ToyCraft Tales - Project Report

1.. INTRODUCTION

1.1 Project Overview

This project analyzes the number and distribution of toy manufacturers across US states from 2005 to 2016.

The goal is to provide insights into manufacturing trends using MySQL and Tableau.

1.2 Purpose

The purpose is to identify state-wise and year-wise manufacturing trends and visualize the insights using interactive dashboards.

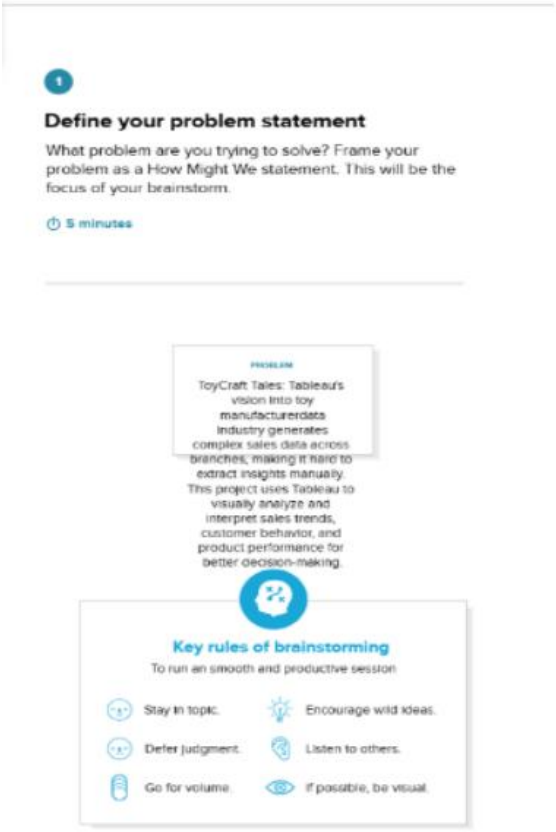
2.. IDEATION PHASE

2.1 Problem Statement

Toy manufacturers collect a lot of data, but understanding it can be difficult. This project uses Tableau to turn complex toy data into easy, clear visuals to help improve sales, production, and decision-making.

2.2 Empathy Map Canvas

2.3 Brainstorming



1. Sales Performance Analysis Track sales by city, branch, product category, and time. Identify best-selling and underperforming toy categories. Spot seasonal trends and peak purchase periods.

1. Operational Efficiency Monitoring Analyze sales and gross income per branch. Compare actual sales vs. potential across cities. Help allocate marketing or stocking efforts efficiently.

Customer Segmentation Insights Understand purchase patterns based on gender, customer type (Member/Normal), and payment method. Identify customer groups that drive more revenue.

2. Inventory Trend Visualization Use sales quantity and COGS to find slow-moving or overstocked product lines. Support demand forecasting based on historical sales.

1. Sales Insights Group

Goal: Understand toy sales trends across branches and cities. **Tasks:**

- Collect and clean sales data (Branch, City, Date, Product Line).
- Build Tableau dashboards to track best-selling categories, sales trends over time, and city-wise performance.
- Identify top-performing branches and seasonal sales spikes.

2. Inventory Visualization Group

Goal: Enhance toy inventory decision-making using sales data.

Tasks:

- Use quantity sold and COGS to identify slow- and fast-moving items.
- Visualize overstocked or understocked products by category.
- Recommend restocking or clearance strategies based on Tableau insights.

3. Customer and Market Behavior Group

Goal: Analyze customer preferences and behavior for targeted strategies.

Tasks:

- Segment customers by gender, type (Member/Normal), and payment mode.
- Use Tableau to show which products are popular among specific groups.
- Recommend product placements or promotions based on demographic insights.

