PROJECT REPORT

ToyCraft Tales: Tableau's Vision into Toy Manufacturer Data

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PROJECT REPORT

1. INTRODUCTION

   ## 1.1 Project Overview:

   Employ Tableau to delve into Toy Manufacturers' data, uncovering market trends, production

   patterns, and consumer preferences. Craft interactive visualizations to guide strategic decisions and enhance market competitiveness The Toy Manufacturers' Data Exploration and Visualization Project aims to leverage the power of Tableau to provide a comprehensive analysis of the toy manufacturing industry. By delving into the vast dataset encompassing various facets of the industry, the project seeks to uncover valuable insights related to market trends, production patterns, and consumer preferences.Utilize Tableau to dissect market trends within the toy manufacturing sector. Explore historical sales data, identify emerging market demands, and highlight patterns that can inform strategic decisions.

   ## 1.2 Purpose

   The purpose of this project, *"ToyCraft Tales: Tableau's Vision into Toy Manufacturer Data,"* is to analyze and visualize toy manufacturing data to uncover valuable business insights. By leveraging data analytics tools like MySQL and Tableau, the project aims to identify market trends, seasonal demand patterns, regional performance, and consumer preferences. The ultimate goal is to support data-driven decision-making through interactive dashboards and storytelling, enabling toy manufacturers to improve product planning, marketing strategies, and overall operational efficiency.
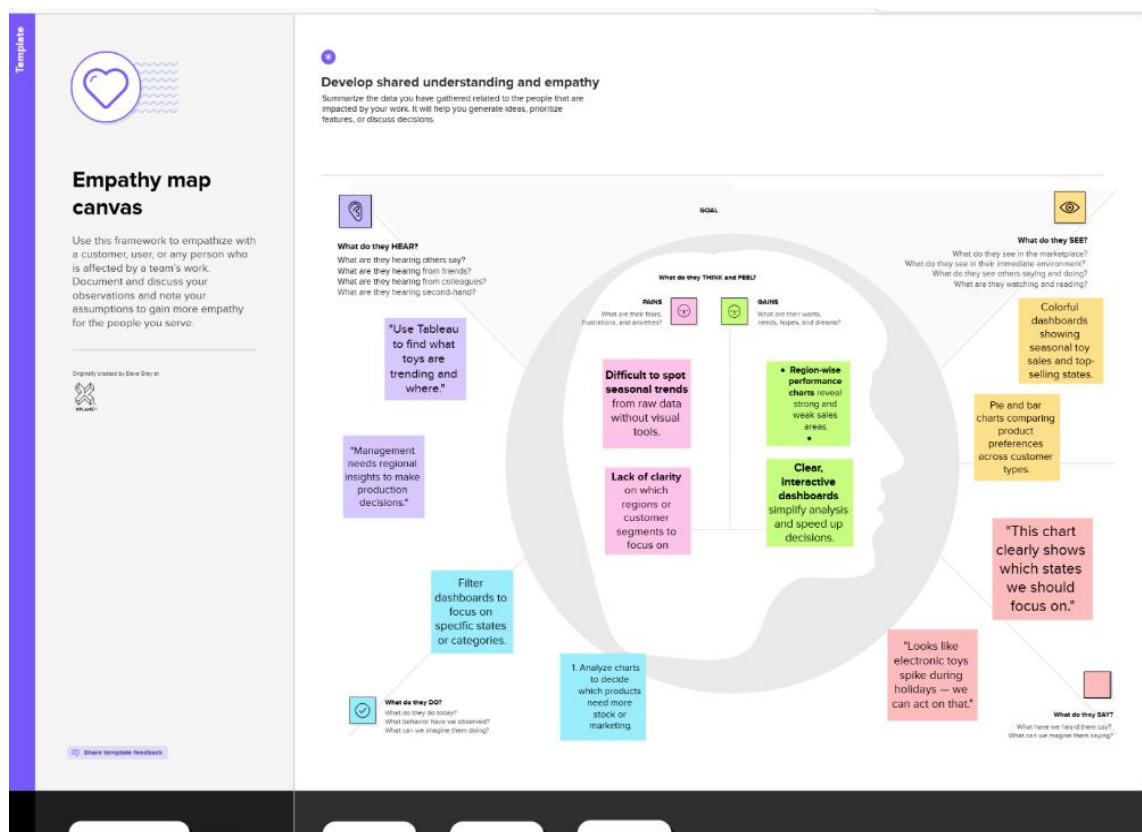
2. IDEATION PHASE

2.1 Problem Statement
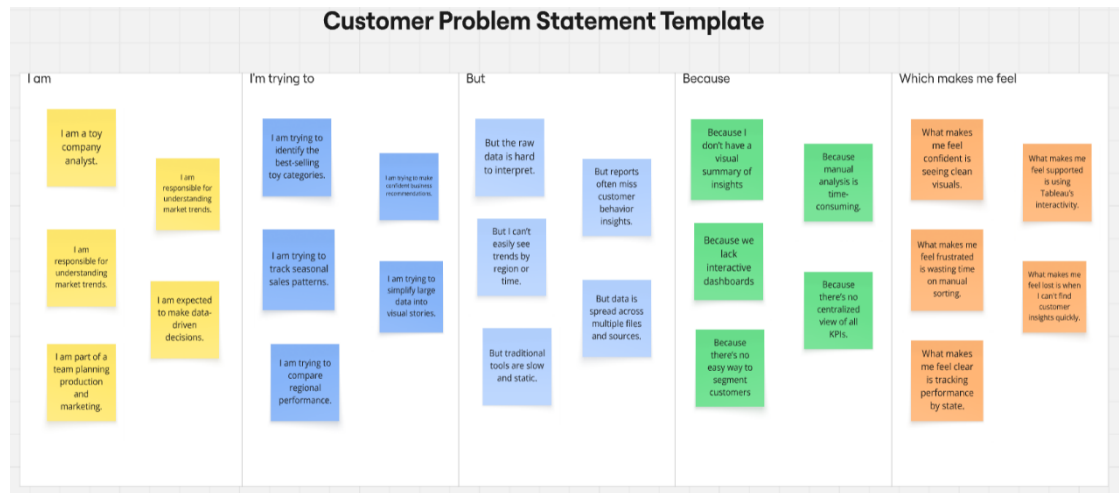
Problem Statement (PS)	I am (Customer)	I'm trying to	But	Because	Which makes me feel
PS-1	I am a toy company analyst.	I am trying to identify the bestselling toy categories.	But the raw data is hard to interpret.	Because I don't have a visual summary of insights.	What makes me feel confident is seeing clean visuals.
PS-2	I am someone who needs fast, visual insights.	I am trying to compare regional performance	But traditional tools are slow and static	Because there's no easy way to segment customers.	What makes me feel clear is tracking performance by state.
PS-3	I am responsible for understanding market trends.	I am trying to track seasonal sales patterns	But I can't easily see trends by region or time.	Because we lack interactive dashboards.	What makes me feel frustrated is wasting time on manual sorting.

