



# iRevolution: A Data-driven Exploration of Apple's iphone Impact in India

## Project Based Experiential Learning Program

# iRevolution: A Data-driven Exploration of Apple's iPhone Impact in India

The world has changed as a consequence of the increasing use of smartphones, which have improved
communication, connected people, and revolutionized many different businesses. With its main product, the iPhone, capturing markets around the world, Apple Inc. has emerged as a prominent player among the top smartphone makers. India, one of the economies with the greatest economic growth, has seen a tremendous increase in smartphone usage, making it an interesting market to study the effects of Apple's iPhone.

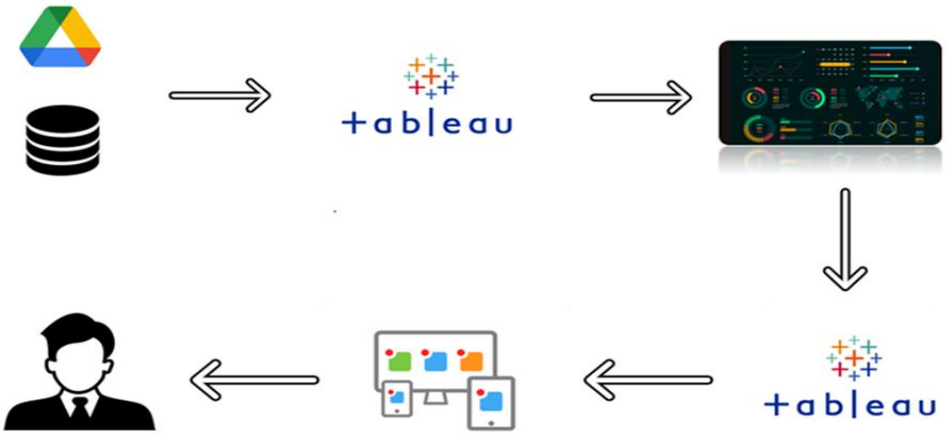
In order to shed light on important factors like market penetration, customer preferences, economic ramifications, and societal changes, this research report will perform a data-driven investigation of the impact of the iPhone in India. This study will offer invaluable insights into the transformative impact of the iPhone on India's technological landscape and the lives of its consumers by using advanced data analytics techniques and analyzing large datasets.

Apple has a special chance to increase its market share and develop a significant presence in India thanks to the country's large population and rising smartphone adoption. Each new iPhone model unveiling generates excitement and anticipation among Indian buyers. By utilizing the plethora of information
Already accessible, this research aims to go beyond conjecture and anecdotal evidence in order to develop a thorough knowledge of the effects of the iPhone.

## Technical Architecture:

The technical architecture involves leveraging the data analytics capabilities of Tableau for visualizations and analysis. The architecture comprises several components to ensure efficient data processing and visualization.

At the core of the architecture is the data infrastructure, which includes data sources such as market reports, economic indicators, and surveys conducted among iPhone users in India. These data sources are collected and stored in a structured format for further analysis. Tableau is used as the primary data visualization tool. It connects to the data sources and allows for data extraction, transformation, and loading (ETL) processes. Tableau's intuitive interface enables users to create interactive and visually appealing visualizations, charts, and dashboards based on the analyzed data.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## Project Flow:

To accomplish this, we have to complete all the activities listed below,

- Define Problem / Problem Understanding
  - Specify the business problem
  - Business requirements
  - Literature Survey
- Data Collection & Extraction
  - Collect the dataset
  - Connect Dataset with Tableau
- Data Preparation
  - Prepare the Data for Visualization
- Data Visualizations
  - No of Unique Visualizations
- Dashboard
  - Responsive and Design of Dashboard
- Story
  - No of Scenes of Story
- Performance Testing
  - Utilization of Data Filters
  - No of Calculation Fields
  - No of Visualizations/ Graphs
- Publishing
  - Publishing Dashboard and Story to Tableau Public
- Project Demonstration & Documentation
  - Record explanation Video for project end to end solution
  - Project Documentation-Step by step project development procedure

# Milestone 1: Define Problem/ Problem Understanding

## Activity 1: Specify the Business Problem

The objective of this study is to obtain a thorough understanding of how Apple's iPhone would affect the Indian market. In particular, we want to investigate the market penetration of iPhones in India, comprehend consumer preferences and decision-making processes, and assess the social and economic effects of iPhone adoption. We aim to offer insights that can direct strategic decisions for Apple and other stakeholders active in the Indian smartphone industry by leveraging data analytics and visualizations using Tableau.

