DHARMAMURTHI RAO BAHADUR CALAVALA CUNNAN CHETTYS HINDU COLLEGE - [DRBCCC]

TRACING THE GROWTH OF THE GLOBAL COMMUNITY: A POPULATION FORECASTING ANALYSIS

A PROJECT REPORT

Submitted by

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CONTENTS

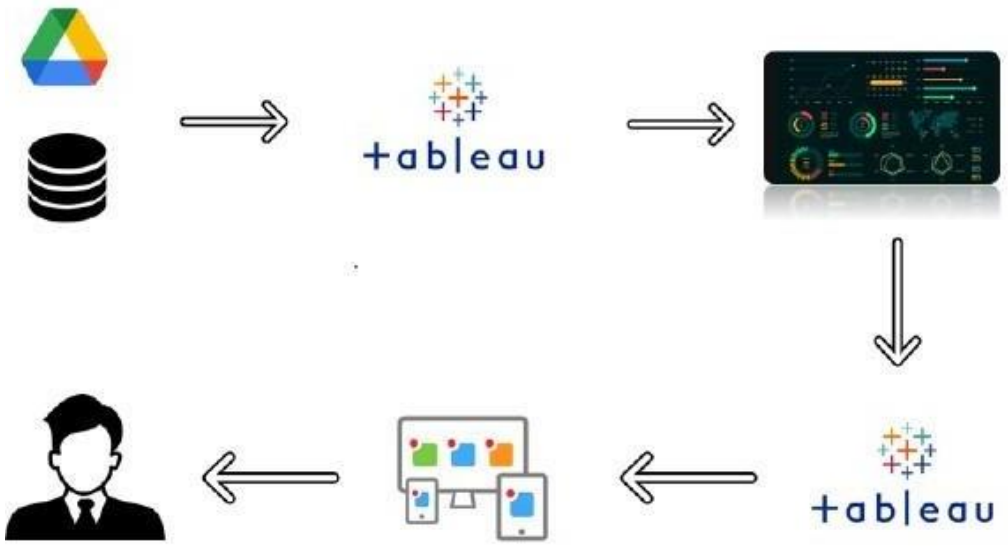
CHAPTER - 1

INTRODUCTION

1.INTRODUCTION :

The world's population is more than three times larger than it was in the mid-twentieth century. The global human population reached 8.0 billion in midNovember 2022 from an estimated 2.5 billion people in 1950, adding 1 billion people since 2010 and 2 billion since 1998. The world's population is expected to increase by nearly 2 billion persons in the next 30 years, from the current 8 billion to 9.7 billion in 2050 and could peak at nearly 10.4 billion in the mid-2080s. This dramatic growth has been driven largely by increasing numbers of people surviving to reproductive age, the gradual increase in human lifespan, increasing urbanization, and accelerating migration. Major changes in fertility rate have accompanied this growth. These trends will have far-reaching implications for generations to come.

Technical Architecture:



1.1. OVERVIEW :

I. Introduction:

Explanation of the purpose and scope of the project
Overview of the importance of population forecasting and its applications
Background information on the global population growth

II. Literature Review:

An analysis of existing literature on population forecasting and demographic trends
Overview of various methods and techniques used for population forecasting
Review of the challenges and limitations of population forecasting

III. Data Collection and Methodology:

Explanation of the data sources used in the analysis
Description of the methodology used for population forecasting
Details on the assumptions and parameters used for the analysis

IV. Results:

Presentation of the population forecast for the global community
Analysis of the findings and discussion of the trends and implications Comparison of the results with existing projections and forecasts

V. Conclusion:

Summary of the key findings and contributions of the study
Discussion of the implications for policymakers and stakeholders Limitations of the study and directions for future research

VI. References:

A list of all sources used in the project, following the appropriate citation style

VII. Appendix:

Additional data and charts that support the main findings of the study, such as population growth rate, age distribution, and regional breakdowns.

A BRIEF DESCRIPTION ABOUT YOUR PROJECT :

- The project titled "Tracing the Growth of the Global Community: A Population Forecasting Analysis" aims to forecast the global population growth by using various methods and techniques of population forecasting. The project will provide an analysis of existing literature on population forecasting, discuss the data sources and methodology used for the analysis, and present the results of the population forecast for the global community. The study will also analyze the findings and discuss the trends and implications of the forecast. The project aims to contribute to the understanding of the global population growth and its implications for policymakers and stakeholders.

1.2 PURPOSE :

- The purpose of the project titled "Tracing the Growth of the Global Community: A Population Forecasting Analysis" is to forecast the global population growth and provide an analysis of the trends and implications of the forecast. The project aims to contribute to the understanding of the global population growth and its potential impact on the global community. By analyzing existing literature on population forecasting, using various methods and techniques for population forecasting, and presenting the results of the population forecast, the study aims to provide insights for policymakers and stakeholders on the future of the global population and its potential challenges

and opportunities. Overall, the project aims to contribute to the knowledge base on population forecasting and its relevance for understanding the future of the global community.

THE USE OF THIS PROJECT. WHAT CAN BE ACHIEVED USING THIS :

The project titled "Tracing the Growth of the Global Community: A Population Forecasting Analysis" has several potential uses and benefits, including:

I. **Informing policy decisions**: The population forecast can provide insights for policymakers and stakeholders in various sectors such as healthcare, education, infrastructure, and social services, to make informed decisions related to planning and resource allocation.

II. **Identifying opportunities and challenges:** The population forecast can help identify potential opportunities and challenges for businesses, governments, and communities. For example, understanding demographic trends can help businesses plan for future consumer demands and help governments plan for the workforce needs.

III. **Supporting research**: Population forecasting can be used to support academic research related to population dynamics, such as migration patterns, aging populations, and changing family structures.

IV. **Planning for sustainability:** The population forecast can help identify potential environmental impacts and plan for sustainable development, such as infrastructure planning, resource management, and land use planning.

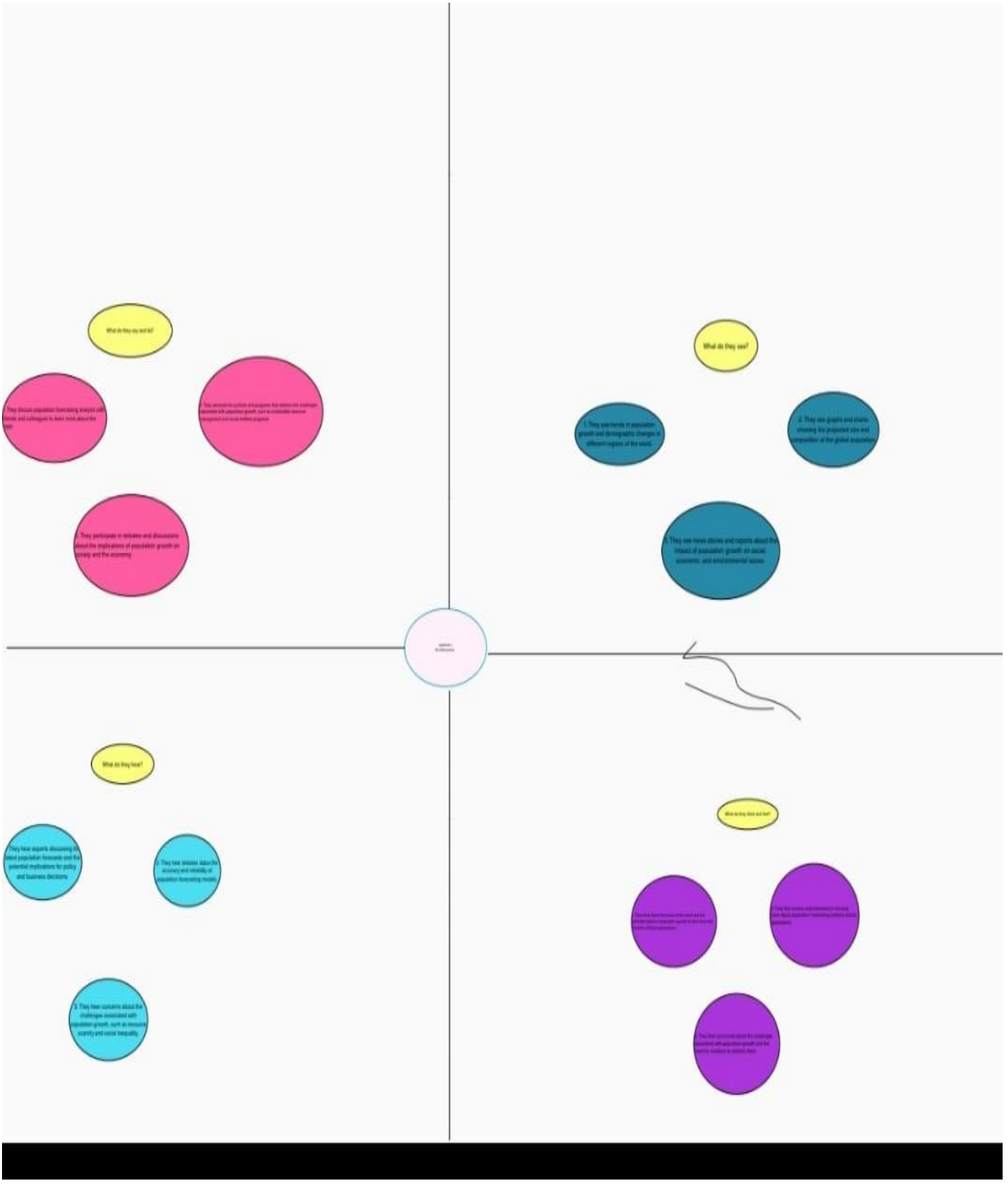
In summary, the project can contribute to informed decision-making, identify potential opportunities and challenges, support academic research, and plan for sustainable development, among other potential uses.

CHAPTER - 2

PROBLEM DEFINITION & DESIGN THINKING

2.1. EMPATHY MAP :

- An Empathy Map is a tool used to help understand and empathize with the perspective of a particular user or customer. It is a visual representation of the user's attitudes, behaviors, emotions, and experiences that can be used to gain a deeper understanding of their needs and motivations. The Empathy Map is typically divided into **four quadrants**: **"Says," "Thinks," "Does,"** and **"Feels."** In each quadrant, the user's thoughts, feelings, actions, and spoken words are recorded to help build a more complete understanding of their perspective. The Empathy Map is often used in design thinking and user experience research to help inform the design of products or services that better meet the needs of the user.

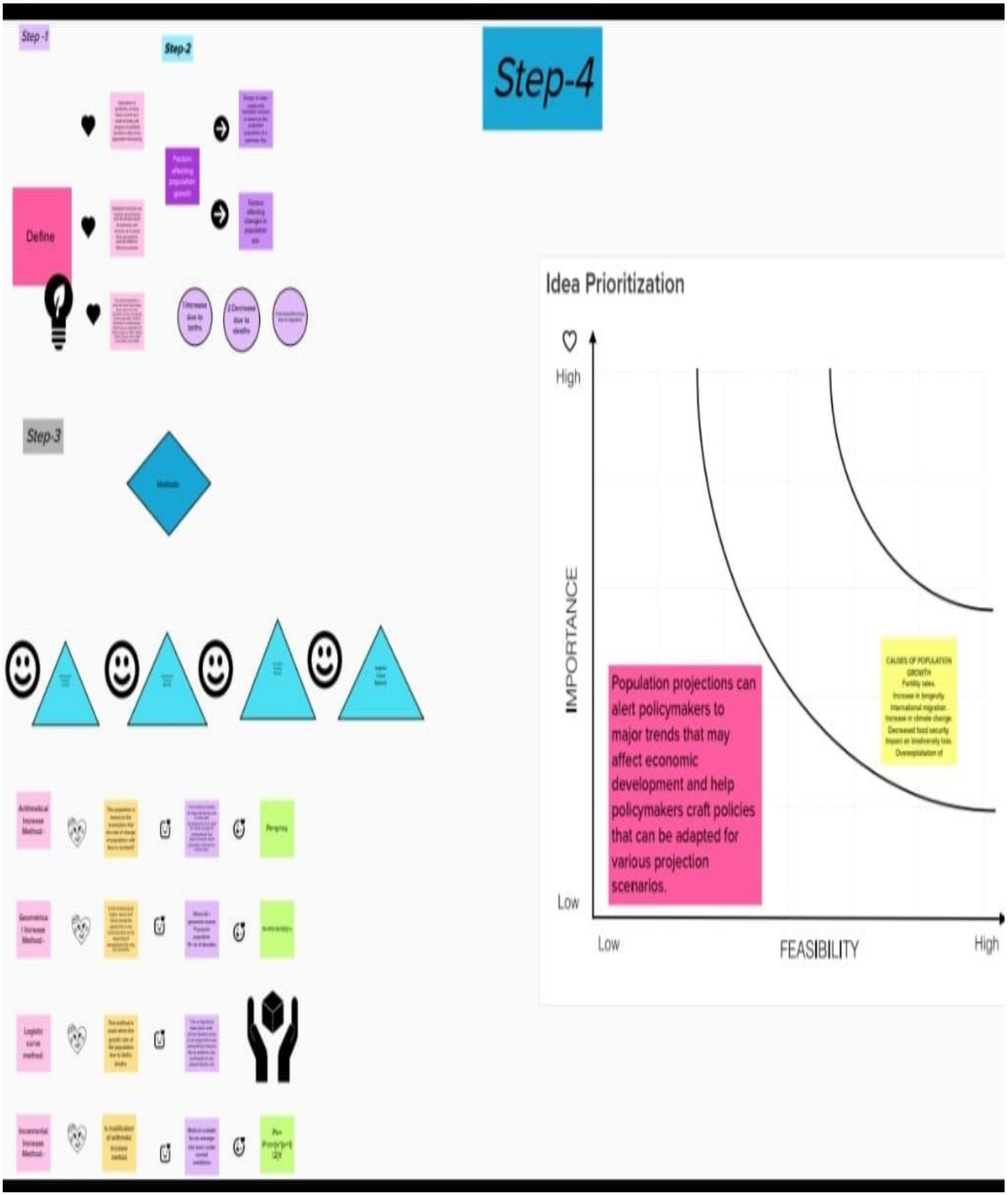

What do they say and do?
What do they see?
What do they hear?
What do they think and feel?

