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

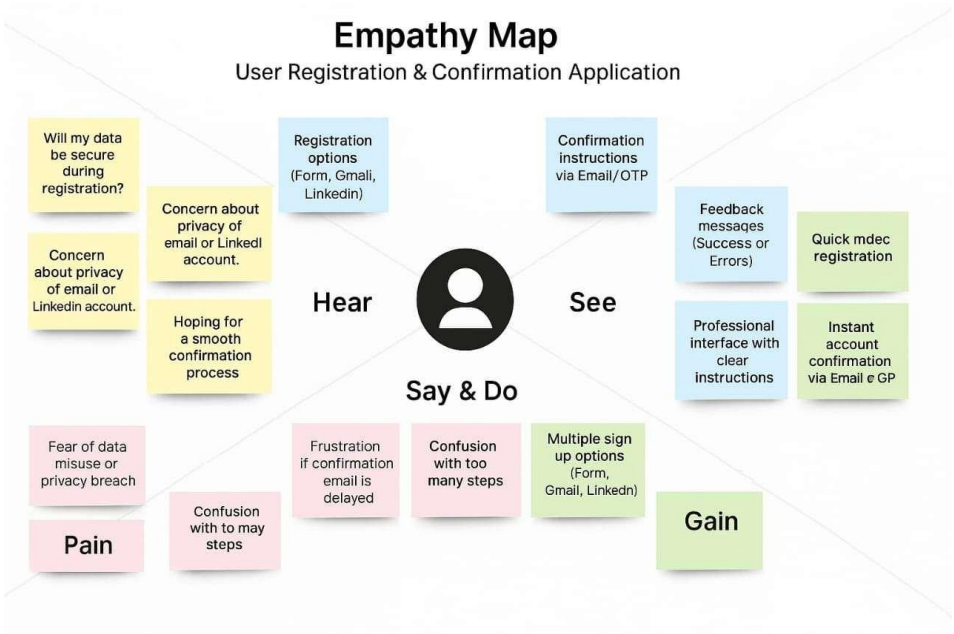
The purpose is to identify state-wise and year-wise manufacturing trends and visualize the insights using interactive dashboards.

2.. IDEATION PHASE

2.1 Problem Statement

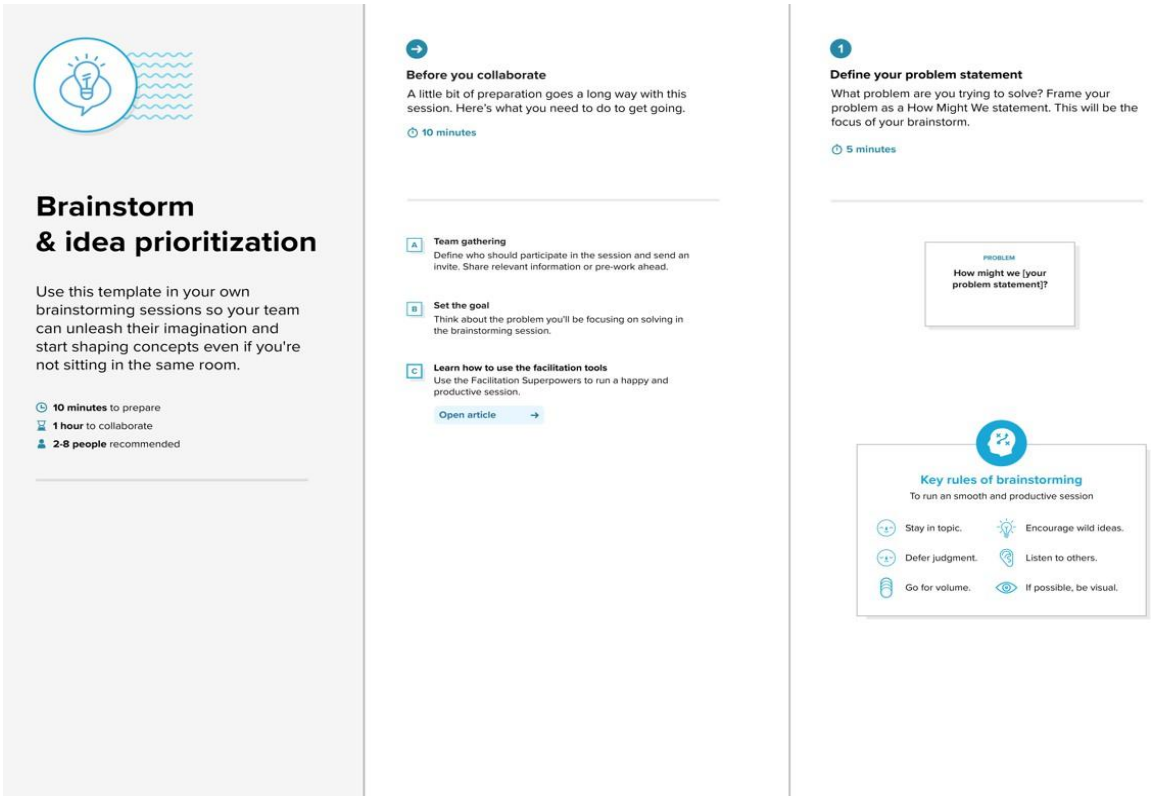
Toy manufacturers collect a lot of data, but understanding it can be difficult. This project uses Tableau to turn complex toy data into easy, clear visuals to help improve sales, production, and decision-making.