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4

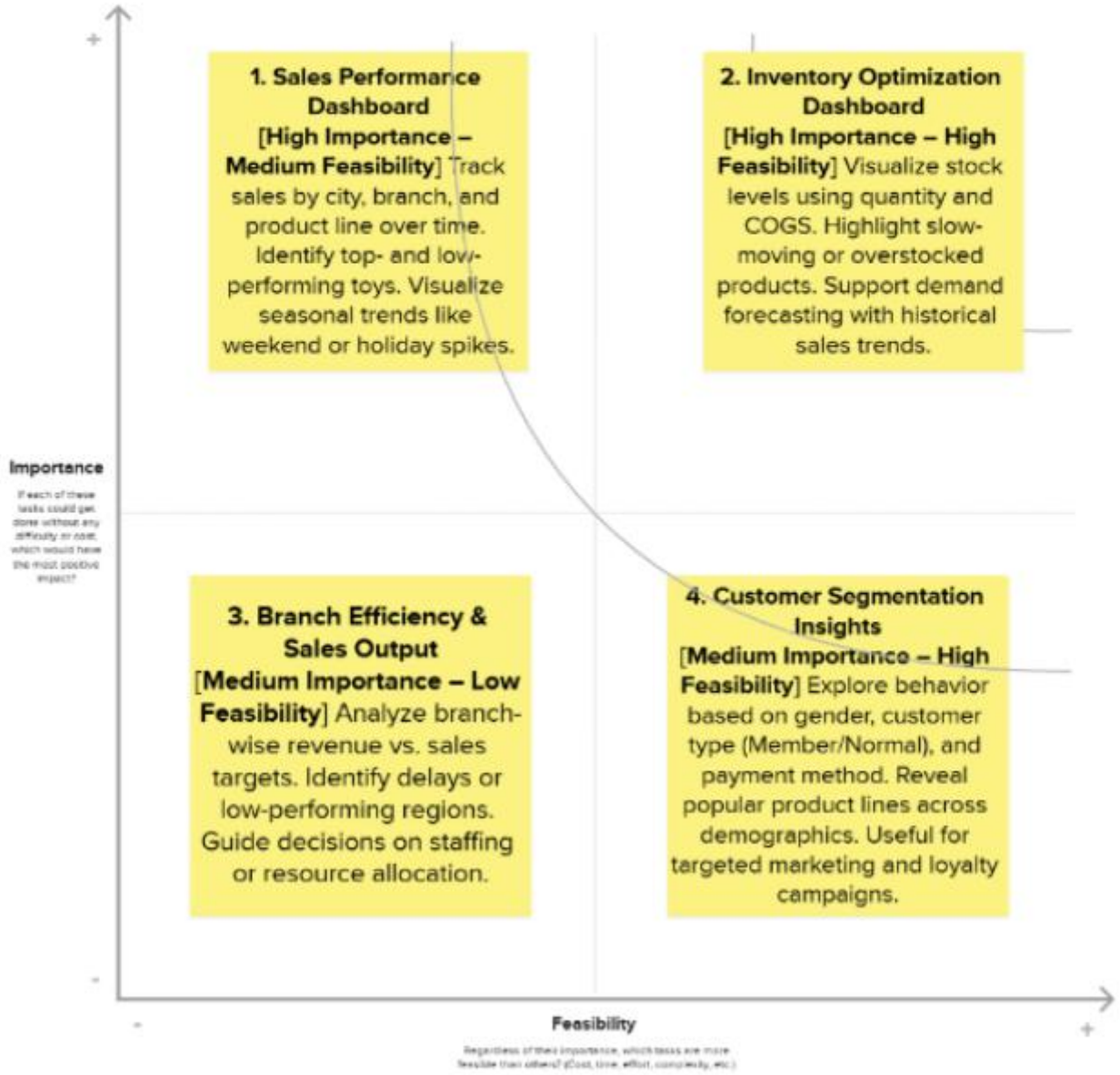
Prioritize

Your team should all be on the same page about what's important moving forward. Place your ideas on this grid to determine which ideas are important and which are feasible.