2.2. IDEATION & BRAINSTORMING MAP :

- Ideation and Brainstorming Maps are tools used to generate and organize ideas in a structured and visual way. They are commonly used in creative problem solving, innovation, and product design to generate a large number of ideas and then organize them into meaningful categories.

- Ideation and Brainstorming Maps typically start with a central theme or problem statement in the center of the map. From there, branches are drawn out to represent different categories or subtopics related to the central theme. These categories can then be further expanded with additional branches to represent specific ideas.

- The purpose of an Ideation and Brainstorming Map is to encourage free thinking and generate as many ideas as possible. It allows participants to visually see how ideas are connected and to build upon each other's ideas. The map can then be used to prioritize and refine the most promising ideas. There are many variations of Ideation and Brainstorming Maps, including Mind Maps, Spider Maps, and Fishbone Diagrams.


Step -1
Step-2
Step-4
Define
Step-3
Idea Prioritization
High
Low
IMPORTANCE
Low
FEASIBILITY
High
Population projections can alert policymakers to major trends that may affect economic development and help policymakers craft policies that can be adapted for various projection scenarios.

CHAPTER – 3

DATA COLLECTION & EXTRACTION FROM DATABASE IN MYSQL

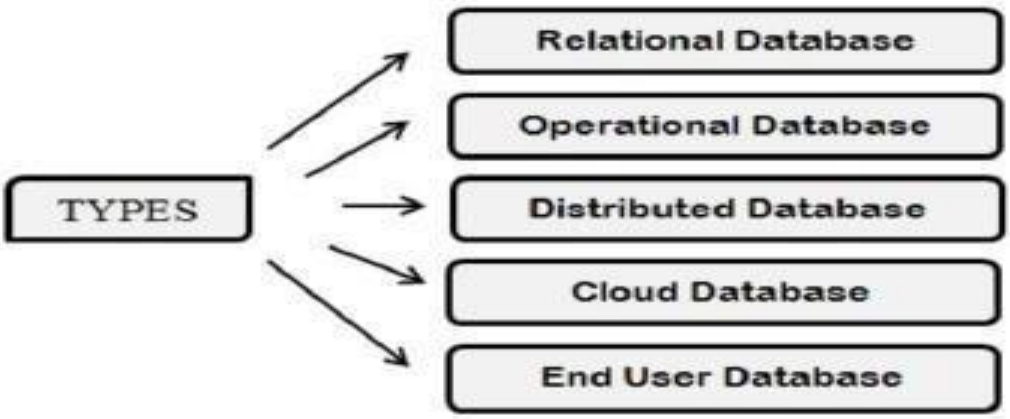
3.1. : Collect The Dataset :

- Data collection is the process of gathering and measuring information on variables of interest, in an established systematic fashion that enables one to answer stated research questions, test hypotheses, evaluate outcomes and generate insights from the data.

3.1.1 : Understand The Data :

- Data contains all the meta information regarding the columns described in the CSV files

3.2 : Storing Data In DB & Perform SQL Operations :

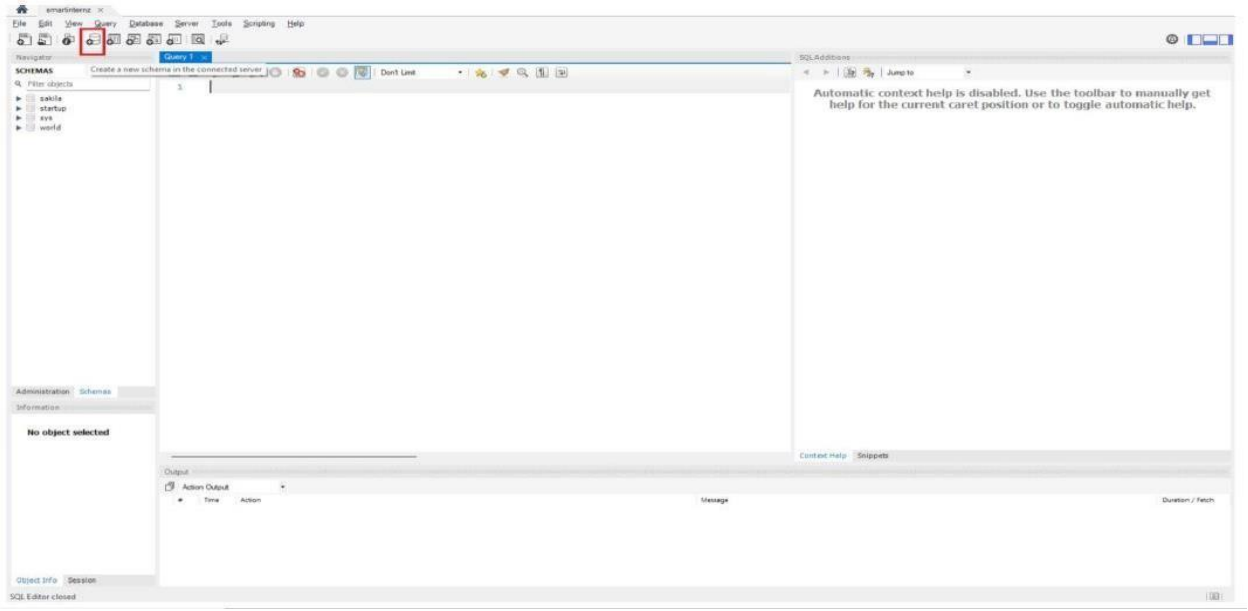


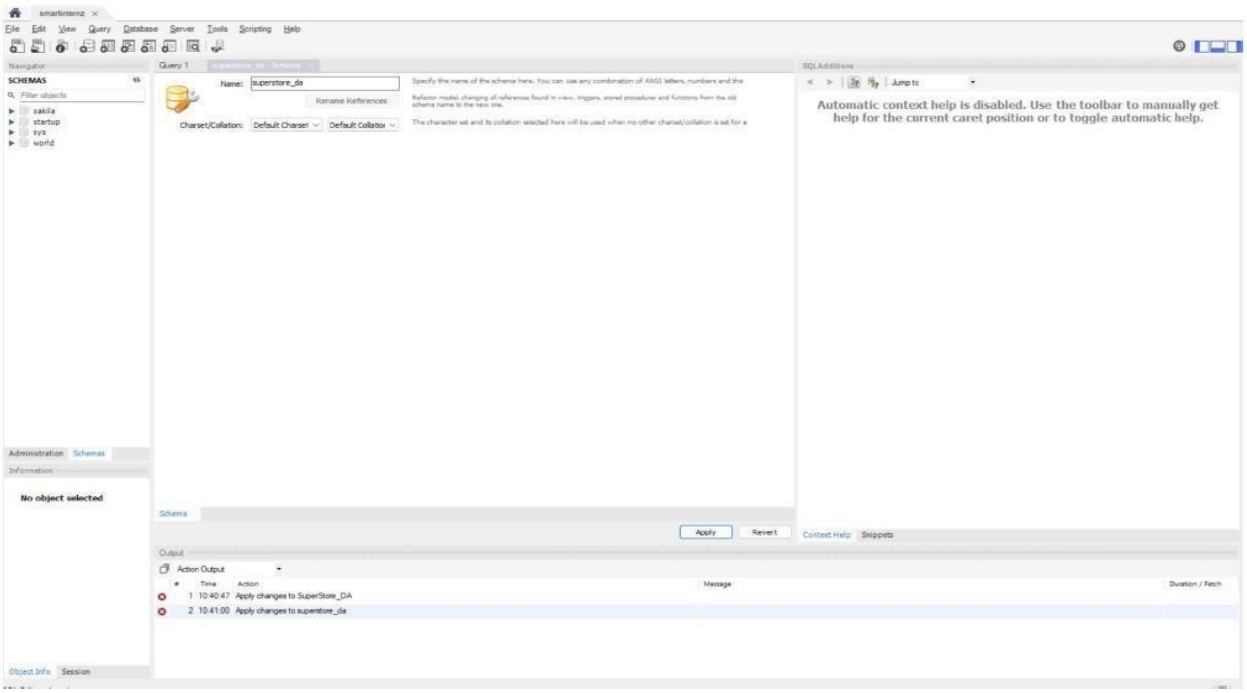
3.2.1. : Introduction To Database :

- A database is an organized collection of data, generally stored and accessed electronically from a computer system. It supports the storage and manipulation of data.
- Its ability to organize, process and manage information in a structured and controlled manner is the key to many aspects of modern business efficiency.

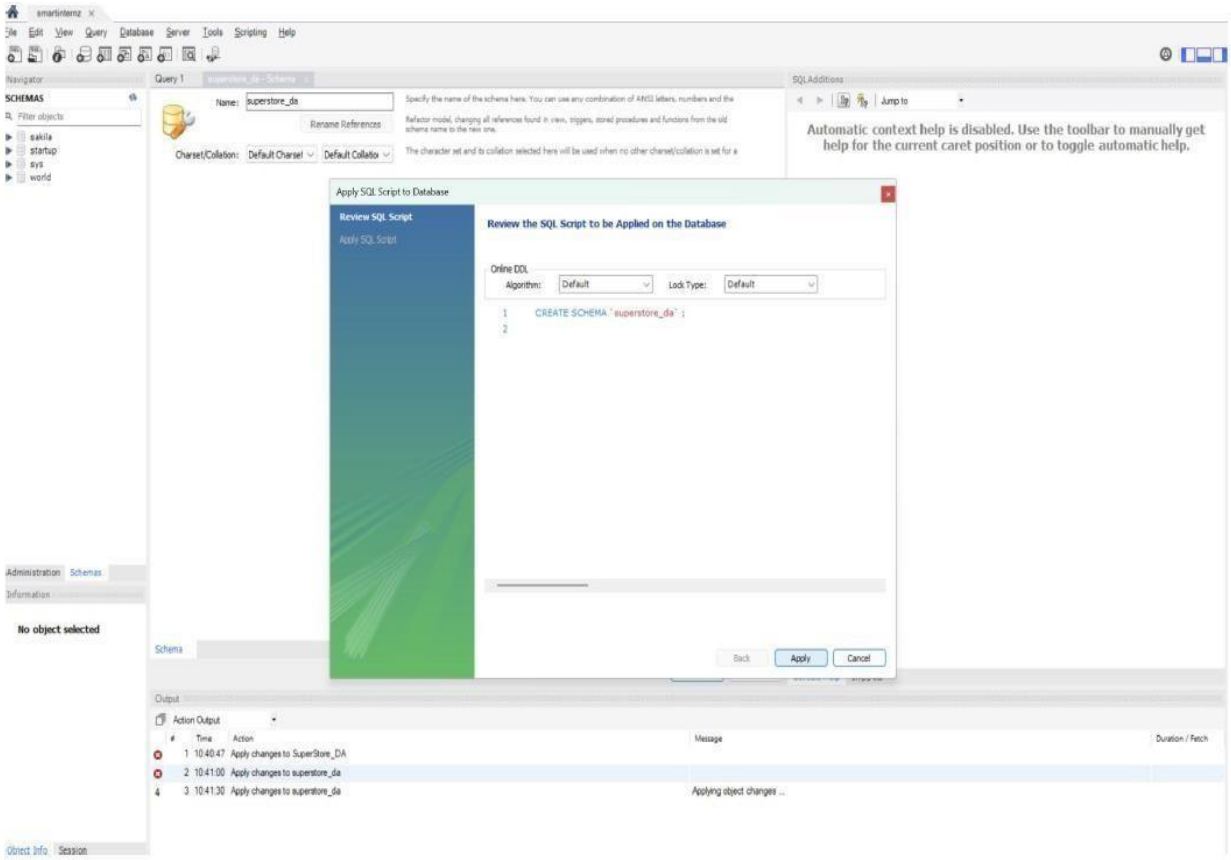
3.2.2.: Creating Database And Table In MYSQL :

- Click on the database icon on the icon menu panel to create the schema.
- Give the name of the schema and click on apply

