Graphical Advantages: A tableau Exploration of Top Manga

Since the 1950s, manga has become an increasingly major part of the Japanese publishing industry By 1995, the manga market in Japan was valued at ¥586.4 billion (\$6–7 billion) with annual sales of 1.9 billion manga books and manga magazines (also known as manga anthologies) in Japan (equivalent to 15 issues per person). In 2020 Japan's manga market value hit a new record of ¥612.6 billion due to the fast growth of digital manga sales as well as increase of print sales in 2022 Japan's manga market hit yet another record value of ¥675.9 billion. Manga have also gained a significant worldwide readership. Beginning with the late 2010s manga started massively outselling American comics. Now the Manga want to know the Best-Selling Mangas from Past to Now.

1. Introduction

1.1 Project overview

"Graphical Advantages: A Tableau Exploration of Top Manga" project is an innovative initiative aimed at leveraging data analytics and visualization to provide deep insights into the world of manga. With a primary focus on the analysis and presentation of historical manga sales data, this project is designed to cater to the diverse interests of manga enthusiasts, authors, creators, publishers, and marketers.

Project Purpose: The primary purpose of this project is to offer a robust and user-friendly platform that allows stakeholders to explore, analyze, and understand the best-selling manga titles over time. By employing Tableau for data visualization, the project aims to deliver a dynamic and interactive experience, enabling users to delve into the manga industry's past and present.

Key Objectives:

- **Data Exploration:** Enable users to interact with and explore historical manga sales data, offering comprehensive insights into trends, genre popularity, and authorrankings.
- **Data Analysis:** Uncover meaningful trends and patterns within the manga sales data, providing stakeholders with a deeper understanding of the factors influencing manga popularity.
- **Personalized Recommendations:** Implement a collaborative filtering recommendation engine to suggest manga titles tailored to individual user preferences and readinghistory.
- **User Accessibility:** Create a user-friendly web interface and potentially mobile applications, making the platform easily accessible to a wide audience.
- **Data Security and Compliance:** Prioritize data privacy and security by implementing robust measures, including secure authentication and encryption, while adhering to data protection regulations.
- **Visualization Dissemination:** Ensure that visualizations are easily accessible by integrating them into various platforms, including websites, internal dashboards, and through sharing on social media and other communication channels.
- Continuous Improvement: Establish a feedback mechanism to collect user

input and suggestions, facilitating ongoing refinement and enhancements to the platform.

1.2 Purpose

The project, "Graphical Advantages: A Tableau Exploration of Top Manga," seeks to provide an innovative and data-driven platform that offers insights into the best-selling manga titles from the past to the present. With a primary focus on leveraging Tableau for data visualization, this project aims to cater to the diverse interests of manga enthusiasts, authors, creators, publishers, and marketers. By creating a user-friendly, interactive interface, the project will allow stakeholders to explore and analyze manga sales data comprehensively.

2. Litrature Survey

2.1 Existing Problem:

The world of manga, with its vast array of titles and genres, poses a challenge for both enthusiasts and industry stakeholders. The existing problem lies in the difficulty of comprehensively understanding and navigating the landscape of top manga series. This problem is multifaceted: Diverse Manga Offerings: The manga industry offers an extensive range of titles across various genres, making it challenging for readers to discover new series that align with their preferences. Authors and Creators: Manga authors and creators may struggle to gauge reader preferences, trends, and factors contributing to the success of their works, leading to challenges in producing engaging content. Publishers and Marketers: Publishers and marketers face the dilemma of choosing which manga titles to invest in and how to effectively promote them in a highly competitive market.

Researchers and Analysts: Researchers and analysts often lack real-time data and comprehensive insights into the manga industry, hindering their ability to provide

Researchers and Analysts: Researchers and analysts often lack real-time data and comprehensive insights into the manga industry, hindering their ability to provide valuable information to stakeholders. Media and Reviewers: Media outlets and reviewers need to keep up with the ever- evolving manga releases, striving to provide readers with the latest information and opinions to guide their choices.

2.2 References

The following references provide insights into the existing problems and challenges in the manga industry:

- 1. Tanaka, Y. (2020). "The Manga Business: A Historical Analysis of the Globalization and Digitization of Comics." Routledge.
- 2. Schodt, F. L. (1996). "Dreamland Japan: Writings on Modern Manga." Stone Bridge Press.
- 3. Johnson-Woods, T. (2010). "Manga: An Anthology of Global and Cultural Perspectives." Continuum.
- 4. Rahman, M. S., & Suzuki, A. (2014). "Market and Strategy Analysis of Manga Industry in the US." International Journal of Business and Social Science, 5(3).

2.3 Problem Statement Definition for the Project

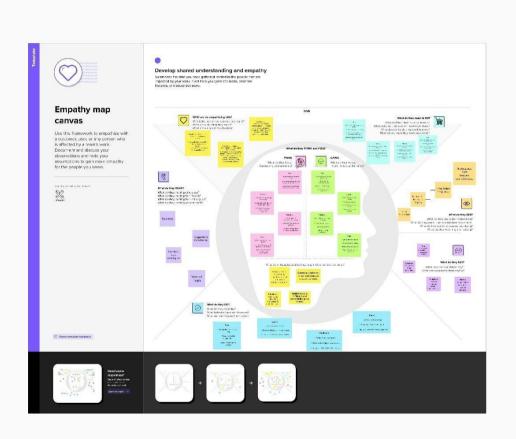
The problem addressed by the project is the lack of comprehensive, data-driven insights and tools in the manga industry to: Enable manga enthusiasts to discover new titles aligned with their interests. Assist manga authors and creators in producing content that resonates with readers and aligns with market demands. Support publishers and marketers in making data-driven decisions on manga selection and marketing strategies. Provide researchers and analysts with timely and comprehensive data for industry analysis. Help media outlets and reviewers in disseminating information and opinions to guide reader choices.

