CHAPTER:1
SYPNOSIS

1. Introduction

The E-commerce Sales Dashboard is a real-time analytics tool that aggregates and displays key metrics for an online retail business. It enables business stakeholders to monitor sales performance, track customer behavior, and optimize marketing and operational strategies through data visualization.

2. Purpose

The primary goal of the dashboard is to provide a comprehensive view of critical sales and business metrics. It empowers decision-makers with real-time data, helping them make informed choices to improve sales, enhance customer satisfaction, and streamline operations.

3. System Overview

The dashboard integrates data from various sources (e.g., e-commerce platforms, payment systems, and web analytics) to present an easy-to-understand interface. It supports real-time data visualization, allowing users to analyze sales trends, product performance, customer insights, and more. The system is highly customizable to meet the needs of different users, including sales managers, marketing teams, and executives.

4. Functional Requirements

- Data Integration: Connects to multiple data sources (e.g., e-commerce platforms, payment gateways, CRM systems) for real-time updates.
- KPI Tracking: Displays key performance indicators such as revenue, order volume, average order value, and conversion rates.
- Custom Filters: Allows users to filter data by time, product, region, and customer demographics.
- Visualization Tools: Provides charts, graphs, tables, and heat maps to represent sales data.
- Alert System: Sends notifications when key metrics deviate from predefined thresholds.
- Reporting: Users can export reports in multiple formats (CSV, PDF, Excel).
- Role-Based Access: Different user roles (Admin, Manager, Analyst) with customizable permissions.

5. Non-Functional Requirements

- Scalability: Must handle large volumes of data and grow with the business.
- Reliability: System should be stable with minimal downtime and handle peak traffic smoothly.
- Security: Robust security features, including encrypted data transmission and user authentication, to protect sensitive business information.
- Performance: Fast response times for data queries and real-time updates on dashboard elements.

6. Performance Requirements

- Real-Time Data Updates: Sales data and KPIs should be updated in real time or near real time to reflect the latest performance.
- Quick Load Times: Dashboard should load within 3-5 seconds, even with large datasets.
- Efficient Data Handling: Ability to process and display large volumes of transactional data without performance degradation.

7. User Interface Requirements

- Intuitive Design: Simple, user-friendly interface with clear navigation.
- Customizable Layout: Users can customize the layout of the dashboard to suit their needs.
- Interactive Elements: Users should be able to drill down into data visualizations.
- Responsive Design: The dashboard should be mobile-friendly, offering optimal usability across desktops, tablets, and smartphones.

- Tooltips and Help: Provide contextual help and tooltips to assist users in navigating and interpreting the dashboard.

8. Hardware Requirements

- Server: A cloud-based or on-premise server capable of handling large amounts of data and user traffic.
- Client Devices: Desktop, tablet, or mobile devices with internet access for users to interact with the dashboard.

9. Software Requirements

- Web Technologies: The dashboard should be developed using modern web technologies like React, Angular, or Vue.js for the front-end and Node.js, Django, or Ruby on Rails for the back-end.
- Database: A relational or NoSQL database (e.g., MySQL, PostgreSQL, MongoDB) to store transactional and customer data.
- Data Visualization: Integration with data visualization libraries such as D3.js, Chart.js, or Highcharts for graphical representation of data.
- Data Integration: APIs or middleware to pull data from external sources (e.g., e-commerce platforms, CRM systems, and analytics tools).

CHAPTER:2
INTRODUCTION

2.Introduction

Sales e-commerce has revolutionized the way businesses conduct transactions and interact with customers. E-commerce, or electronic commerce, involves the buying and selling of goods and services over the internet. This shift from traditional brick-and-mortar stores to online platforms has created new opportunities for businesses to reach a global audience, streamline operations, and enhance customer experiences.

Sales e-commerce encompasses a variety of activities, including online shopping, digital marketing, and electronic payments. It leverages technology to facilitate transactions, manage inventory, and analyze consumer behavior. The rise of e-commerce has led to the development of diverse online business models such as direct-to-consumer (DTC), marketplace platforms, and subscription services.

This project explores the core aspects of sales e-commerce, including its benefits, challenges, and the impact on modern retail practices. By examining current trends and technologies, we aim to provide a comprehensive understanding of how e-commerce is shaping the future of sales and business operations.

