dashboard"** is a Bonafide record of work done by **Raghavardhini T**[**927622BAL037**] of **Department of Artificial Intelligence and Machine Learning, M Kumarasamy College of Engineering, Karur**, in partial fulfilment of the requirements for the **Data Analytics and Business Intelligence** course during the academic year **2025 – 2026**.

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ABSTRACT

The E-Commerce Revenue Tracker Dashboard is an interactive data visualization and analytics tool designed to monitor and evaluate key performance metrics of an online retail business. It provides a unified platform to analyze crucial indicators such as revenue, profit, sales, and product performance, enabling users to make informed, data-driven decisions. By integrating multiple visualization components like charts, graphs, and maps, the dashboard allows businesses to observe sales trends over time, assess regional profitability, and compare product line contributions effectively. Developed using modern business intelligence (BI) tools such as Power BI or Tableau, along with data preprocessing using Python and SQL, the system ensures efficient data handling, real-time updates, and accurate representation of results. This dashboard simplifies complex datasets into meaningful insights, helping organizations identify profitable regions, optimize product categories, and enhance revenue growth strategies. It also supports strategic decision-making by providing a clear visual understanding of business performance through dynamic and interactive features. Overall, the E-Commerce Revenue Tracker Dashboard serves as a powerful analytical solution for e-commerce businesses seeking to improve operational efficiency, monitor sales performance, and strengthen their market competitiveness through effective use of data analytics.

Keywords: E-Commerce, Dashboard, Business Intelligence, Data Analytics, Visualization, Profit Analysis, Revenue Tracking, Power BI, Tableau, Data-Driven Decisions.

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CHAPTER 1

INTRODUCTION

In the era of digital transformation, the e-commerce industry has emerged as one of the fastest-growing sectors, generating vast amounts of sales, customer, and transaction data daily. However, analyzing and managing this data effectively remains a significant challenge for businesses. Traditional reporting methods using static spreadsheets often fail to provide real-time insights, making it difficult for organizations to evaluate performance, track sales trends, and make timely strategic decisions.

The **E-Commerce Revenue Tracker Dashboard** is developed to address these challenges by offering a centralized and interactive platform for monitoring key business performance metrics. The system enables users to visualize crucial indicators such as total revenue, profit, sales volume, and product line performance in an intuitive and accessible manner. By integrating modern **data analytics** and **business intelligence (BI)** tools, the dashboard transforms raw e-commerce data into meaningful insights through the use of charts, graphs, and maps.

This project leverages technologies such as **Power BI**, **Python**, and **SQL** for data preprocessing, modeling, and visualization. The dashboard empowers decision-makers to identify profitable regions, evaluate sales trends over time, and compare product performance across different categories. It not only simplifies complex datasets but also supports **data-driven decision-making** to improve business operations, profitability, and strategic planning.

Ultimately, the **E-Commerce Revenue Tracker Dashboard** enhances the efficiency and effectiveness of data management in e-commerce businesses by providing real-time analytics and visual clarity. It serves as a vital tool for business analysts and managers to monitor growth, optimize performance, and gain a competitive advantage in the rapidly evolving digital marketplace.

CHAPTER 2

OBJECTIVES

In today's competitive digital marketplace, e-commerce organizations generate large volumes of data related to sales, products, customers, and regions. However, without a proper analytical system, this data often remains underutilized, limiting the ability of businesses to make informed decisions. The **E-Commerce Revenue Tracker Dashboard** is designed to overcome these limitations by providing a comprehensive, visual, and data-driven approach to business performance monitoring and analysis.

The main objectives of this project are:

- **To develop an interactive dashboard** that displays key performance indicators (KPIs) such as total revenue, profit, and units sold in a clear and dynamic manner.
- **To provide visual insights** into product line performance, sales distribution, and regional profitability using graphs, charts, and maps.
- **To enable data-driven decision-making** by transforming raw sales data into meaningful and actionable insights.
- **To identify business trends and patterns** over time, helping in forecasting and strategic planning.
- **To reduce manual reporting efforts** by automating the process of data collection, processing, and visualization.
- **To enhance accessibility and transparency** of sales data for business analysts, managers, and decision-makers.
- **To improve overall operational efficiency** by providing real-time data analysis and performance tracking.