The project aims to bridge this gap by developing a data analytics platform that leverages Tableau for data visualization, enabling users to explore and analyze historical manga sales data, gain personalized recommendations, and access valuable insights.

3 Ideation & Proposed Solution

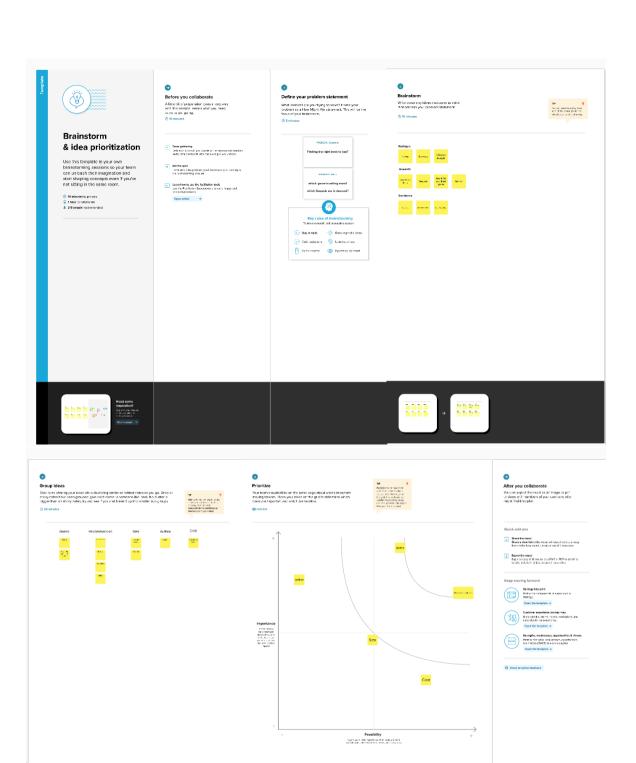
3.1 Empathy Map Canvas

The empathy map canvas for the "Graphical Advantages: A Tableau Exploration of Top Manga" project is a tool to help project stakeholders understand the perspectives, needs, and feelings of the various user groups involved in the project. These user groups include manga enthusiasts, creators, publishers, and media/reviewers.



3.2 Ideation & Brainstorming

Ideation and brainstorming for the project involved a collaborative process among the team members. The goal was to generate innovative ideas for data analysis and visualization, catering to the diverse needs of manga enthusiasts, creators, publishers, researchers, and media outlets. The brainstorming sessions focused on identifying key data points, chart types, and user interface features that would enhance the user experience. Ideas ranged from interactive sales trend visualizations to personalized manga recommendations and real-time industry insights. Through ideation and brainstorming, the project team aimed to create a dynamic platform that empowers stakeholders with valuable insights into the world of manga.



Proposed solution

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	The Manga industry is confronted with the task of identifying and listing the best-selling mangas from past to the present. This demand arises from the considerable global readership and the recent trend where manga sales have significantly outperformed American comics. The objective is to provide a valuable resource that offers insights into the Manga industry's evolution, trends, and standout titles, serving both enthusiasts and industry professionals.
2.	Idea / Solution description	The solution involves data collection, data verification, and presenting the list in an accessible format. This involves compiling a comprehensive and accurate list of the top-performing mangas, including title, author, publication date, and sales figures.
3.	Novelty / Uniqueness	The uniqueness lies in the compilation's accuracy and comprehensiveness. It will serve as a valuable resource, offering insights into the Manga industry's trends and evolution over time.
4.	Social Impact / Customer Satisfaction	The project can have a significant impact on the Manga community and readers worldwide. It will provide enthusiasts and industry professionals with a reliable reference, enhancing their knowledge and appreciation of top-selling mangas.
5.	Business Model (Revenue Model)	A potential revenue model could involve offering premium access to additional data and insights, merchandise related to top-selling mangas, or partnerships with publishers and authors for promotional opportunities.
6.	Scalability of the Solution	The solution is highly scalable as it can continually update and expand the list as new data becomes available. It can also be expanded to include more in-depth analysis and reports on trends in the Manga industry.

4 Requirement Analysis

4.1 Functional Requirements

- Data Collection and Aggregation: The system must collect historical manga sales data from reliable sources, including Oricon and official publisher websites. It should also gather metadata about manga titles, including author information, genre, publication date, and target audience.
- o **Data Processing and Analysis:** The system must clean, format, and preprocess the acquired data to ensure consistency and compatibility. Data analysis functionalities must include trend identification, genre popularity analysis, and author ranking.
- User Interface and Data Visualization: The user interface should allow users to explore manga data through interactive Tableau visualizations, including sales trends, genre popularity, and author rankings. Users should have the ability to customize visualizations based on their preferences.
- Personalized Recommendations: The system must incorporate a collaborative filtering recommendation engine that provides users with personalized manga suggestions based on their reading history and preferences.
- **User Profiles:** Users should be able to create and manage profiles to store their reading history, genre preferences, and favourite authors.
- Security and Privacy: The system must implement secure user authentication mechanisms, such as OAuth2. Data encryption is required to ensure user data privacy and security. Compliance with data protection regulations, such as GDPR, must be maintained.
- Scalability and Performance: The system should be scalable to accommodate growing datasets and increased user traffic. Load balancing mechanisms should be in place to optimize system performance.
- Feedback Mechanism: Users should have the ability to provide feedback and suggestions to improve the platform continually. Feedback data should be collected and analyzed to enhance the user experience.