This introduction sets the stage for a detailed exploration of e-commerce, providing a clear overview of its significance and relevance.

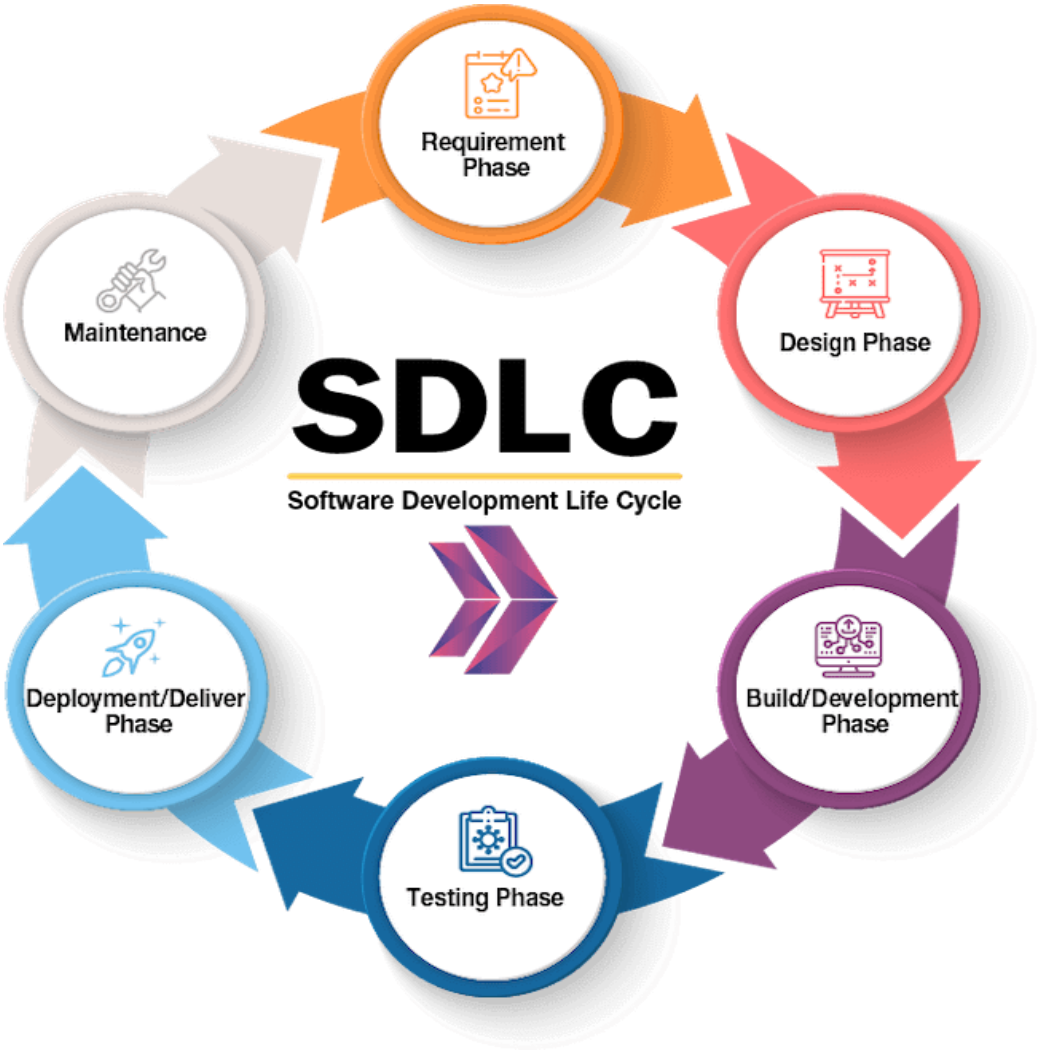
In the digital age, e-commerce has emerged as a transformative force in the retail sector, reshaping how businesses engage with customers and conduct transactions. This mini project aims to explore the essentials of sales e-commerce, focusing on how online platforms facilitate the buying and selling of goods and services.

Objective: To analyze the core components of sales e-commerce, including platform operations, digital marketing strategies, and technological advancements, and to understand their impact on business performance and customer experience.