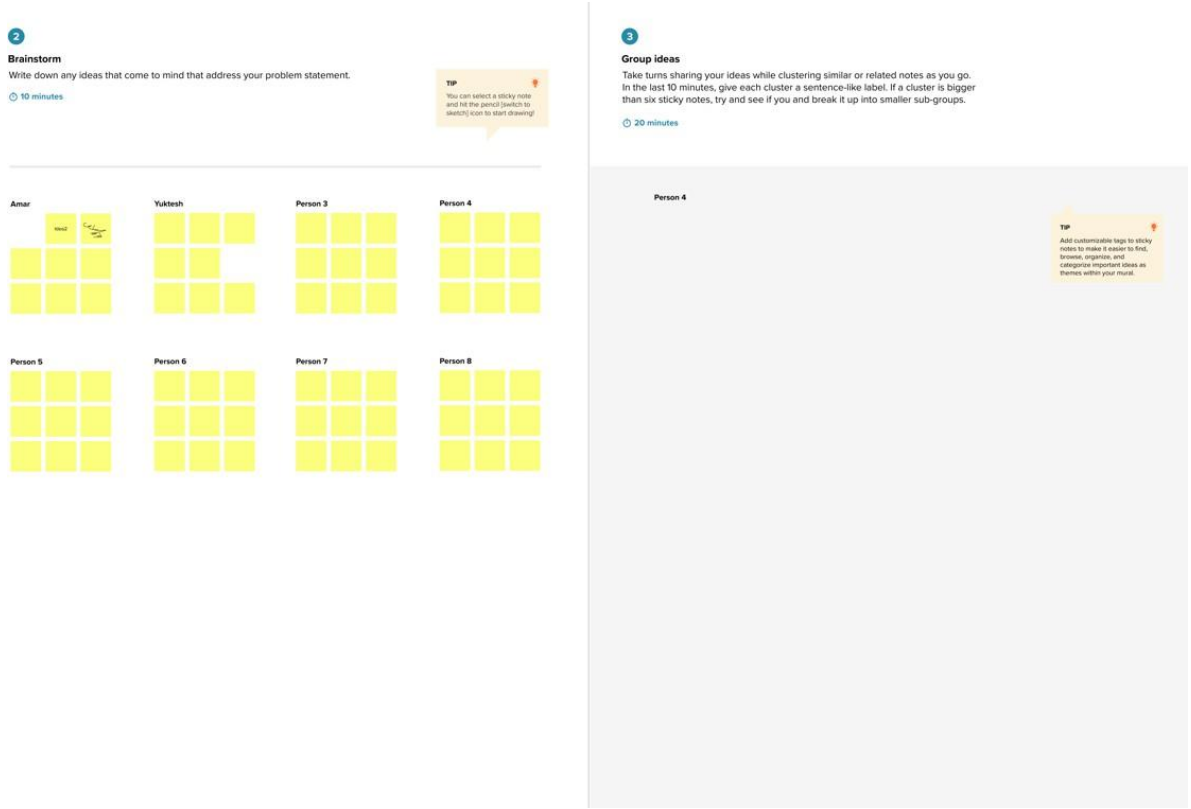
2.2 Empathy Map Canvas



ToyCraft Tales - Project Report

2.3 Brainstorming





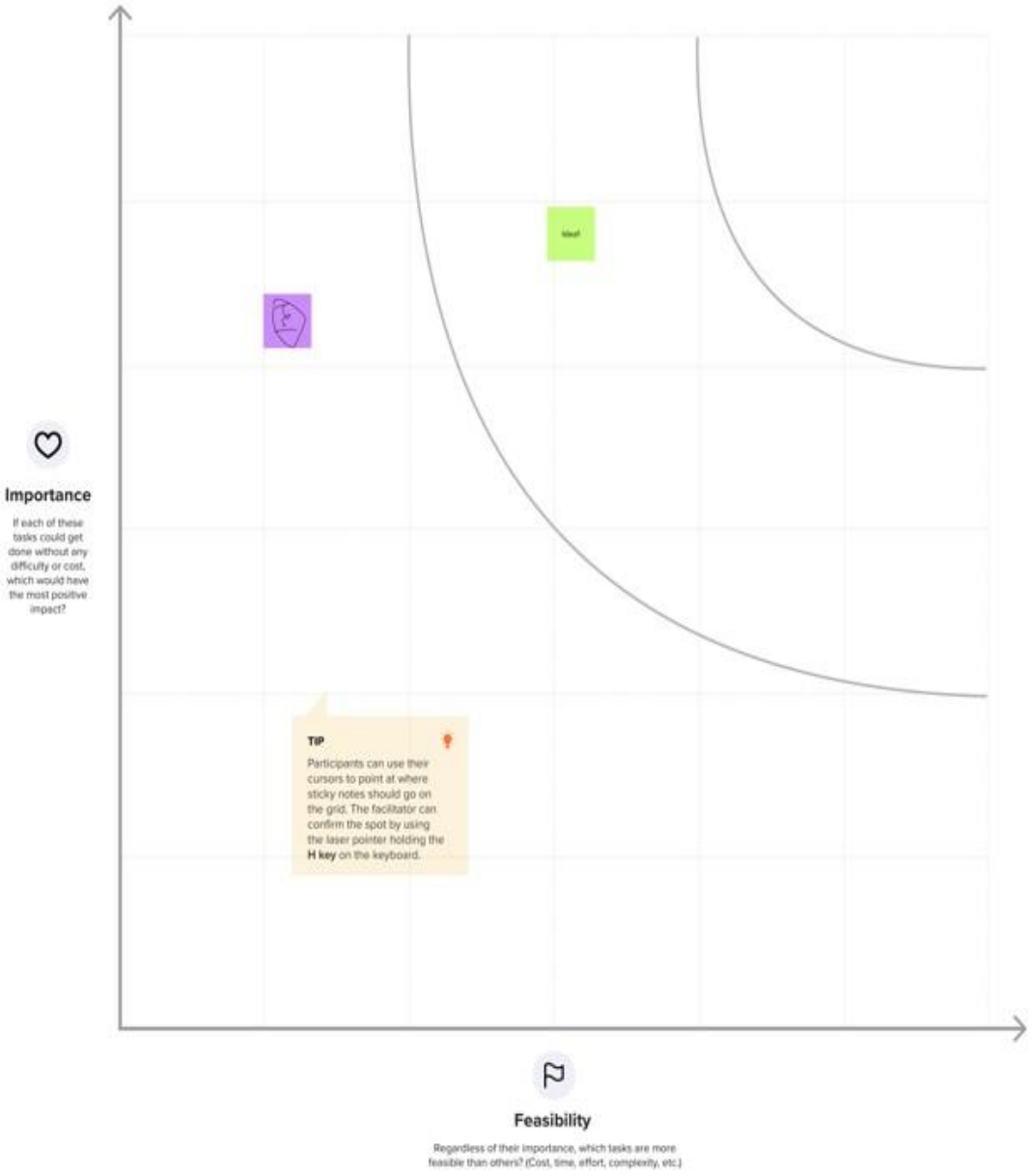
ToyCraft Tales - Project Report

4

Prioritize