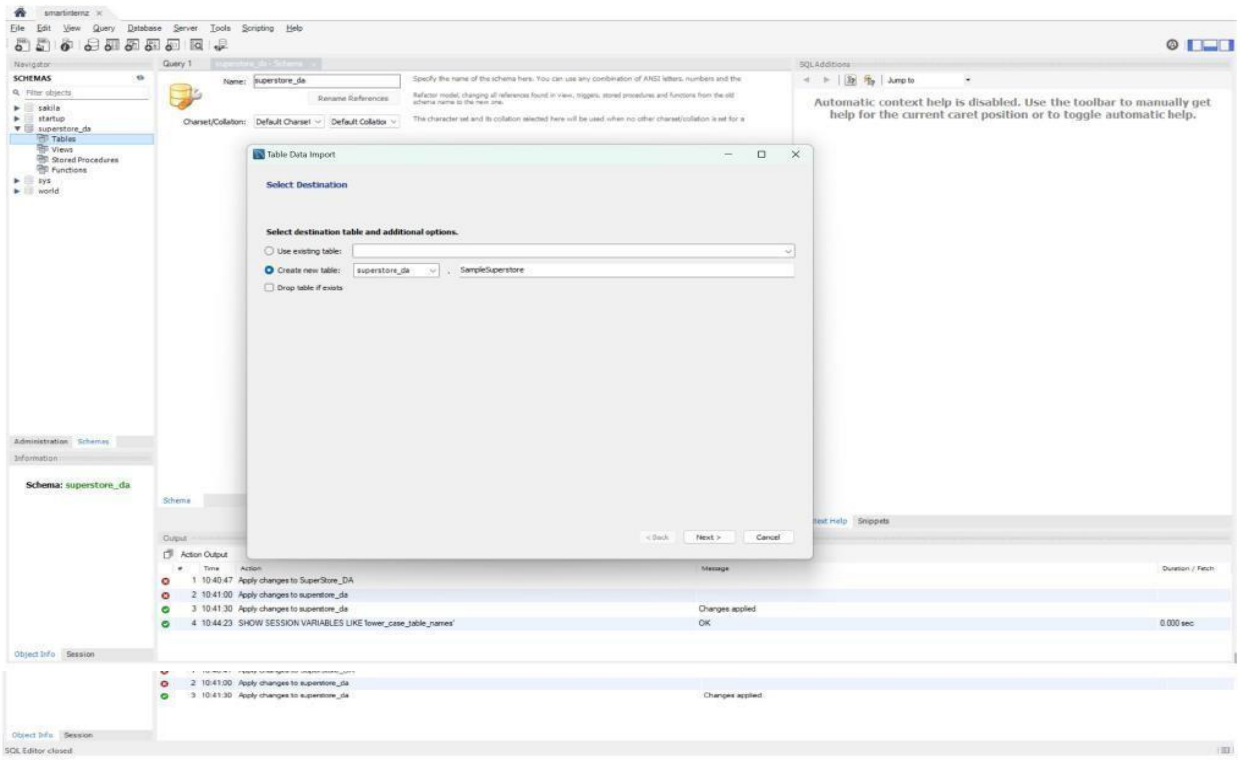




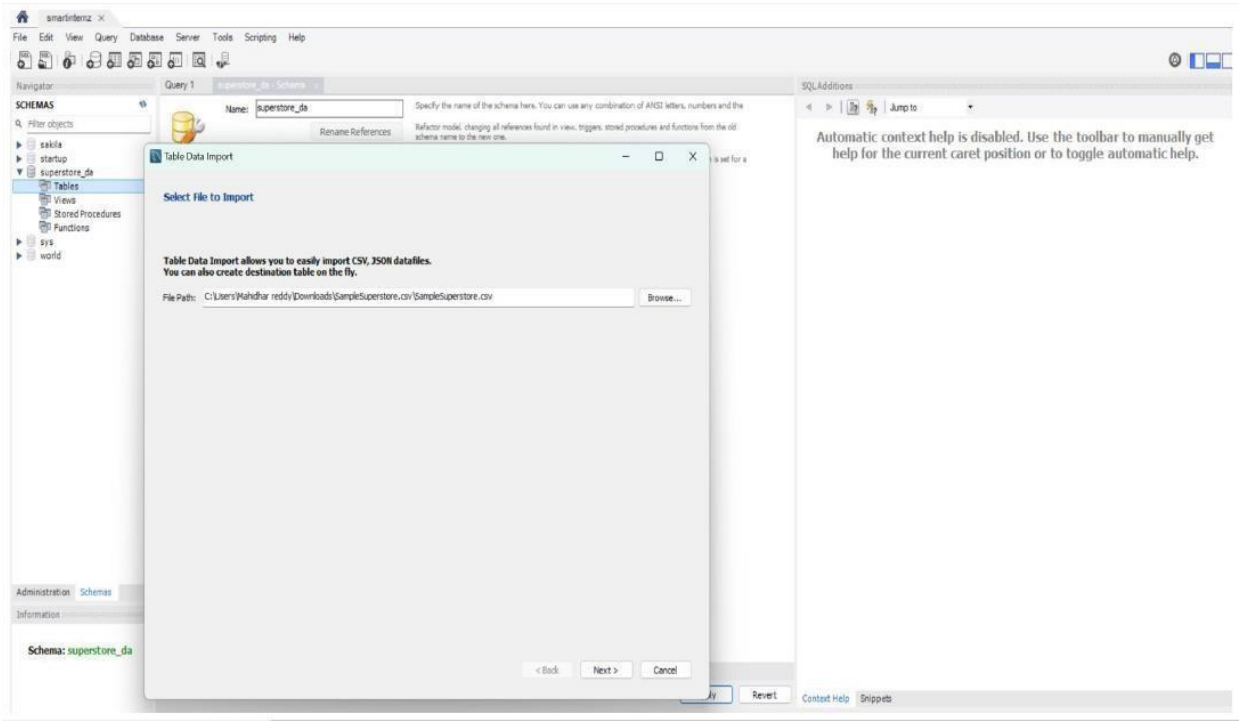
- Here you can see SQL query in SQL script for creation of new schema. Click on Apply.
- As you can see of the left panel Schema with the given name is created.
- Click on schema name and give a Right-Click on tables
- Now click on Table Data Import Wizard to load the dataset.



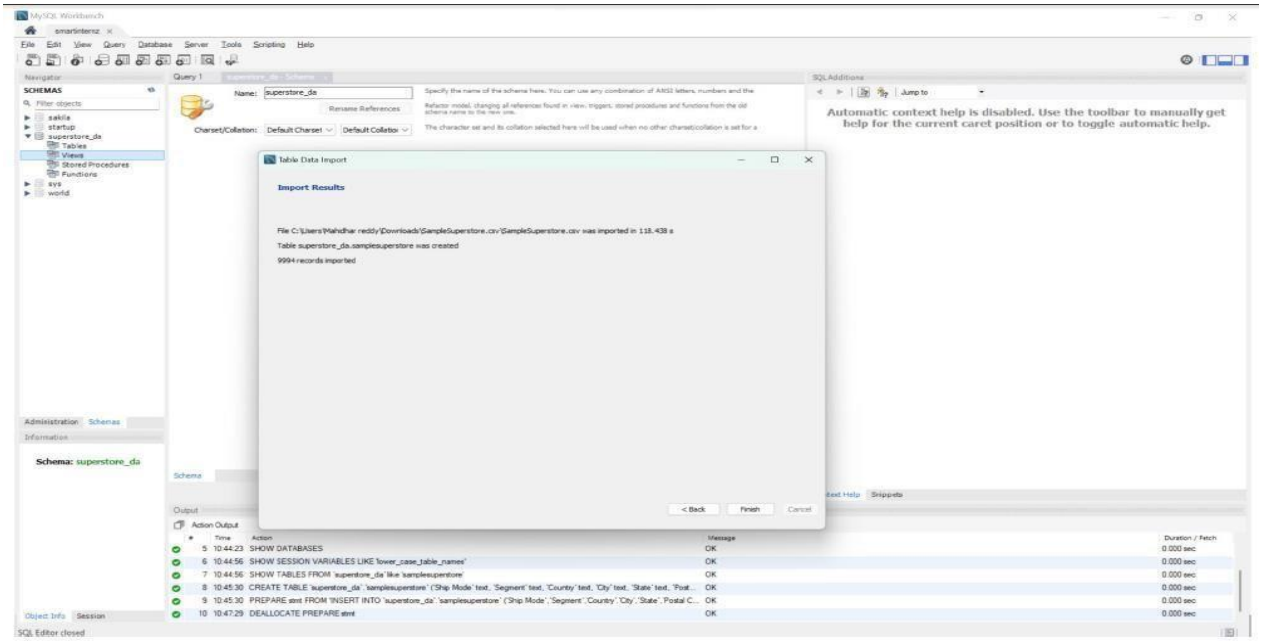
- Click on Browse and select the file in your computer to load the dataset file as a Table into that schema you created in MySQL.
- If you want add the dataset to existing table click on use existing table and select from the dropdown of tables lists.



- Otherwise go with create new table and Click on **Next.**

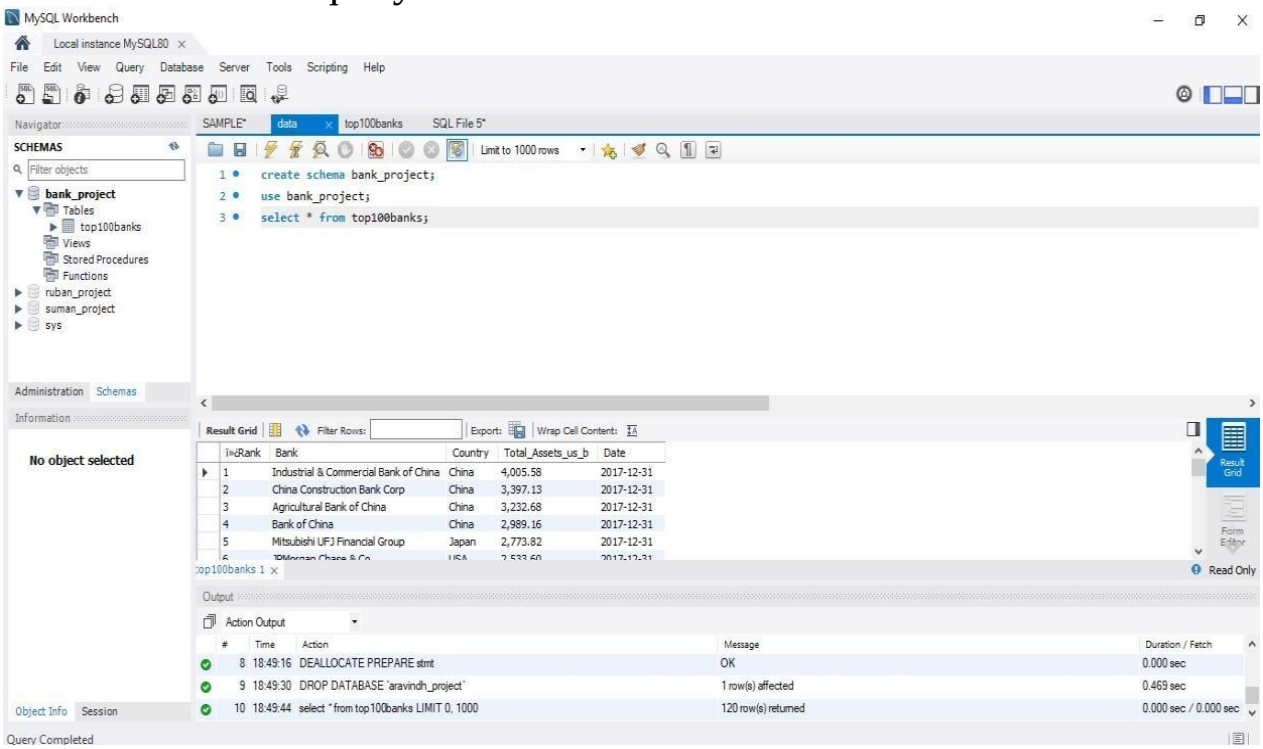


- Here you can see the dataset that loaded from the excel/csv file we have loaded and you can see the datatype of each column too.



- Here you can see the total number of records/rows that are loaded.

- Here you can see the loaded dataset that we got by using select statement in query tab.



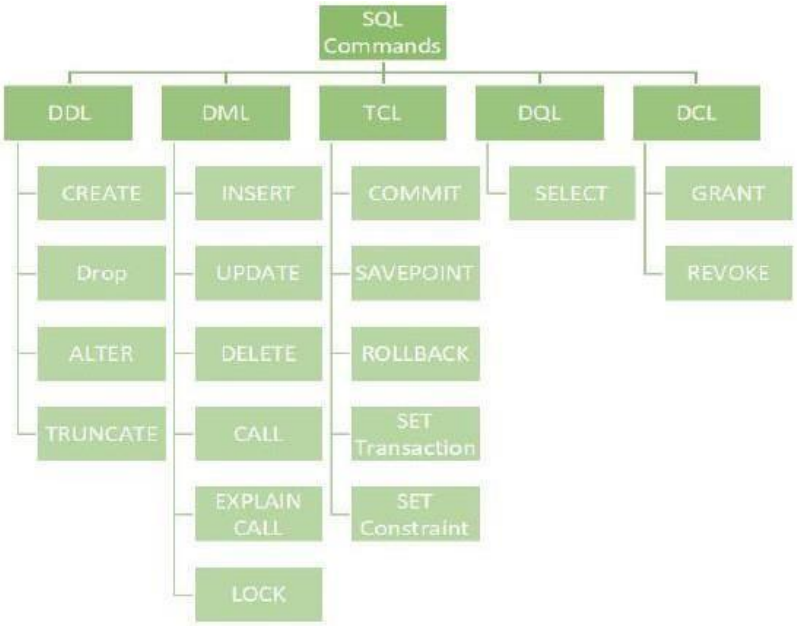
3.2.3 : CRUD Operations :

- CRUD is an acronym for CREATE, READ(SELECT), UPDATE, and DELETE statements in SQL Server.

- CRUD in database terms can be mentioned as Data Manipulation Language (DML) Statements.

