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

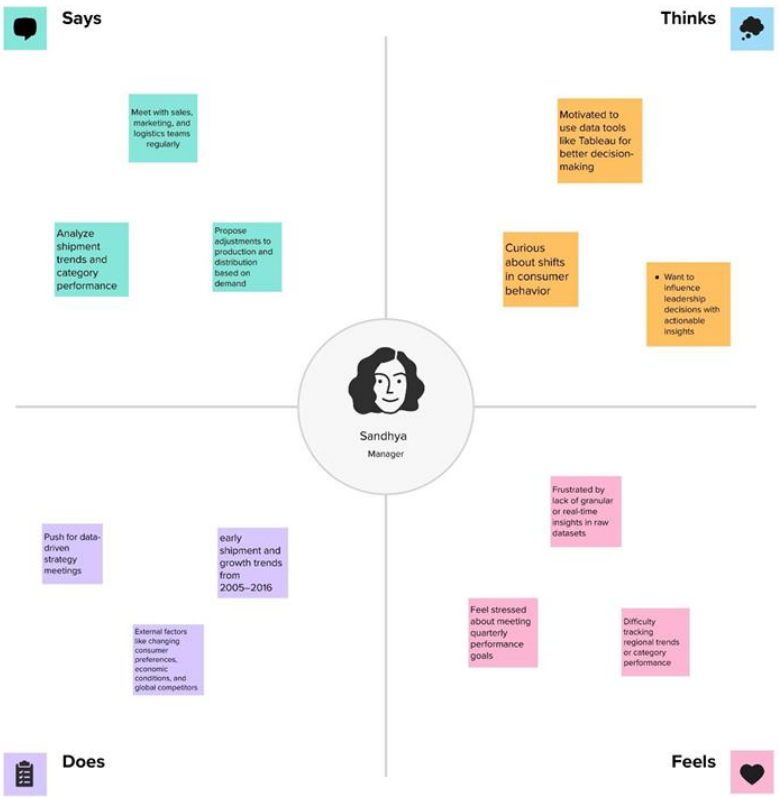
The purpose is to identify state-wise and year-wise manufacturing trends and visualize the insights using interactive dashboards.

2.. IDEATION PHASE

2.1 Problem Statement

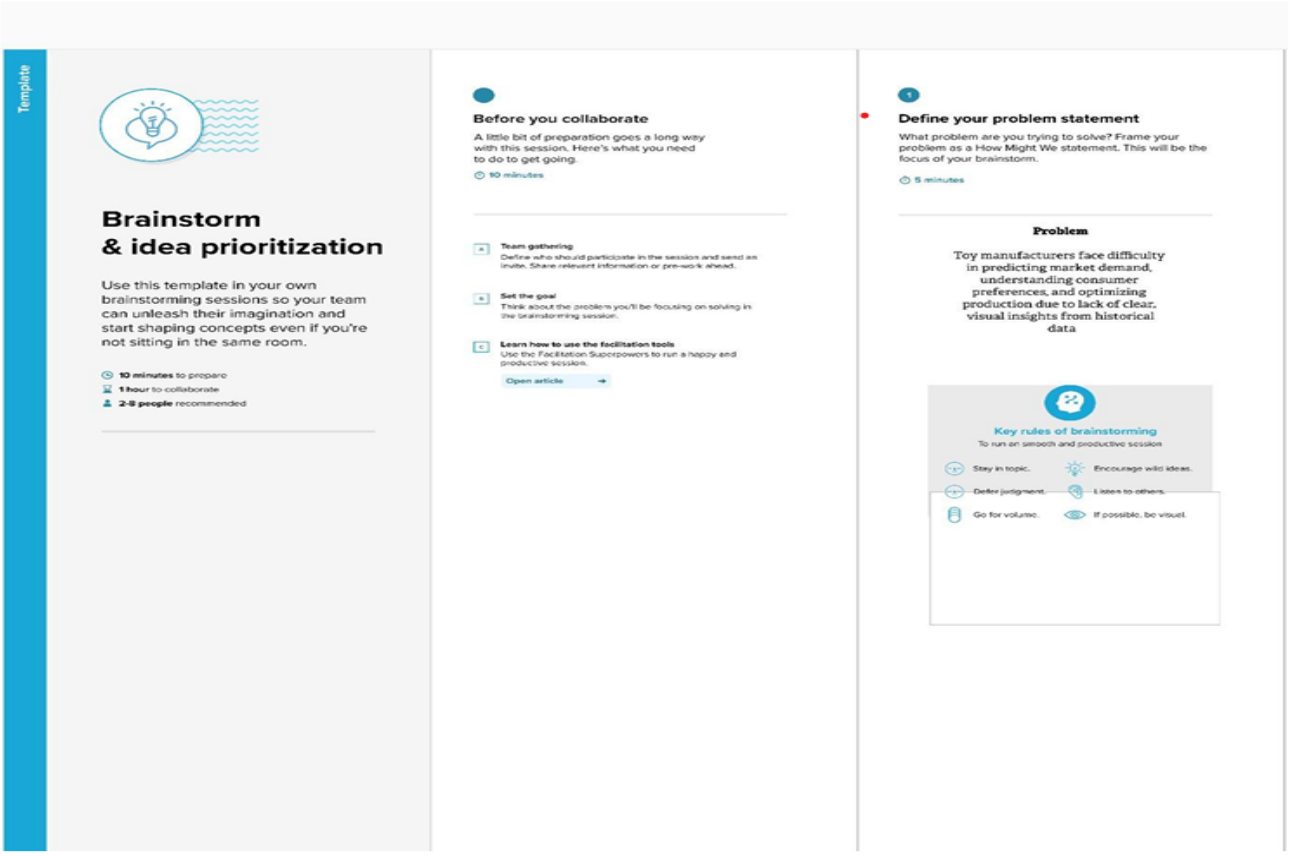
Toy manufacturers collect a lot of data, but understanding it can be difficult. This project uses Tableau to turn complex toy data into easy, clear visuals to help improve sales, production, and decision-making.