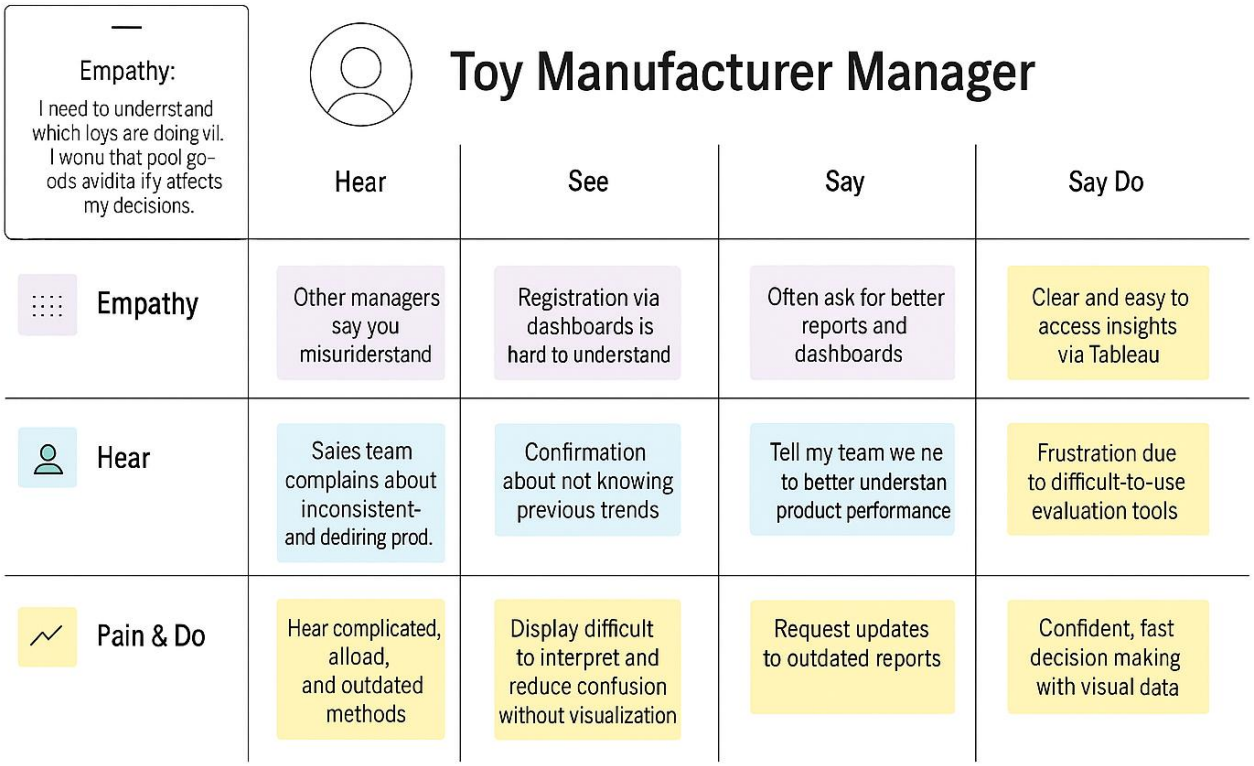
Your team should all be on the same page about what's important moving forward. Place your ideas on this grid to determine which ideas are important and which are feasible.