CHAPTER 3

EXISTING SYSTEM

In the existing e-commerce environment, most businesses rely on traditional methods such as spreadsheets, manual reports, or basic analytical tools to monitor their sales performance and financial metrics. These systems often lack real-time data integration, visualization capabilities, and automated analysis, which makes performance tracking and decision-making time-consuming and inefficient.

Typically, sales and revenue data are collected from multiple sources and maintained in separate files or databases without a unified analytical interface. This fragmented data management process results in delayed reporting, inconsistencies in data accuracy, and difficulties in identifying key business trends. Managers and analysts often have to manually aggregate and interpret data, which not only increases the workload but also introduces a higher risk of human error.

Additionally, traditional systems fail to provide dynamic visual insights into important business aspects such as profit distribution, product performance, and regional sales variations. Due to the lack of interactive dashboards and automated analytics, organizations struggle to evaluate their business growth effectively or forecast future trends.

As a result, the absence of a centralized and intelligent data visualization system limits the ability of businesses to make timely and informed decisions. This creates a need for an advanced, automated, and interactive analytical dashboard that can provide real-time insights, improve accuracy, and enhance business intelligence for better strategic outcomes.

CHAPTER 4

PROPOSED SYSTEM

The **E-Commerce Revenue Tracker Dashboard** proposes an advanced, data-driven, and interactive solution to overcome the limitations of traditional business analysis systems. The proposed system integrates all essential sales, profit, and product performance data into a centralized platform, allowing users to visualize and analyze key performance indicators (KPIs) in real time. Unlike manual or static methods, this dashboard provides dynamic and automated analytics that enable users to monitor business trends efficiently and accurately.

The system collects e-commerce data from various sources such as sales databases, product catalogs, and regional records. The collected data undergoes preprocessing using tools like **Python** and **SQL** to ensure accuracy, consistency, and relevance before visualization. The cleaned and processed data is then visualized using modern **Business Intelligence (BI)** tools such as **Power BI** or **Tableau**, which provide an interactive user interface for detailed analysis.

The dashboard includes several visual components such as charts, graphs, and maps to represent key insights like revenue growth, profit distribution, sales trends, and product line contributions. It allows users to apply filters based on time, region, or product category for comparative and trend-based analysis. This helps in identifying profitable products, high-performing regions, and sales fluctuations effectively.

By providing real-time, visually rich analytics, the proposed system enables business stakeholders to make quick, informed, and data-driven decisions. It enhances operational efficiency, reduces manual reporting efforts, and supports strategic business planning. Overall, the proposed **E-Commerce Revenue Tracker Dashboard** serves as a powerful analytical tool that transforms raw data into actionable insights, improving profitability and competitiveness in the e-commerce domain.

CHAPTER 5

TOOLS AND TECHNOLOGIES USED

The development of the E-Commerce Revenue Tracker Dashboard involves the use of various modern tools and technologies that enable efficient data visualization, interactive design, and accurate business analysis. The selected technologies ensure that the dashboard provides real-time insights, user-friendly interaction, and visually rich analytical representations of e-commerce data such as revenue, profit, and product performance.

Category	Technology / Tool
Frontend	HTML, CSS, JavaScript
Business Intelligence Platform	IBM Cognos Analytics
Database	CSV Files
Data Processing & Integration	IBM Cognos Modules
Visualization Components	Charts, Graphs, Maps, KPIs
Development Tools	Visual Studio Code, IBM Cognos Workspace
Operating System	Windows

Table 1. Tools and Technology

HTML and CSS were used to design and style the user interface of the dashboard, ensuring that it is visually appealing, structured, and easy to navigate. IBM Cognos Analytics serves as the core Business Intelligence (BI) tool for creating, analyzing, and visualizing e-commerce data. It enables users to build interactive dashboards that display metrics like total revenue, profit, sales trends, and product performance through a combination of charts, maps, and tables.

The system uses Excel, CSV files, or SQL databases as data sources, which are imported and modeled within IBM Cognos for analysis. The platform's powerful

visualization and data integration capabilities allow for the creation of automated and dynamic business reports that support data-driven decision-making.