4.2 Non-Functional Requirements

- Performance: The system must provide fast response times for data queries and visualizations. Load testing and performance monitoring should ensure smooth operation, even during high-traffic periods. Reliability: The platform must be highly reliable, with minimal downtime. Data integrity and consistency should be maintained at all times.
- o **Usability:** The user interface must be intuitive and user-friendly, catering to a broad audience. Users should be able to navigate the system without extensive training.
- Security: Strong security measures should be in place, ensuring the protection of user data and privacy. Access controls and encryption should be robust and up-todate.
- Compliance: The system must adhere to data protection regulations and standards, such as GDPR and data encryption requirements.
- **Scalability:** The architecture should be designed to scale efficiently to handle increasing data volumes and user loads.
- **Feedback and Continuous Improvement:** The feedback mechanism should facilitate ongoing system enhancements and user-driven improvements.

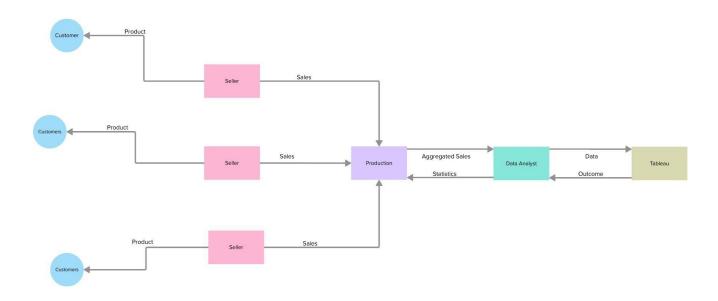
These functional and non-functional requirements collectively define the capabilities, performance expectations, and user experience aspects that the project should deliver. They guide the development and deployment of the "Graphical Advantages: A Tableau Exploration of Top Manga" platform.

5. Project Design

5.1Data Flow Diagrams & User Stories

Data Flow Diagrams:

A Data Flow Diagram (DFD) is a traditional visual representation of the information flows within a system. A neat and clear DFD can depict the right amount of the system requirement graphically. It shows how data enters and leaves the system, what changes the information, and where data is stored.



User Stories

Use the below template to list all the user stories for the product.

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Reader	manga recommendation	USN-1	As a budget-conscious manga fan, I want to receive notifications or updates about discounts, promotions, or special offers on manga titles, allowing me to make cost-effective purchasing decisions.	I cancurateaselectionof economically priced manga titles that have received high ratings.	High	Sprint-1
		USN-2	As a user interested in manga recommendations, I want the platform to provide personalized recommendations based on my past purchases and reading history to discover new series that I might enjoy.	I can recommend outstanding manga titles within similar genres.	Medium	Sprint-2
Author	Public Insights	USN-3	As amanga author, I need data on which of mymanga series or story arcs are the most popular among readers, helping me prioritize and expand on those successful narratives.	I can provide a list of the most popular manga titles authored by individual authors.	High	Sprint-1
		USN-4	Iwould like access toreader demographic data, such as age and location, to better understand my target audience and tailor my stories accordingly.	i can provide a compilation of the highest-selling manga titles categorized by age groups.	Medium	Sprint-1
Publisher	manga insights	USN-5	As a manga publisher, I require insights into content preferences and trends within our catalog to make informed decisions about future acquisitions and content production.	i can provide a compilation of the highest-selling manga	High	Sprint-1
		USN-6	As a manga publisher, I need insights into cross-series readership to identify opportunities for cross-promotions, crossovers, and merchandise development.	i can identify the common user base among different manga titles.	Low	Sprint-2

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Retailer	Manga insights	USN-7	As a manga retailer, I need insights into customer purchasing behavior, such as which genres or authors are most frequently bought together, to guide our product recommendations and bundling strategies.	I can recommend outstandingmangatitles in different genres and the most favoured author.	High	Sprint-1
			As a manga retailer, I need detailed sales data for different manga titles to optimize inventory and stock levels, ensuring we have the right books in stock at all times.	i can provide a compilation of the highest-selling manga	High	Sprint-1

5.2 Solution Architecture:

The solution architecture for this project serves several key functions:

Data Collection and Aggregation: It collects and consolidates data from multiple sources, including historical manga sales data and associated metadata, to create a comprehensive dataset.

Data Storage: The architecture efficiently stores the consolidated manga data in a data warehouse, organized and structured for analysis and visualization.

Data Analysis: It performs exploratory data analysis to identify trends, patterns, and insights related to manga sales and factors like genre, author, and publication date.

Data Visualization: The architecture uses Tableau to create interactive and engaging visualizations, making data insights clear and easily accessible to different target audiences.

User Interface: It provides a user-friendly web interface for users to access and interact with the visualizations, ensuring an engaging and informative user experience.