Overview: Sales e-commerce involves several key elements, each contributing to the overall success of online transactions. The following diagram illustrates the primary components and their interaction.

Scope: This project will investigate the functionality of e-commerce platforms, evaluate digital marketing techniques, and assess technological tools. By understanding these elements, we aim to provide insights into optimizing online sales and enhancing the overall customer experience.

This structured approach will help in gaining a comprehensive understanding of how e- commerce drives modern sales strategies and its significance in today's business environment.



CHAPTER:3 LITERATURE SURVEY/EXIXTING SYSTEMS:

I. Introduction to E-commerce

Overview: E-commerce (electronic commerce) refers to buying and selling goods or services over the internet. It has rapidly evolved with the advancement of technology, making online shopping a dominant industry globally.

History: Since the first online transaction in the 1990s, the e-commerce space has grown exponentially, with giants like Amazon and Alibaba leading the way.

Types of E-commerce: B2C (Business to Consumer), B2B (Business to Business), C2C (Consumer to Consumer), and C2B (Consumer to Business).

II. Existing Systems in E-commerce

A. Major Platforms:

Amazon: Known for its vast marketplace, logistics network, and recommendation systems based on AI/ML.

Alibaba: Focuses on B2B sales but also has a strong B2C presence with Alibaba.com and AliExpress.

Shopify: A SaaS-based solution that allows businesses to create their online stores without needing in-depth technical knowledge.

eBay: Specializes in auctions and C2C sales.

B. Features of Existing Systems:

Personalization: Recommendation engines powered by machine learning algorithms, such as collaborative filtering and content-based filtering, enhance customer experience by suggesting products based on user behavior.

Mobile Optimization: Most platforms have responsive design or native apps to cater to the growing mobile user base.

Payment Gateways: Integration with payment processors like PayPal, Stripe, Square, and others.

Logistics & Delivery: Efficient inventory and supply chain management systems, along with last-mile delivery services, enhance order fulfillment.

Security: Encryption, fraud detection, and secure payment processing are paramount in e- commerce.

lll. Trends and Innovations in E-commerce

AI and Machine Learning: Used for predictive analytics, dynamic pricing, customer support (e.g., chatbots), and fraud detection.

Augmented Reality (AR): Some platforms allow users to "try on" clothes or visualize how furniture will look in their homes.

Voice Commerce: With smart speakers like Amazon Echo and Google Home, consumers are now using voice search to shop.

Blockchain: Used for secure transactions and in the development of decentralized e- commerce platforms.

Social Commerce: Platforms like Instagram and TikTok have integrated shopping features to allow direct purchasing from social media.

Omnichannel Strategies: Businesses are using both online and offline channels to enhance customer experience through seamless integration (e.g., ordering online and picking up in- store).

lV. Challenges in E-commerce

Security and Fraud Prevention: Cyber-attacks, data breaches, and fraud remain significant concerns in online shopping.

Customer Retention: Acquiring customers is expensive, and customer retention is key to profitability. Loyalty programs and personalized experiences can aid in this.

Logistics and Supply Chain: Efficiently managing inventory, shipping, and returns is a core challenge, especially in global operations.

Cart Abandonment: A significant percentage of users abandon their carts before making a purchase. Reasons include complicated checkout processes, shipping fees, and payment security concerns.

Competition: The e-commerce space is highly competitive, with new players entering the market regularly.

V. Existing Research and Literature

Consumer Behavior and personalization: Focuses on customer segmentation, recommendation systems and factors influencing online purchase decision.

Pricing & Revenue Optimization: Includes studies on dynamic pricing, price elasticity, and discount strategies to maximize profits.

CHAPTER:4
PROBLEM STATEMENT

1. Problem Statement

Title: Improving User Experience and Sales Conversion in Small-to-Medium E-commerce Platforms.

Context:

E-commerce platforms have revolutionized the way consumers shop by providing access to a vast array of products and services online. However, small-to-medium e-commerce businesses face significant challenges in creating a seamless user experience, increasing sales conversions, managing customer retention, and competing with large e-commerce giants like Amazon or Alibaba.