By combining the design flexibility of HTML and CSS with the analytical strength of IBM Cognos BI, the E-Commerce Revenue Tracker Dashboard provides an efficient, scalable, and interactive solution for tracking and improving business performance in the e-commerce domain.

CHAPTER 6

METHODOLOGY

The development of the E-Commerce Revenue Tracker Dashboard follows a structured and systematic methodology to ensure accuracy, reliability, and efficiency in analysing and visualizing e-commerce data. The methodology consists of several key stages—data collection, data preprocessing, data modelling, visualization, and testing—each contributing to the creation of a robust and interactive business intelligence solution using IBM Cognos Analytics along with HTML and CSS for user interface design.

6.1 Data Collection

The first stage involves collecting relevant e-commerce data from multiple sources such as sales records, product catalogues, and regional transaction reports. Data may be stored in Excel, CSV files, or an SQL database. This data includes attributes like product categories, units sold, sales revenue, and profit values.

6.2 Data Cleaning and Preprocessing

The collected data is then cleaned and pre-processed to remove duplicates, correct inconsistencies, and handle missing values. This step ensures that only accurate and standardized data is used for analysis, thereby improving the quality and reliability of the dashboard insights.

6.3 Data Modelling

After preprocessing, the refined dataset is structured into meaningful relationships between different dimensions—such as product, region, and time period—within IBM Cognos Analytics. Data modules are created to support queries and generate accurate key performance indicators (KPIs).

6.4 Dashboard Design and Visualization

In this stage, **IBM Cognos BI** is used to design the interactive dashboard. Various visualization components such as **bar charts**, **line graphs**, **pie charts**, and **geographical maps** are developed to represent profit distribution, revenue growth, and product performance. The frontend interface is designed using **HTML** and **CSS** to ensure a clean, user-friendly, and responsive layout.

6.5 Integration and Testing

In this stage, IBM Cognos BI is used to design the interactive dashboard. Various visualization components such as bar charts, line graphs, pie charts, and geographical maps are developed to represent profit distribution, revenue growth, and product performance. The frontend interface is designed using HTML and CSS to ensure a clean, user-friendly, and responsive layout.

Through these stages, the **E-Commerce Revenue Tracker Dashboard** achieves seamless data processing, accurate visualization, and real-time analytical capability, empowering organizations to make data-driven business decisions efficiently.

CHAPTER 7

IMPLEMENTATION

The E-Commerce Revenue Tracker Dashboard was implemented using a combination of IBM Cognos Analytics, HTML, and CSS to develop an interactive and visually appealing analytical platform. The implementation phase focuses on transforming the designed methodology into a functional dashboard capable of providing real-time insights into e-commerce performance metrics such as revenue, profit, and sales trends.

7.1 Frontend Implementation

The frontend of the dashboard was designed using HTML and CSS to create a clean, organized, and user-friendly interface. HTML was used to structure the layout of different dashboard components such as titles, data cards, and charts, while CSS was used to enhance the aesthetic appearance through styling, color schemes, and responsive design. This ensures that the dashboard is visually engaging and easily navigable for users.

7.2 Data Integration and Modeling in IBM Cognos BI

The data collected from sources such as Excel, CSV files, or SQL databases was imported into IBM Cognos Analytics for integration and modeling. Data modules were created to establish relationships between different datasets, including dimensions such as product categories, sales regions, and time periods. The data was cleaned, transformed, and validated within Cognos to ensure accuracy and consistency before visualization.

7.3 Dashboard Design and Visualization

In IBM Cognos BI, various visual elements were developed to represent the analyzed data effectively. The dashboard includes multiple charts and metrics, such as:

- Line charts showing sales and profit trends over time.
- Bar and column charts comparing product line performance.
- Pie charts representing revenue contribution by region or category.
- Maps visualizing geographical profit distribution.

Interactive filters and slicers were implemented to allow users to explore data by different parameters, such as product line, time range, or region.

7.4 Testing and Validation

After the dashboard design was completed, rigorous testing was conducted to ensure data accuracy, consistency, and visualization functionality. Each chart and filter was tested to verify that they displayed the correct results and updated dynamically based on user selections. The dashboard's responsiveness and load time were also optimized for smooth user experience.

Through this implementation process, the E-Commerce Revenue Tracker Dashboard successfully integrates data visualization, interactivity, and automation to provide a comprehensive analytical solution. It enables business users to monitor key performance indicators in real time, identify profitable trends, and make data-driven decisions efficiently.