2.2 Empathy Map Canvas

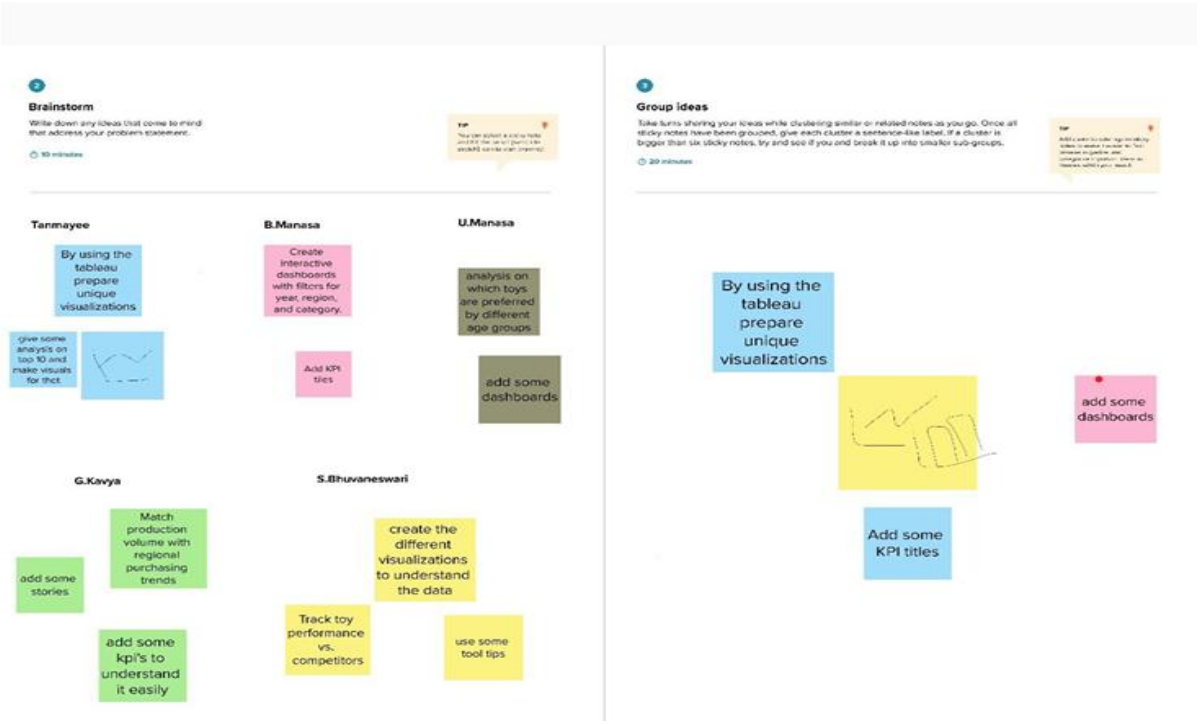


2.3 Brainstorming

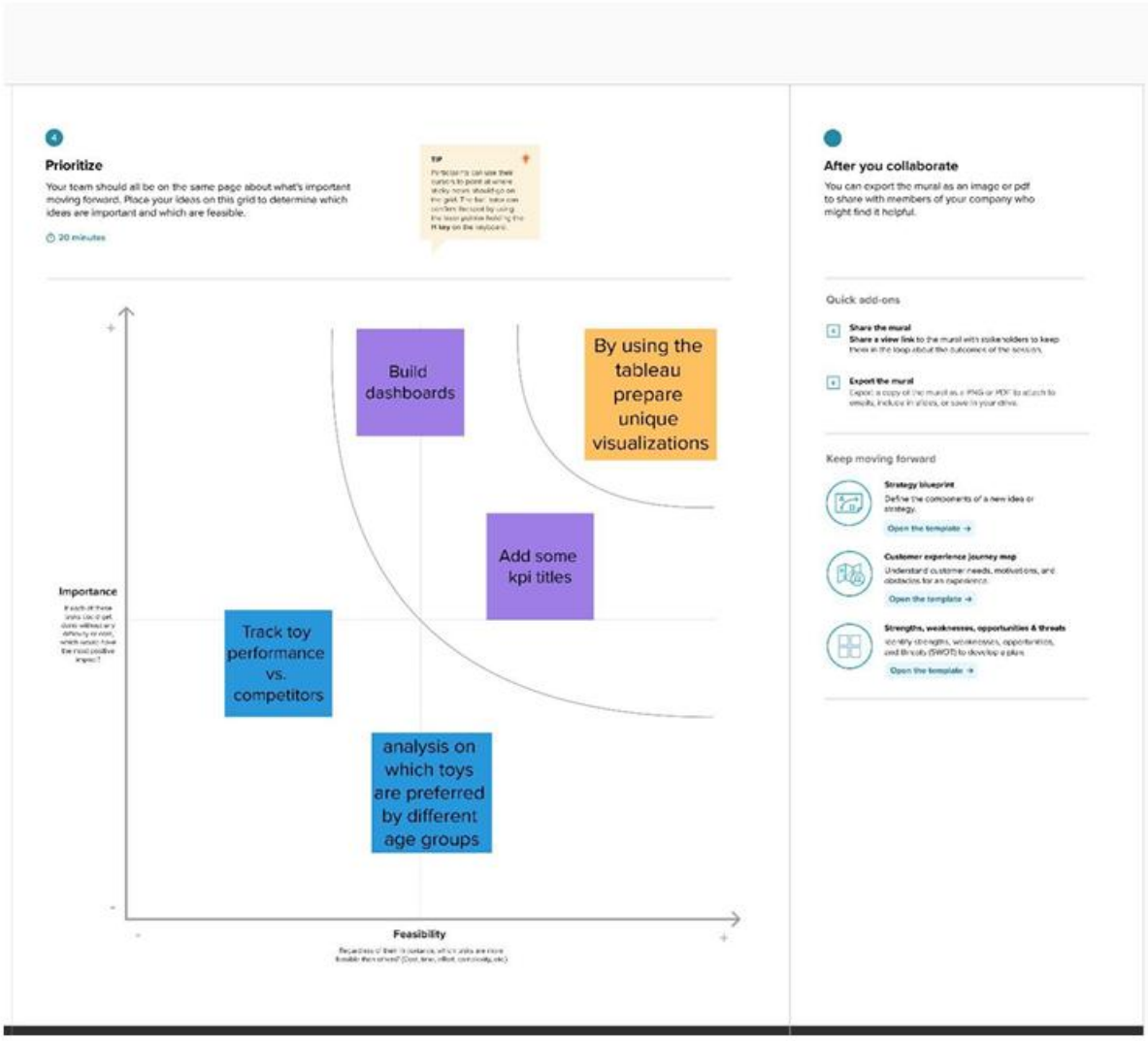
Step-1: Team Gathering, collaboration and select the problem statement