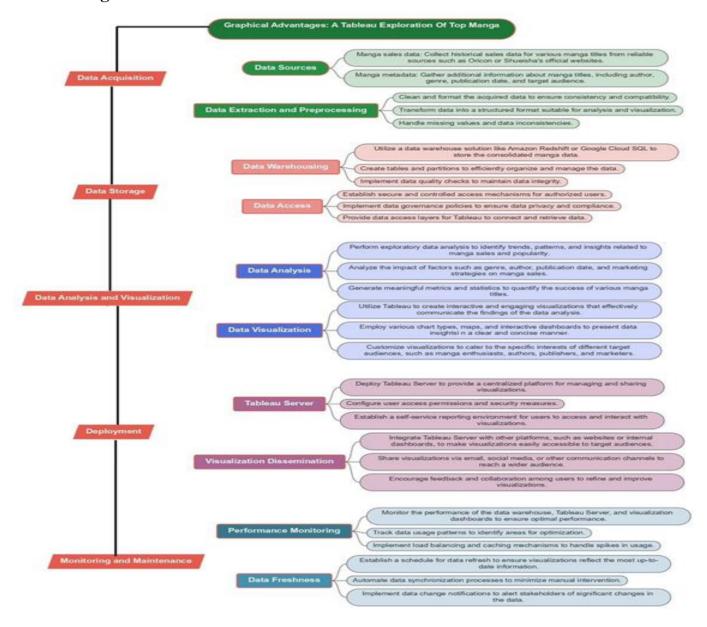
Security and Privacy: The architecture implements robust security measures, including user authentication and data encryption, to protect user data and maintain privacy compliance.

Deployment and Dissemination: It deploys the visualizations on Tableau Server, making them accessible to users and integrating them into various platforms and communication channels for widespread dissemination.

Monitoring and Maintenance: The architecture continuously monitors the performance of data-related components, ensures data freshness through scheduled refreshes, and automates data synchronization to keep the information up to date and maintain optimal system performance.

In summary, the solution architecture collects, stores, analyzes, visualizes, and securely shares manga data, providing stakeholders with valuable insights and a user-friendly platform to explore and understand the best-selling mangas over time. It also maintains data integrity and ensures data security and privacy compliance.

Solution Architecture Diagram



6. Project Planning & Scheduling

6.1 Technical Architecture

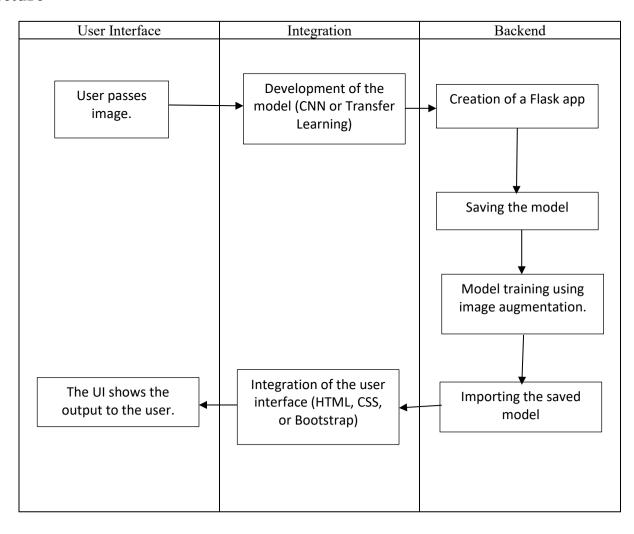


Table 1- Components & Technologies:

S. No.	Component	Description	Technology
1	User Interface	How user interacts with	HTML, CSS, JavaScript / React
		application e.g. Web UI	Js/ Angular Js etc.
2	Application logic	Logic for a process in the application	Tabeleu/IBM Cognos Analytics
3	Database	Manga title, author, sales data, and reader preferences	MySQL, NoSQL, etc.
4	File Storage/ Data	File storage requirements for Storing the dataset	Local System, Google Drive Etc
5	Recommendation System	Algorithm for suggesting manga based on user preferences	Machine Learning, Content- Based Filtering
6	Digital Publishing	Platform for digital manga distribution	Amazon Kindle, ComiXology, Manga Rock, etc.
7	Community Features	Forums, comments, and social features for reader engagement	PHP, MySQL, Social Media Integration
8	Cloud Hosting	Infrastructure for web and data hosting	Amazon Web Services, Google Cloud Platform, etc.
9	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud Local Server Configuration: Cloud Server Configuration:	Local, Cloud Foundry, Kubernetes, etc.

Table 2-Application Characteristics

S. No.	Characteristics	Description	Technology
1	Open-Source	List the open-source frameworks	Django, Angular Js, Spark
	Frameworks	used	
2	Security	List all the security / access	SSL/TLS, Authentication
	Implementations	controls implemented, use of	
		firewalls etc.	
3	Scalable	Justify the scalability of	Microservices, Load Balancers
	Architecture	architecture (3 – tier, Micro	
		services)	
4	Availability	Justify the availability of	Cloud Hosting
		application (e.g. use of load	
		balancers, distributed servers	
		etc.)	

5	Performance	Design consideration for the	CDNs, Caching
		performance of the application	_
		(number of requests per sec, use	
		of Cache, use of CDN's) etc.	

6.2 Sprint Planning & Estimation6.3 Sprint Delivery Schedule

Product Backlog, Sprint Schedule, and Estimation

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Project setup & Infrastructure	USN-1	Set up the development environment with the required tools and frameworks to start the graphical advantages project.	1	Medium	Jaswanth
Sprint-1	Development Environment	USN-2	collection of a diverse dataset encompassing manga sales data, which should include details such as sales figures, author information, genres, volume counts, and pricing information.	2	High	Samikshha
Sprint-2	Data collection	USN-3	proceed to gather the data and establish a connection between the dataset stored in MySQL and Tableau for visualization and analysis.	2	High	Kushagra
Sprint-2	Data Preprocessing	USN-4	perform data preprocessing on the collected dataset, which should involve filtering the necessary data, as well as addressing any null values or erroneous data.	3	High	Kushagra
Sprint-3	Model Development	USN-5	Generate graphs in Tableau using the user stories collected during the project design phase as the basis.	4	High	Samikshha
Sprint-3	Model Deployment & Integration	USN-6	Develop stories, dashboards, and reports in Tableau utilizing the graphs previously created as components.	6	Medium	Jaswanth
Sprint-4	Observation & Inference	USN-7	observations and inferences in Tableau based on the data and visualizations, utilizing the previously created graphs and insights.	2	High	Kushagra

