Data Collection and Preprocessing Phase

Date	*17 March 2025*
Team ID	*LTVIP2025TMID26704*
Project Title	*Toy Craft Tales: Tableau's Vision into Toy Manufacturer Data*
Maximum Marks	*10 Marks*

Data Exploration and Preprocessing

*This project involved comprehensive data cleaning and transformation of the Toy Manufacturers Sales dataset using **Tableau Prep**, **Tableau Desktop**, and **Tableau Public**. The processed data is now ready for advanced analytics and visualization to uncover market trends and business insights.*

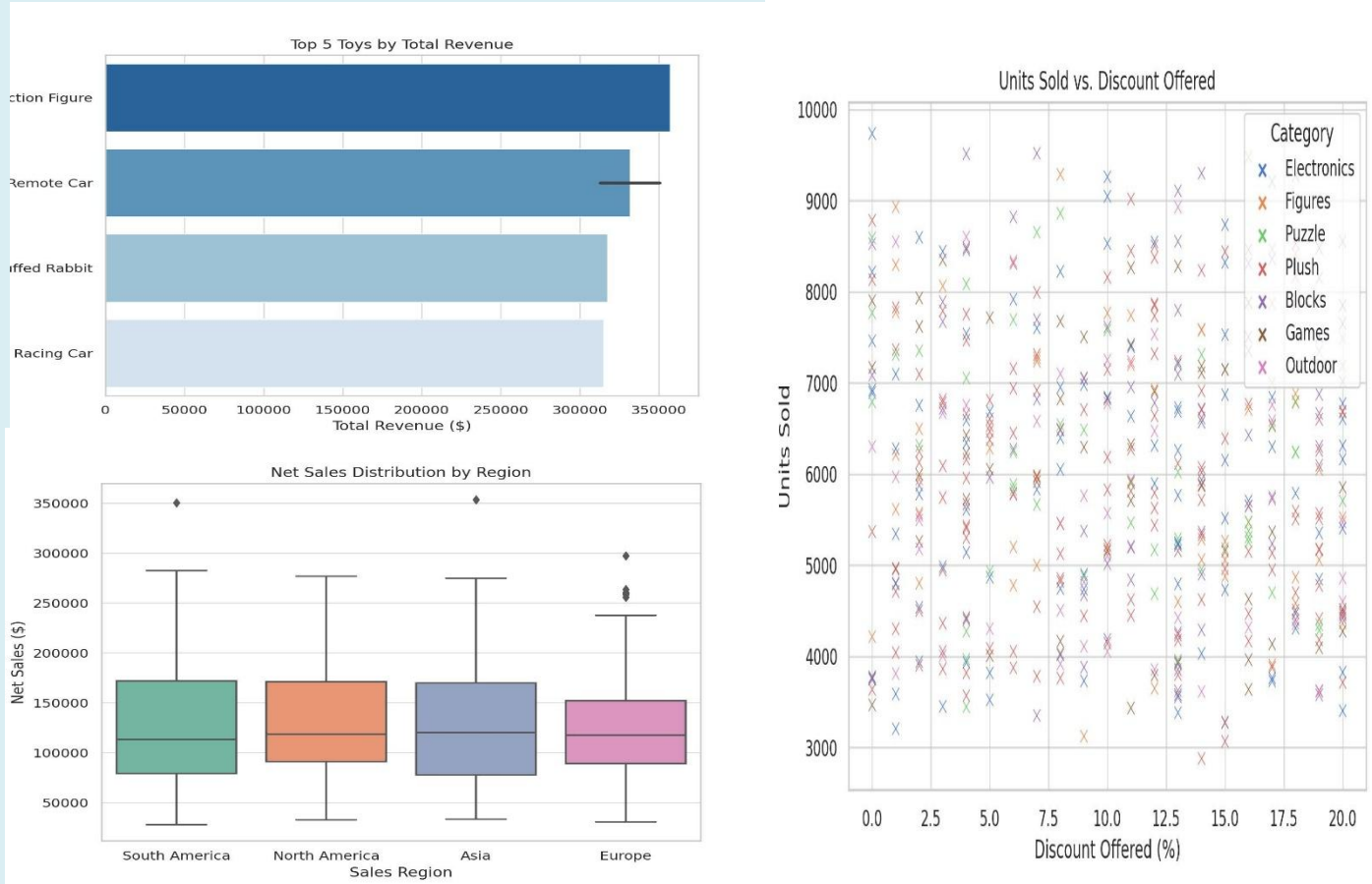| *Section*	*Description*
Data Overview	The dataset contains **toy manufacturing sales records**, including **product categories**, **regions**, **sales quantities**, **revenue**, and **transaction dates**. This data will be explored and prepared using **Tableau Prep**, **Tableau Public**, and **Tableau Desktop** for advanced visualization and analysis.
Data Cleaning	1. **Handling Missing Values:** ○ Identified and addressed **null values** in key columns (e.g., **sales quantity** and **revenue**). ○ Used **Tableau Prep** to fill missing data with **median values** where applicable. 2. **Removing Duplicates:** ○ **Duplicates** were detected using **Tableau Prep's grouping function** and removed to ensure **data integrity**. 3. **Error Correction:** ○ Rectified **incorrect date formats** and standardized **currency fields**.

Data Transformation	1. **Filtering:**
	   ○ Filtered data to exclude incomplete years (e.g., partial 2024 data) in **Tableau Public**.
	2. **Sorting:**
	   ○ Sorted by "Net Profit" to identify top-performing manufacturers across years.
	3. **Pivoting:**
	   ○ Pivoted "Sales Revenue" and "Production Costs" to calculate profit margins dynamically in **Tableau Prep**.
	4. **Calculated Fields:**
	   ○ Created calculated fields for "Profit Margin" = (Sales Revenue - Production Costs) / Sales Revenue.

Data Type Conversion	1. Converted "Year" to date format in **Tableau Prep**. 2. Changed "Sales Revenue" and "Production Costs" to numeric data types for accurate calculations.
Column Splitting and Merging	1. Split "Manufacturer Location" into "City" and "State" columns using the "Custom Split" function in **Tableau Prep**. 2. Merged "Product Category" and "Subcategory" into a unified "Full Category" field.
Data Modeling	1. Defined relationships between the **sales data** and product master tables in **Tableau Desktop**. 2. Utilized joins and unions in **Tableau Prep** for multi-source integration**…**
Save Processed Data	1. Saved cleaned data as a. hyper file in **Tableau Prep** for future use. 2. Published visual dashboards to **Tableau Public** for stakeholder access and analysis.

I'll create sample Tableau visualizations based on the " **The Toy Manufacturers Sales** " dataset.

Here are three demo visualizations based on the toy manufacturing sales data:

1. **Top 5 Toys by Total Revenue** – Shows the highest revenue-generating toys.
2. **Net Sales Distribution by Region** – Highlights how sales vary across different regions.

3. **Units Sold vs. Discount Offered** – Displays how discounts impact toy sales across categories.

Through comprehensive data cleaning and transformation using **Tableau Prep**, **Tableau Desktop**, and **Tableau Public**, we analysed the Toy Manufacturers Sales. This process uncovered key industry trends, with **California leading in toy manufacturing**. The dataset also reveals a **gradual decline in the number of manufacturers** over the years. The processed data is now ready for advanced analytics and visualization, providing valuable insights for business decisions.