Step-2: Brainstorm, Idea Listing and Grouping

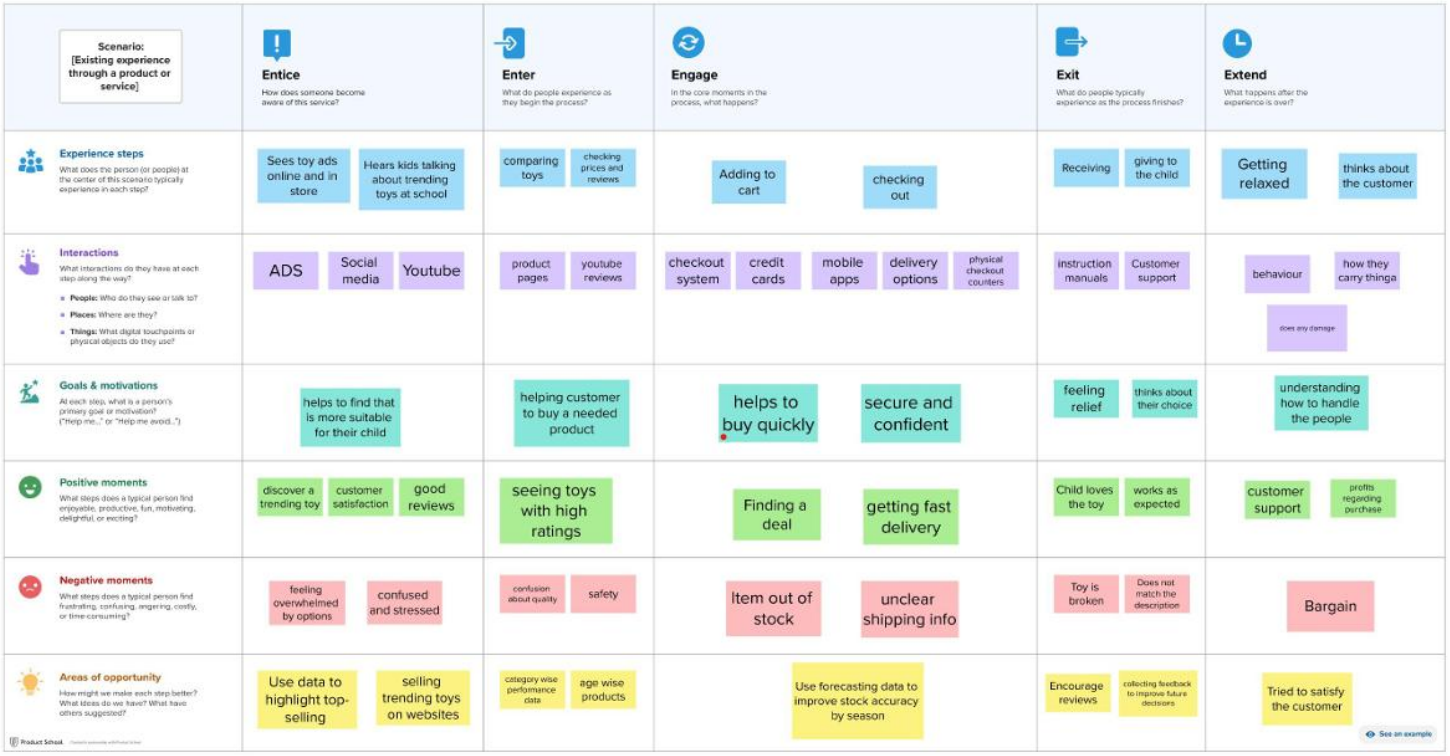


Step-3: Idea prioritization



3.. REQUIREMENT ANALYSIS

3.1 Customer Journey map



3.2 Solution Requirement

Functional Requirements:

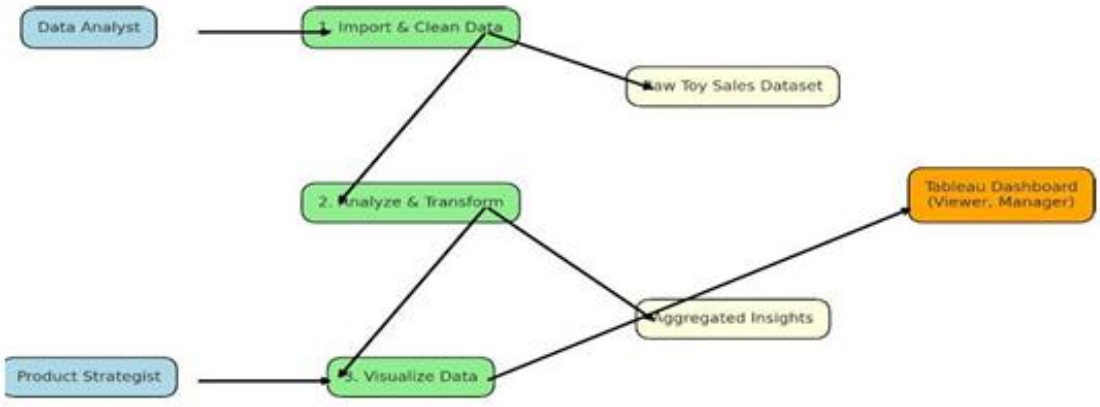
The following are the functional requirements of the proposed solution.

FR N0.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	Data Upload & Integration	Import toy industry CSV data into Tableau
		Clean and format data for consistency and structure
FR-2	Market Trend Analysis	Analyze annual shipment growth and total market size
		Highlight seasonal spikes
FR-3	Category Performance Dashboard	Visualize toy categories across years
		Identify top-selling categories over time
FR-4	Regional & Demographic Filtering	Add filters by region, age group, and consumer type
		Enable dynamic charts that respond to selections
FR-5	Unified Dashboard	Combine all insights into a single dashboard
		Allow stakeholders to export reports or snapshots

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

NFR NO.	Non-Functional Requirements	Description
NFR-1	Usability	Dashboard should be intuitive, with tooltips and clear legends
NFR-2	Security	Only authorized users can upload/edit data in Tableau
NFR-2	Reliability	Dashboard should load consistently across devices and users
NFR-4	Performance	Visuals must load in under 2 seconds even with full dataset
NFR-5	Availability	Dashboard should be accessible 24/7 via Tableau Public or Server
NFR-6	Scalability	Should handle additional years/categories without redesign