## Activity 2: Business Requirements

The project's business needs call for data analysis and visualization in order to understand how Apple's iPhone has affected India. This entails looking at customer choices, market penetration, sociological developments, and economic effects. Tableau visualizations should be interactive, understandable, and educational so that stakeholders can make data-driven decisions and comprehend the impact of the iPhone on the Indian market.

## Activity 3: Literature Survey

A literature survey would involve a search for relevant publications, articles, and academic papers on the topic, as well as an analysis of the various techniques, models, and algorithms used in previous research. The literature survey would also involve identifying gaps in existing research and potential areas for further exploration and improvement.

## Activity 4: Social or Business Impact.

**Social Impact:**

An important component of this study is the societal impact of Apple's iPhone in India. We intend to investigate how the iPhone has altered communication, information access, and social relationships in Indian society through data analytics and Tableau visualizations. Studying the impact of iPhones on social media use, online content consumption, and the broader digital divide are all included in this. Policymakers and organizations can better manage the benefits and difficulties brought on by the expanding smartphone adoption by understanding the social impact.

**Business Impact:**

Research must focus on how Apple's iPhone has affected business in India. We seek to examine the

economic effects of iPhone uptake in the Indian market using data analytics and Tableau visualizations.
Examining iPhone sales data, market share, revenue creation, and its effects on different industries like
e-commerce, app development, and digital payments are all part of this. Organizations can find possibilities for growth and innovation by understanding the business impact and using it to help them position themselves in their markets and make strategic decisions.

## Milestone 2: Data Collection and Preparation:

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, and evaluate outcomes and generate insights from the data.

### Activity 1: Collect the dataset

Please use the link to download the dataset: Link

### Activity 1.1: Understand the data

Data contains all the meta information regarding the columns described in the CSV files. We have provided the XLSX file:
**Column Description for BigML_Dataset.csv:**

The file apple_products.xlsx contains a total of 7 sheets. Each sheet corresponds to a different parameter related to iPhones/Smartphones.

The sheets are:

- apple_products.csv
- Flipkart_smartphone
- Annual revenue
- Market penetration (iPhone)
- Country wise share
- Quarterly-share
- Model-wise share

### Activity 2: Connect datasets with Tableau

**Reference video link:**
**https://drive.google.com/file/d/1JSsNhUUhY4Cq1u0bOFKC4Ojz6LAa1yIc/view?usp=sharing**

# Milestone 3: Data Preparation

## Activity 1: Prepare the Data for Visualization

Data modules are containers that describe data and rules for combining and shaping data to prepare it for analysis and visualization in Tableau. Data module sources. Data modules can be based on data servers, packages, uploaded files, data sets, and other data modules.

# Milestone 4: Data Visualization

Data visualization is the process of creating graphical representations of data in order to help people understand and explore the information. The goal of data visualization is to make complex data sets more accessible, intuitive, and easier to interpret. By using visual elements such as charts, graphs, and maps, data visualizations can help people quickly identify patterns, trends, and outliers in the data.

## Activity 1: No of Unique Visualizations

The number of unique visualizations that can be created with a given dataset. Some common types of visualizations that can be used to analyze the performance and efficiency of a project include bar charts, line charts, heat maps, scatter plots, pie charts, Maps, etc. These visualizations can be used
to compare performance, track changes over time, and show distribution, and relationships between variables.