Problem:

Despite the rapid growth of e-commerce, many small-to-medium-sized businesses struggle with low sales conversion rates, high cart abandonment, lack of personalization, and ineffective customer retention strategies. These platforms often lack advanced technologies like AI-driven recommendation systems, real-time inventory management, and optimized mobile experiences, which large enterprises leverage to create competitive advantages.

Key Challenges:

Low Sales Conversion Rate: Many users abandon the purchase process due to factors such as a complicated checkout process, high shipping fees, and concerns about payment security. **Limited Personalization**: Small e-commerce platforms often struggle to provide tailored shopping experiences, which affects customer engagement and repeat purchases.

High Cart Abandonment: High cart abandonment rates occur due to inefficient user interface design, long shipping times, and hidden fees.

Inefficient Mobile Optimization: With the increasing shift to mobile shopping, small businesses often fail to deliver a mobile-optimized experience, leading to potential loss of sales.

Lack of Technological Integration: Small businesses lag behind in adopting advanced technologies like AI-based product recommendations, augmented reality (AR) for product visualization, and efficient supply chain management systems.

Customer Retention: Maintaining customer loyalty is challenging due to a lack of personalized loyalty programs and incentives to drive repeat purchases.

CHAPTER 5: OBJECTIVE

1. Increase Revenue

Target: Achieve a specific percentage increase in revenue within a defined.

Tactics: Improve pricing strategy, introduce upselling/cross-selling, offer exclusive deals, or bundle products.

2. Grow Customer Base

Target: Increase the number of new customers by a specific percentage or number. **Tactics:** Invest in digital marketing, SEO, influencer partnerships, and customer referral programs.

3. Improve Conversion Rate

Target: Increase website conversion rate (e.g., increase from 2% to 4%).

Tactics: Optimize the user experience, simplify the checkout process, and improve product descriptions and visuals.

4. Enhance Customer Retention

Target: Improve customer retention rate by a set percentage (e.g., reduce churn by 10%). **Tactics:** Create loyalty programs, personalized offers, and implement better post-purchase communication.

5. Expand Product Range

Target: Introduce new products or categories and achieve specific sales targets for them. **Tactics:** Leverage customer feedback, market trends, and research to develop or source new product.

CHAPTER 6: SOFTWARE REQUIREMENT SPECIFICATION

6.Software Requirement Specification

1. Functional Requirement Data

Collection and Integration:

Sales Data Ingestion: Ability to collect and integrate sales data from multiple sources such as website transactions, mobile apps, and in-store purchases.

Customer Data Integration:Collect customer demographics, behavior, and interaction history.

Product Data: Collect information about products, including SKUs, prices, categories, and inventory status.

Data Preprocessing and Cleaning:

Data Cleaning: Handle missing, inconsistent, or erroneous data, such as incomplete transactions or invalid entries.

Data Transformation: Normalize or scale data as needed for analysis and modeling.

Dashboard User Interface

Customizable Dashboard: Allow users to customize the layout and design of the dashboard to focus on the metrics most relevant to their role.

Widgets and Tiles: Provide different types of data widgets such as line graphs, bar charts, pie charts, tables, and key performance indicators (KPIs).

Sales Analysis and Reporting Sales:

Trend Analysis: Provide visualizations and metrics for daily, weekly, and monthly sales performance.

Product Performance: Analyze which products or categories drive the most sales, profits, and customer interest.

Sales Forecasting: Implement predictive models to forecast future sales based on historical data, seasonality, and external factors.

Real-time Analytics:

Real-time Dashboards: Provide up-to-date sales, customer, and inventory data in an accessible dashboard format for stakeholders.

Anomaly Detection: Alert the team in real-time about unusual spikes or drops in sales or inventory levels.

2. Non-Functional Requirement

Response Time: The system should provide sales reports, dashboards, and analytics insights within an acceptable response time.

Batch Processing Time: Data preprocessing, feature engineering, and model training should be completed within specified time frames.

Data Retention Policy: Implement clear data retention policies to keep historical data for an appropriate period (e.g.5-10 years), based on business needs and regulatory requirements.

Data Archiving: Archive older or less frequently accessed data to more cost-effective storage, ensuring that archived data remains easily retrievable when needed for analysis or compliance.