3.3 Data Flow Diagram



3.4 Technology Stack

Table-1 : Components & Technologies:

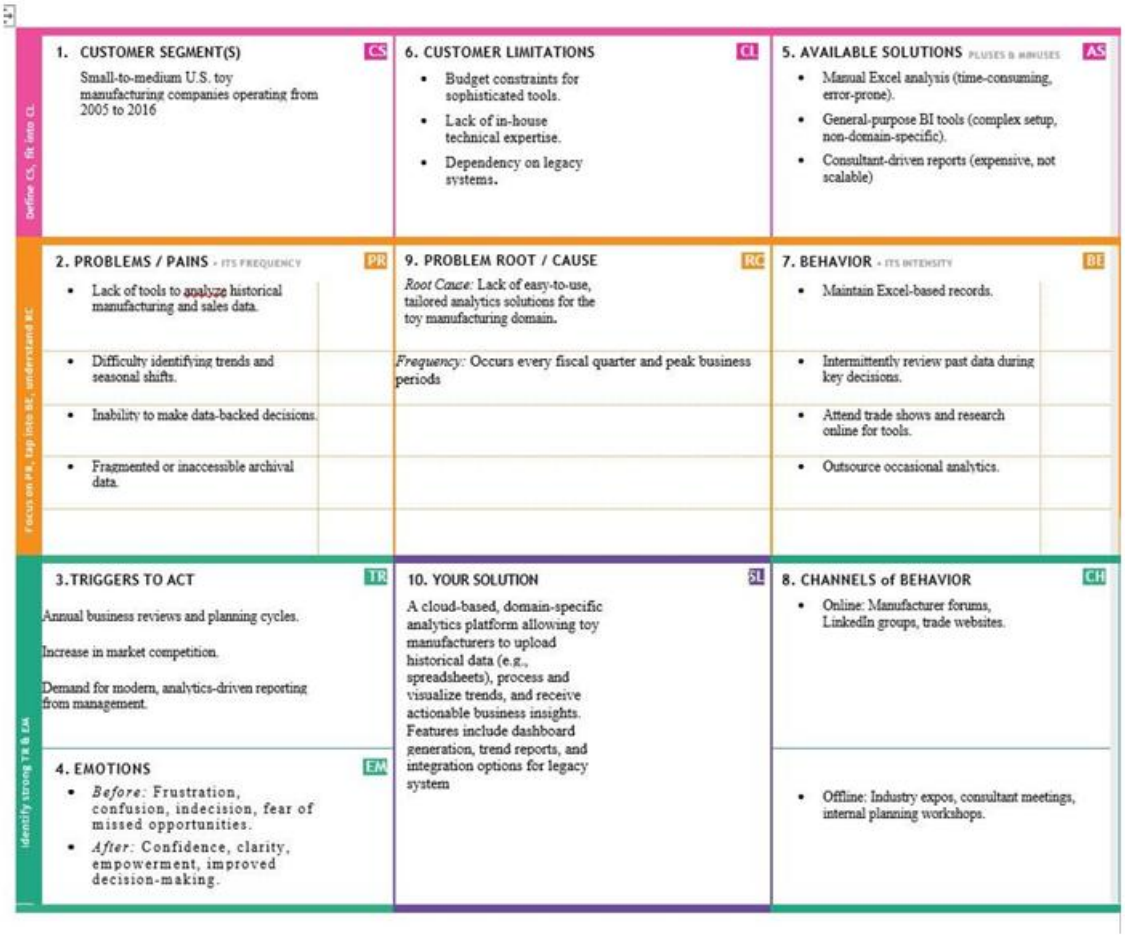
S.No	Component	Description	Technology
1.	User Interface	Dashboard interface for users to interact with data	Tableau Public
2.	Application Logic-1	Data cleaning and transformation	Excel(pre-Tableau)
3.	Application Logic-2	Data aggregation by year, category, region	Tableau calculated fields
4.	Application Logic-3	Forecasting based on historical trends	Tableau Forecasting
5.	Database	CSV dataset with shipment and category info	Excel sheet
6.	Cloud Database	Not applicable	Tableau cloud
7.	File Storage	Upload and store toy dataset	Local drives or google drive
8.	External API-1	Weather data to correlate seasonality	Open Weather API
9.	External API-2	Social media trend integration	Google Trends
10.	Machine Learning Model	Predictive modeling	Tableau's built-in forecast model
11.	Infrastructure (Server / Cloud)	Cloud-hosted dashboard viewable by users	Tableau Server/Tableau public