PS-4	I am part of a team planning production and marketing.	I am trying to simplify large data into visual stories.	But reports often miss customer behavior insights.	Because manual analysis is timeconsuming.	What makes me feel supported is using Tableau's interactivity.
PS-5	I am expected to make datadriven decisions.	I am trying to make confident business recommendations.	But data is spread across multiple files and sources.	Because there's no centralized view of all KPIs	What makes me feel lost is when I can't find customer insights quickly.

2.2 Empathy Map Canvas

2.3 Brainstorming

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2

Brainstorm

Write down any ideas that come to mind that address your problem statement.

⏱ 10 minutes

TIP
You can select a sticky note and hit the pencil Switch to sketch icon to start drawing!

- Seasonal Demand Forecasting
- Region-wise Sales Optimization
- Consumer Preference Segmentation
- Top Performing Product Category Identification

3

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 and break it up into smaller sub groups.

⏱ 20 minutes

TIP
Add customizable tags to sticky notes to make it easier to find, browse, organize, and categorize important ideas as themes within your mural.

- Track seasonal trends
- Top states by sales
- Consumer type split
- Best toy categories
- Index-based analysis
- Interactive dashboard

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.

Importance

If each of these tasks could get done without any difficulty or cost, which would have the most impact or impact?

- Interactive dashboard
- Top states by sales
- Consumer type split
- Track seasonal trends
- Best toy categories

Feasibility

Regardless of their importance, which tasks are more feasible than others? (Cost, time, effort, complexity, etc.)

After you collaborate

You can export the mural as an image or pdf to share with members of your company who might find it helpful.

Quick add-ons

Share the mural
Share a view link to the mural with stakeholders to keep them in the loop about the outcomes of the session.

Export the mural
Export a copy of the mural as a PNG or PDF to attach to emails, include in slides, or save to your drive.

Keep moving forward

Strategy blueprint
Define the components of a new idea or strategy.
Open the template →

Customer experience journey map
Understand customer needs, motivations, and obstacles for an experience.
Open the template →

Strengths, weaknesses, opportunities & threats
Identify strengths, weaknesses, opportunities, and threats (SWOT) to develop a plan.
Open the template →

3. REQUIREMENT ANALYSIS

3.1 Customer Journey map

Stage	User Goal	Actions Taken	Opportunity	Pain Points	Solutions
Data Collection	Gather toy manufacturing data	Download dataset / receive sales file	Automate collection via standardized source	Raw data is messy, unstructured	Use MySQL to store and organize clean data
Data Storage	Store data in accessible database	Import into MySQL and verify table structure	Enable easy schema validation	Manual entry risk, inconsistent formats	Normalize data, enforce schema consistency
Data Extraction	Filter and query required information	Run SQL queries (e.g., group by state or product type)	Create reusable queries/views	Complex queries take time, may return irrelevant info	Use focused queries with filters, joins
Tableau Connect	Connect data source to visualization tool	Connect Tableau Desktop to MySQL	Simplify extract creation process	Live connection is unstable, not portable	Create extract and move to Tableau Public
Data Preparation	Clean and format the data for charts	Remove nulls, rename fields, adjust formats	Enable auto-cleaning steps	Difficult to identify unused columns	Use data interpreter & preview pane effectively
Visualization	Generate useful charts and graphs	Create bar, pie, line, stacked charts etc.	Apply best practices in chart design	Too many charts, cluttered view	Focus on key metrics, use visual storytelling
Dashboard Design	Combine key visuals into interactive view	Drag multiple sheets into one dashboard	Use templates or layout containers	Dashboard not responsive, missing filters	Use containers, legends, and interactive filters
Storytelling	Present insights as a visual narrative	Build scenes from sheets and dashboards	Use guided story templates	Hard to summarize with impact	Use powerful scene titles and brief captions

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Public Sharing	Share results with team or managers	Publish to Tableau Public Server	Enable download + direct link	Links can break if data isn't extracted	Always extract and save as `.twbx` before upload
Review & Test	Ensure performance and usefulness	Filter test, calculate fields, stress test render speed	Automate test scenarios	Slow dashboards, missing calc logic	Optimize filters, limit heavy visuals, use summaries instea

3.2 Solution Requirement

Functional Requirements:

Following are the functional requirements of the proposed solution

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	Data Collection & Storage	The system should support importing data from CSV files.
FR-2	SQL Query Execution	Filtered data must be retrievable by category or region.
FR-3	Tableau Integration with Database	MySQL database must be connectable with Tableau Desktop.
FR-4	Data Visualization	Generate bar, pie, area, and line charts.
FR-5	Dashboard Creation	Combine multiple sheets into an interactive dashboard.
FR-6	Story Design & Sharing	Build a Tableau Story with at least 4 scenes.