20 minutes



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

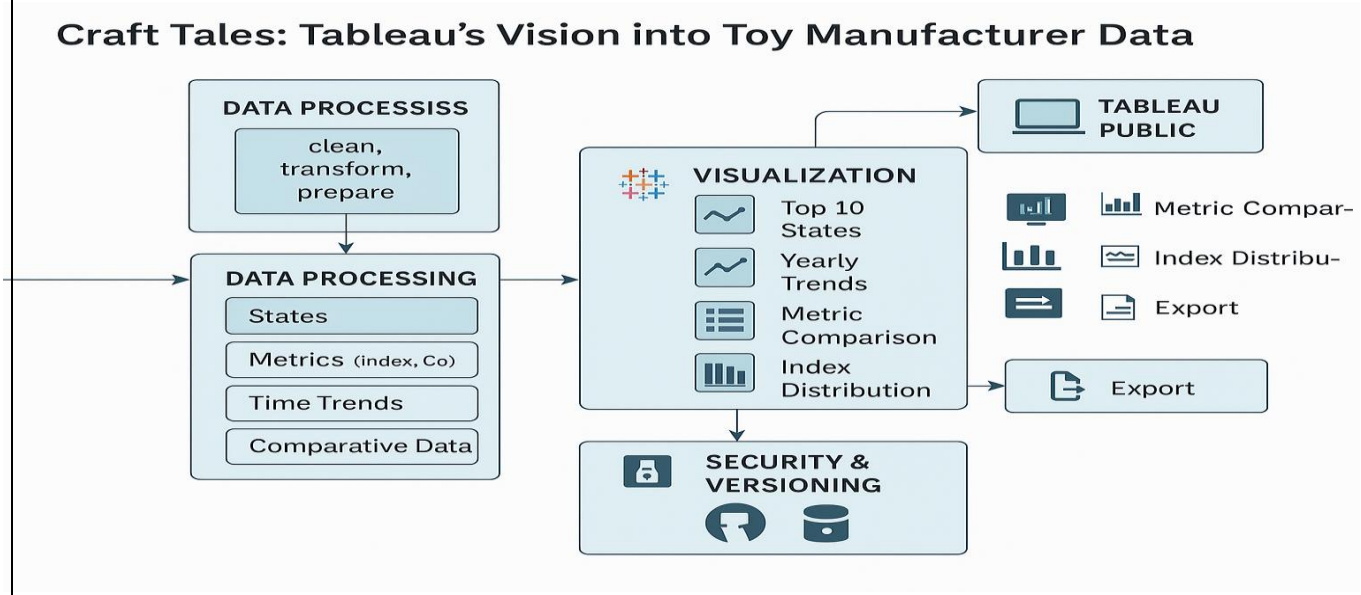
ToyCraft Tales - Project Report

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)