Project Tracker, Velocity & Burndown Chart: (4 Marks)

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date (Actual)
Sprint-1	3	3 Days	25 Oct 2023	28 Oct 2023	3	28 Oct 2023
Sprint-2	5	3 Days	28 Oct 2023	31 Oct 2023	5	31 Oct 2023
Sprint-3	10	4 Days	31 Oct 2023	3 Nov 2023	10	3 Nov 2023
Sprint-4	2	3 Days	4 Nov 2023	7 Nov2023	2	6 Nov 2023

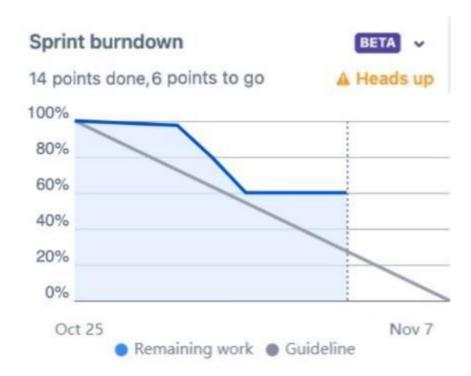
Velocity:

Imagine we have a 12-days sprint duration, and the velocity of the team is 20 (points per sprint). Let's calculate the team's average velocity (AV) per iteration unit (story points per day)

$$AV = \frac{sprint\ duration}{velocity} = \frac{20}{10} = 2$$

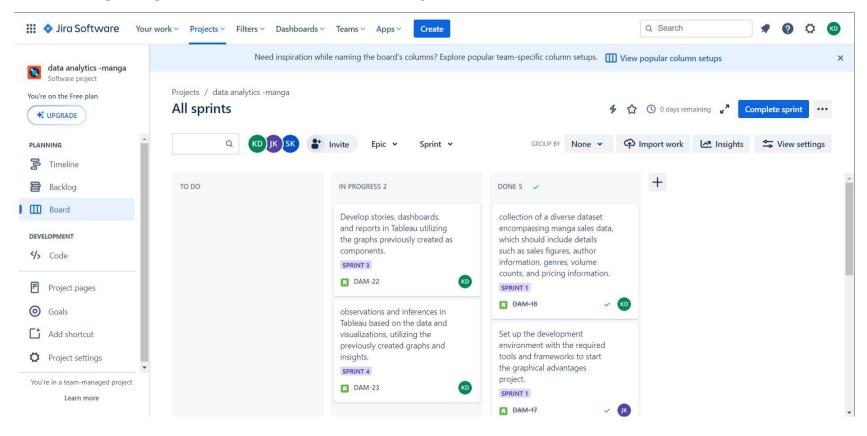
$$AV = 12/20 = 0.6$$

Burndown Chart:

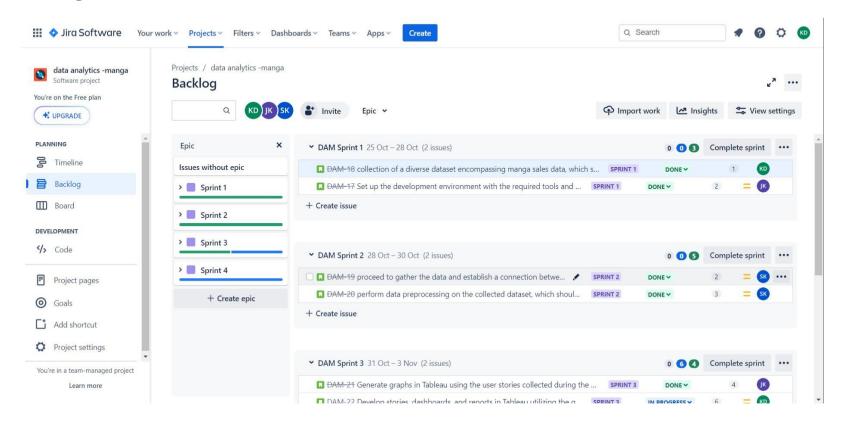


Board section.

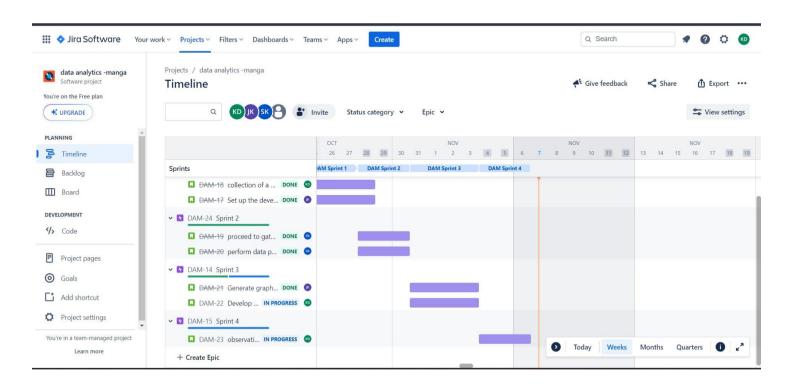
We have completed sprint 1 and 2. So we can see the remaining tasks on board.