Non-functional Requirements:

Following are the non-functional requirements of the proposed solution

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	The system should be user-friendly with intuitive navigation and clear visuals.
NFR-2	**Security**	Data shared on Tableau Public must exclude sensitive information; use extracts.

| NFR-3 | **Reliability** | The system should maintain consistent operation without errors or broken links. |
NFR-4	**Performance**	Dashboards and stories should render within 3 seconds for optimal user experience.
NFR-5	**Availability**	Visualizations should be accessible online 24/7 via Tableau Public.
NFR-6	**Scalability**	The solution should support more data (e.g., new years, product lines, regions).

3.3 Data Flow Diagram
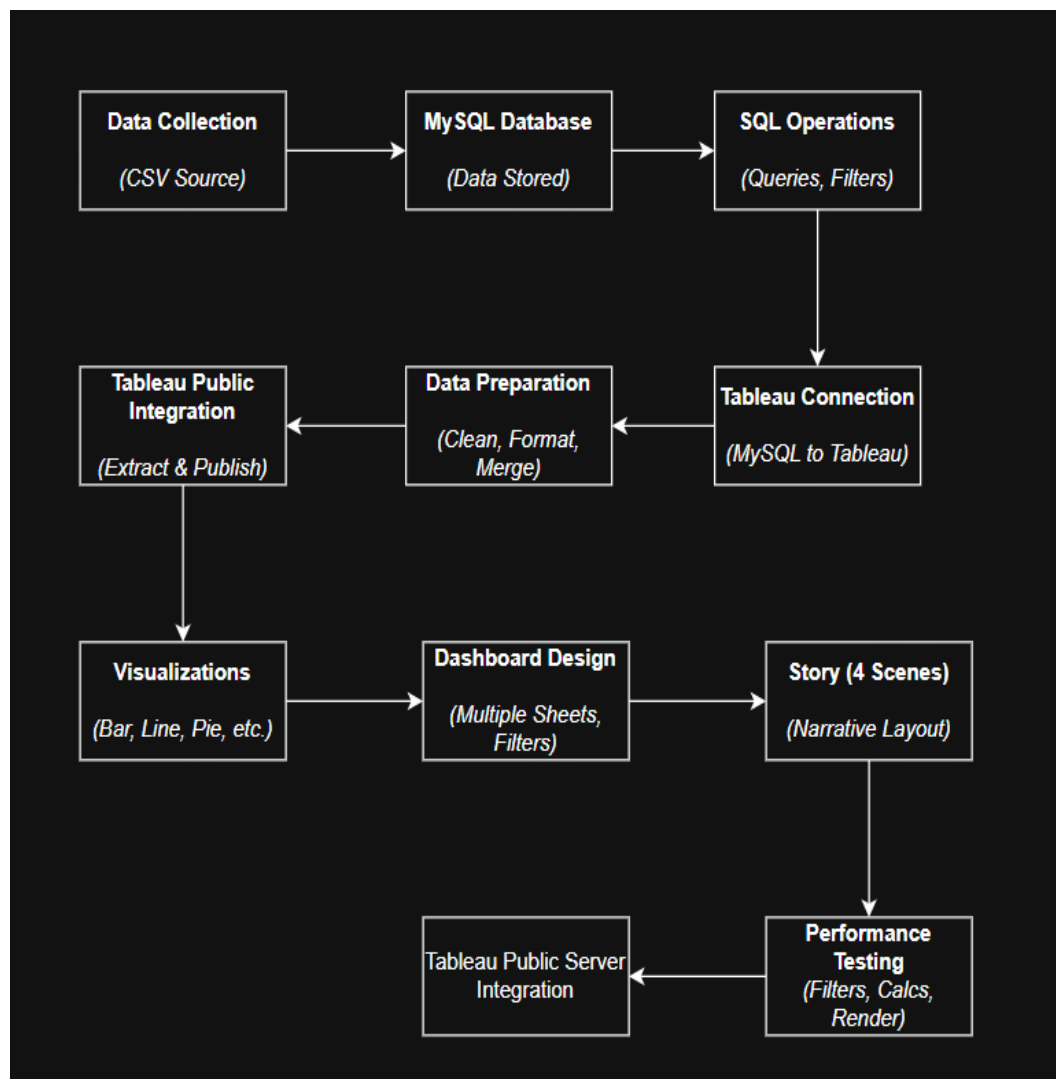
3.4 Technology Stack

S. No	Component	Description	Technology
1	Data Source	Toy manufacturing dataset with details like sales, category, and location.	CSV File / Excel
2	Database Storage	Storing raw data into a structured database for easier querying.	MySQL / MySQL Workbench
3	Data Preprocessing	Cleaning, transforming, and filtering data for analysis.	SQL Queries / Tableau Prep
4	DB-Tool Integration	Connecting Tableau to the MySQL server to fetch real-time or extracted data.	Tableau Desktop + MySQL Driver
5	Data Visualization	Creating charts such as bar, pie, area, line for insights.	Tableau Sheets
6	Dashboard Design	Combining visuals in an interactive and responsive layout.	Tableau Dashboard
7	Story Creation	Creating a 4-scene story to explain insights in sequence	Tableau Story Feature
8	Publishing	Publishing final dashboard/story to Tableau Public for sharing.	Tableau Public Server