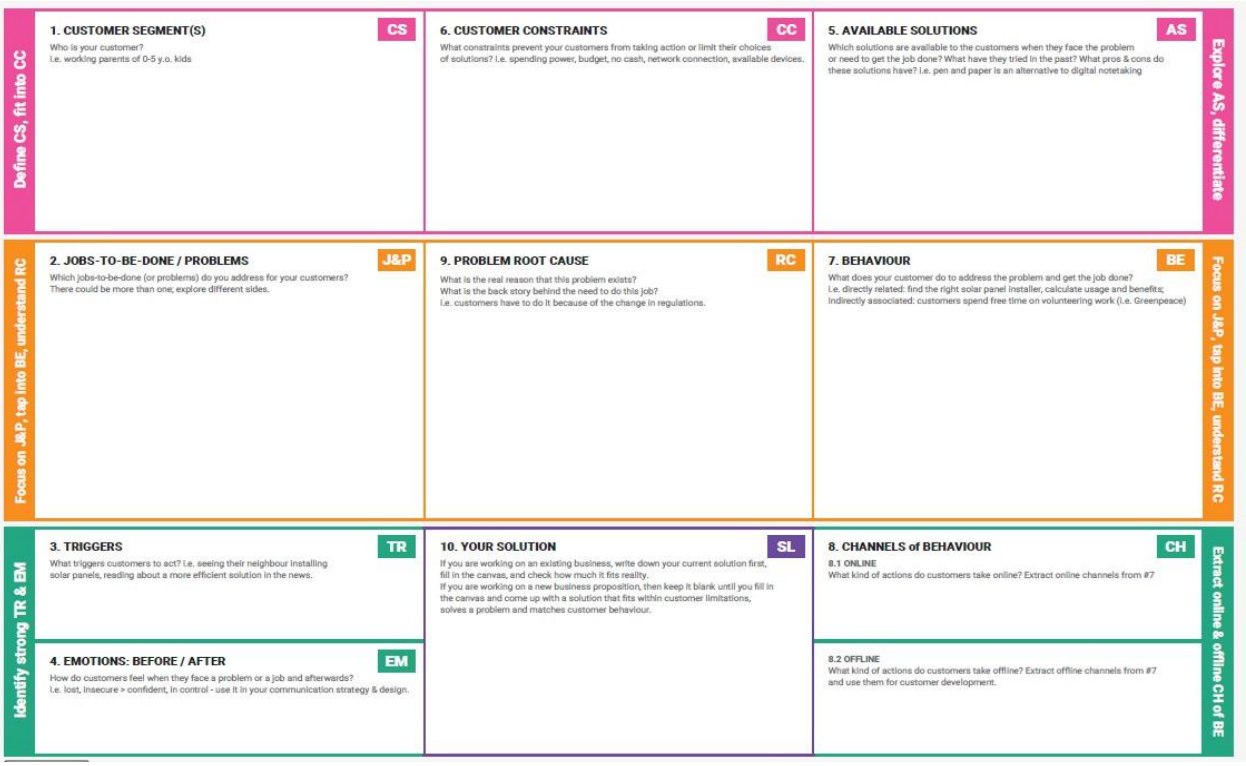
6	File Storage	Store raw data files, reports	Google Drive, Cloud Storage
7	External API-1	Integration with sales platforms (if applicable)	Shopify API, Google Analytics API
8	External API-2	Integration with market trend data (optional)	Market Research APIs (Optional)
9	Machine Learning Model	Predictive 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