3.2.4 : Basic SQL Operations :

- DDL – Data Definition Language
- DQL – Data Query Language
- DML – Data Manipulation Language
- DCL – Data Control Language
- TCL – Transaction Control Language

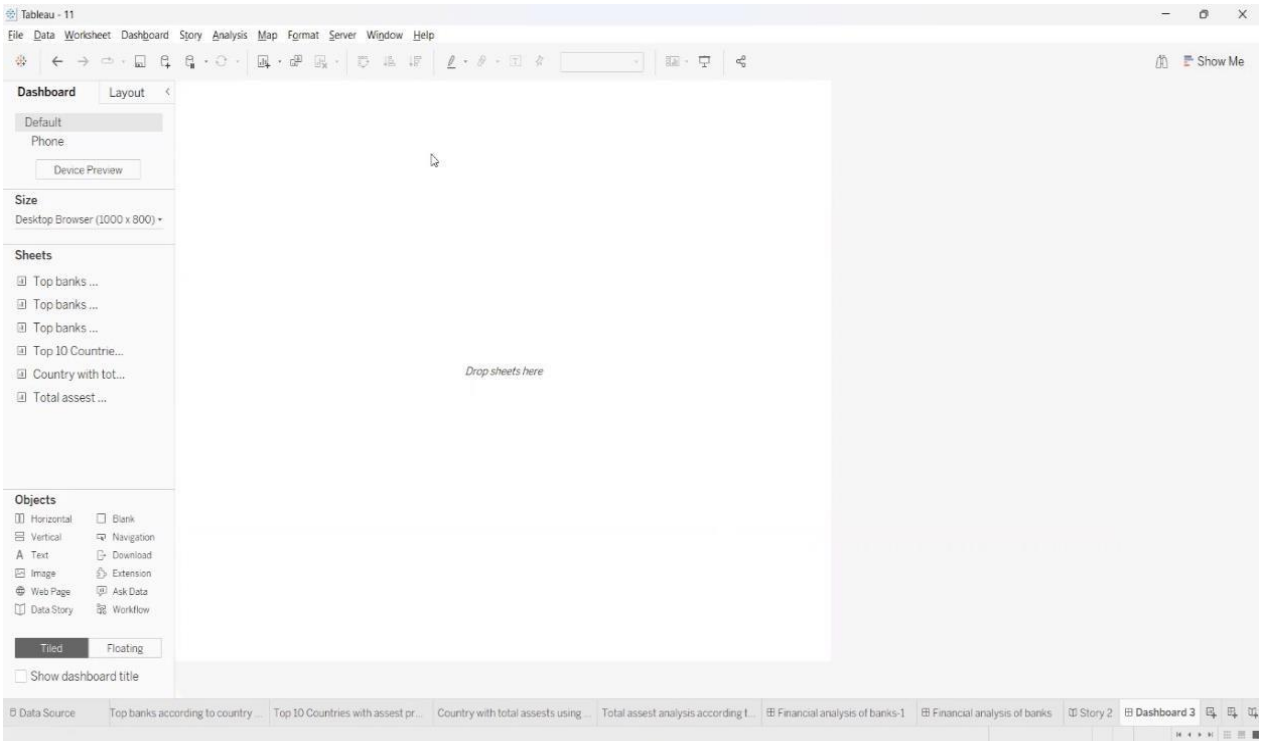


CHAPTER - 7

DASHBOARD AND STORIES

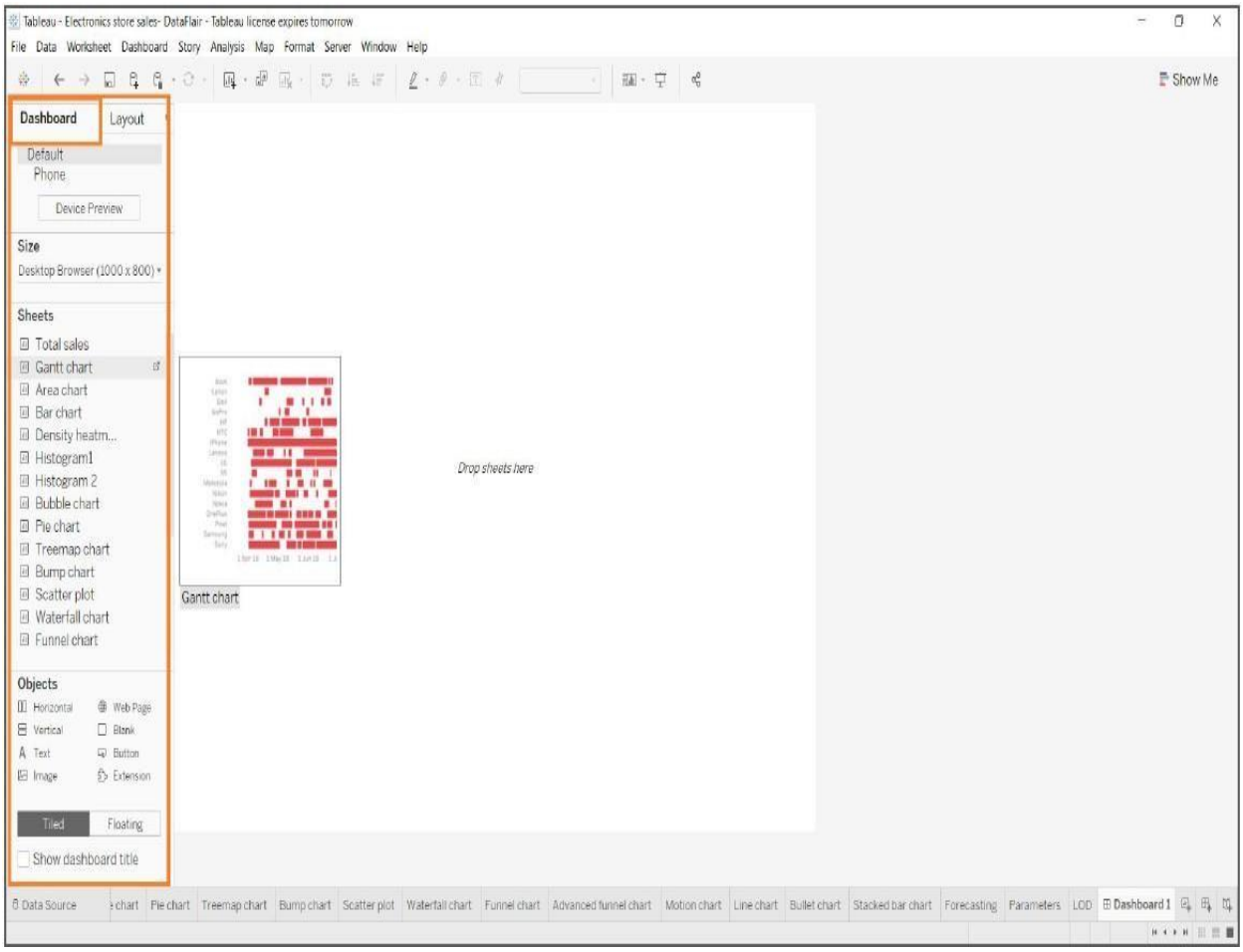
7.1. : Creating a Dashboard in Tableau :

- A dashboard is a collection of different kinds of visualizations or views that we create on Tableau We can bring together different elements of multiple worksheets and put them on a single dashboard.
- The dashboard option enables us to import and add charts and graphs from worksheets to create a dashboard. On a dashboard, we can place relevant charts and graphs in one view and analyze them for better insights.

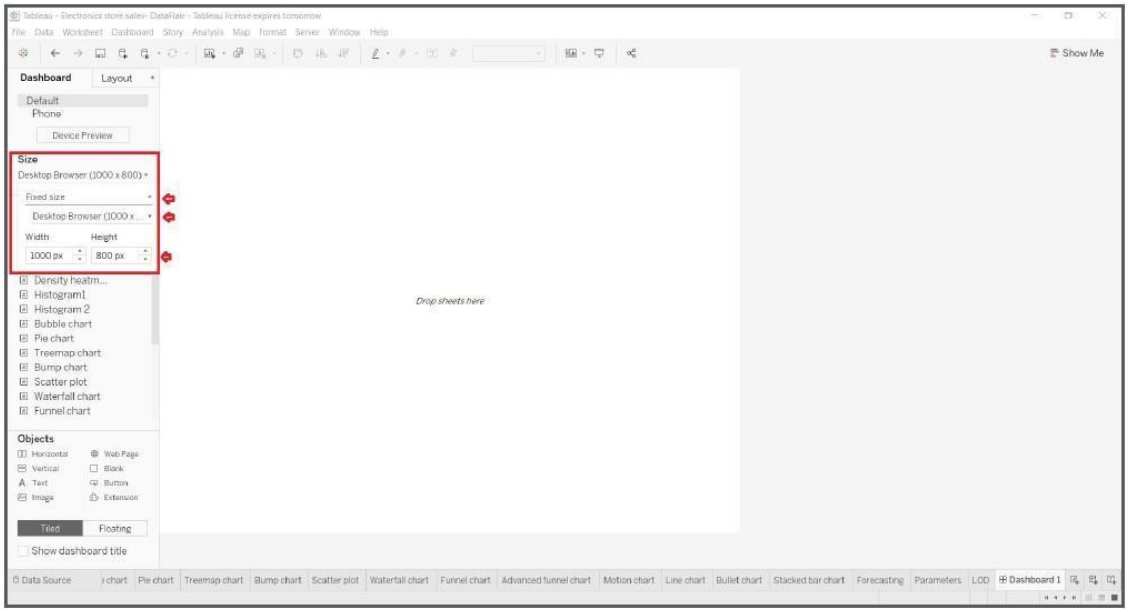


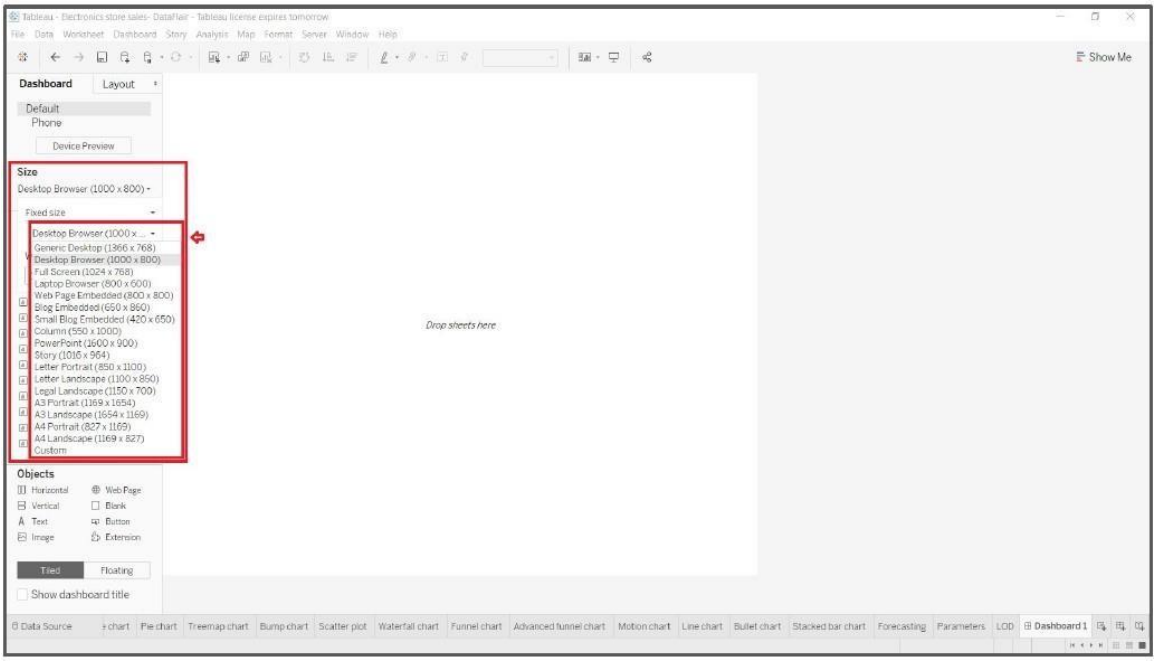
7.1.1. : Dashboard pane :

- In the window where we can create our dashboard, we get a lot of tabs and options related to dashboarding. On the left, we have a Dashboard pane which shows the dashboard size, list of available sheets in a workbook, objects, etc.