### Activity 1.1: KPI

**Explanation video link: (Rec_03)**

**https://drive.google.com/file/d/1kS8veLtBuo9_RlMovoUAZ7l46P_YKp8c/view?usp=drive_link**

### Activity 1.2: Model Specification Explanation video link: (Rec_04)

**https://drive.google.com/file/d/1_ea6LayXl0RkIbVDp3jbMJVdSV_ZUtrB/view?usp=drive_link**

### Activity 1.3: Bar Chart showing Battery-Type distribution Explanation video link: (Rec_05)

**https://drive.google.com/file/d/1VEehbWqHHlwI_rtVIVdI9hS8bFFHW2Yp/view?usp=drive_link**

**Activity 1.4: Treemap showing Brand- Price Comparison** Explanation video link: (Rec_06)

https://drive.google.com/file/d/1IgbGOBeG9SftWO4VX3j1UD5cR7CRHQ4z/view?usp=drive_link

**Activity 1.5: Bubble Chart showing Model- Wise Share of**

**iPhone** Explanation video link: (Rec_07)

https://drive.google.com/file/d/1xw1zbp6UdpDSYG57dcIlOGdG0wGsyFlW/view?usp=sharing

**Activity 1.6: Lined Bar-Chart showing Country-Wise Best Selling Smartphone**

**Explanation video link: (Rec_08)**
**https://drive.google.com/file/d/1ZfWkyv70jzyzmkYa6DItCYPYzuCrPC-7/view?usp=drive_link**

**Activity 1.7: Donut Chart for Quarterly**
**Share Explanation video link: (Rec_09)**
**https://drive.google.com/file/d/1o-nCJh5RMXjY_gsIygVrr5Dnrav45KZL/view?usp=drive_link**

**Activity 1.8:Line Chart for Annual Revenue Year-Wise**
**Explanation video link: (Rec_10)**
**https://drive.google.com/file/d/1PDtpDU-L8I55h66xpTYBBV49m14CBgAN/view?usp=drive_link**

**Activity 1.9: Text Table for Yearly**
**KPI Explanation video link:**
**(Rec_11)**
**https://drive.google.com/file/d/19c92E3MFPKv9IZj4FyJciDoBQj55DJcw/view?usp=drive_link**

**Activity 1.10: Map Showing Global Market**
**Share Explanation video link: (Rec_12)**
**https://drive.google.com/file/d/1eMlbCnKD8O7_hjqHm0OkCSdwYS5wWctZ/view?usp=sharing**

## Milestone 5: Dashboard

A dashboard is a graphical user interface (GUI) that displays information and data in an organized, easy-to-read format. Dashboards are often used to provide real-time monitoring and analysis of data, and are typically designed for a specific purpose or use case. Dashboards can be used in a variety of settings, such as business, finance, manufacturing, healthcare, and many other industries. They can be used to track key performance indicators (KPIs), monitor performance metrics, and display data in the form of charts, graphs, and tables.

### Activity:1- Responsive and Design of Dashboard

The responsiveness and design of a dashboard for Data-Driven insights on **iRevolution: A Data-driven Exploration of Apple's iPhone Impact in India** is crucial to ensure that the information is easily understandable and actionable. Key considerations for designing a responsive and effective dashboard include user-centered design, clear and concise information, interactivity, a data-driven approach, accessibility, customization, and security. The goal is to create a dashboard that is user-friendly, interactive, and data-driven, providing actionable insights.

**Explanation video link: (Rec_13)**
https://drive.google.com/file/d/1ugX_J607W1Y4SYQz9JxV9NLs5TWgA6g-/view?usp=drive_link

iRevolution

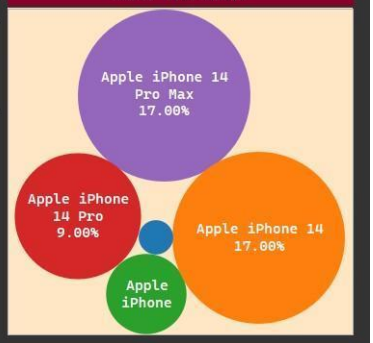
Year: 2022 | Brand: APPLE | Colour: (All)