Backlog section



Timeline



7. Performance Testing

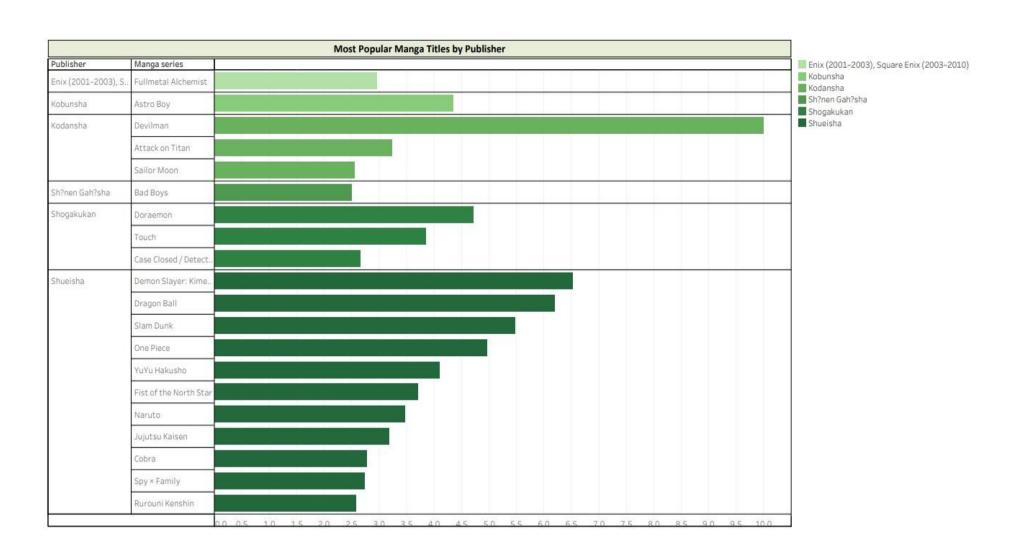
7.1 Performance Metrics

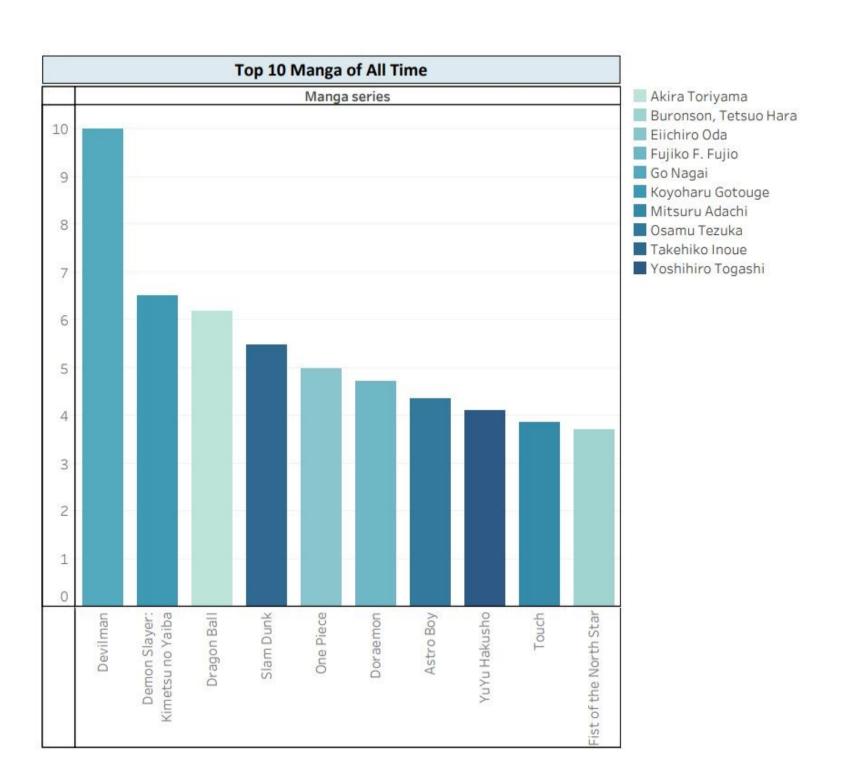
Model Performance Testing:

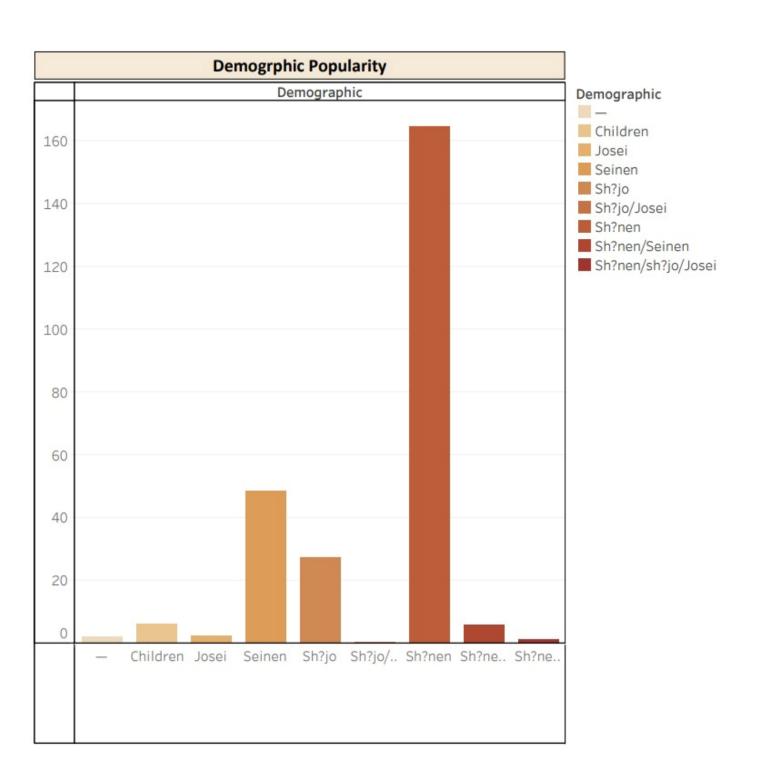
S.No.	Parameter	Screenshot / Values
1.	Dashboard design	5 Most Popular Manga Titles by Publisher Top 10 Manga of All Time Demographic Popularity Most Popular Manga Titles Per Decade Most Popular Manga Titles by Individual Authors
2.	Data Responsiveness	High
3.	Amount Data to Rendered (DB2 Metrics)	Author Demographic Manga Series Publisher Serialized Approximate sales in million(s) Average sales per volume in million(s)
4.	Utilization of Data Filters	5 Most Popular Manga Titles by Publisher (Manga Series) Top 10 Manga of All Time (Manga Series, Average sales per volume in million(s)) Most Popular Manga Titles Per Decade (Manga Series) Most Popular Manga Titles by Individual Authors (Manga Series)
5.	Effective User Story	7
6.	Descriptive Reports	5