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Python (data cleaning)	Python
2.	Security Implementations	Restricted access via Tableau login	IAM (Tableau server)
3.	Scalable Architecture	Tableau scales to multiple dashboards/users without code changes	Tableau cloud Architecture
4.	Availability	Dashboard hosted on Tableau Public with 24/7 access	Tableau server/Tableau public
5.	Performance	Optimized visual queries, aggregated filters, and trendline calculations	Tableau filtering

4. . PROJECT DESIGN

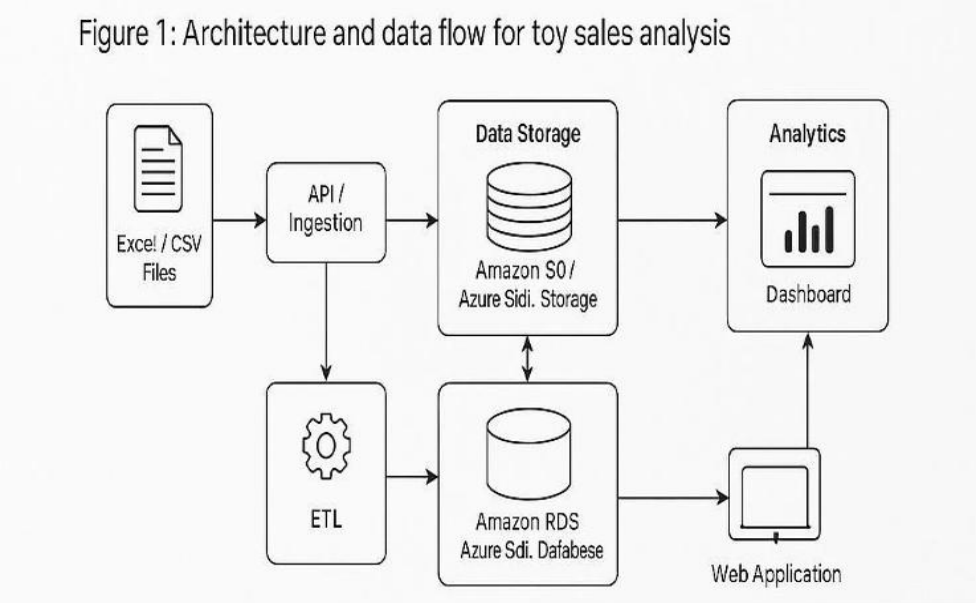
4.1 Problem Solution Fit



4.2 Proposed Solution

S.No	Parameter	Description
1.	Problem Statement (Problem to be solved)	Toy manufacturers and decision-makers lack a clear understanding of historical market trends, seasonal demand, and category-wise performance due to raw, unstructured spreadsheet data
2.	Idea / Solution description	The proposed solution is a Tableau-based interactive dashboard that transforms 12 years of toy sales data into meaningful visual insights
3.	Novelty / Uniqueness	The solution bridges the gap between raw data and strategic decision-making using a no-code, real-time analytics platform
4.	Social Impact / Customer Satisfaction	helps deliver toys customers actually want—leading to higher customer satisfaction and reduced waste
5.	Business Model (Revenue Model)	The dashboard can be offered as a SaaS solution or internal tool for toy manufacturers to optimize marketing, inventory, and sales operations
6.	Scalability of the Solution	The solution is scalable—more data (new years, product lines, or regions) can be integrated without modifying the core dashboard. Tableau supports enterprise-level deployment via Tableau Server or Tableau Cloud.

4.3 Solution Architecture



5. PROJECT PLANNING & SCHEDULING

5.1 Project Planning

Product Backlog, Sprint Schedule, and Estimation (4 Marks)