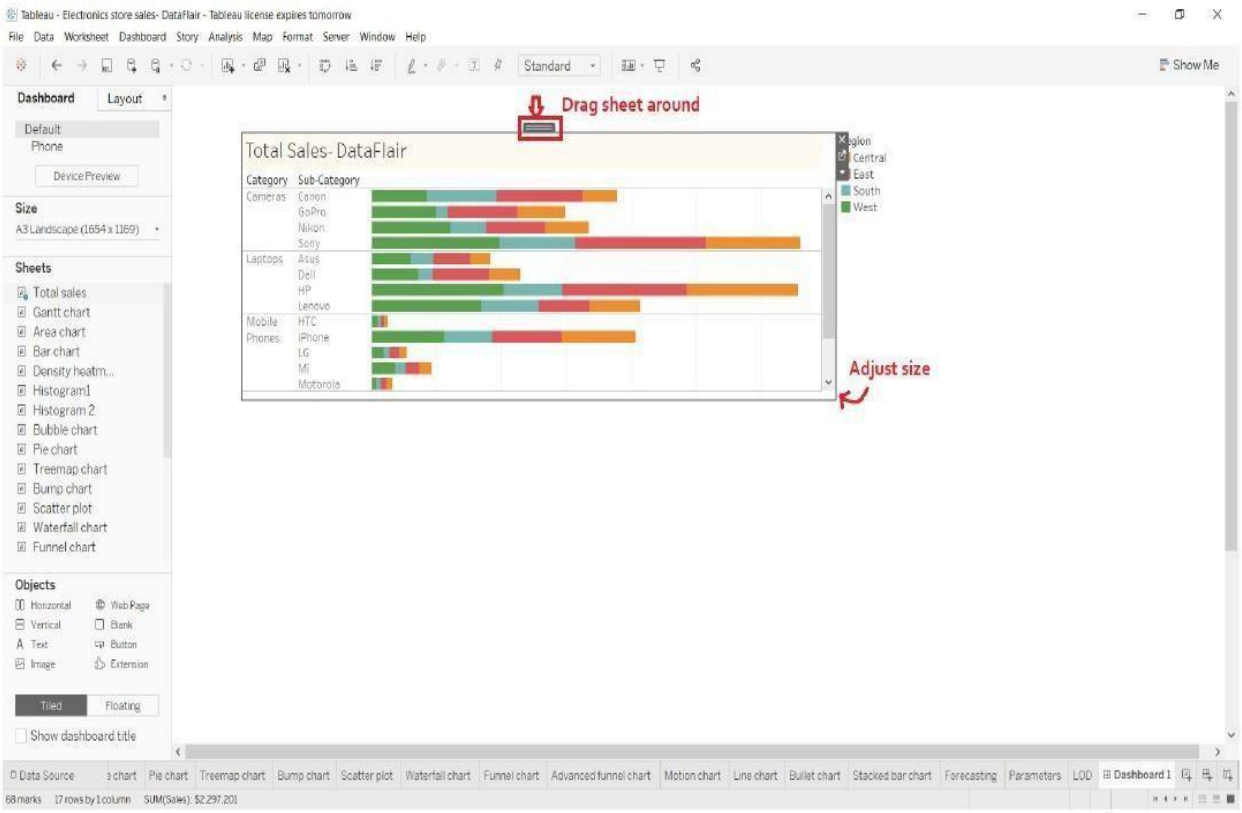
- From the Dashboard tab, we can set the size of our dashboard. We can enter custom dimensions like the width and height of the dashboard as per our requirements.





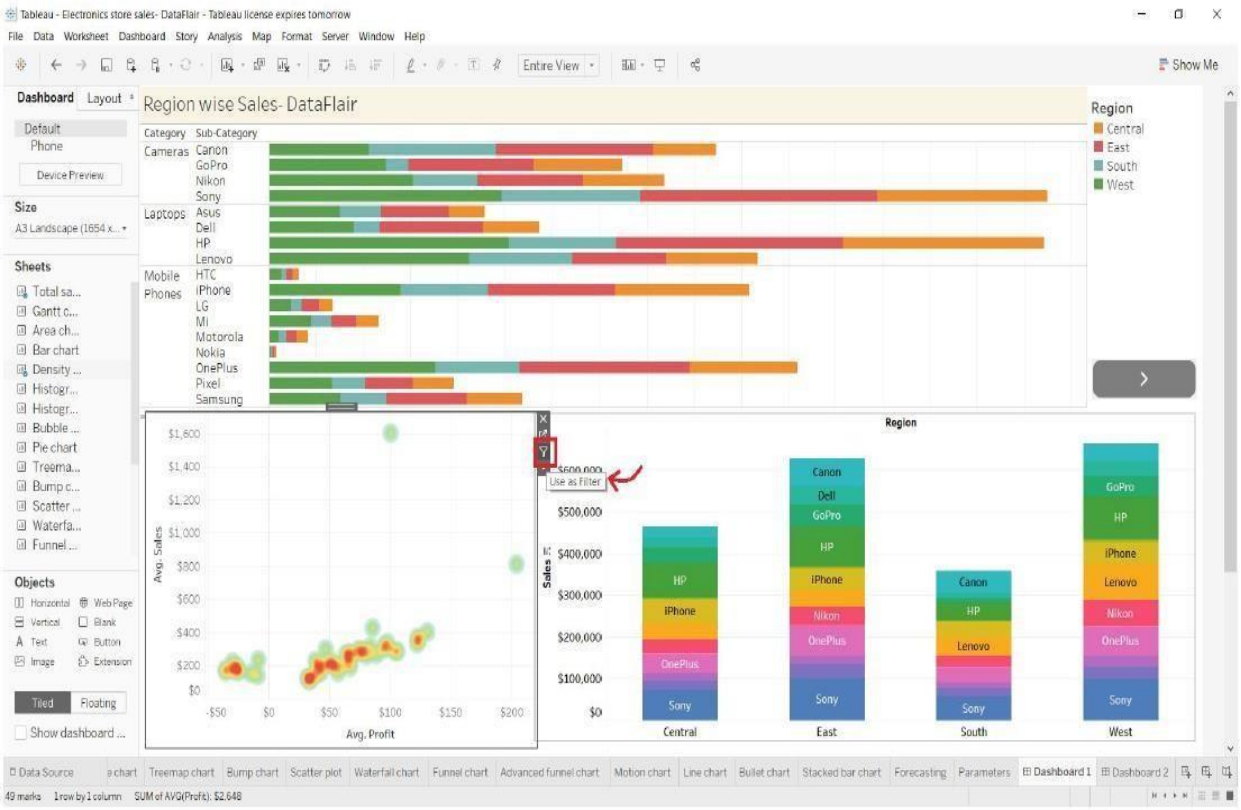
7.1.2. : Adding Sheets :

- Have a look at the picture below to see how you can drag a sheet or visual around on the dashboard and adjust its size.



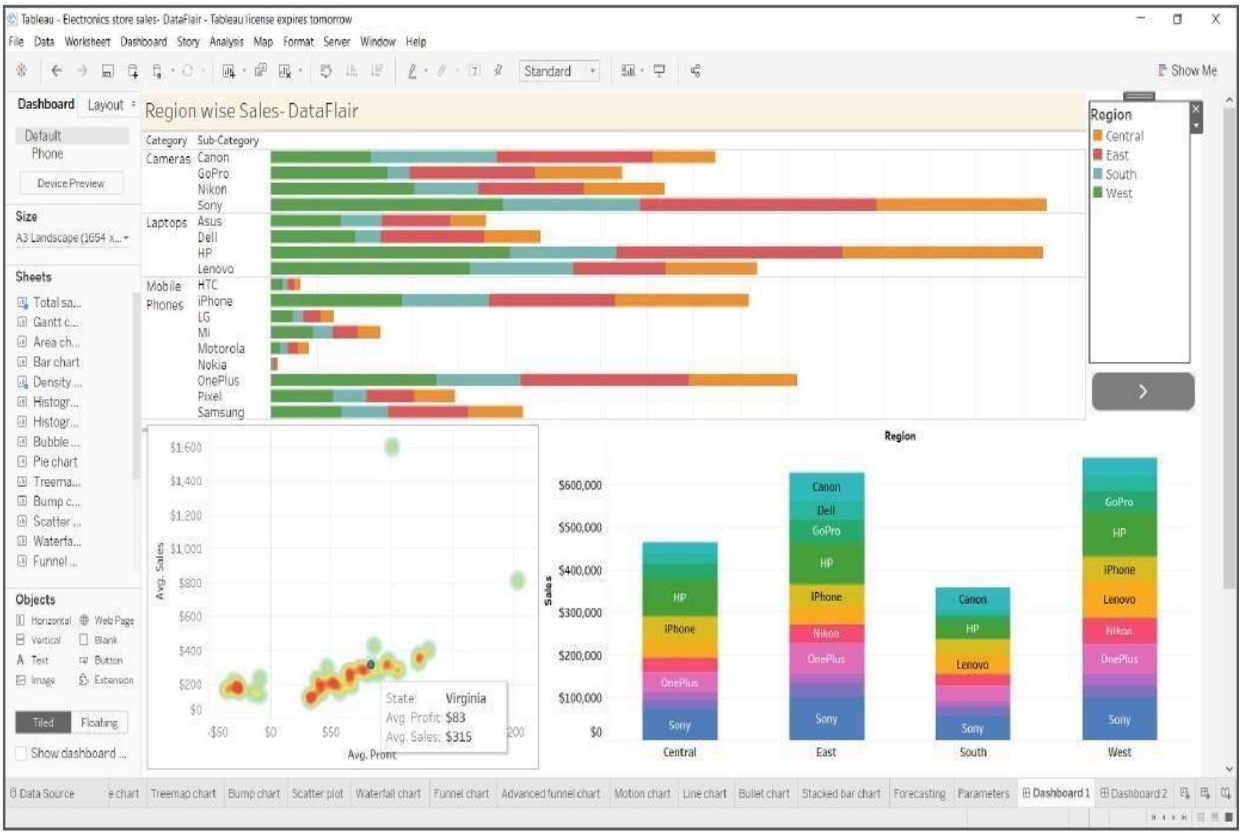
7.1.3. : Adding More sheets in dashboard :

- In a similar way, we can add as many sheets as we require and arrange them on the dashboard properly.



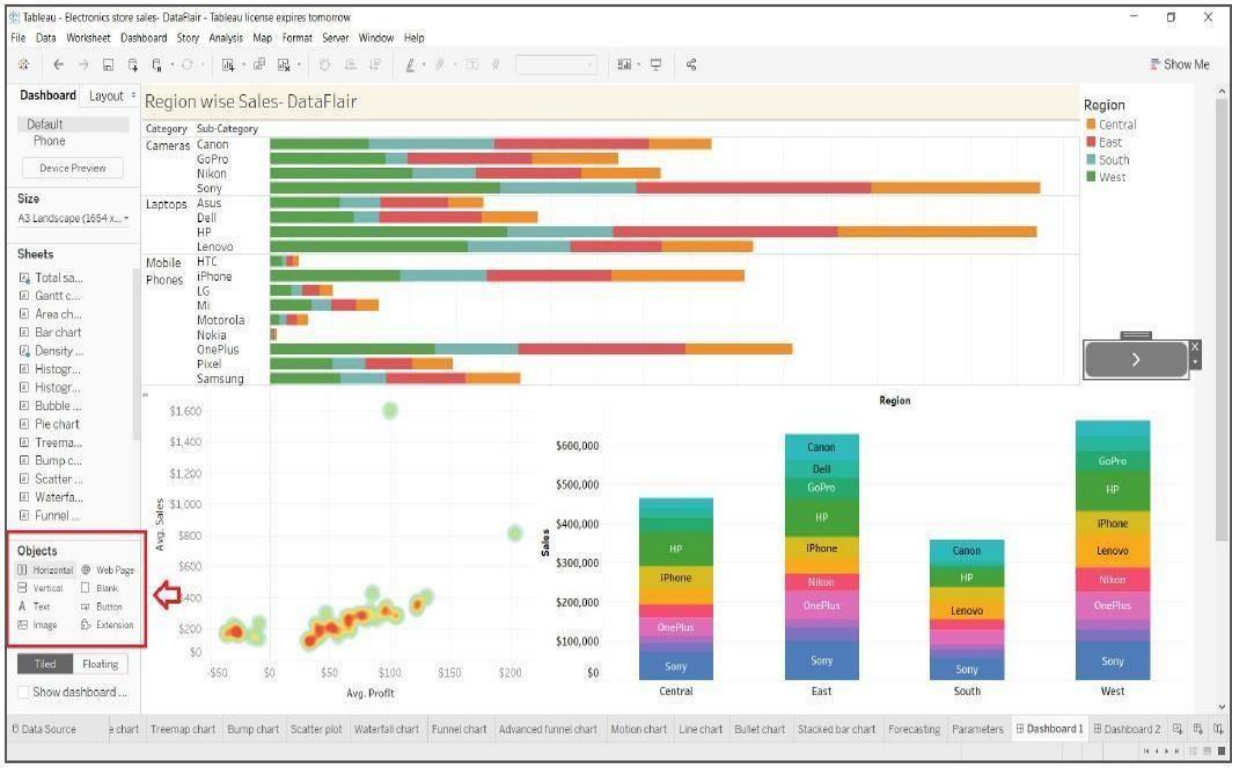
7.1.4. : Filters in dashboard :

- Also, you can apply the filter or selections on one graph and treat it like a filter for all the other visuals on the dashboard.
- To add a filter to a dashboard in Tableau, select Use as Filter option given on the right of every visual.