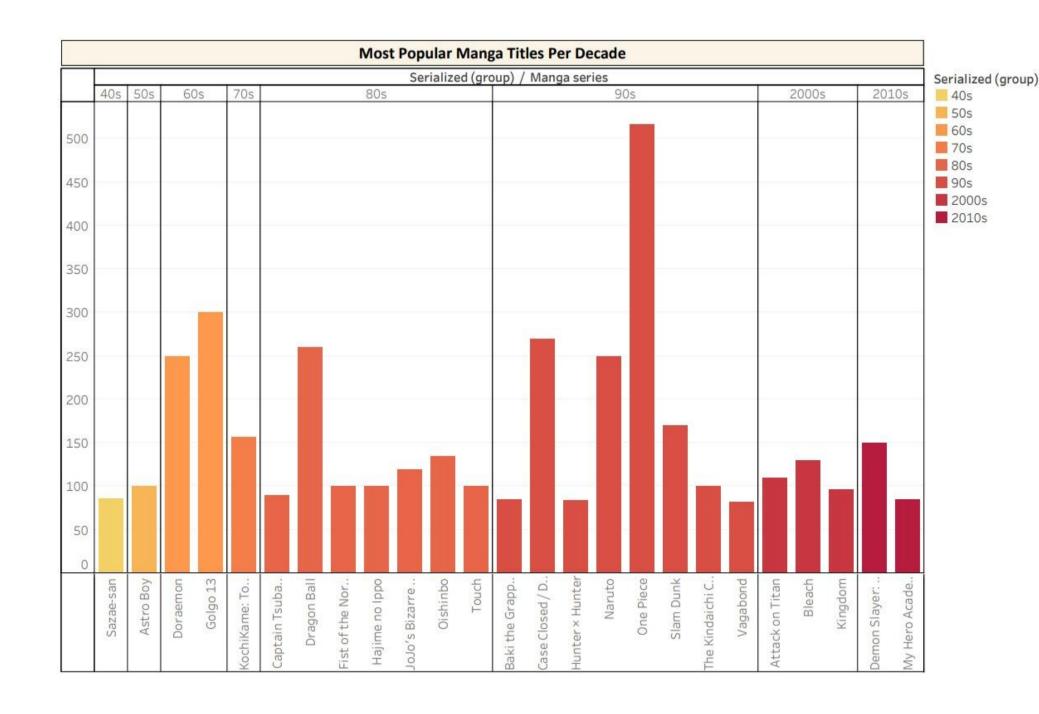
8. Results

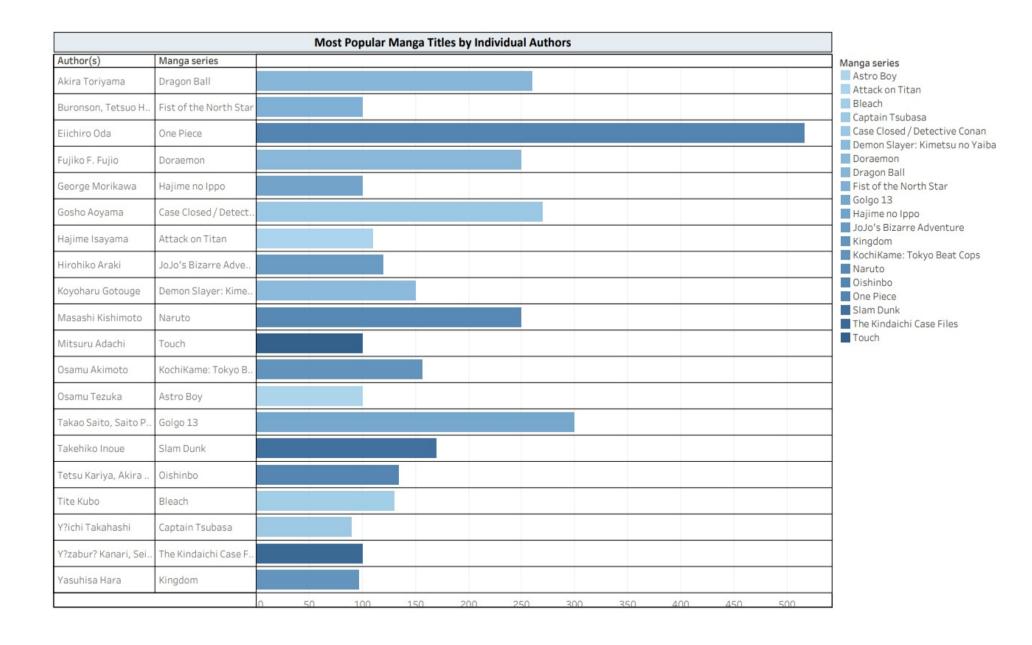
8.1 Output Screenshots





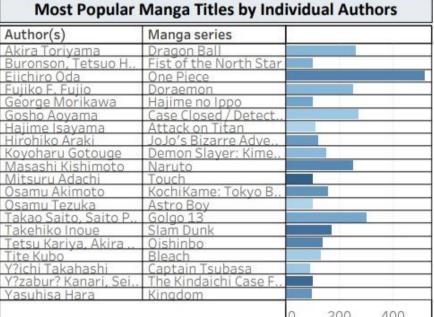


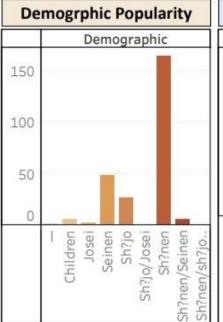


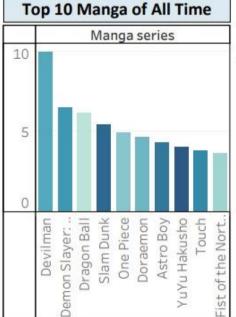


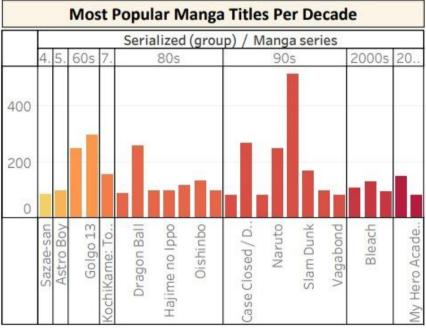
A tableau Exploration of Top Manga











9. Advantages & Disadvantages

Advantages of the Project:

- Data-Driven Decision-Making: The project empowers stakeholders in the manga industry, including enthusiasts, creators, publishers, and researchers, with data-driven insights. This allows for informed decision-making, such as choosing what manga to read, produce, publish, or study.
- o **Enhanced User Experience:** By providing personalized recommendations and customizable visualizations, the project offers an engaging and user-friendly experience that caters to individual preferences, enriching the overall user experience.
- o **Industry Insights:** Researchers and analysts benefit from real-time data and in-depth analysis, enabling them to provide valuable insights to industry stakeholders and contributing to a deeper understanding of industry trends.
- Accessibility: The project's user-friendly interface and mobile applications (if developed) ensure accessibility to a wide audience, including readers and industry professionals, enhancing its reach and impact.
- o **Data Security:** Robust security measures, including encryption and compliance with data protection regulations, safeguard user data and privacy, instilling trust in the system.

Disadvantages of the Project:

- o **Data Dependency:** The project heavily relies on the availability and accuracy of manga sales data. Any inconsistencies or gaps in the data sources can affect the quality of insights and recommendations.
- o **Data Privacy Concerns:** While data security measures are in place, some users may still have concerns about the privacy of their reading preferences and history, potentially leading to privacy issues. Scalability Challenges: As the system grows, managing increasing data volumes and user traffic can pose challenges. Ensuring that the system remains efficient under high loads may require ongoing optimization.
- o **Feedback Loop Maintenance:** Maintaining an effective feedback mechanism and acting on user suggestions requires resources and ongoing efforts, which can be a potential operational challenge.