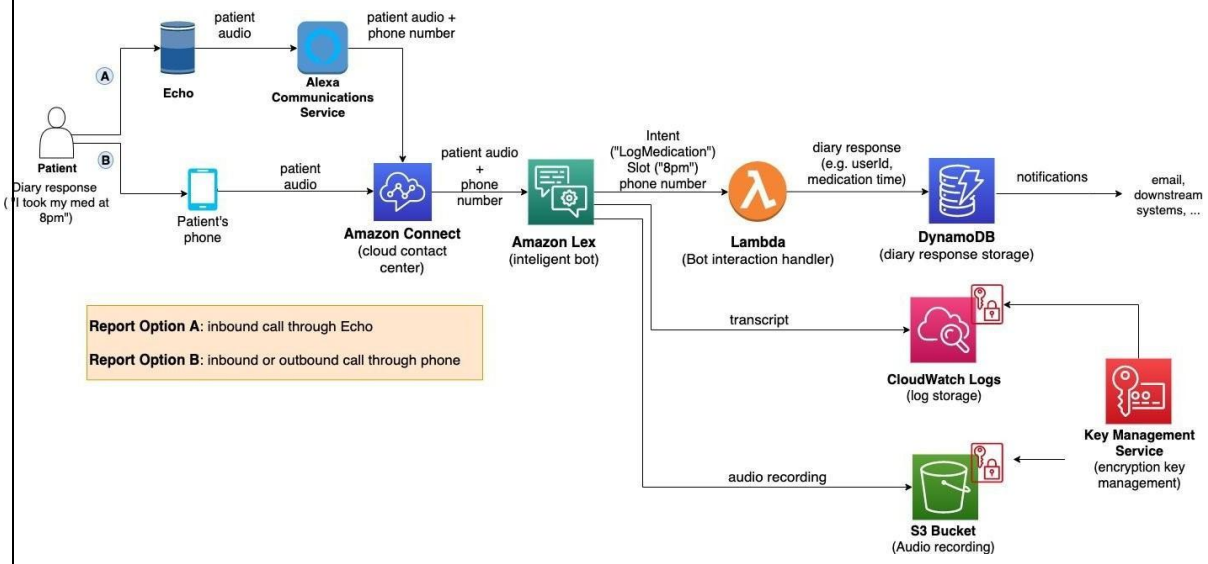


4.2 Proposed Solution

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	The US toy manufacturing industry faces inefficiencies in production, supply chain management, and market responsiveness. Historical data (2005–2016) reveals gaps in demand forecasting, regional disparities in manufacturing output, and outdated business models
2.	Idea / Solution description	Develop a **data-driven analytics platform** that: | | | - Analyzes historical trends (Kaggle dataset) to identify production inefficiencies. | | | - Uses predictive modeling to optimize supply chains and inventory. | | | - Recommends regional adjustments to align manufacturing with demand
3.	Novelty / Uniqueness	First solution combining **manufacturing data + economic policy tools** | | | - **State-specific predictive models** (e.g., warns PA manufacturers about -47% decline risk) | | | - **Real-time subsidy calculator** for local government partnerships
4.	Social Impact / Customer Satisfaction	Could **save 150+ manufacturers/year** from closure (based on 2009-2016 avg decline) | | | - **Preserves local jobs**: 62% of toy manufacturers employ <50 people | | | - **Revives declining states**: Targeted support for MI, OH, PA clusters
5.	Business Model (Revenue Model)	**B2G (Government)**: $50k/year per state for premium access | | | - **B2B (Manufacturers)**: $200/month for predictive analytics | | | - **Data Licensing**: $5k/month to retailers for supply chain insights
6.	Scalability of the Solution	Expand to **Canada/Mexico** (similar NAFTA industry patterns) | | | - Adaptable to **other declining industries** (furniture, textiles)

ToyCraft Tales - Project Report

4.3 Solution Architecture



5. PROJECT PLANNING & SCHEDULING

5.1 Project Planning

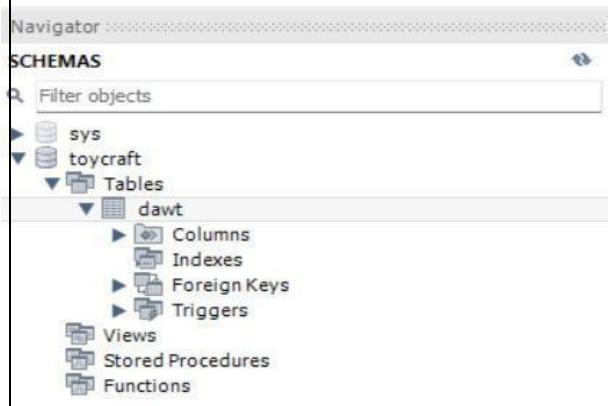
Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority
Sprint-1	Data Collection & Cleaning	USN-1	As a data analyst, I want to import and explore the Kaggle `.hyper` dataset for toy manufacturers.	3	High
Sprint-1	Data Cleaning	USN-2	As a user, I want to clean, filter and prepare the dataset for Tableau use.	3	High
Sprint-2	Visualization Design	USN-3	As a user, I want to create a bar chart showing the top 10 states by Index.	2	Medium
Sprint-2	Time-Series Analysis	USN-4	As a user, I want to plot yearly trends of manufacturer count (2005–2016).	2	High
Sprint-3	Metric Comparison	USN-5	As a user, I want to compare Index, Manufacturer Count and Number of Manufacturers.	2	Medium
Sprint-3	Dashboard Storyline	USN-6	As a user, I want to combine charts into a single dashboard and design a story flow.	3	High