Data Cleansing: Ensure automatic or manual data cleansing processes to maintain high data quality by addressing missing, duplicate, or inaccurate entries.

Consistency Checks: Implement regular consistency checks to verify that the data flowing into the analytics system matches the source data, preventing discrepancies or misreporting.

3. User Interface Requirement

1. Dashboard Design

Customizable Dashboards: Users should be able to customize their dashboards to display specific metrics, visualizations, or KPIs relevant to their role (e.g., sales trends, top-selling products, customer segments).

Widgets and Visualization Types: The dashboard should support various widget types such as charts, graphs, tables, heatmaps, and key performance indicators (KPIs) to visualize data in different formats.

2. Navigation and Accessibility

Intuitive Navigation: Use clear menus, tabs, and navigation paths, allowing users to easily find the reports, insights, and data sources they need.

Search Functionality: Provide a global search bar that allows users to quickly find products, customer segments, or specific reports by entering keywords.

3. Data Visualization

Interactive Charts and Graphs: Charts and graphs should be interactive, allowing users to click on different data points to drill down further.

Real-Time Filtering: Users should be able to apply real-time filters to visualizations without needing to reload the entire dashboard.

4. Accessibility

Adherence to Accessibility Standards: Ensure the platform adheres to accessibility standards, providing features like screen reader support, high-contrast mode, and keyboard navigation to accommodate users with disabilities.

Text Resize and Color Contrast: Provide options for users to adjust text size, font type, and color contrast to meet individual accessibility preferences.

5. Global Features

Localization and Language Support: Provide multi-language support to cater to a global audience, ensuring that the UI, tooltips, and reports can be displayed in different languages.

Time Zone Adjustments: Allow users to view reports and data in their local time zone, adjusting timestamps and scheduling accordingly.

4. Hardware and Software Requirements

1. Servers

A. Data Processing Servers:

CPU: Multi-core processors with at least 16 cores to handle parallel processing and computations.

RAM: Minimum of 64 GB, ideally 128 GB or more for handling large datasets in-memory. **Storage**: High-speed SSDs with at least 1 TB of storage for immediate data access. For large- scale operations, consider distributed storage systems of 2 TB.

Network: High-speed internet connection, especially for real-time data updates with at least 1GBps or higher.

B. Database Servers:

CPU: At least 8-core processors for efficient database querying and transaction management.

RAM: 64 GB or more for handling concurrent database queries and maintaining performance with large datasets.

Storage: At least 10TB of high-speed SSD storage for managing databases that store historical and real-time sales transactions.

2. Operating Systems

Server Operating Systems: Linux for data processing, database, and web servers due to its stability, scalability, and performance.

Windows Server: for environments requiring Microsoft services or Windows-based applications.

2. Database Management Systems (DBMS)

Relational Databases: MySQL or SQL Server for handling structured sales and transactional data.

NoSQL Databases: MongoDB, Cassandra, or Amazon DynamoDB for managing semi- structured or unstructured data.

Data Warehousing: Amazon Redshift, Google BigQuery, Snowflake, or Azure Synapse for large-scale analytics queries across massive datasets, enabling efficient sales trend analysis, product performance tracking, and customer segmentation.

3. Analytics and Reporting Software

Business Intelligence (BI) Tools: Tableau, Microsoft Power BI, Looker, or Qlik for creating dashboards and reports that visualize sales performance, customer insights, product trends, and marketing campaign effectiveness.

Reporting Tools: JasperReports, Crystal Reports, or Google Data Studio for generating detailed, automated reports based on sales, customer behaviors, and KPIs.

4. Data Analytics

Data Analytics Platforms: Python (with libraries like Pandas, NumPy, SciPy), Jupyter or R for sales forecasting, customer segmentation, EDA or other analytical models.

Apache Hadoop or Google Big Query for large-scale data analysis and distributed computing.

5. Security Software

Encryption: Implement encryption software (e.g., VeraCrypt, BitLocker, or LUKS) for protecting sensitive sales data both at rest and in transit.

Firewall and Network Security: Use firewall solutions like Cisco ASA, pfSense, or cloud- based security tools.