## 4.PROJECT DESIGN
4.1 Problem Solution Fit
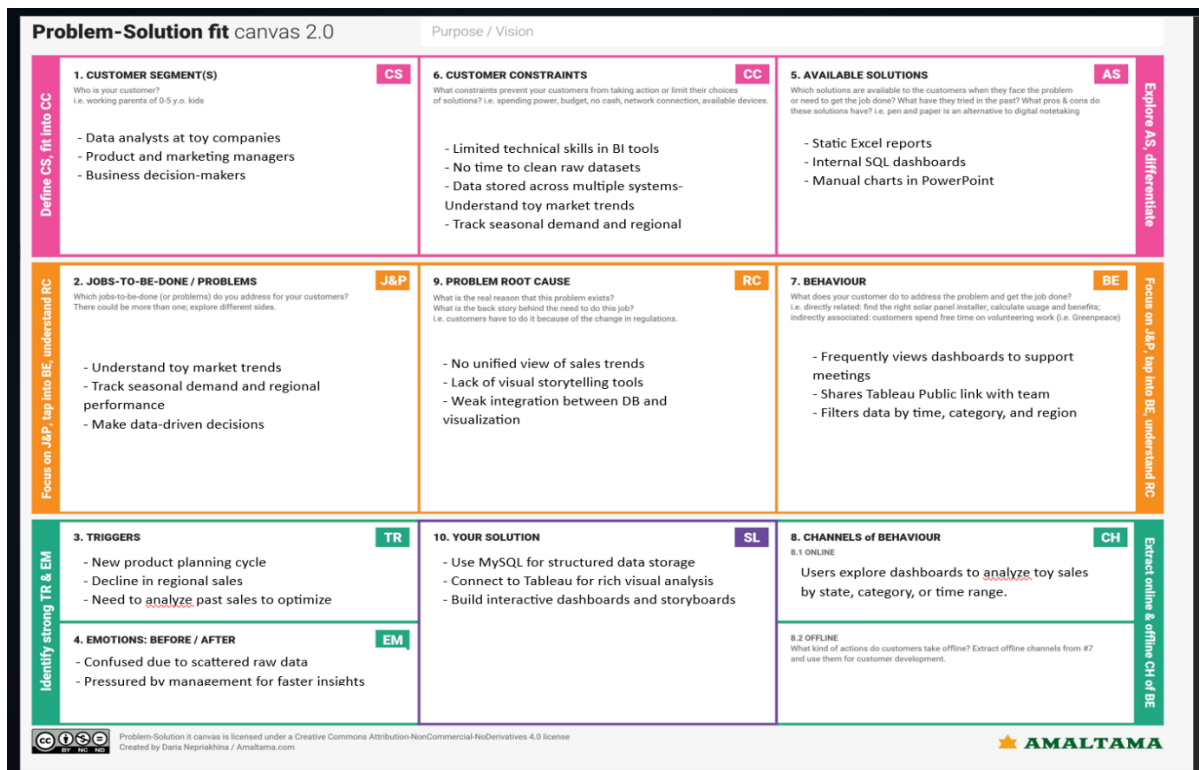
4.2 Proposed Solution

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Toy manufacturers lack clear insights into seasonal trends, regional performance, and consumer preferences, making decision-making slow and unreliable.
2.	Idea / Solution description	Use Tableau to create interactive dashboards and stories by connecting and visualizing cleaned data from a MySQL database.
3.	Novelty / Uniqueness	Combines real-time SQL data processing with Tableau's storytelling to give a single-pane view of sales, demand, and behavior across the U.S
4.	Social Impact / Customer Satisfaction	Helps companies better understand customer needs and plan production efficiently, reducing waste and improving product-market fit.

5.	Business Model (Revenue Model)	Data analytics as a decision-support tool for toy manufacturers; scalable for internal use, client reports, or consulting dashboards.
6.	Scalability of the Solution	Easily extendable to new regions, product lines, and sales years with minor SQL and Tableau updates — works for any retail dataset.

4.3 Solution Architecture
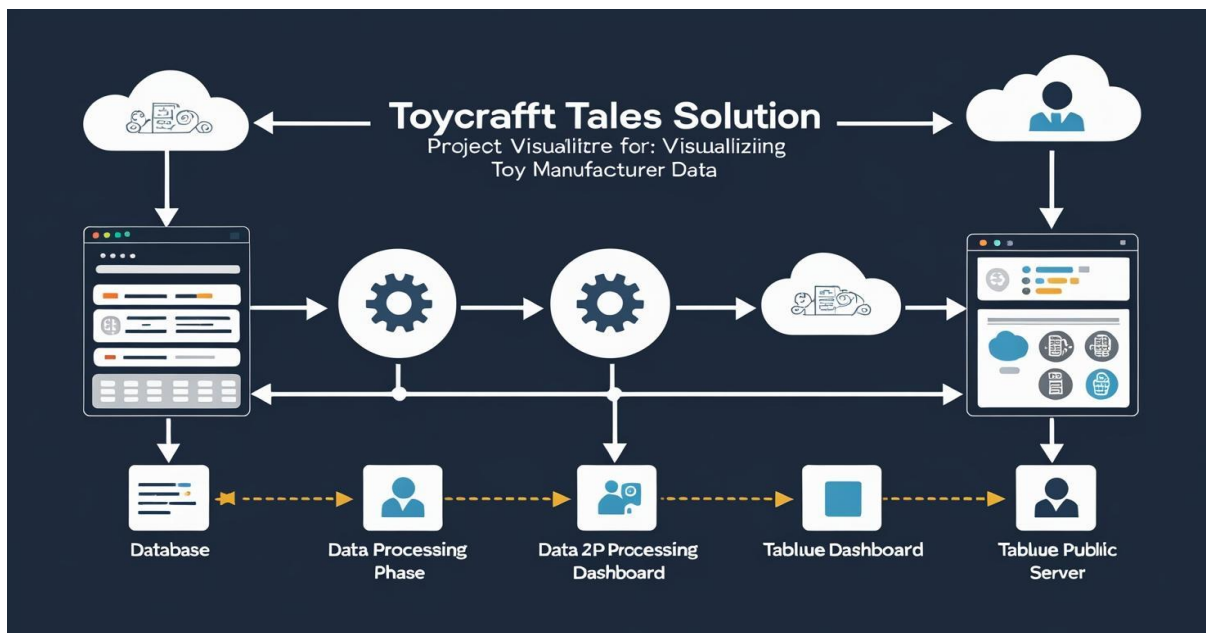
5. PROJECT PLANNING & SCHEDULING

5.1 Project Planning

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Data Preparation	USN-1	Clean and format the dataset by removing null values and renaming fields.	2	High	one
Sprint-1	Data Preparation	USN-2	Apply filters and calculations to structure the data for effective visualization.	1	High	one
Sprint-2	Dashboard	USN-3	Design an interactive dashboard combining multiple charts with category and region filters.	2	Low	one
Sprint-3	Story	USN-4	Create a 4-scene Tableau story to visually narrate insights on toy sales and manufacturer trends.	2	Medium	one