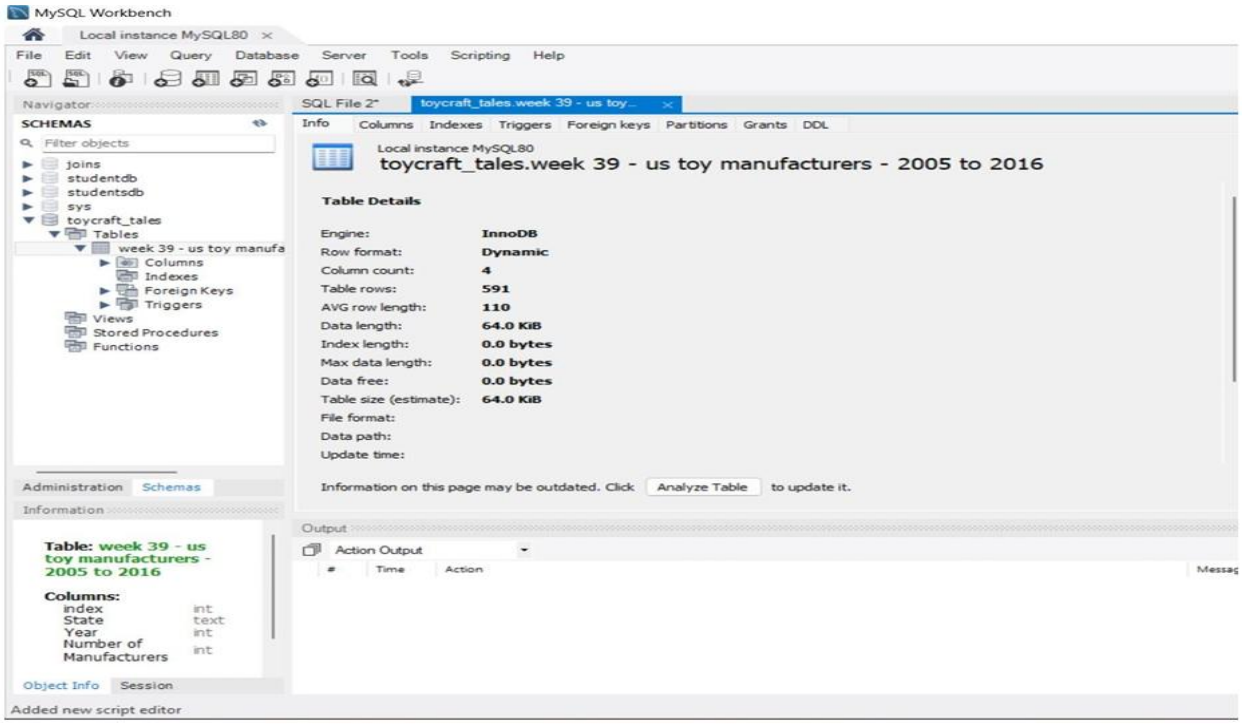
Sprint	Functional Requirement (Epic)	User story Number	User Story /Task	Story Points	Priority	Team Members
Sprint-1	Data Preparation & Import	USN-1	As a data analyst, I want to clean and import the toy sales dataset into Tableau	3	High	M. S.V.SURESH N. SATISH
Sprint-1	Initial Market Trends View	USN-2	As a strategist, I want to create a basic trends dashboard showing shipment and growth over time	2	High	M. S.V.SURESH M. SAI PRIYA
Sprint-2	Category & Seasonal Insights	USN-3	As a product manager, I want to compare toy category	3	Medium	M.DEEPAK NAIDU N.S.V.SATISH

Sprint	Functional Requirement (Epic)	User story Number	User Story /Task	Story Points	Priority	Team Members