CHAPTER 8

OUTPUT

The E-Commerce Revenue Tracker Dashboard developed using IBM Cognos Analytics, HTML, and CSS successfully visualizes key insights related to e-commerce sales performance and revenue growth. The dashboard displays various interactive charts, graphs, and filters that allow users to explore data dynamically and gain a deeper understanding of overall business performance. It provides a clear and comprehensive view of crucial metrics such as total revenue, profit, sales trends, and product line performance, enabling effective decision-making and strategic planning.

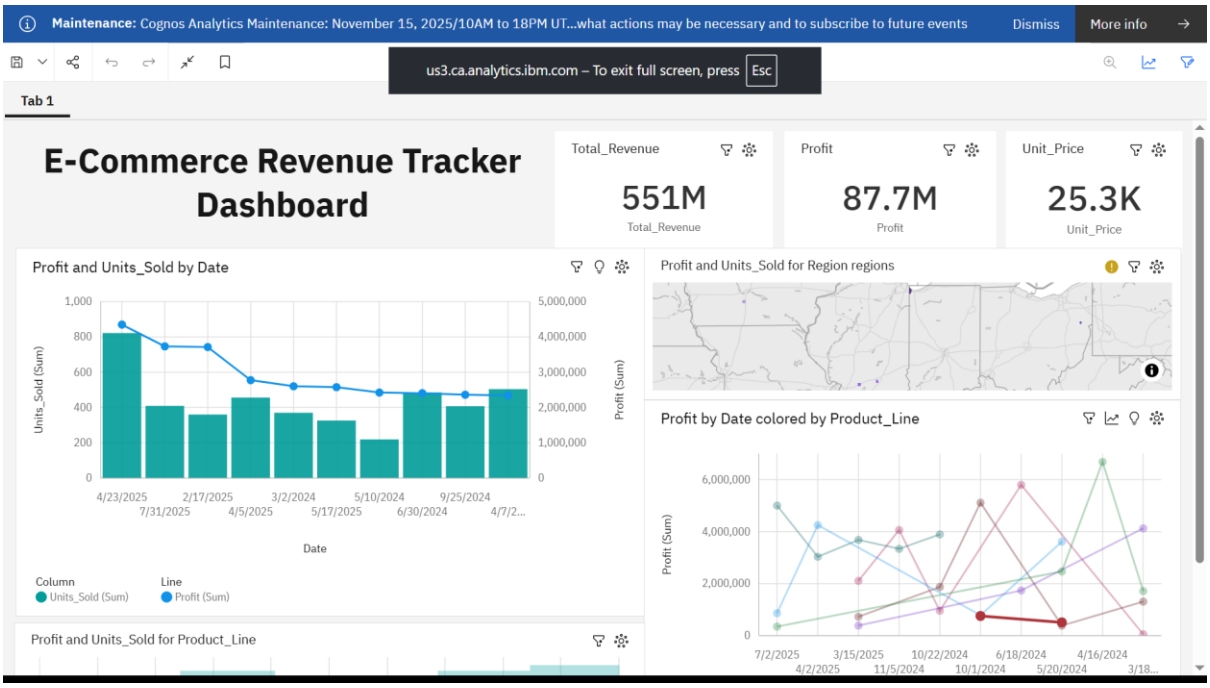

Figure .1 Revenue Dashboard

- **Dashboard Home Screen**: Displays key performance indicators such as total revenue, profit, and units sold.
- **Charts & Graphs**: Line charts illustrate sales and profit trends over time, while bar and pie charts compare revenue and profit across product categories and regions.

- **Regional Performance Map**: Visual representation of profit distribution across different geographical locations.
- **Interactive Filters**: Allow users to analyze data based on product line, time period, and region dynamically.