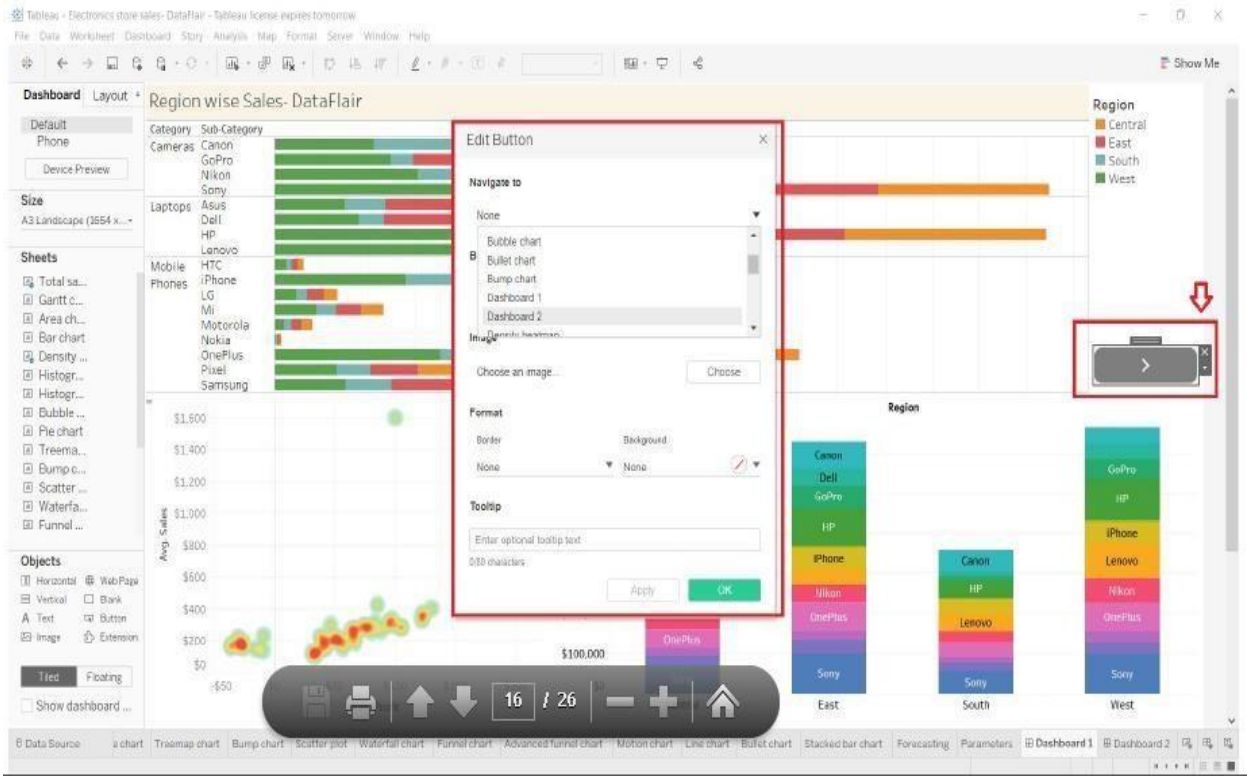


7.1.5. : Adding objects :

- Another set of tools that we get to make our dashboard more interactive and dynamic is in the Objects section. We can add a wide variety of objects such as a web page, button, text box, extension, etc.

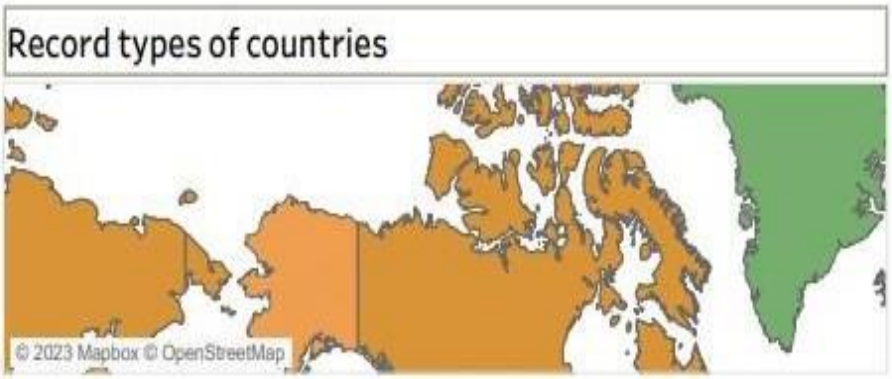


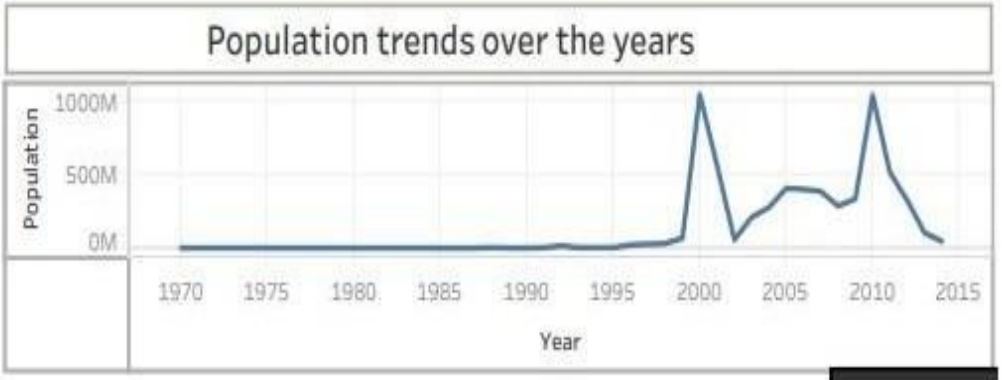
- From the objects pane, we can add a button and also select the action of that button, that is, what that button should do when you click on it. Select the Edit Button option to explore the options you can select from for a button object.

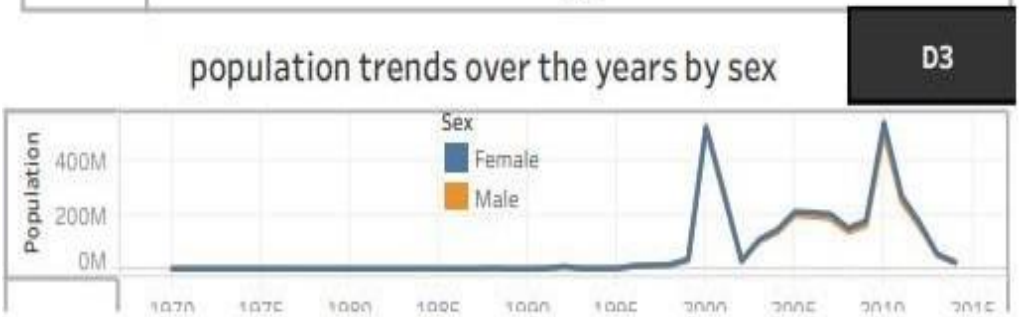


7.1.6. : Final Dashboard :

- Now, we move towards making a final dashboard in Tableau with all its elements in place


Record types of countries
© 2023 Mapbox © OpenStreetMap

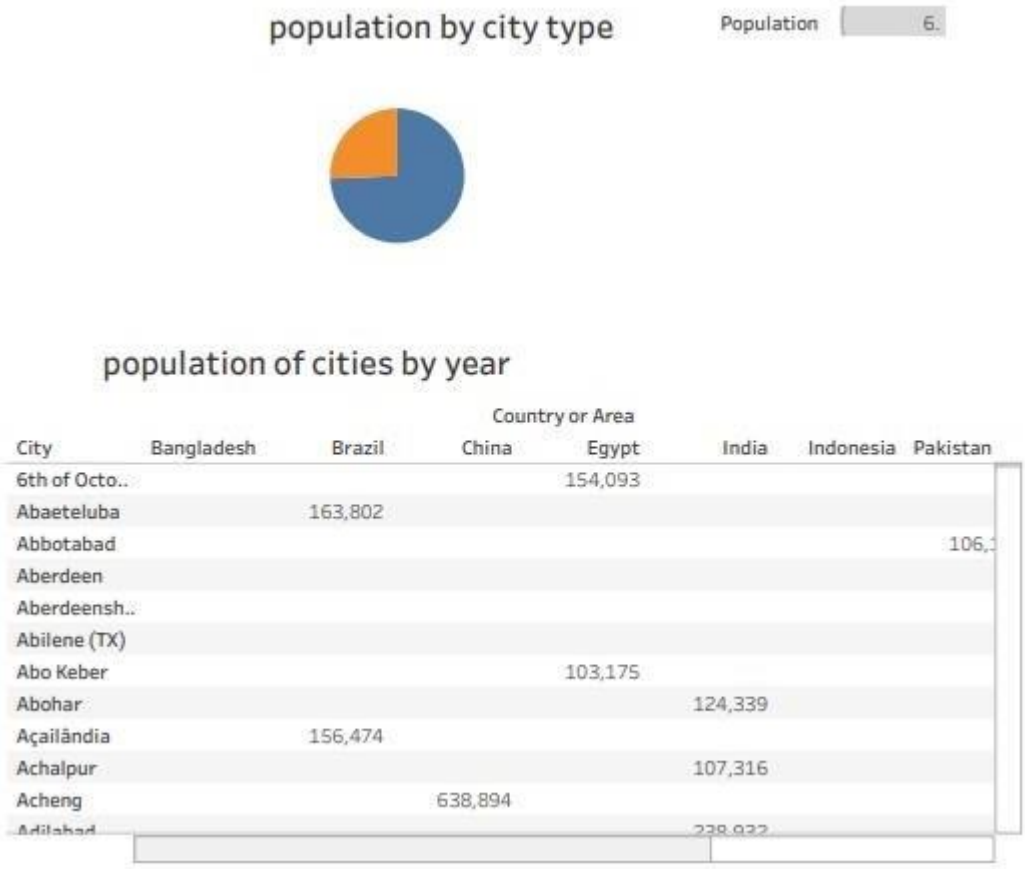

Population trends over the years
Population
1000M
500M
0M
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
Year


population trends over the years by sex
D3
Population
400M
200M
0M
Sex
Female
Male

D4

cities with highest avearge populations

countries by highest avg population from 2000-2014



7.2.: What are Tableau Stories?

● Well, it is a sequence of different charts that combine to provide a cohesive plot to its viewers. In essence, all these charts tell a story about the data which allows the viewers to form their conclusion. The story in Tableau contains story points, where each story point is either a worksheet or a dashboard.

● When you share a story —for example, by publishing a workbook to Tableau Public, Tableau Server, or Tableau Cloud—users can interact with the story to reveal new findings or ask new questions of the data.

A. **Options For Adding A New Story Point:** Choose **Blank** to add a new point or **Duplicate** to use the current story point as the starting place for your next point.

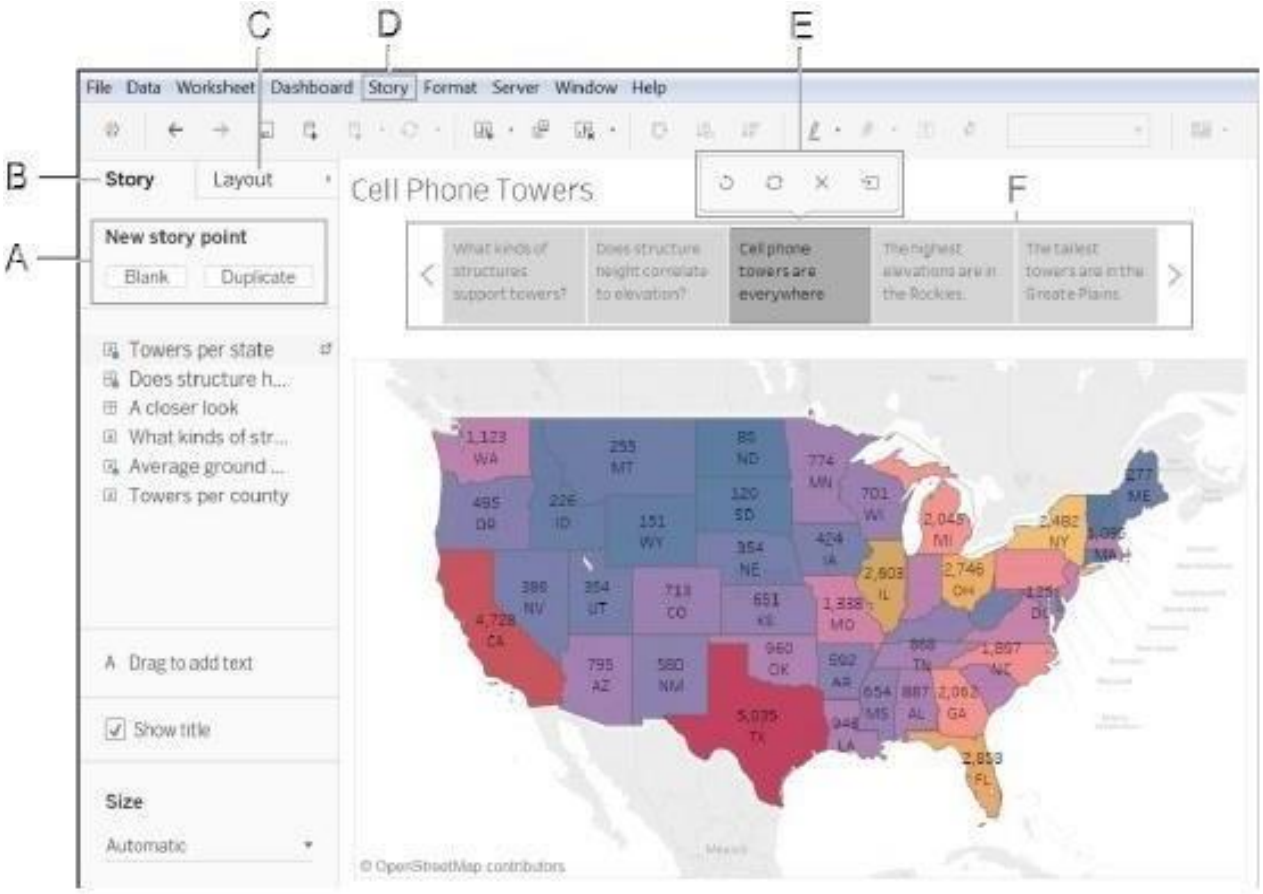
B. **The Story Pane:** Use this pane to drag dashboards, sheets, and text descriptions to your story sheet. This is also where you set the size of your story and display or hide the title.