			performance and seasonal spike			
Sprint-2	Consumer Demographics Filter	USN-4	As a marketer, I want to filter data by region and age group to identify preferences	3	Medium	N. S.V.SATISH M. S.V.SURESH M. SAI PRIYA
Sprint-3	Dashboard and story	USN-5	As a stakeholder, I want an integrated dashboard with trendlines and filters for strategic use	4	High	M. S.V.SURESH N. S.V SATISH M.SAI PRIYA M. DEEPAK NAIDU

6.. FUNCTIONAL AND PERFORMANCE TESTING

6.1 Performance Testing

Data Rendered



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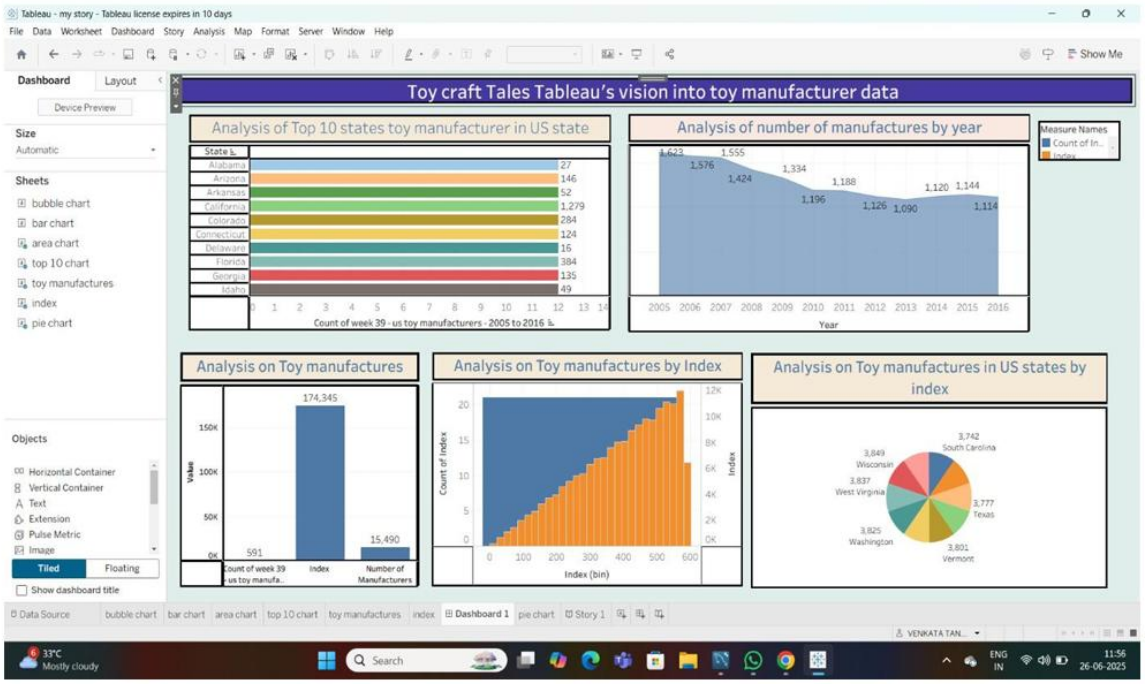
Utilization of filters