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Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-4	Performance Testing	USN-5	Test dashboard responsiveness using filters and calculated fields.	1	High	one
Sprint-4	Performance Testing	USN-6	Analyze rendering speed and optimize visuals for smooth user interaction.	2	Low	one
Sprint-4	Performance Testing	USN-7	Evaluate the impact of data extract size on dashboard loading time in Tableau Public.	2	Medium	one

6. FUNCTIONAL AND PERFORMANCE TESTING

6.1 Performance Testing

| S.No.	Parameter	Screenshot / Values
1.	Data Rendered	~1,200+ rows of toy manufacturing data rendered from MySQL (covering ~10 years across regions)
2.	Data Preprocessing	SQL queries were used to group, filter, and clean data before visualization in Tableau
3.	Utilization of Filters	- Year-wise filter - State filter - Product category filter - Index or manufacturer filter
4.	Calculation fields Used	- CNT(Index) to count manufacturers by index - SUM(Sales) for aggregated performance - % contribution by state or category
5.	Dashboard design	No of Visualizations / Graphs – 1 Dasboard
6	Story Design	No of Visualizations / Graphs – 1 Story with 4 Scenes

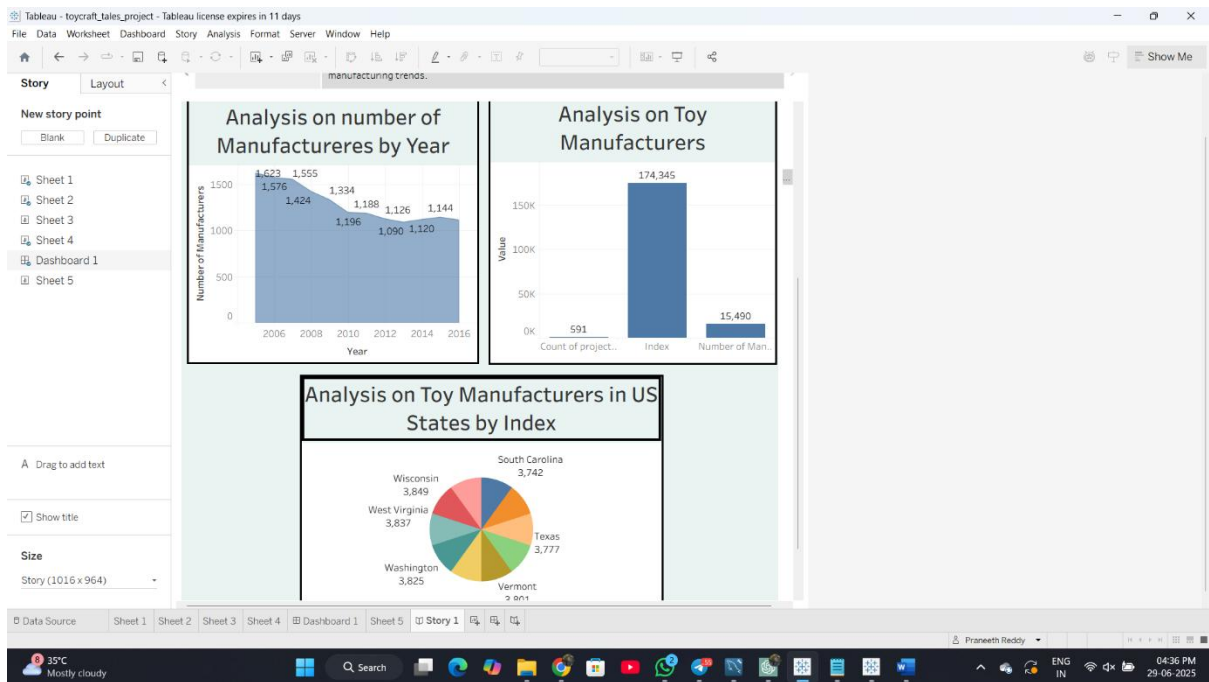# 7. RESULTS

7.1 Output Screenshots
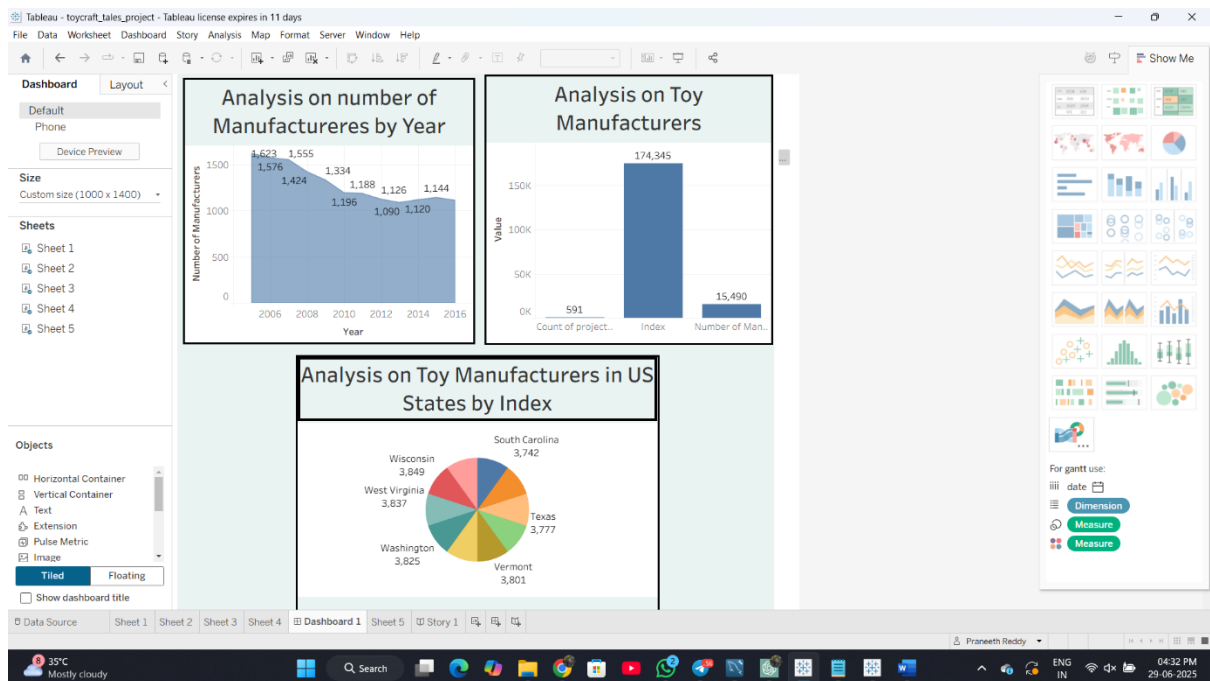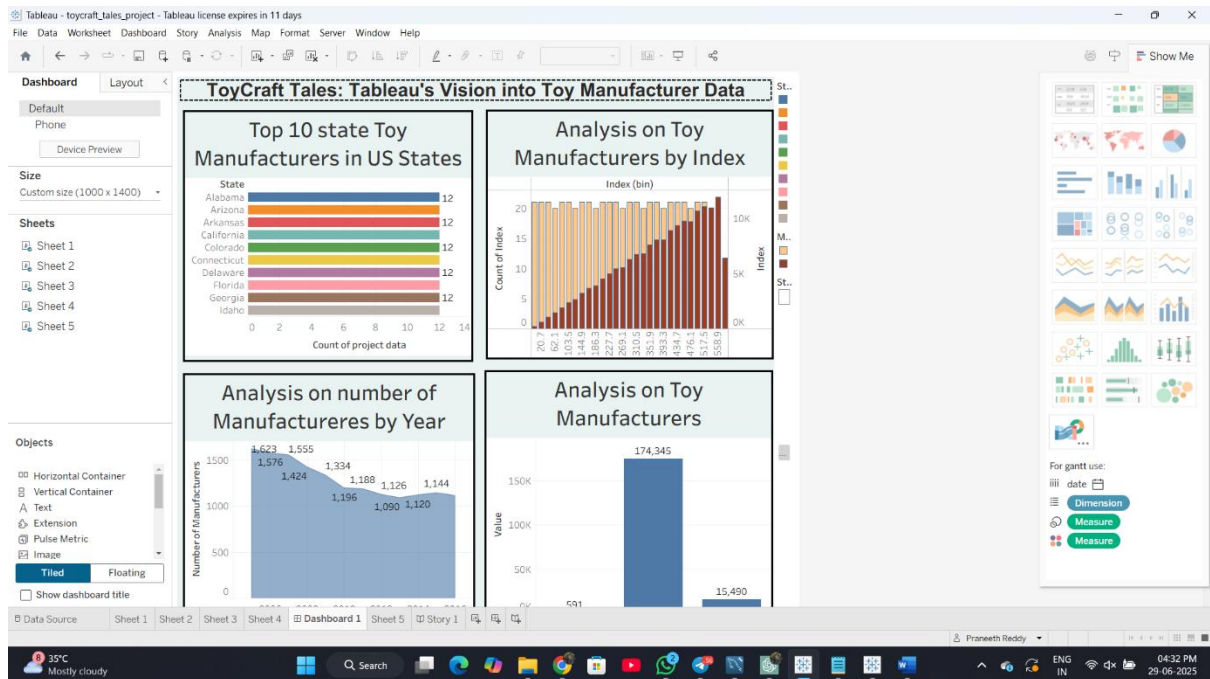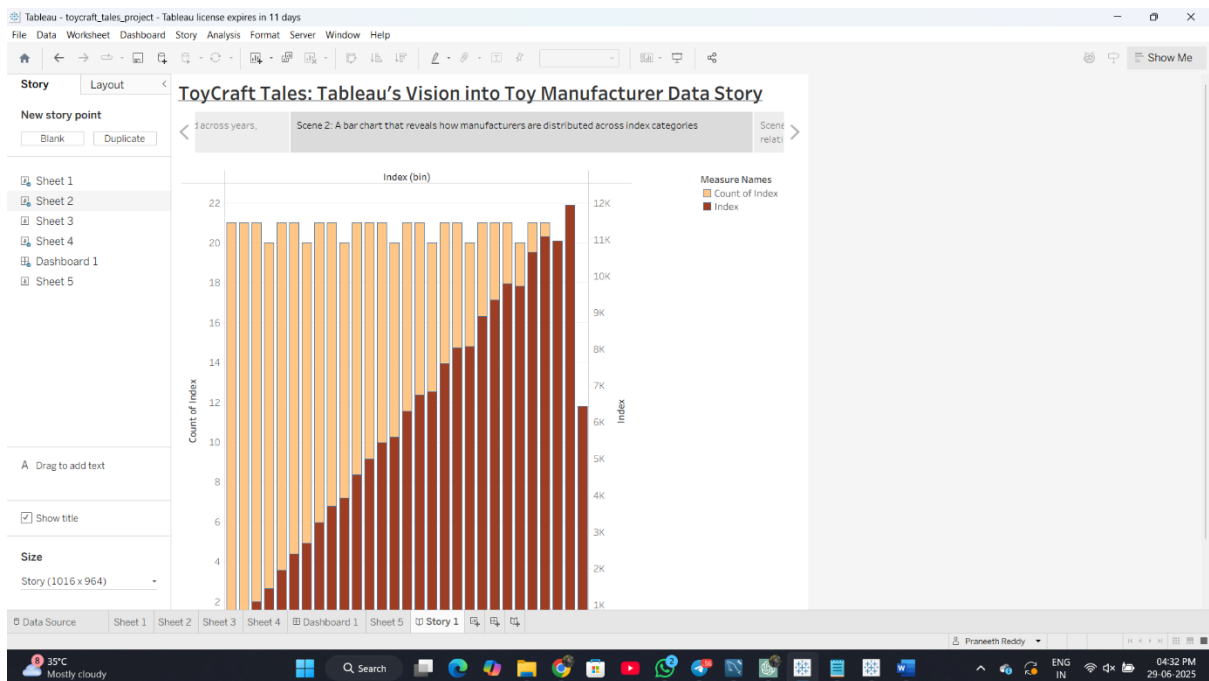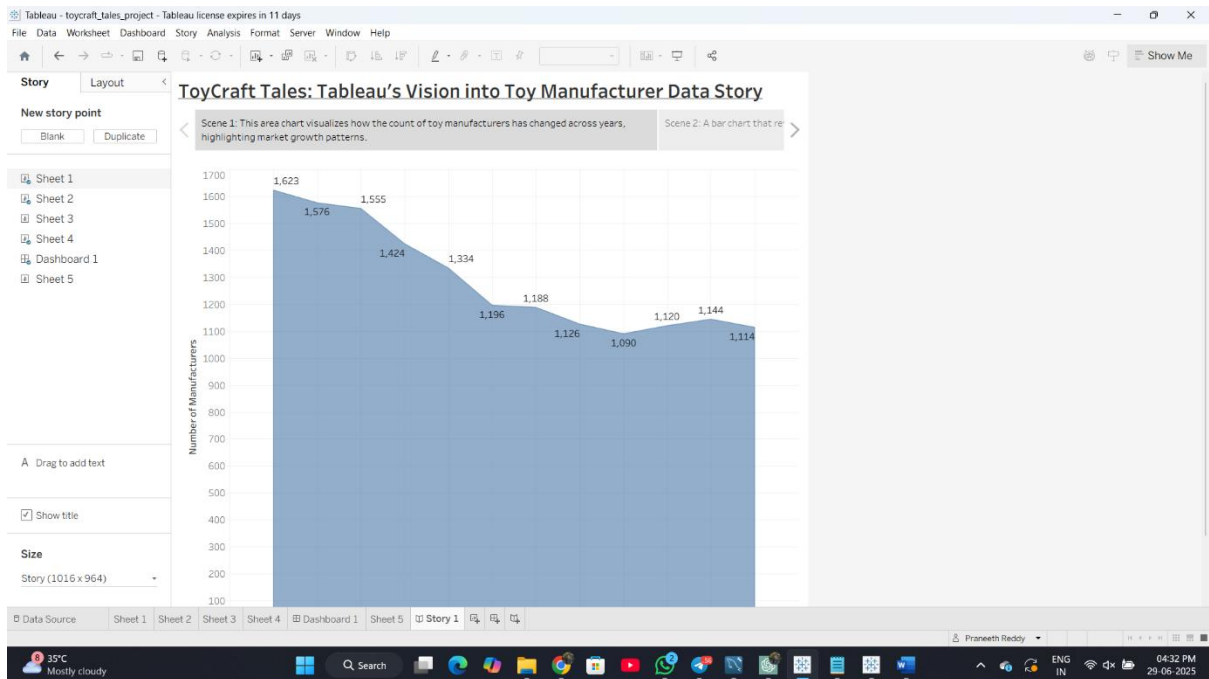
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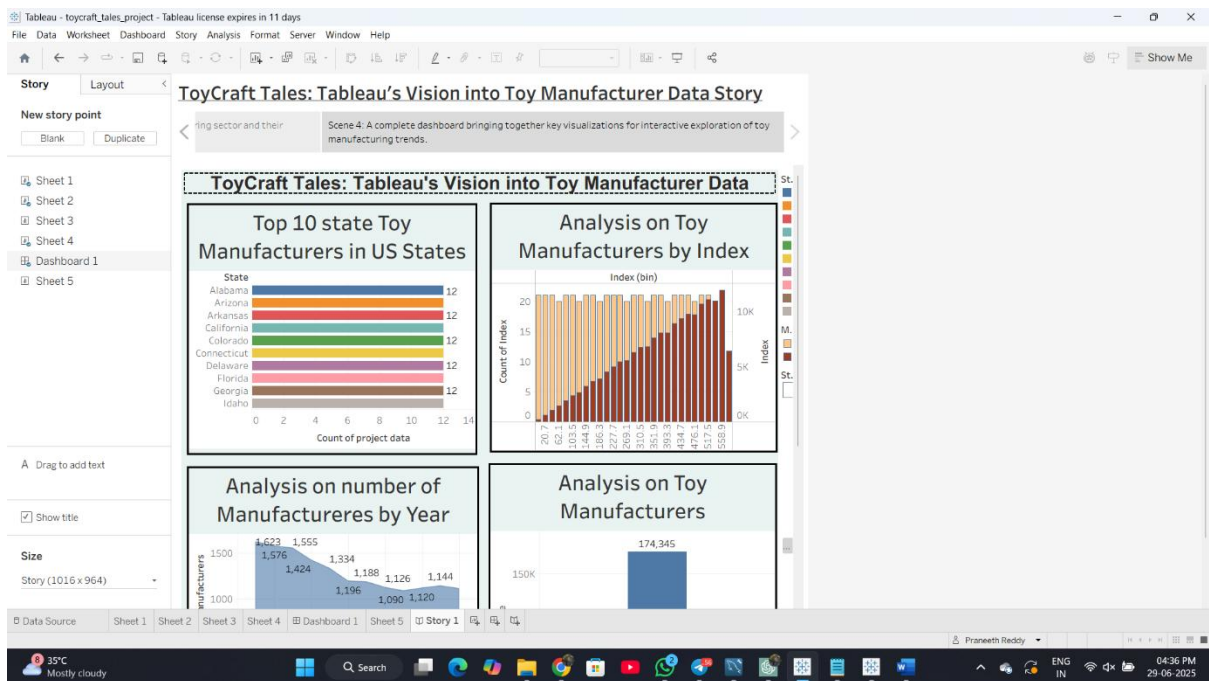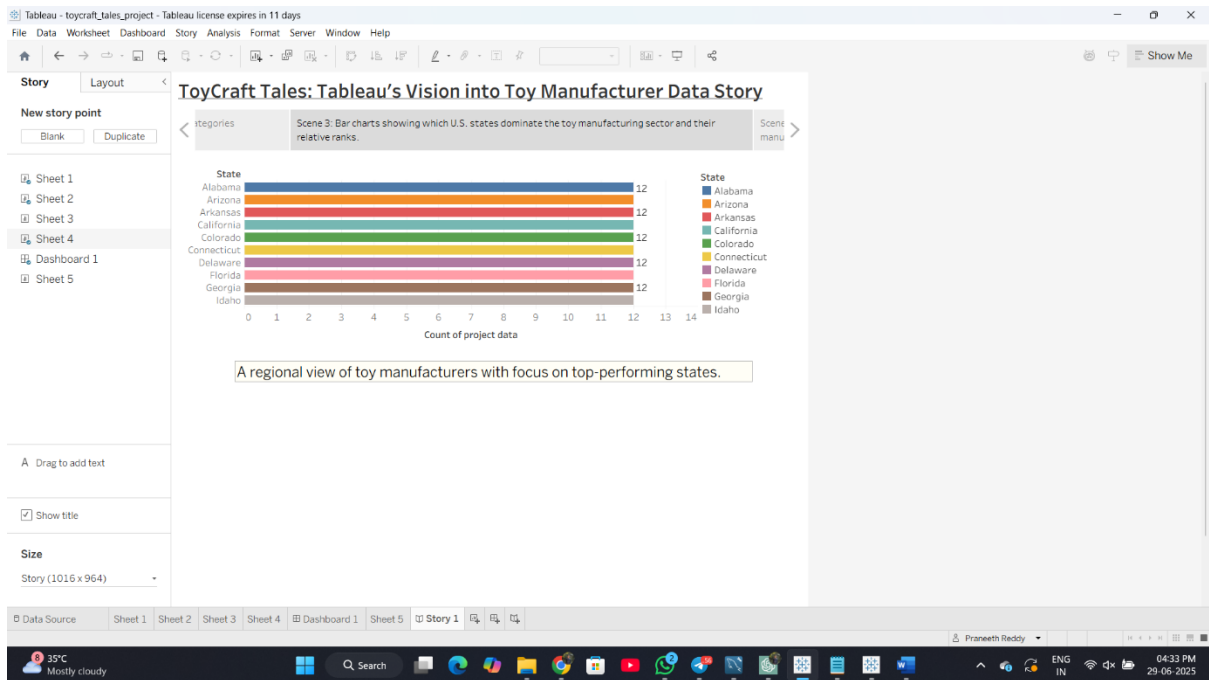
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8. ADVANTAGES & DISADVANTAGES