20 minutes

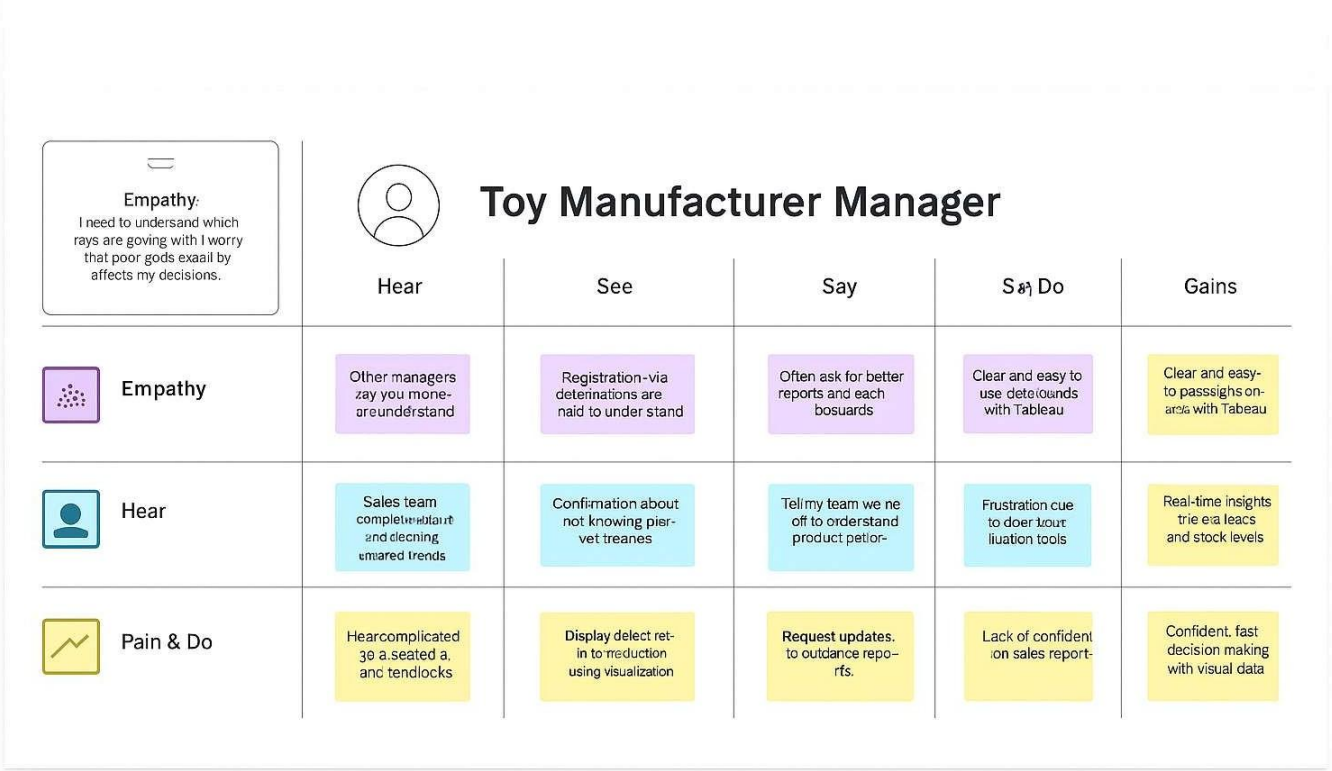
TIP

Participants can use their cursors to point at where sticky notes should go on the grid. The facilitator can confirm the spot by using the laser pointer holding the **H key** on the keyboard.



3.. REQUIREMENT ANALYSIS

3.1 Customer Journey map



3.2 Solution Requirement

Functional Requirements:

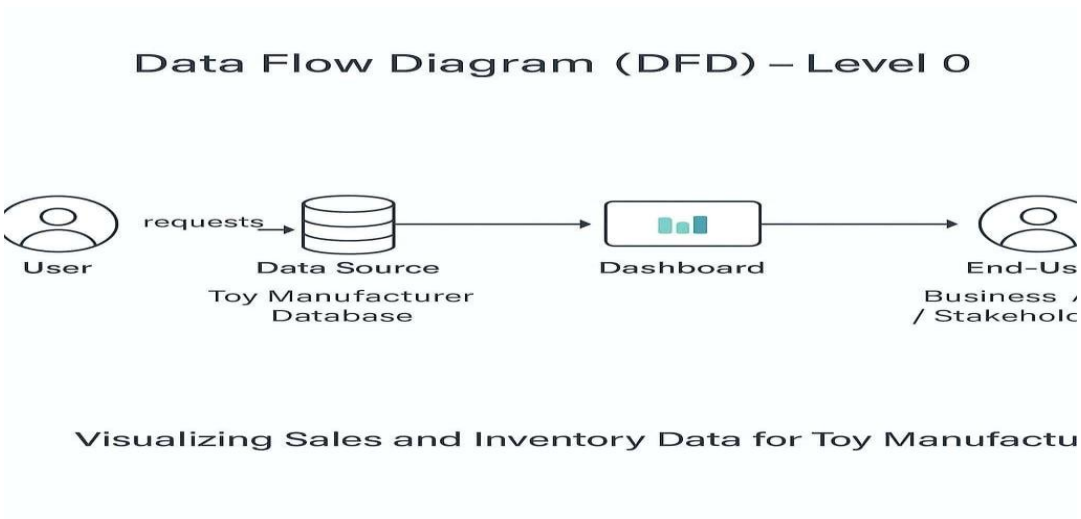
The following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	Data Upload	Upload toy sales and production data via CSV or Excel file
FR-2	Data Visualization	Generate interactive dashboards using Tableau
FR-3	Sales Trend Analysis	Provide visual reports of sales trends and peak seasons
FR-4	Defect Rate Insights	Display defect rates in production using visualization
FR-5	Export Reports	Export visual reports in PDF and image formats