## KPI

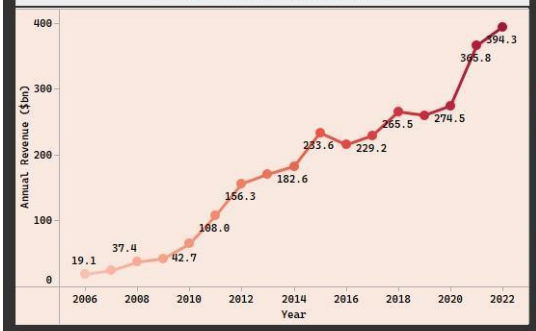
| Units sold (mm) | Revenue Generated ($bn) | Active Users (mm) |
|---|---|---|
| 232 | 205 | 1,334 |

| Brand | Mrp | Sale Price | Star Rating | Discount Percentage | Number Of Reviews |
|---|---|---|---|---|---|
| Apple | 59,900 | 54,999 | 5 | 8 | 3,331 |

### Model wise share




### Annual Revenue (2006- 2022)




iRevolution- Think DIFFERent

### Model specification

| Model | Processor | Front Cam.. | Colour | Rear Camera | |
|---|---|---|---|---|---|
| APPLE IPHONE 11 | A Bionic Chip | 12MP | Black | 12MP + 12MP | ₹ 92,800.00 |
| | | | Red | 12MP + 12MP | ₹ 92,800.00 |
| | | | White | 12MP + 12MP | ₹ 92,800.00 |
| | | | Yellow | 12MP + 12MP | ₹ 43,900.00 |
| APPLE IPHONE 12 | A Bionic Chip with Next Generation Neural Engine | 12MP | Black | 12MP + 12MP | ₹ 199,700.00 |
| | | | Blue | 12MP + 12MP | ₹ 59,900.00 |
| | | | Green | 12MP + 12MP | ₹ 74,900.00 |


iRevolution- Think DIFFERent
Year
2020
Country
India
Brand
OPPO
Global Market Share
China
Pakistan
India
OnePlus Nord CE 2 Lite 5G
4.00%
© 2023 Mapbox © OpenStreetMap
Country-wise best selling smartphone
2%
2%
3%
3%
4%
Samsung Galaxy A..
Samsung Galaxy A..
Apple iPhone 13
vivo Y02
OnePlus Nord CE 2 Lite 5G
Xiaomi 69.00%
OPPO 56.00%
Others 48.00%
2020
vivo 77.00%
realme 41.00%
Samsung 109.00%
Brand Price comaprison
APPLE 0 89,900
NOTHING 1 39,999
MOTOROLA 4 17,999
IQOO 3 17,999
REALME 5 17,999
VIVO 5 19,998
SAMSUNG 5 18,999
TECNO 4 13,499
ITEL 3
OPPO 4 19,499
MICROMAX 2
GOOGLE 2 51,999
ONEPLUS 2 19,999
XIAOMI 6 17,999
LAVA 3
I KALL 2
MARQ
Battery Type Distribution
Battery Type
Lithium
Lithium Ion
Lithium Polymer
eet 12
Sheet 13
Model wise share
Country-wise best selling smart...
Sheet 16
Quarter- wise India Smartphone ...
Quarterly share
Dashboard 1
Sheet 19
Sheet 21
Dashboard 2
Mao
Story 1