 # Advantage

1 **Provides clear visual insights into toy sales trends and regional performance.**

2 **Helps manufacturers make data-driven decisions in product planning and marketing.**

3 **Uses interactive dashboards and filters to explore data from multiple angles.**

4 **Tableau Public allows easy sharing and online accessibility of reports.**

5 **Scalable and reusable for other industries with minimal adjustments.**

 # Disadvantage

1 **Requires technical knowledge of SQL and Tableau to set up and maintain.**

2 **Tableau Public does not support live connections — requires extract upload.**

3 **Dashboard performance may slow down with large datasets or too many visuals.**

4 **Limited offline access — requires internet for Tableau Public interactions.**

5 **Data privacy must be ensured since Tableau Public is open to public view.**

9. CONCLUSION

The project *"ToyCraft Tales: Tableau's Vision into Toy Manufacturer Data"* successfully demonstrates how data analytics and visualization can transform raw sales data into meaningful business insights. By integrating MySQL for data storage and Tableau for visual exploration, the project identifies key patterns in toy manufacturing such as seasonal trends, regional preferences, and product performance. The interactive dashboards and storyboards developed provide an accessible and dynamic way for decision-makers to analyze and act on data. Overall, the project contributes to smarter, data-driven strategies in the toy industry, enhancing both operational efficiency and customer satisfaction.

10. FUTURE SCOPE

• **Add Real-Time Data**
Integrate live sales feeds into the database to update dashboards in real-time for instant insights.

• **Expand to Global Market**
Extend the current analysis beyond U.S. data to include global toy sales trends and regional comparisons.

• **Use Predictive Analytics**
Apply machine learning techniques to forecast future toy demand, seasonal trends, and customer preferences.

• **Mobile-Friendly Dashboards**
Optimize Tableau dashboards for better performance and readability on mobile and tablet devices.

• **Enhance Data Security**
Shift from Tableau Public to Tableau Server or Tableau Cloud to ensure secure access and internal data control.

11. APPENDIX

Dataset Link:-

https://docs.google.com/spreadsheets/d/1sCcyUkt2Aw78bNo769ZT5OY0HivBK_lg/edit?usp=sharing&ouid=100112742320883837647&rtpof=true&sd=true

GitHub Link:-

https://github.com/praneethreddy95/ToyCraft-Tales-Tableau-s-Vision-into-Toy-Manufacturer-Data