5. Performance Requirement

1. Key Performance Indicators (KPIs):

Conversion Rate: Percentage of visitors who make a purchase.

Customer Lifetime Value (CLV): The total worth of a customer to the business over the entire relationship.

Cart Abandonment Rate: Percentage of users who add items to their cart but don't complete the purchase.

Average Order Value (AOV): Average revenue per transaction.

Customer Retention Rate: The percentage of customers who return to buy again. **Return on Advertising Spend (ROAS)**: Revenue generated for every dollar spent on marketing.

2. Data Infrastructure Requirements:

Real-time Data Processing: To track sales, customer behavior, and inventory in real-time. **Data Storage**: Ability to store and manage large volumes of structured and unstructured data.

3. Data Collection and Integration:

Omni-channel Integration: Sales data from online stores, mobile apps, and social media should be integrated.

CRM Integration: Connect with CRM tools to gain insights into customer behavior and preferences.

Tracking and Analytics Tools: Use tools like Google Analytics, Adobe Analytics, or custom- built solutions to track user behavior and sales performance.

CHAPTER:7

Methodology

Methodology

Agile Methodology with Scrum

Agile is the preferred methodology for e-commerce projects due to its iterative approach, which allows for frequent reassessment and continuous delivery of functional components. By using Scrum, the project will be broken down into Sprints (short time-boxed periods) to focus on specific deliverables in a fast-paced, collaborative manner.

1. Define Project Scope and Objectives

Objective Focus: Monitor key sales metrics: total revenue, units sold, average order value (AOV). Analyse product performance and customer segments.

Stakeholder Needs: Focus on one or two key stakeholders to avoid over-complicating requirements.

Deliverables: A simplified dashboard that provides clear insights into sales performance and customer behavior.

2. Data Collection

Source Identification: Choose 2-3 key data sources such as: Sales Platform for transactions and order data. Web Analytics for customer behavior. CRM for customer data, if applicable. **Data Collection Methods:** Use APIs or CSV exports to gather data from selected sources.

Ensure the data collected covers the essentials.

3. Data Processing

Data Cleaning: Remove duplicate records, handle missing values, and filter out irrelevant data (e.g., extremely low sales, returns).

Data Aggregation: Summarize data where possible. Aggregate sales by product category rather than individual products. Group customers by segments.

Reduced Timeframe: Limit the data to a recent time range (e.g., last 6 months) to avoid working with too much historical data.

4. Data Analysis

Simplified Analysis: Focus on key metrics like Total sales revenue, Top-selling products and Customer

segments.

Segmentation: Segment customers by behavior and products by performance. **Optional**

Forecasting: If needed, apply basic sales forecasting for high-level future predictions.

5. Dashboard Design

Core Structure: Sales Overview: Display total sales, AOV, and units sold. **Product**

Performance: Highlight top-selling products and product categories. **Customer Insights:**

Show customer segments and sales by region.

6. Deployment and Access Control

Deployment: Deploy the dashboard on the appropriate platform. Ensure that all stakeholders can access it through secure login systems.

Access Control: Set access levels based on user roles. Sensitive data should be restricted, and non-sensitive data can be shared freely with relevant teams.

7. Continuous Monitoring and Updates Monitor

Usage: Track which metrics and features are most frequently used by dashboard users. This can provide insights into which data is most valuable, and if there are any opportunities for dashboard optimization.

Regular Updates: E-commerce data changes frequently (new products, updated customer segments, seasonal trends), so it's essential to keep the dashboard updated.

User Feedback: Regularly collect feedback from users to identify pain points and areas for improvement. This feedback loop ensures the dashboard evolves alongside the business's needs.

8. Evaluation and Optimization Performance

Evaluation: Assessthe effectiveness of the dashboard in meeting its objectives. Is it helping users make more informed decisions? Is there a noticeable improvement in key business outcomes.