C. **The Layout Pane:** This is where you choose your navigator style and display or hide the forward and back arrows.

D. **The Story Menu:** Use this menu in Tableau Desktop to format the story or copy or export the current story point as an image. You can also clear the entire story here or show or hide the navigator and story title.

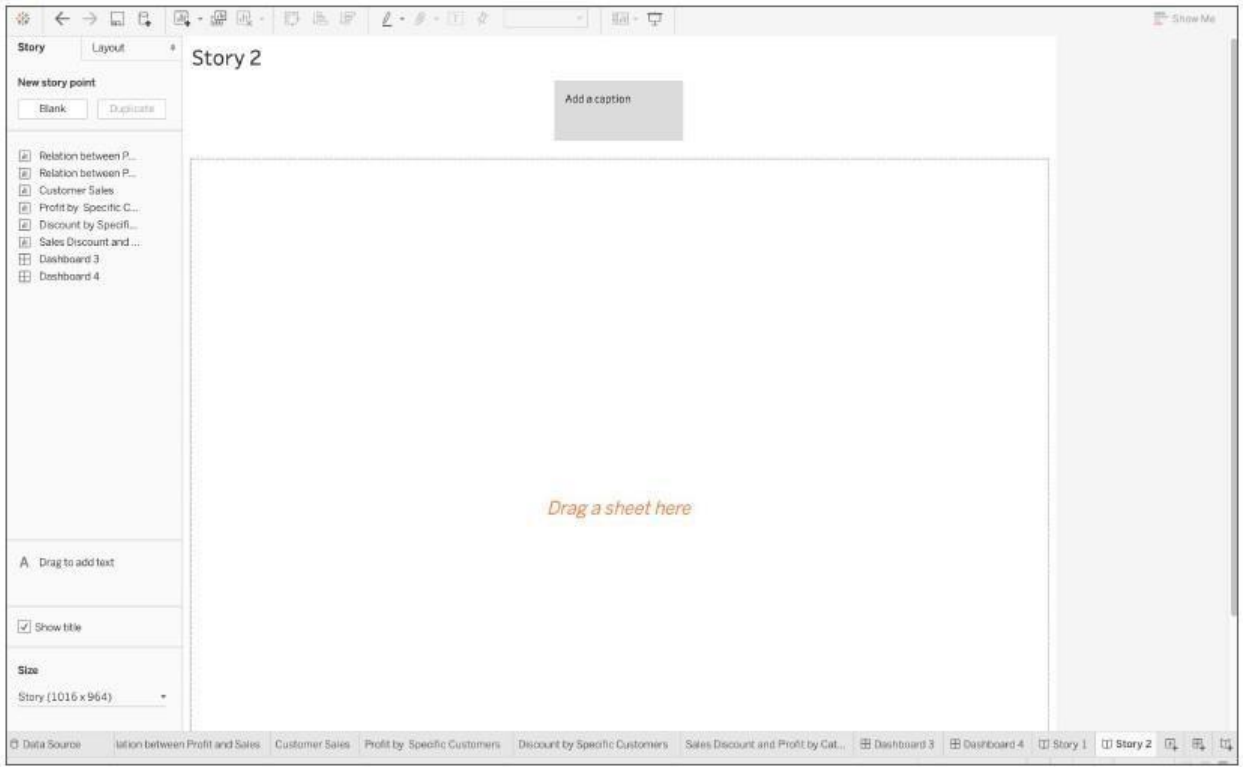
E. **The Story toolbar:** This toolbar appears when you mouse-over the navigator area. Use it to revert changes, apply updates to a story point, delete a story point, or create a new story point out of the current, customized one.

F.The navigator: The navigator allows you to edit and organize your story points. It's also how your audience will step through your story. To change the style of the navigator, use the Layout pane.



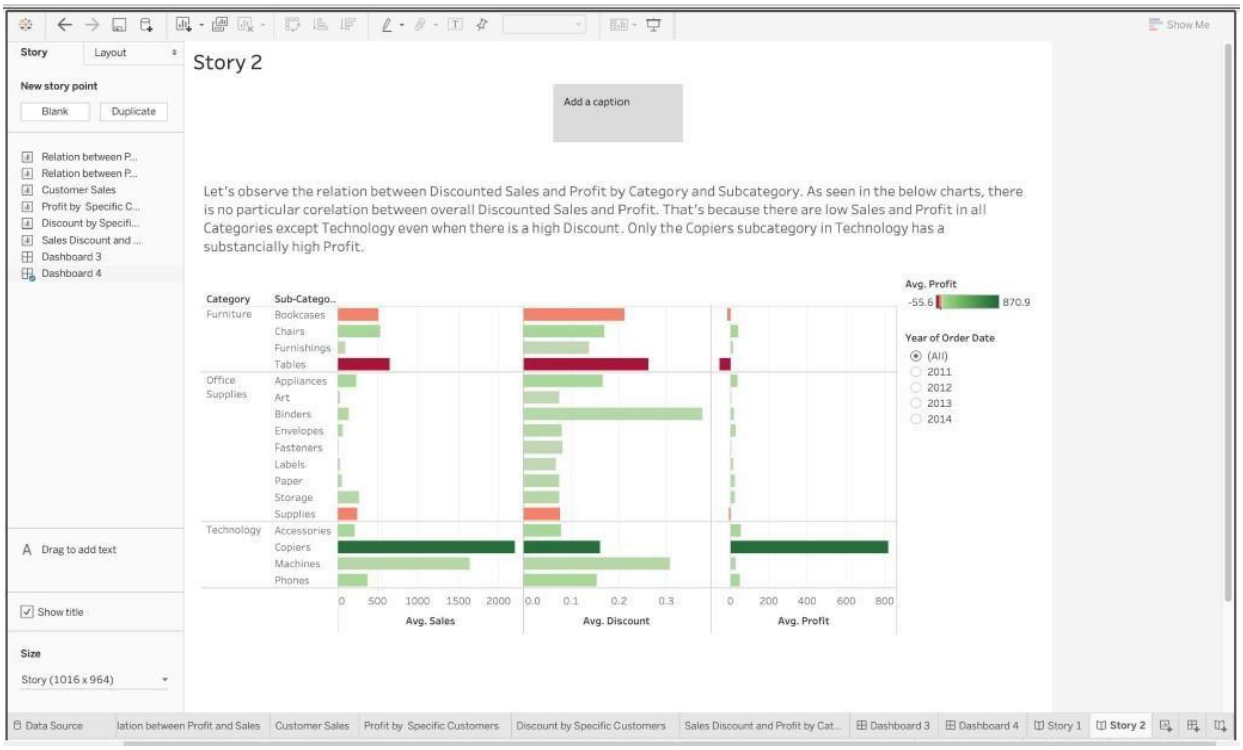
7.2.1. : How to create a Story? .

Step 1: Click on the new Story tab to create a new story. You can then add various sheets and dashboards to create a story point.



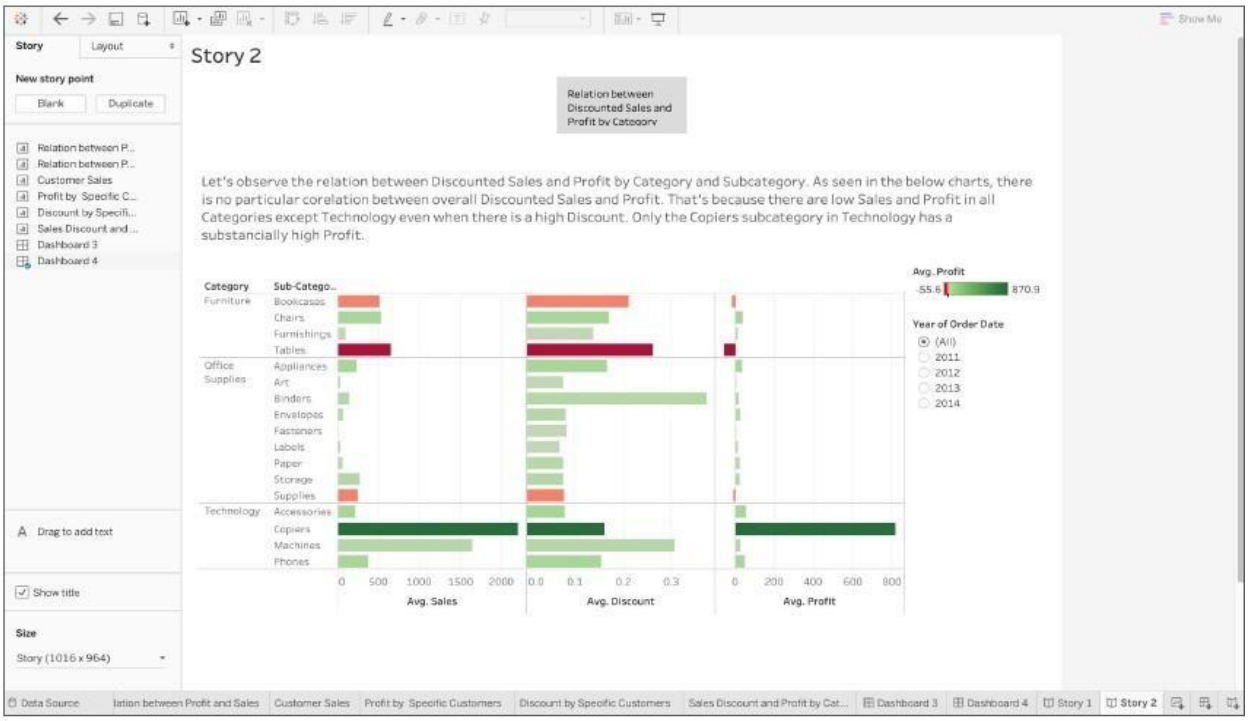
Step 2:

To start building your story, double-click a sheet on the left to feature it to your story purpose



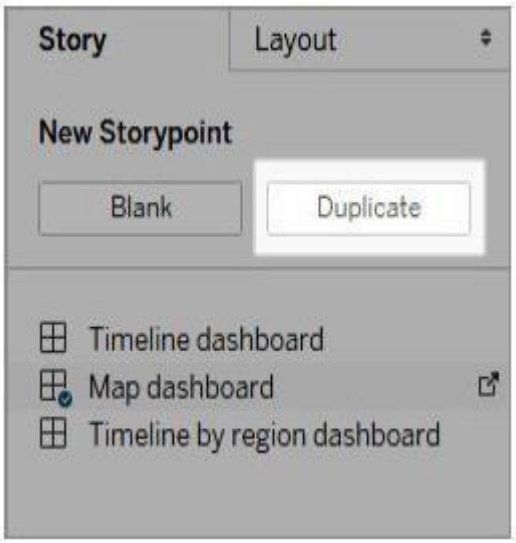
Step 3:

We can also add a caption to summarize the story point by clicking on "Add a caption" and then writing it.



Starting with your next story point, you'll use the drill-down technique in order to narrow down the scope of the story and keep the narrative moving.

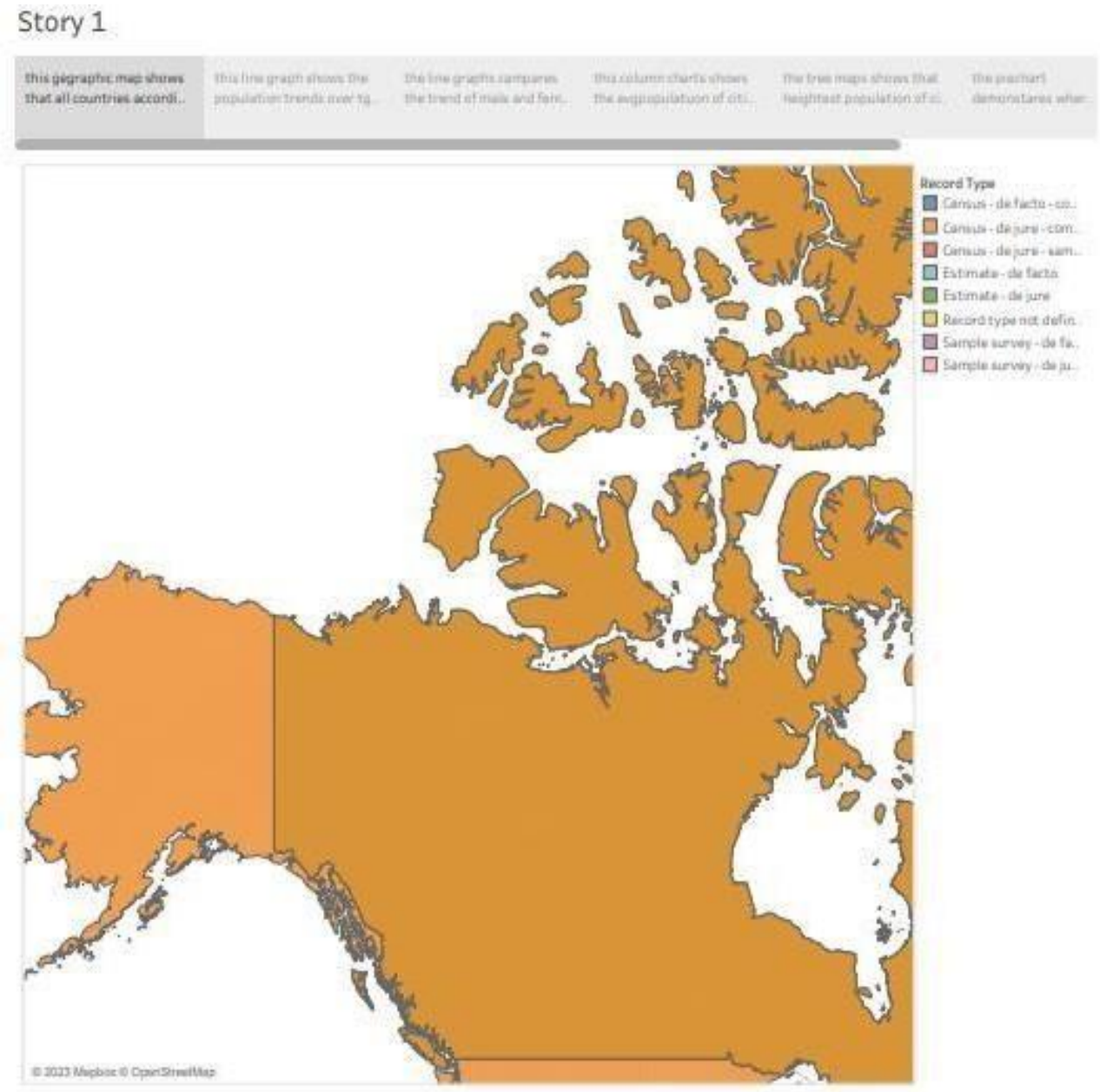
1. To use your first story point as a baseline for your
next, click Duplicate under New Story point on the left.



