

# **Toy Craft Tales - Project Report**

**Submitted By:**

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## **1.. INTRODUCTION**

### **1.1 Project Overview**

This project analyses 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**

## Empathy Map

User Registration & Confirmation Application



## 2.3 Brainstorming

### Define your problem statement

What problem are you trying to solve? Frame your problem as a How Might We statement. This will be the focus of your brainstorm.

⌚ 5 minutes

**PROBLEM**

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.



### Key rules of brainstorming

To run a smooth and productive session

- Stay in topic.
- Encourage wild ideas.
- Defer judgment.
- Listen to others.
- Go for volume.
- If possible, be visual.

**1. Production Efficiency**  
Monitoring Analyze production output vs. targets. Detect bottlenecks or delays in the manufacturing process. Optimize resource allocation for different toy lines.

**1. Sales Performance**  
Dashboard Track sales by product category, region, and time period. Identify best-selling and low-performing toys. Spot seasonal trends (e.g., holiday spikes).

**2. Customer Demographics Insights**  
Understand sales patterns by customer age group or region. Discover which products appeal to different customer segments.

**2. Inventory Management**  
Visualize stock levels for each toy model. Highlight slow-moving or overstocked items. Forecast demand using historical sales data.



### Group ideas

Take turns sharing your ideas while clustering similar or related notes as you go. Once all sticky notes have been grouped, give each cluster a sentence-like label. If a cluster is bigger than six sticky notes, try and see if you can break it up into smaller sub-groups.

⌚ 20 minutes

**TIP**  
Add customer-demographic notes to monitor toy sales. Identify regions with high sales and categorize important themes and themes within your insight.

**1 Sales Analysis Group**  
**Goal:** Focus on understanding toy sales trends. **Tasks:** Collect and clean sales data (Product, Region, Time). Create Tableau dashboards for: Best-selling toys. Regional sales performance.

**2 Inventory Insights Group**  
**Goal:** Optimize toy stock management. **Tasks:**

- Analyze stock levels and turnover rates.
- Visualize overstocked and understocked items.
- Suggest inventory improvement strategies.

**3 Market and Customer Behavior Group**  
**Goal:** Understand market demand and customer preferences. **Tasks:** Gather demographic and market data. Visualize which toys are popular in different regions or age groups. Recommend product placement strategies.

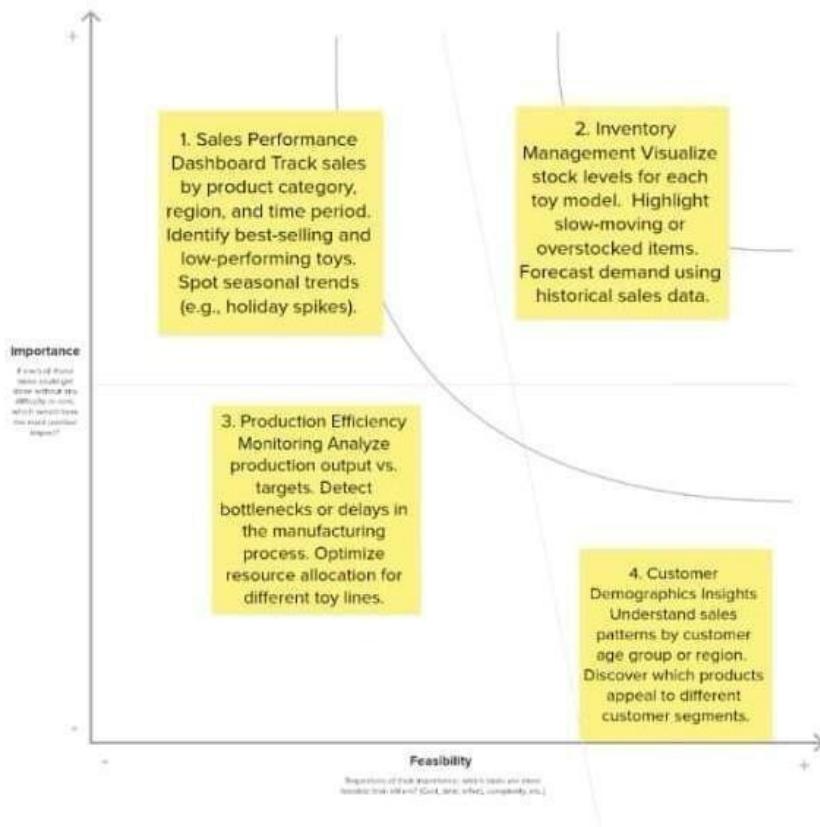
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**Prioritize**