Optimization: Based on feedback and performance analysis, refine the dashboard. This could involve simplifying visualizations, adding new data sources, or improving interactivity. CONC

CHAPTER: 8
TESTING

Test Case ID	TC_G7	Test Case Description	Verify E-Commerce Sales Dashboard		
Created By	Koustubh Kulkarni	Reviewed By	Eldrich Victoria	Version	1.2

QA Tester's Log	Review comments from Eldrich Victoria incorporate in version 1.2

Tester's Name	Koustubh Kulkarni	Date Tested	25-11-2024	Test Case (Pass/Fail/Not Executed)	Pass

Sr.no.	Prerequisites:
1	Data should include revenue, expenses, profit margins, and other key financial metrics.
2	Verify all data sources are properly connected to Power BI.
3	Ensure the Power BI environment is set up and configured correctly.

Sr.no.	Test Data
1	E-Commerce Data
2	User Data
3	Regional Data

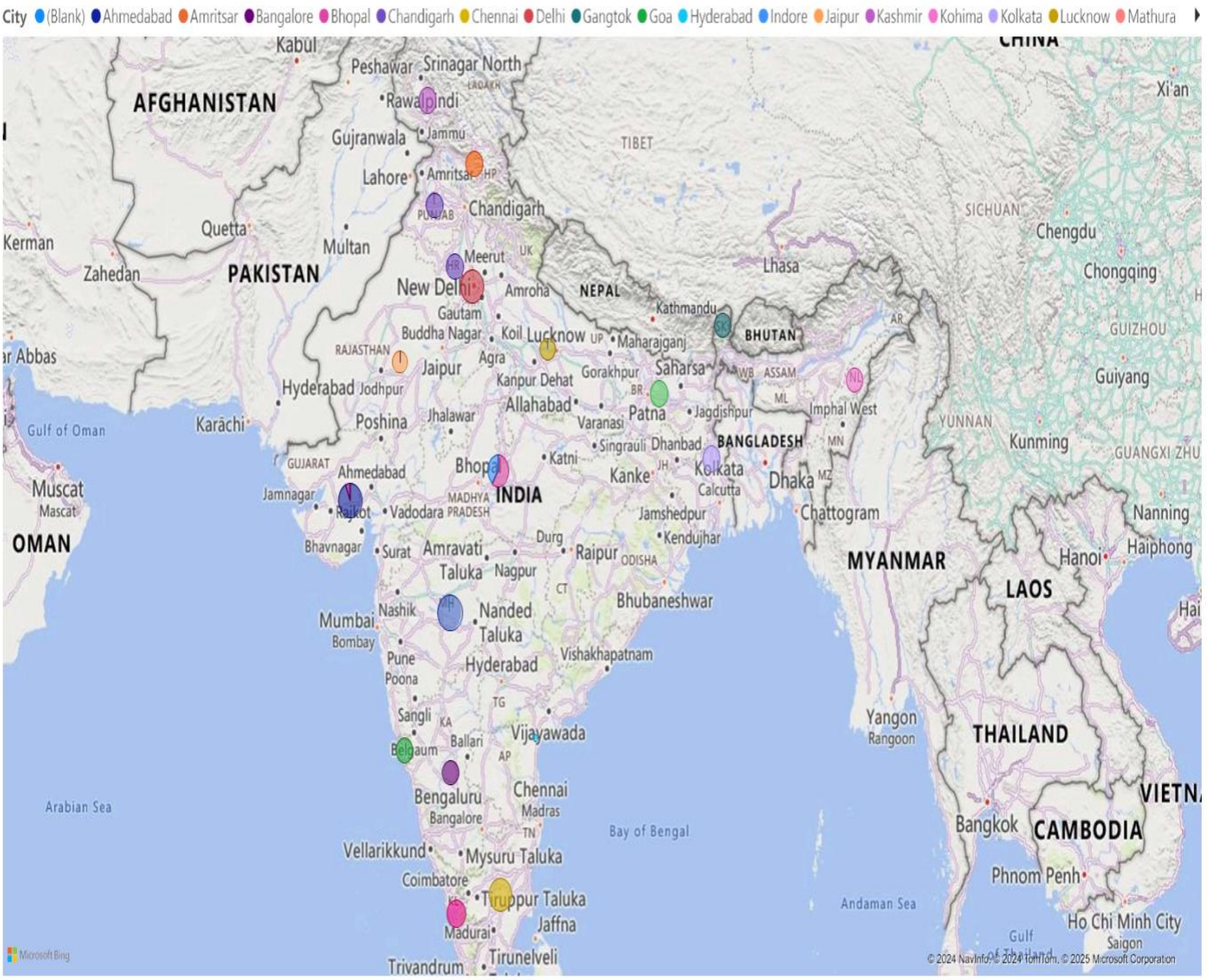
Test Scenario	Check that all visualizations (e.g., bar charts, line graphs, pie charts) display correctly.