Non-functional Requirements:
Following are the non-functional requirements of the proposed solution.

NFR No.	Non-Functional Requirement	Description
NFR-1	Usability	Easy-to-use interface with drag-and-drop features
NFR-2	Security	Secure login with password protection, role-based access
NFR-3	Reliability	Ensure system handles large datasets without crashing
NFR-4	Performance	Dashboards load within 3 seconds for optimal performance
NFR-5	Availability	System available 99.9% of the time, minimal downtime
NFR-6	Scalability	Support increased data volume as company grows

3.3 Data Flow Diagram



3.4 Technology Stack

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1	User Interface	Tableau Dashboards viewed by users	Tableau, Tableau Public
2	Application Logic-1	Data Preparation for Visualization	Tableau Prep, Python (if applicable)
3	Application Logic-2	Sales, Inventory, and Trends Analysis Logic	Tableau Calculations, Expressions
4	Database	Store Sales, Inventory, and Customer Data	MySQL, CSV, Excel, Google Sheets
5	Cloud Database	Cloud-based storage for scalability	AWS RDS, Google Cloud SQL (Optional)

6	File Storage	Store raw data files, reports	Google Drive, Cloud Storage
7	External API-1	Integration with sales platforms (if applicable)	Shopify API, Google Analytics API
8	External API-2	Integration with market trend data (optional)	Market Research APIs (Optional)
9	Machine Learning Model	Predictive sales trends and inventory forecasting	Basic ML with Tableau Extensions or Python
10	Infrastructure (Server/Cloud)	Hosting Tableau dashboards and databases	Local Server or Tableau Online

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1	Open-Source Frameworks	Using Tableau Public and open-source data processing tools	Tableau Public, Python
2	Security Implementations	Access control for dashboard sharing, data security measures	Password Protection, Cloud Security
3	Scalable Architecture	Cloud deployment for handling large datasets if needed	AWS, Google Cloud (Optional)

4.. PROJECT DESIGN

4.1 Problem Solution Fit

4.2 Proposed Solution

S.No.	Parameter	Description
1	Problem Statement (Problem to be solved)	Toy manufacturers collect a lot of data but understanding it can be difficult. This project uses Tableau to turn complex toy data into easy, clear visuals to help improve sales, production, and decision-making.
2	Idea / Solution description	A Tableau-powered interactive dashboard system that visualizes key toy industry metrics – including demand trends, age group preferences, and stock levels – for real-time decision-making.
3	Novelty / Uniqueness	Combines storytelling with data through “Toy Craft Tales” – a narrative-based approach that helps non-technical users interpret complex datasets intuitively.
4	Social Impact / Customer Satisfaction	Increases efficiency in toy production, reduces waste, and aligns products with children’s interests – ultimately leading to higher satisfaction for both customers and manufacturers.
5	Business Model (Revenue Model)	Subscription-based model for manufacturers and retailers; freemium version with limited dashboards, with additional premium analytics and customization for enterprise clients.
6	Scalability of the Solution	The solution can scale across global markets and be adapted for various toy segments, from educational toys to collectibles, with multilingual and regional data support.