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  
stickers to count where  
sticky notes should go on  
the grid. The facilitator can  
choose to open the grid  
for review by pressing the  
**H key on the keyboard.**



## 3.. REQUIREMENT ANALYSIS

### 3.1 Customer Journey map

		Toy Manufacturer Manager				
		Hear	See	Say	Should Do	Gains
	Empathy	Other managers say you money are understand	Registration-via determinations are said to understand	Often ask for better reports and each boards	Clear and easy to use dashboards with Tableau	Clear and easy-to passigns on-ards with Tableau
	Hear	Sales team completing and declining unmet trends	Confirmation about not knowing pier- vet treanes	Tell my team we need to understand product perfor-	Frustration due to doer tour illation tools	Real-time insights tri era leads and stock levels
	Pain & Do	Hear complicated 3d seated a, and tendlocks	Display detect ret- in to reduction using visualization	Request updates to outdance repo- rfs.	Lack of confident ion sales report-	Confident, fast decision making with visual data

### 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:

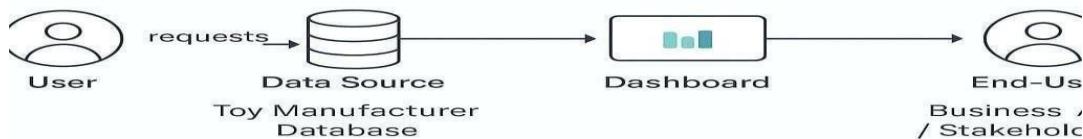
Following are the non-functional requirements of the proposed solution.

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

Data Flow Diagram (DFD) – Level 0



Visualizing Sales and Inventory Data for Toy Manufactu

### 3.4 Technology Stack

Table-1 : Components & Technologies:

S.N o	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)

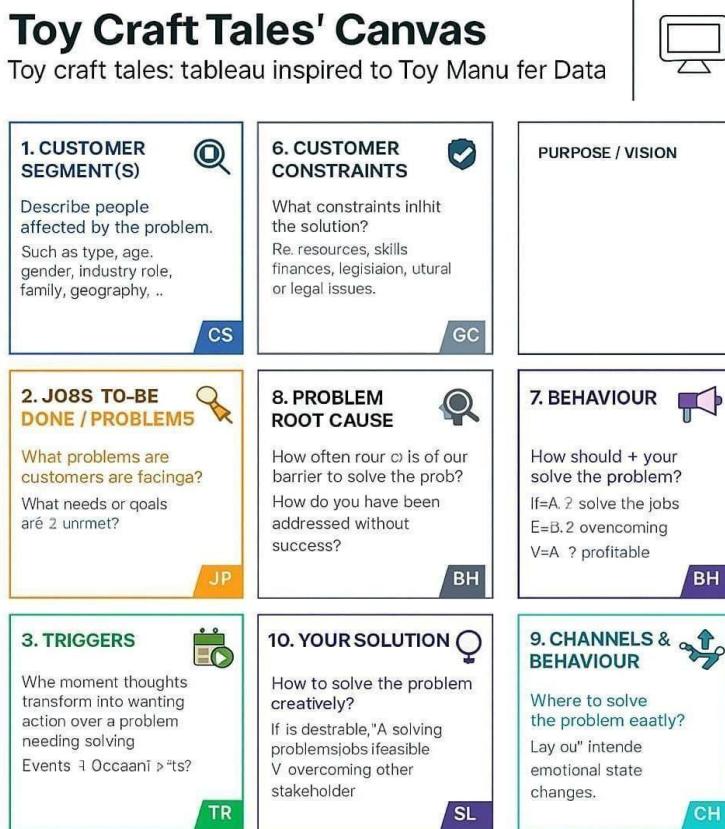
9	Machine Learning Model	Predictive sales trends and inventory forecasting	Basic ML with Tableau Extensions or Python
10	Infrastructure (Server/Cloud)	Hosting Tableau dashboards and databases	Local Server or Tableau Online