You can change the size of your story by clicking on the Size option in the lower-left corner. You can choose from one of the predefined sizes or set your custom size in pixels. You can also change the name of your story by right-clicking on your Story tab and choosing rename.

7.2.2. : Final Story :

Examine your work! Take a look at “Finishing touches” in action.



CHAPTER – 8

WEB INTEGRATION

8.WEB INTEGRATION :

- Publishing helps us to track and monitor key performance metrics and to communicate results and progress. help a publisher stay informed, make better decisions, and communicate their performance to others.

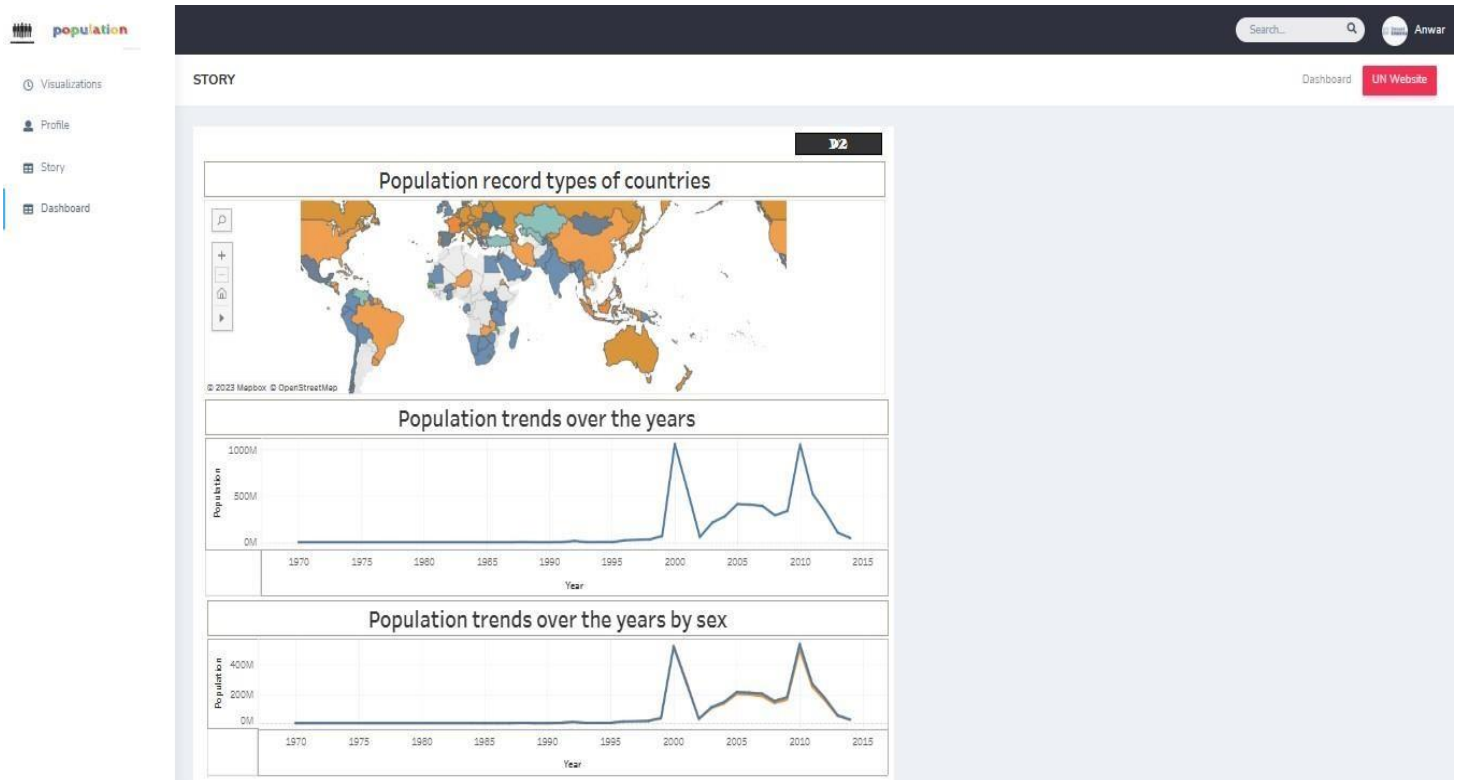
8.1 : Publishing dashboard and reports to tableau public :

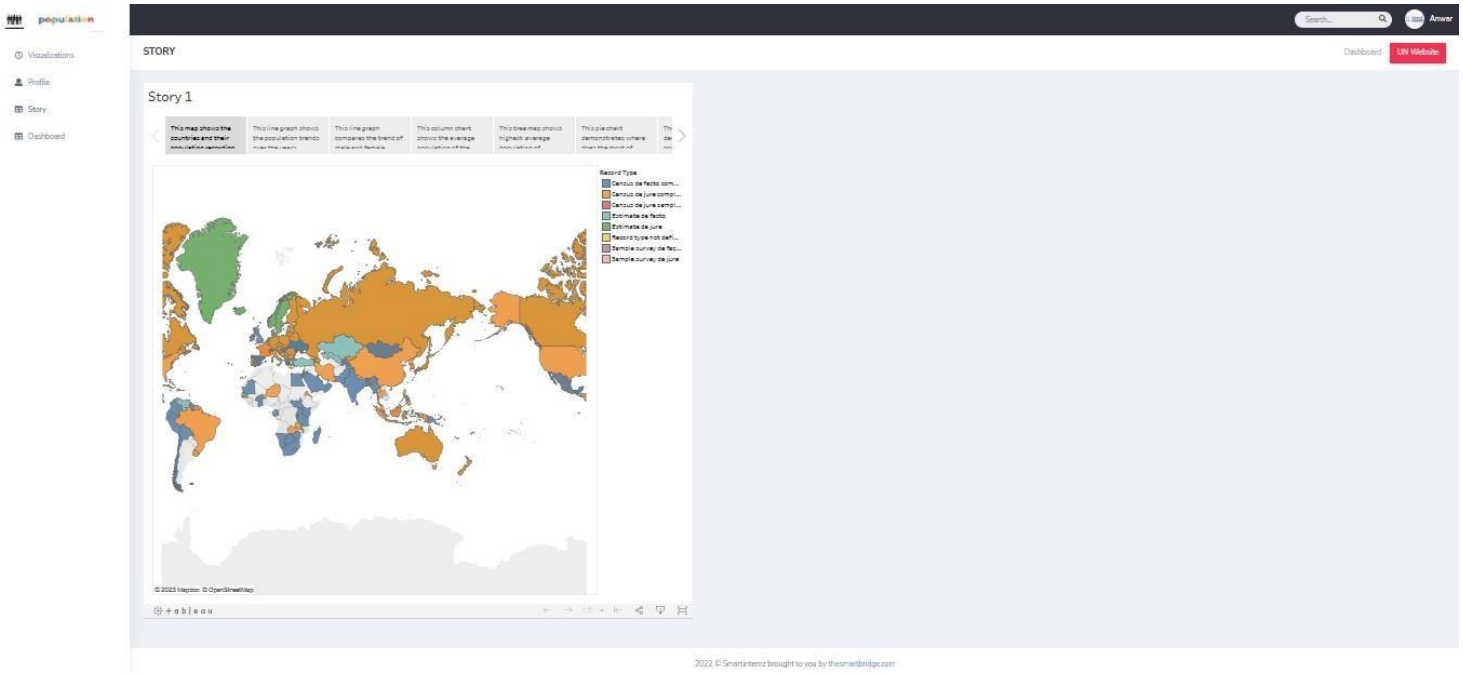
Step 1:

Go to Dashboard/story, click on the share button on the top ribbon Give the server address of your tableau public account and click on connect.

Step 2: Once you click on connect it will ask you for the tableau public username and password. Once you login into your tableau public using the credentials, the particular visualization will be published into the tableau public

8.2. : Embed Dashboard & Story with Web Bootstrap :





CHAPTER – 9

ADVANTAGES , DISADVANTAGES & APPLICATIONS

9. LIST OF ADVANTAGES AND DISADVANTAGES OF THE PROPOSED SOLUTION :

ADVANTAGES:

- Interactive visualizations: Tableau allows for the creation of interactive visualizations that can help identify trends and patterns in the data, making it easier to understand and interpret.
- Speed and efficiency: Tableau is a fast and efficient tool for data analysis, allowing for real-time analysis and quick iteration of different scenarios and assumptions.
- Customizable dashboards: Tableau allows for the creation of customized dashboards that can be shared with stakeholders, making it easier to communicate complex data and insights.
- Integration with other data sources: Tableau can be easily integrated with other data sources, allowing for more comprehensive and accurate analysis.

DISADVANTAGES:

- Complexity: Tableau can be a complex tool to learn and use effectively, requiring a certain level of technical expertise.
- Cost: Tableau can be an expensive tool, requiring a significant investment in licenses and training.
- Data privacy concerns: Tableau involves the use of sensitive data, and there is a risk of data breaches and privacy concerns if proper security measures are not in place.
- Limitations of data: Tableau analysis is limited to the quality and accuracy of the data used, and if the data is incomplete or inaccurate, it can lead to flawed insights and conclusions.

9.1.: APPLICATIONS :

THE AREAS WHERE THIS SOLUTION CAN BE APPLIED :

The solution of using data analytics with Tableau for the project "Tracing the Growth of the Global Community: A Population Forecasting Analysis" can be applied in various areas. Here are some examples:

- **Government agencies:** Government agencies can use population forecasting to plan for future infrastructure, healthcare, education, and social services needs. The data analytics with Tableau can help government agencies to forecast population growth and identify potential areas of concern that require planning and resources.
- **Non-profit organizations:** Non-profit organizations can use population forecasting to plan for future programmatic needs such as food, water, shelter, and healthcare services for vulnerable populations. The data analytics with Tableau can help non-profit organizations to forecast population growth and identify potential areas of concern where resources can be directed.
- **Private sector:** Private sector organizations can use population forecasting to plan for future consumer demand and workforce needs. The data analytics with Tableau can help businesses to forecast population growth and identify potential growth markets or areas where the workforce needs to be expanded.
- **Academic research**: Population forecasting can be used to support academic research related to population dynamics, such as migration patterns, aging populations, and changing family structures. The data analytics with Tableau can help researchers to identify trends and patterns in the data that can inform their research and analysis.
- Environmental planning: Population forecasting can be used to identify potential environmental impacts, such as increased demands on natural resources or changes in land use. The data analytics with Tableau can help environmental planners to forecast population growth and identify potential areas of concern where sustainable development planning is needed.

In summary, the solution of using data analytics with Tableau for the project "Tracing the Growth of the Global Community:

CHAPTER - 10

CONCLUSION & FUTURE SCOPE

10. CONCLUSION SUMMARIZING THE ENTIRE WORK AND FINDINGS : & FUTURE SCOPE :

- The conclusion of the project "Tracing the Growth of the Global Community: A Population Forecasting Analysis" using data analytics with Tableau is that population forecasting is an important tool for planning and resource allocation in various areas such as government agencies, non-profit organizations, private sector, academic research, and environmental planning. The data analytics with Tableau can help to forecast population growth and identify potential areas of concern where resources can be directed.

- Moreover, the project has highlighted the importance of accurate and reliable data for population forecasting. The quality and accuracy of the data used directly impact the effectiveness of the forecasting. Hence, it is essential to ensure data integrity and proper data management practices.

- In terms of future scope, the project can be expanded to include more granular data such as age, gender, and ethnicity to provide a more comprehensive analysis of population growth and trends. It can also be expanded to incorporate more sophisticated data analysis techniques such as predictive modeling and machine learning to enhance the accuracy and reliability of the forecasting.

- In addition, the project can be further developed to provide a real-time monitoring system for population growth, which can be useful in emergency situations such as natural disasters and disease outbreaks. This can enable

quick decision-making and efficient allocation of resources to respond to the crisis.

- Overall, the project "Tracing the Growth of the Global Community: A Population Forecasting Analysis" using data analytics with Tableau provides valuable insights into the importance of population forecasting for planning and resource allocation in various areas. The project also highlights the potential for future development and enhancement of population forecasting using more advanced data analysis techniques.