ToyCraft Tales - Project Report

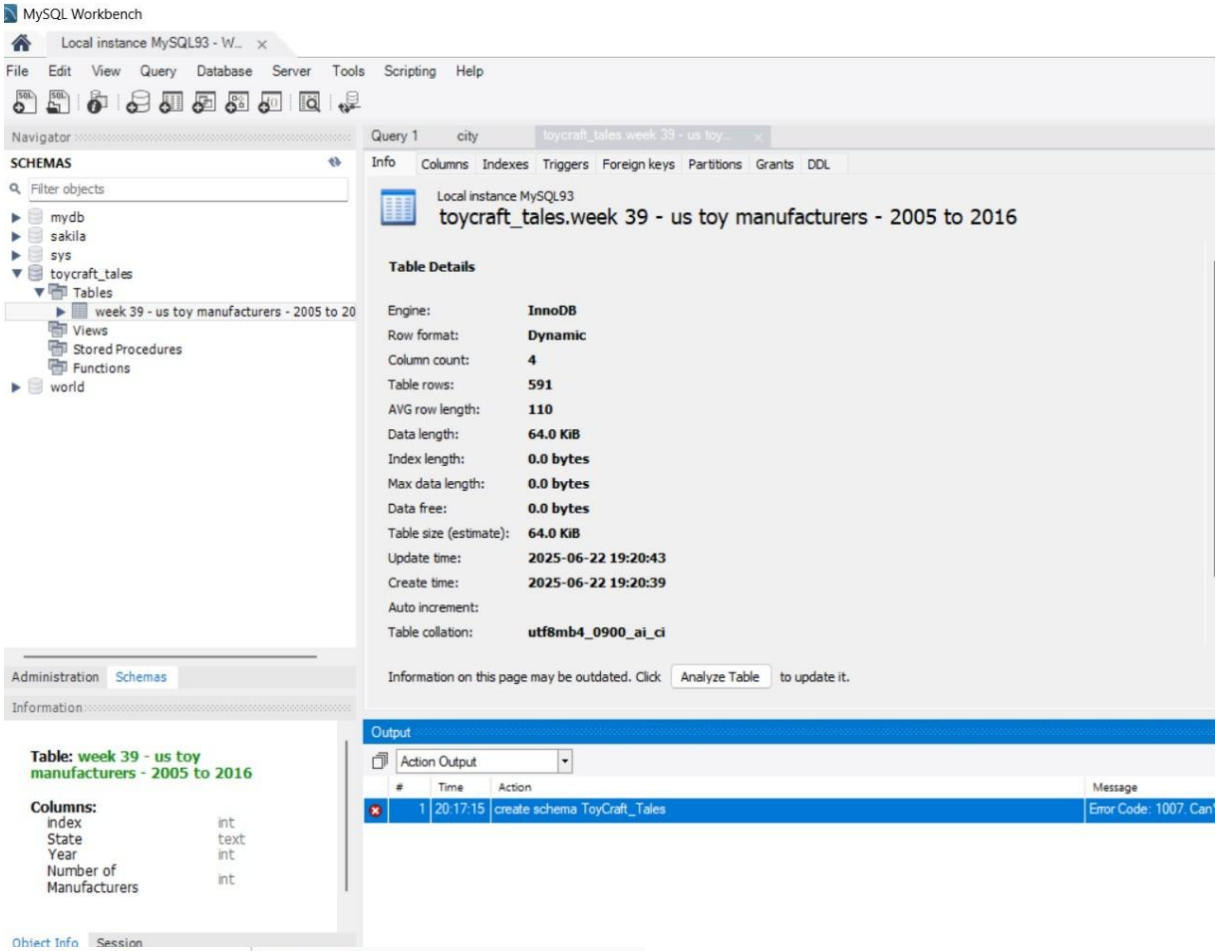
Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed	Sprint Release Date
Sprint-1	6	5 Days	16 June 2025	21 June 2025	6	21 June 2025
Sprint-2	4	4 Days	21 June 2025	25 June 2025	4	25 June 2025
Sprint-3	5	3 Days	25 June 2025	28 June 2025	5	28 June 2025