**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

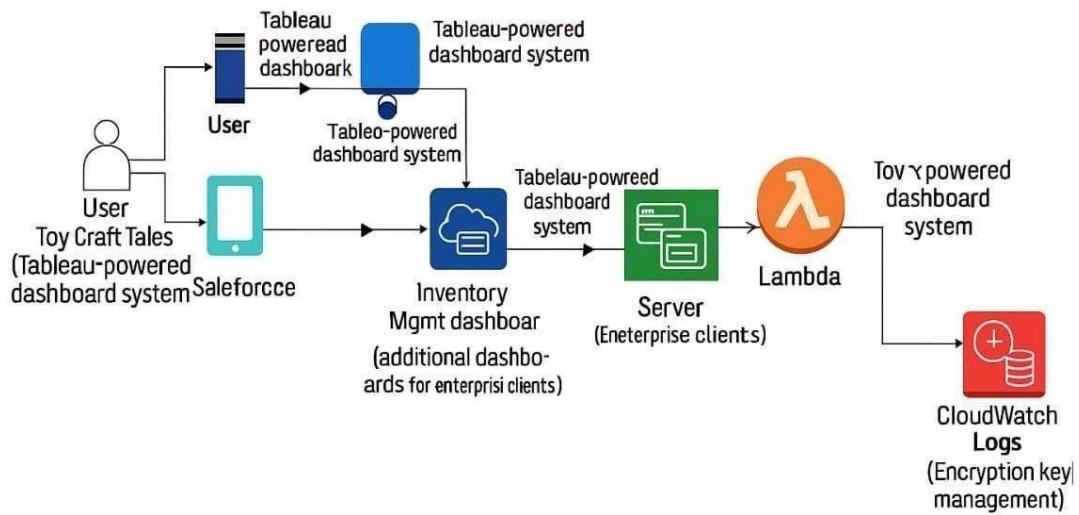


### 4.2 Proposed Solution

S.No.	Parameter	Description
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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 decisionmaking.
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 nontechnical 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.

#### 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	Asritha
Sprint-1	Dashboard View	USN-2	As a Data Analyst, I can view interactive dashboards in Tableau	2	High	Asritha
Sprint-2	Trend Analysis	USN-3	As a Manager, I can analyze seasonal sales trends	3	Medium	Asritha
Sprint-2	Inventory Monitoring	USN-4	As a Warehouse Staff, I receive alerts for low inventory levels	2	High	Asritha

Sprint-3	Report Export	USN-5	As a Manager, I can export dashboards as PDF/image	1	Medium	Asritha
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Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date	Story Points Completed
Sprint-1	5	5 Days	11 Feb 2026	15 Feb 2026	5
Sprint-2	5	5 Days	16 Feb 2026	21 Feb 2026	5
Sprint-3	1	3 Days	22 Feb 2026	24 Feb 2026	1

## 6.. FUNCTIONAL AND PERFORMANCE TESTING

### 6.1 Performance Testing

The screenshot shows the MySQL Workbench interface. The top menu bar includes File, Edit, View, Query, Database, Server, and Tool. Below the menu is a toolbar with various icons. The main area is titled "Navigator" and contains a "SCHEMAS" section. Under "SCHEMAS", there are several databases listed: mydb, sakila, sys, and toycraft\_tales. The "toycraft\_tales" database is expanded, showing its "Tables" section. One table, "week 39 - us toy manufacturers - 2005 to 2016", is selected and highlighted with a blue border. This table has four sub-items: Columns, Indexes, Foreign Keys, and Triggers. Below these are Views, Stored Procedures, and Functions. At the bottom of the Navigator pane, there are tabs for Administration and Schemas, with Schemas currently selected. In the bottom right corner, there is a detailed view of the selected table, titled "Table: week 39 - us toy manufacturers - 2005 to 2016". It lists the columns: index (int), State (text), Year (int), and Number of Manufacturers (int).