- o **Resource Intensive:** Developing, hosting, and maintaining the project, especially with real-time data updates and personalized recommendations, can be resource-intensive in terms of both technology and personnel.
- Subject to User Preferences: The effectiveness of the project in providing personalized recommendations is dependent on users' willingness to interact with and provide data to the system. Users who do not actively engage may not benefit fully.

In summary, while the project offers numerous advantages in terms of data-driven decision-making and a rich user experience, it also faces challenges related to data dependencies, privacy concerns, scalability, resource requirements, and user engagement. Careful management and continued improvements can help address these disadvantages and enhance the project's overall impact.

10. Conclusion

The "Graphical Advantages: A Tableau Exploration of Top Manga" project represents a significant step forward in the manga industry, addressing the need for data-driven insights and personalized recommendations. The project's comprehensive solution architecture offers valuable advantages, enabling manga enthusiasts to discover new titles, assisting creators in producing content aligned with reader preferences, and supporting publishers, researchers, and media outlets in making informed decisions. While the project is not without its challenges, including data dependencies and scalability, its potential to enrich the understanding of manga trends and popularity is substantial. As it evolves and matures, continuous enhancements and user-driven improvements will play a pivotal role in shaping the future of the project.

11. Future Scope

The future scope of the project is promising and can involve the following areas of development:

- 1. **Real-Time Data:** Expanding the project to incorporate real-time manga sales data, allowing users to access the latest insights and trends.
- 2. **Machine Learning:** Implementing advanced machine learning algorithms for more accurate personalized recommendations based on user preferences and behavior.
- 3. **Community Engagement:** Building a community around the project, enabling users to interact, share insights, and collectively explore manga trends.
- 4. **Gamification:** Introducing gamification elements to enhance user engagement and encourage users to interact more actively with the system.
- 5. **Internationalization:** Expanding the project's scope to include manga from various cultures and languages to cater to a global audience.