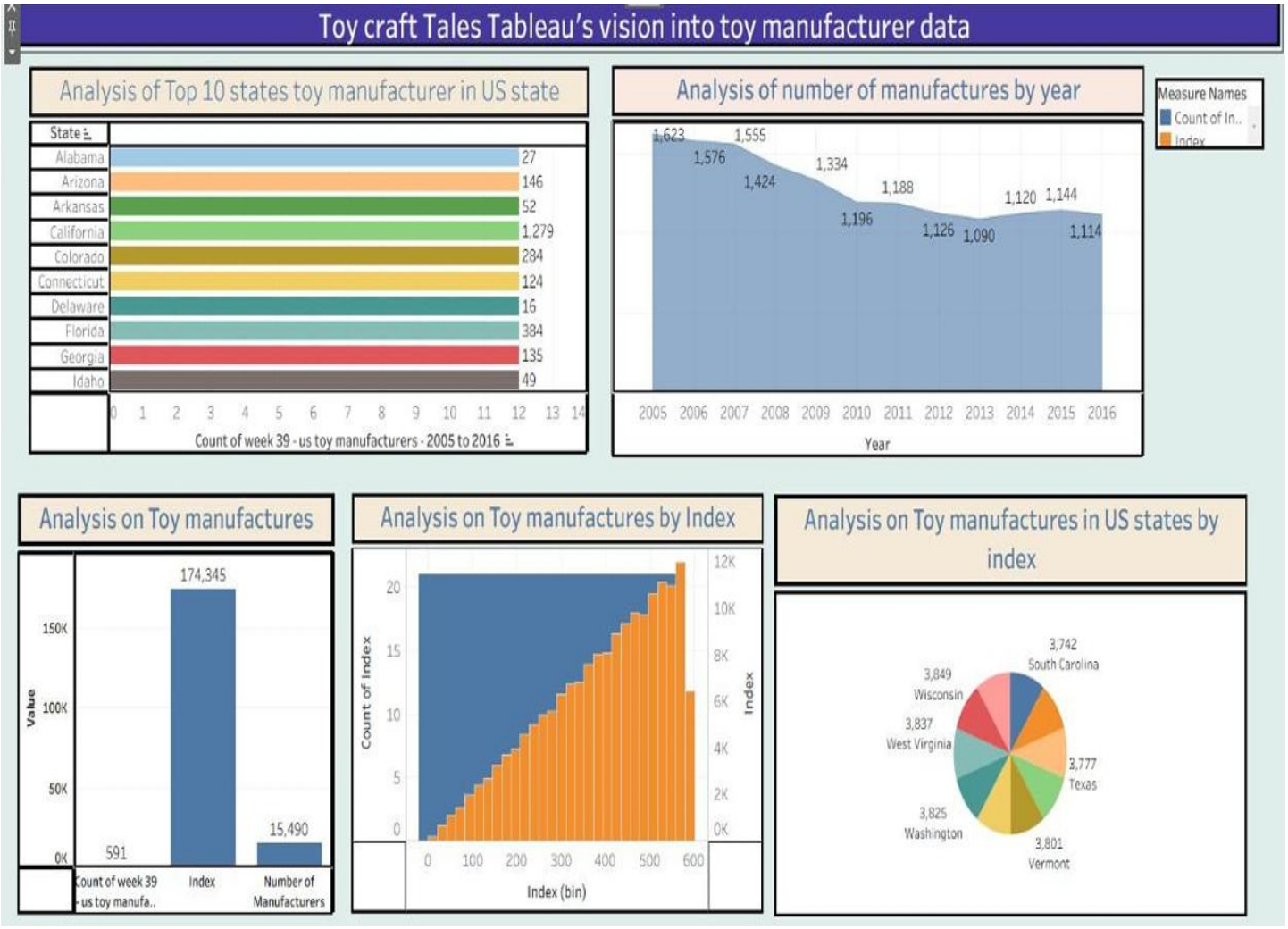


Calculation fields Used

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.S

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