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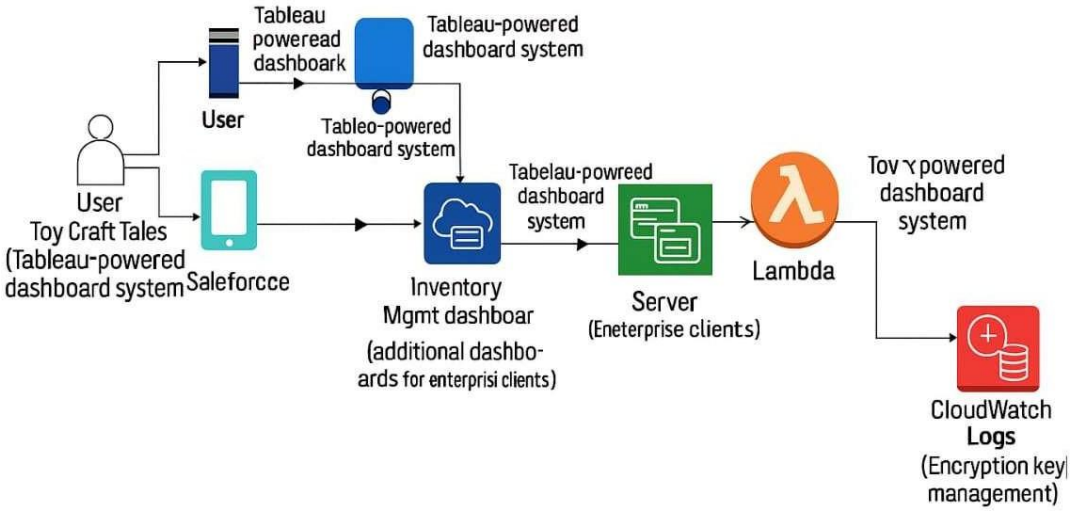
4.3 Solution Architecture