Columns:	index	int
State	text	
Year	int	
Number of Manufacturers	int	

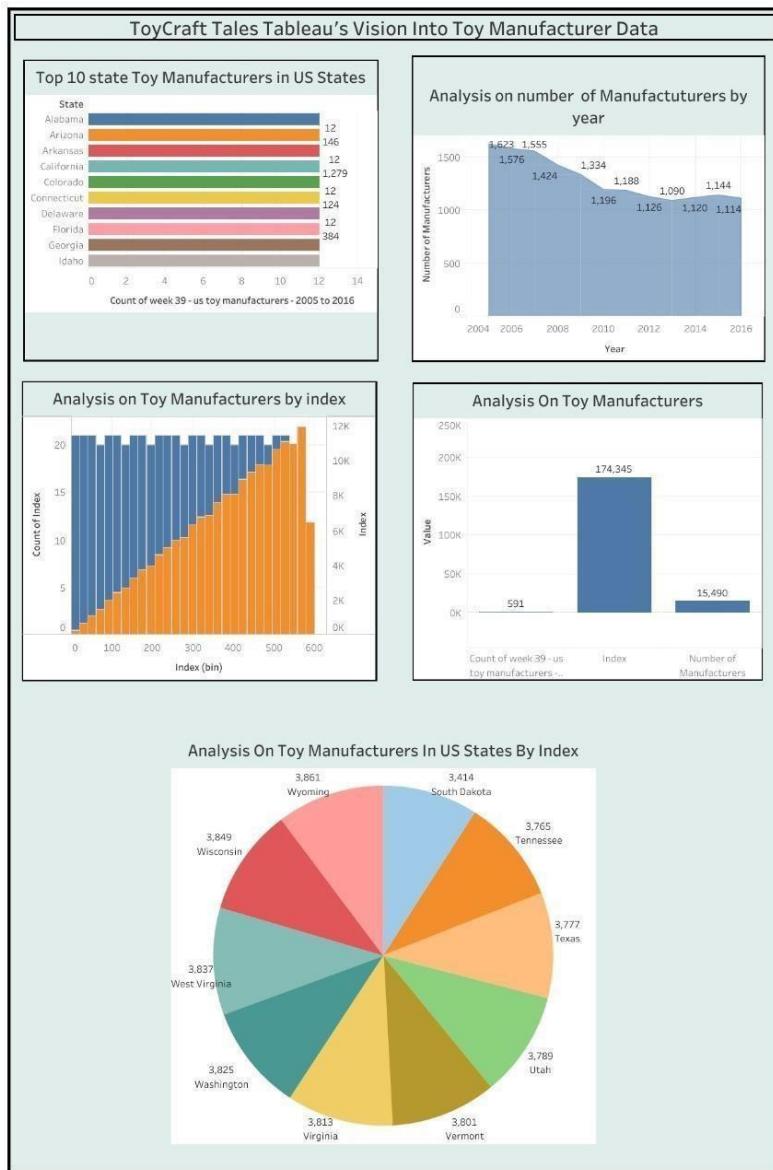
The screenshot shows the MySQL Workbench interface. The top navigation bar includes File, Edit, View, Query, Database, Server, Tools, Scripting, and Help. The left sidebar displays the Navigator and Schemas (mydb, sakila, sys, toycraft\_tales, world). The main area shows the 'Info' tab for the 'week 39 - us toy manufacturers - 2005 to 2016' table, which has 591 rows and is InnoDB. Below the table details, there's a note about outdated information and a 'Analyze Table' button. The bottom section shows the 'Output' tab with a log entry for creating the schema. On the right, there's a 'Data' and 'Analytics' tab, and a search bar at the bottom.

	Measure Names
#	Index (bin)
#	State
#	Year
Abc	<i>Measure Names</i>
#	Index
#	Number of Manufacturers
#	Latitude (generated)
#	Longitude (generated)
#	week 39 - us toy manufacturers - 20...
#	Measure Values

## 7.. RESULTS

### 7.1 Output Screenshots

Below are the Tableau visualization results based on the dataset:



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.