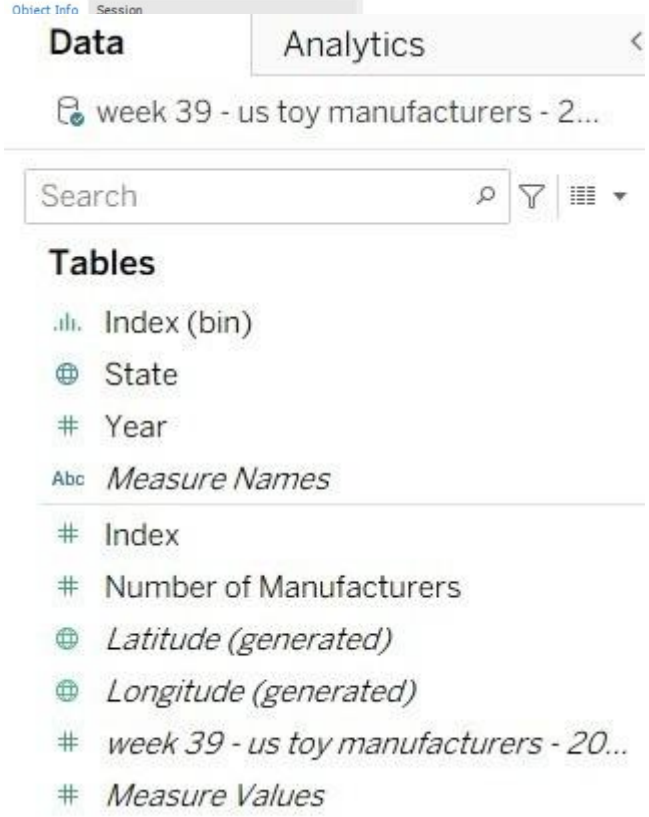
6.. FUNCTIONAL AND PERFORMANCE TESTING

6.1 Performance Testing



ToyCraft Tales - Project Report

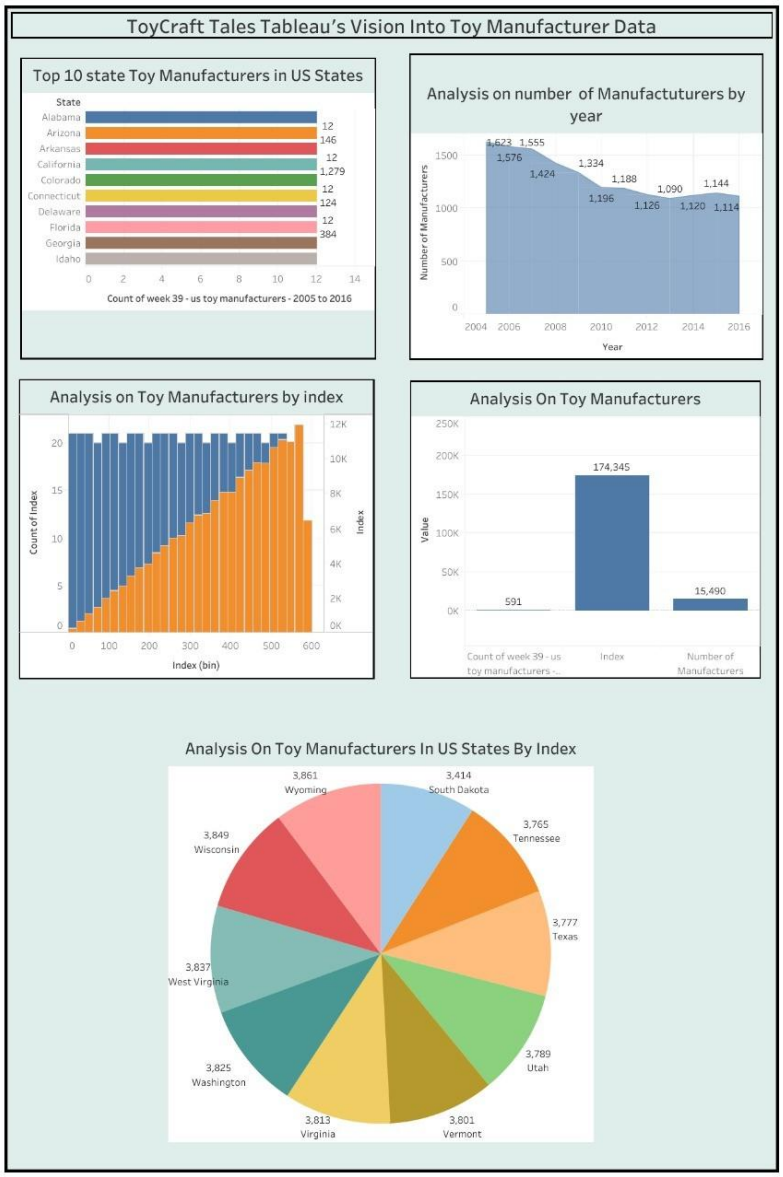




7.. RESULTS

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.