5. PROJECT PLANNING & SCHEDULING

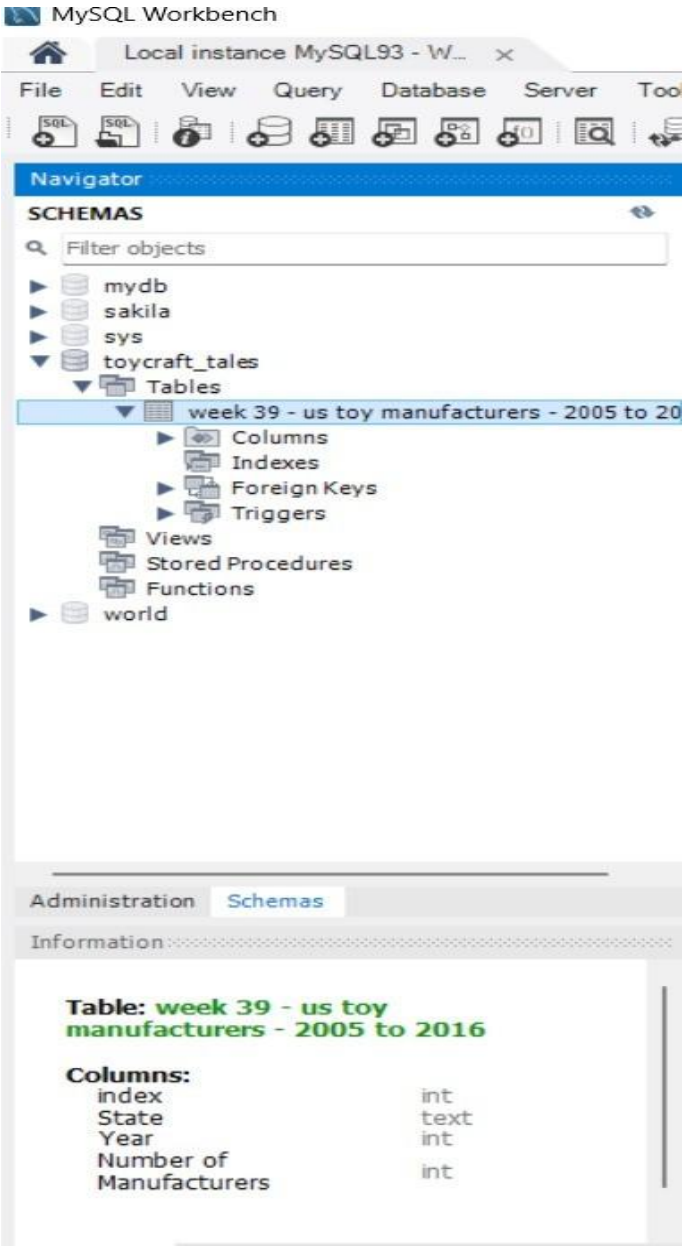
5.1 Project Planning

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Data Upload	USN-1	As a Data Analyst, I can upload sales and inventory data in CSV format	3	High	Team A
Sprint-1	Dashboard View	USN-2	As a Data Analyst, I can view interactive dashboards in Tableau	2	High	Team A
Sprint-2	Trend Analysis	USN-3	As a Manager, I can analyze seasonal sales trends	3	Medium	Team B
Sprint-2	Inventory Monitoring	USN-4	As a Warehouse Staff, I receive alerts for low inventory levels	2	High	Team B
Sprint-3	Report Export	USN-5	As a Manager, I can export dashboards as PDF/image	1	Medium	Team C

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date	Story Points Completed
Sprint-1	5	5 Days	11 June 2025	15 June 2025	5
Sprint-2	5	5 Days	16 June 2025	21 June 2025	5
Sprint-3	1	3 Days	22 June 2025	24 June 2025	1