Step	Step Details	Expected Results	Actual Results	Pass / Fail / Not executed / Suspended
1	Open Power BI and go to the Project Overview Dashboard.	The dashboard loads without errors, and visualizations display correctly	The dashboard loads without errors, and visualizations display correctly.	Pass
2	Ensure data in visualizations match the source data.	Filters and slicers update visualizations as expected.	Filters and slicers update visualizations as expected.	Pass
3	Apply various filters and slicers	Dashboard data matches the source.	Dashboard data matches the source.	Pass
4	Verify that the dashboard returns to its default state.	Resetting filters restores the default state.	Resetting filters restores the default state.	Pass
5	Slicers update visualizations correctly	Slicers update visualizations correctly.	Slicers update visualizations correctly.	Pass

CHAPTER: 9
PROJECT SCREENSHOTS


E-COMMERCE SALES DASHBOARD
Qtr 1
Qtr 2
Qtr 3
Qtr 4
All
438K
Sum of Amount
37K
Sum of Profit
5615
Sum of Quantity
121K
Sum of AOV
Amount by State
40K
30K
20K
10K
0K
Maharashtra
Madhya Pradesh
Uttar Pradesh
Nagaland
Rajasthan
Punjab
Kerala
West Bengal
Tamil Nadu
Sikkim
Sum of Profit by State
4K
2K
0K
Mahar...
Kerala
West ...
Bihar
Himac...
Nagal...
Uttar ...
State
Sum of Quantity by Category
Furniture 17%
Electronics 21%
Clothing 63%
Sum of Amount by CustomerName
5K
0K
Abhijeet
Priyanka
Gaurav
Aarushi
Bharat
Sum of Quantity by PaymentMode
EMI 10%
Credit Card 12%
COD 44%
Debit C... 13%
UPI 21%
Profit by Sub-Category
Printers
Bookcases
Saree
Accessories
Tables
0K
5K
10K
Sum of Profit

Sum of Profit and Sum of Amount by State and City



CHAPTER: 10
Conclusion futurework and references

CONCLUSION

An E-commerce Sales Dashboard serves as a powerful tool for businesses, providing key insights into their online sales performance. By consolidating crucial metrics such as revenue, conversion rates, average order value, traffic sources, customer demographics, and product performance in a single, interactive interface, the dashboard enables quick decision-making and data-driven strategies. Key takeaways include:

1. Real-Time Monitoring: A well-designed dashboard allows businesses to monitor sales performance in real-time, helping to identify trends, seasonal patterns, and anomalies promptly.

2. Data-Driven Decision Making: The ability to visualize sales trends and customer behaviors enhances decision-making, allowing businesses to adjust pricing, inventory, and marketing strategies based on actionable insights.

3. Improved Operational Efficiency: With instant access to essential metrics, the dashboard can streamline operations by highlighting areas that need attention—whether it's a drop in conversion rates, issues with customer acquisition, or product performance problems.

4. Performance Tracking: By comparing current data to historical benchmarks, the dashboard allows businesses to track performance against goals, ensuring they stay on track for growth.

5. Enhanced Customer Understanding: By analyzing customer data (e.g., geographic location, demographics, purchase patterns), the dashboard helps businesses tailor their offerings and marketing efforts to meet customer needs more effectively.

In conclusion, an E-commerce Sales Dashboard is an indispensable tool for modern ecommerce businesses, offering a comprehensive overview that helps teams drive performance, optimize strategies, and stay competitive in a fast-paced digital landscape.

REFERENCES

https://www.statista.com/topics/871/online-shopping/#topicOverview

https://www.forrester.com/bold

https://www.shopify.com/blog/17921828-dont-fear-analytics-ill-make-it-simple-for-you

https://www.mckinsey.com/industries/consumer-packaged-goods/our-insights/e- commerce-at-the-center-of-profitable-growth-in-consumer-goods