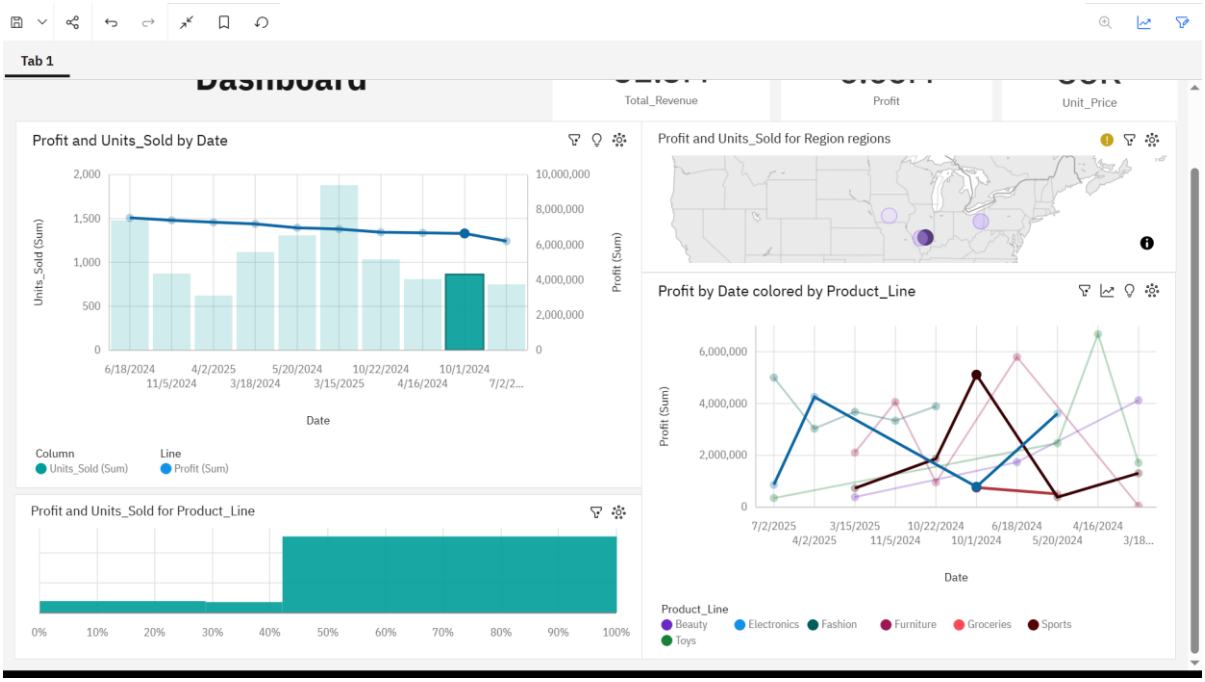

Figure. 2: Based on the profit

CHAPTER 9

CONCLUSION

The E-Commerce Revenue Tracker Dashboard provides an efficient and interactive analytical solution for monitoring and evaluating the performance of an e-commerce business. By integrating modern Business Intelligence (BI) technologies such as IBM Cognos Analytics with web technologies like HTML and CSS, the system successfully transforms raw business data into meaningful visual insights. The dashboard offers real-time analysis of key performance indicators, including revenue, profit, sales volume, and product line contribution, thereby enabling business stakeholders to make informed and data-driven decisions.

Through the use of dynamic charts, graphs, and maps, the system simplifies the complexity of large datasets and presents them in a user-friendly visual format. This enhances business transparency, improves operational efficiency, and supports effective strategic planning. The project also demonstrates the importance of business intelligence in identifying profitable regions, high-performing products, and sales trends that contribute to overall business growth.

The implementation of this dashboard has proven to be highly beneficial for e-commerce organizations seeking to improve decision-making processes, reduce manual reporting efforts, and gain competitive advantage through data analytics. In conclusion, the E-Commerce Revenue Tracker Dashboard serves as a valuable tool for bridging the gap between raw data and actionable intelligence, ultimately contributing to smarter business management and sustainable growth in the digital marketplace.

CHAPTER 10

FUTURE SCOPE

With these enhancements, the E-Commerce Revenue Tracker Dashboard can become a more advanced and intelligent analytical system. Future upgrades may include real-time data integration through APIs, machine learning-based predictive analytics for forecasting sales and customer trends, and customer behavior analysis for deeper insights. A mobile-friendly interface can enhance accessibility, while cloud integration using IBM Cloud or AWS will improve scalability and data security. These enhancements will make the dashboard a complete, automated business intelligence solution that supports smarter, faster, and data-driven decision-making for e-commerce growth.

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