6.. FUNCTIONAL AND PERFORMANCE TESTING

6.1 Performance Testing



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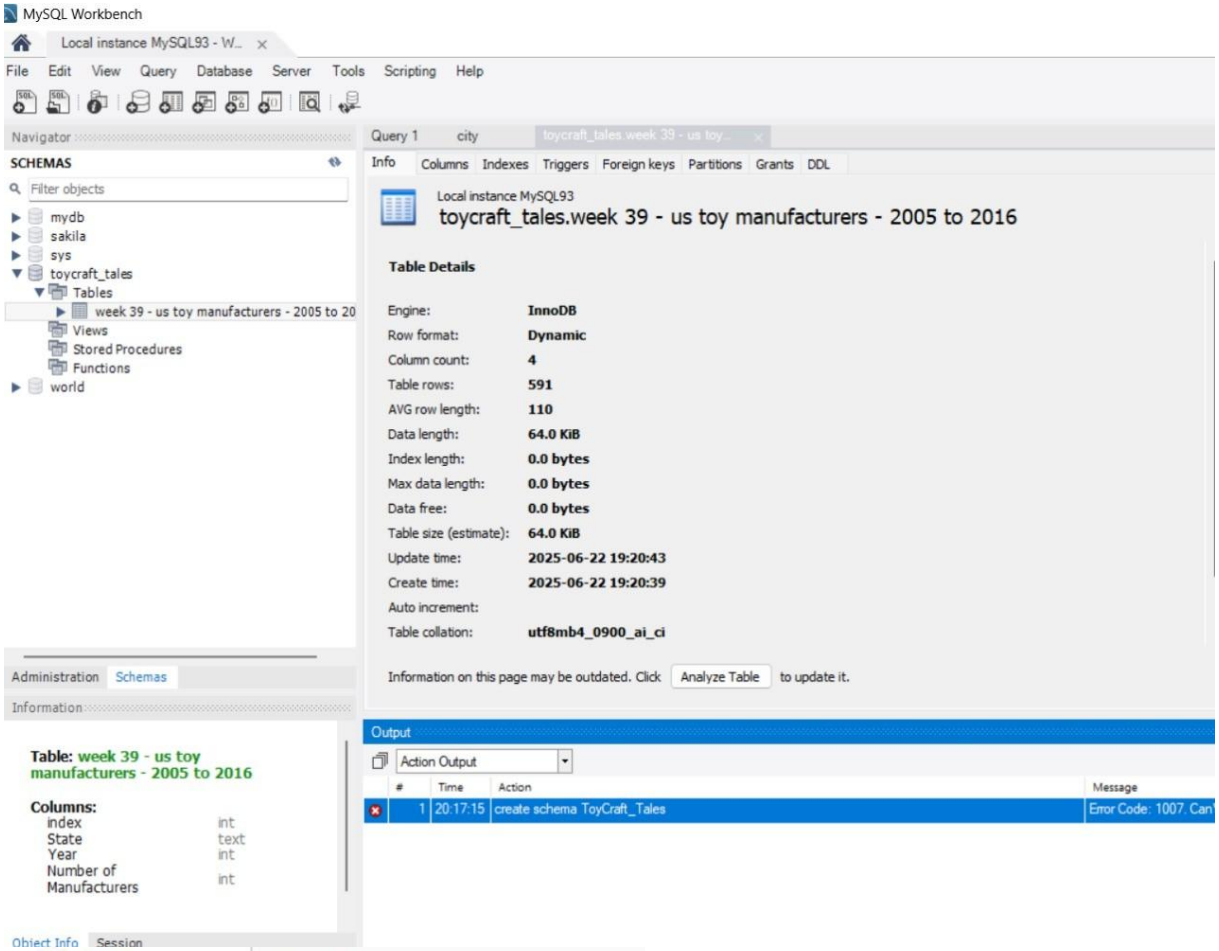
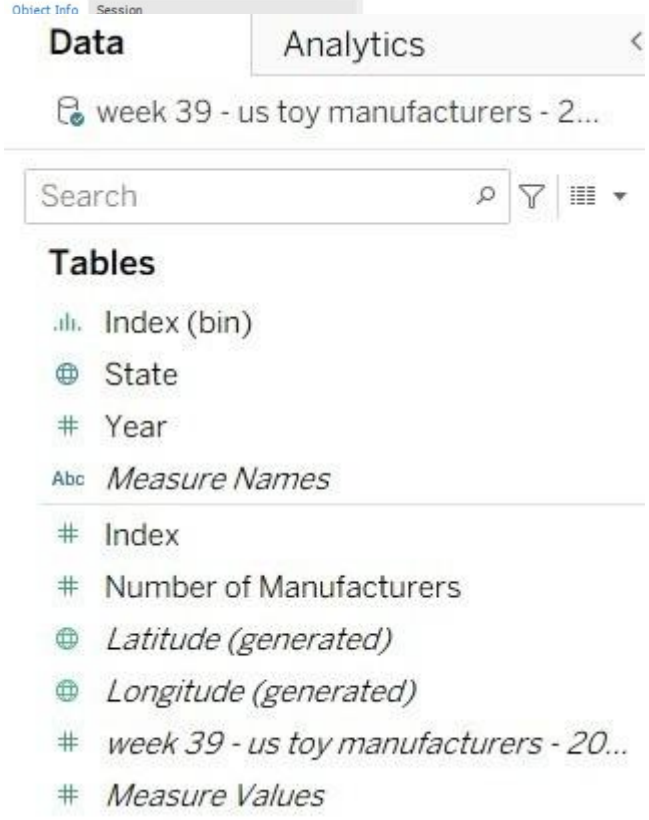
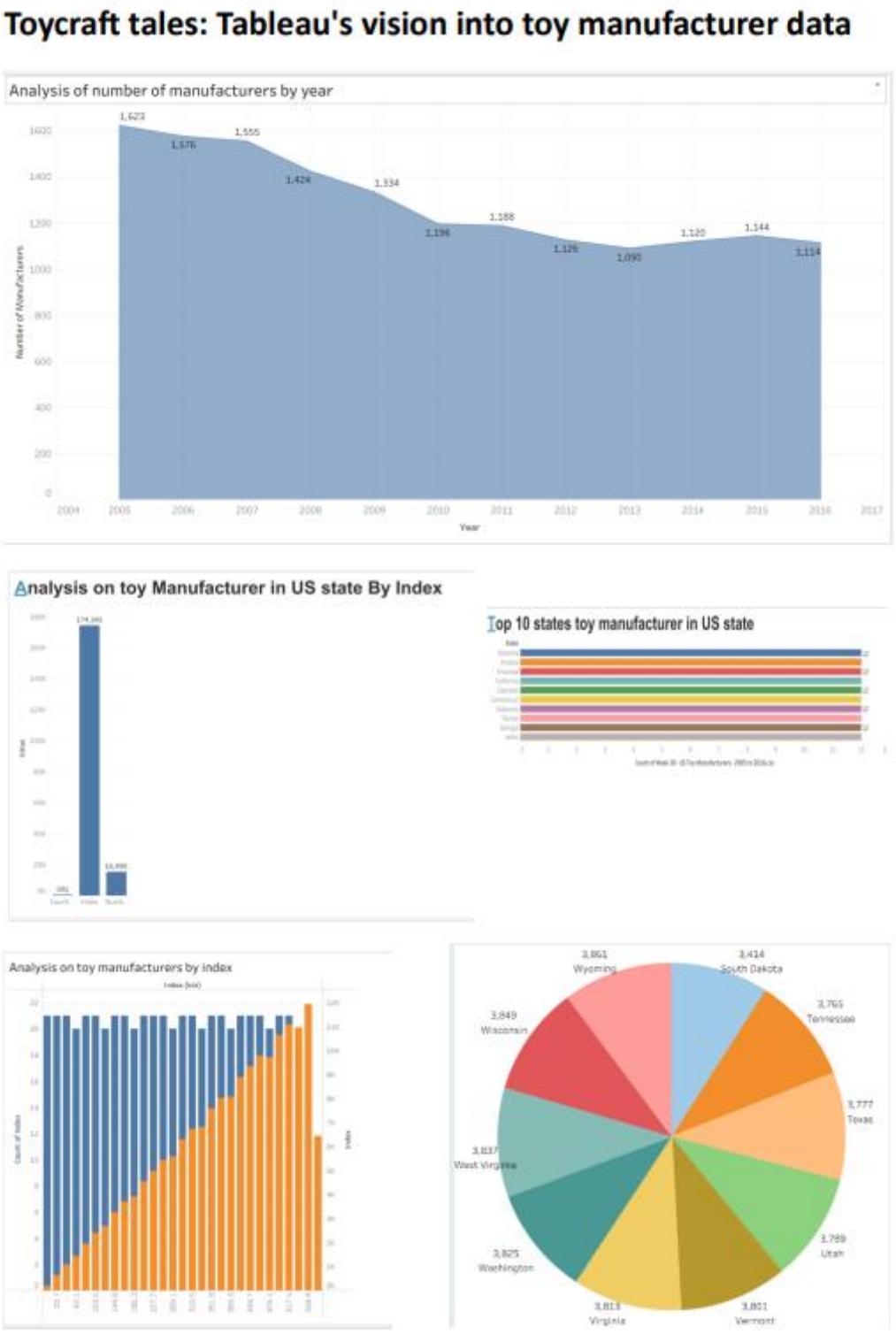




7.. RESULTS

7.1 Output Screenshots

Below are the Tableau visualization results based on the dataset:



8.. ADVANTAGES & DISADVANTAGES

Advantages:

Easy Integration: Tableau can integrate with databases like MySQL, Google Sheets, or

Cloud Storage where user data is stored, allowing seamless reporting.

User-Friendly Interface: Non-technical stakeholders can easily interpret the reports and

KPIs related to registration, confirmation success rates, etc.

Real-Time Data Monitoring: Tableau enables real-time monitoring of user activities such as

registrations through different channels (Form, Gmail, LinkedIn).

Disadvantages:

Cost Factor : Tableau licenses (especially Tableau Server or Tableau Online) can be expensive for small teams or projects with a limited budget.

Limited Interactivity with Core System : Tableau cannot trigger real-time actions like sending confirmation emails or OTPs—it can only report these processes.

Dependency on Data Source : Real-time accuracy depends on how well your databases or APIs integrate with Tableau; poor setup can delay reporting.

9. CONCLUSION

This project uses Tableau to convert complex toy sales and inventory data into simple, interactive dashboards. It helps the company track sales trends, manage stock, and make better decisions quickly. Though Tableau is not a system development tool, it is ideal for data visualization and business insights, making operations more efficient.

10. FUTURE SCOPE

Advanced Predictive Analytics: Integrate machine learning models with Tableau to predict toy sales trends, seasonal demand, and customer preferences.

Real-Time Data Integration: Connect Tableau directly to live data sources (e.g., sales platforms, inventory systems) for real-time dashboards and alerts.

Mobile Dashboard Access: Expand Tableau reports for mobile devices, enabling managers to track sales and stock anytime, anywhere.

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