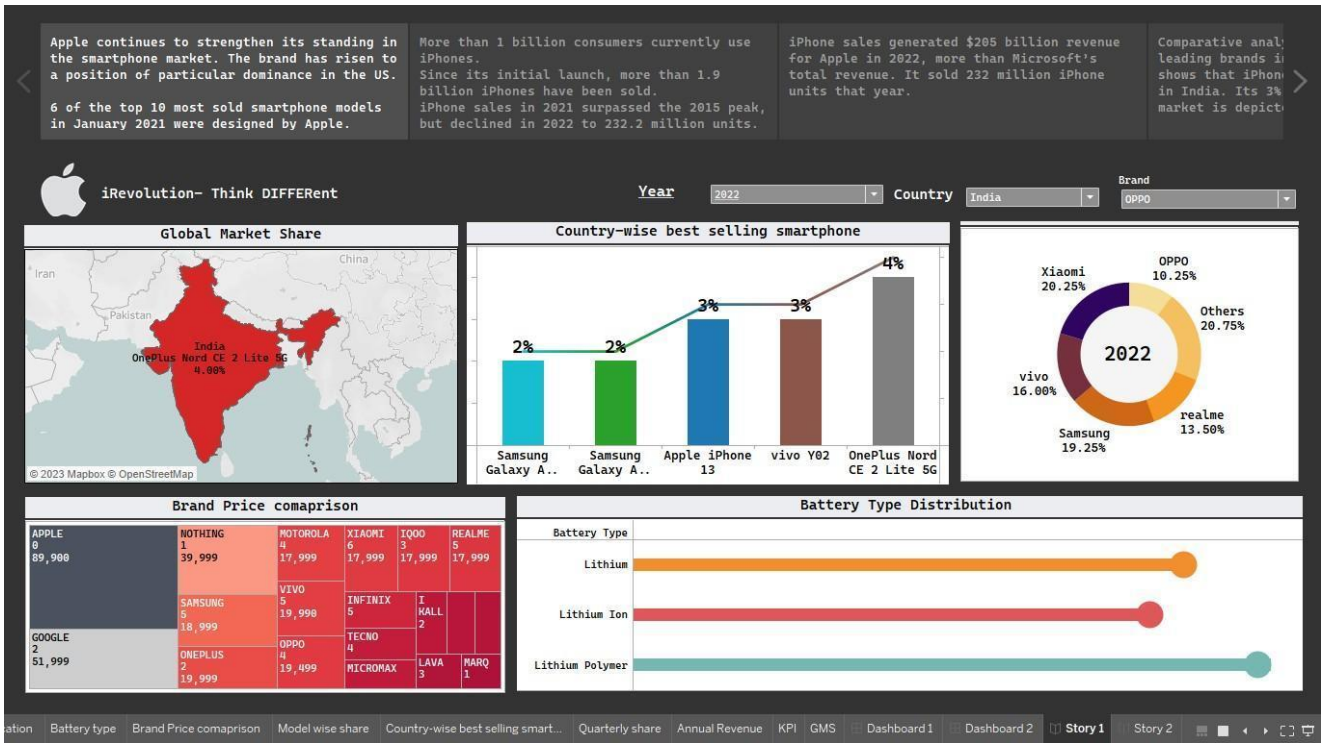
## Milestone 6: Story

A data story is a way of presenting data and analysis in a narrative format, with the goal of making the information more engaging and easier to understand. A data story typically includes a clear introduction that sets the stage and explains the context for the data, a body that presents the data and analysis in a logical and systematic way, and a conclusion that summarizes the key findings and highlights their implications. Data stories can be told using a variety of mediums, such as reports, presentations, interactive visualizations, and videos.

### Activity:1- No of Scenes of Story

The number of scenes in a storyboard for iRevolution will depend on the complexity of the analysis and the specific insights that are trying to be conveyed. A storyboard is a visual representation of the data analysis process and it breaks down the analysis into a series of steps or scenes.

**Explanation video link: (Rec_14)**
**https://drive.google.com/file/d/1EPdrvjcJA57cPGkn4lGag9jcadsfRTvt/view?usp=drive_link**



Apple continues to strengthen its standing in the smartphone market. The brand has risen to a position of particular dominance in the US.

6 of the top 10 most sold smartphone models in January 2021 were designed by Apple.

More than 1 billion consumers currently use iPhones.
Since its initial launch, more than 1.9 billion iPhones have been sold.
iPhone sales in 2021 surpassed the 2015 peak, but declined in 2022 to 232.2 million units.

iPhone sales generated $205 billion revenue for Apple in 2022, more than Microsoft's total revenue. It sold 232 million iPhone units that year.

Comparative analy leading brands i shows that iPhon in India. Its 3% market is depict

iRevolution

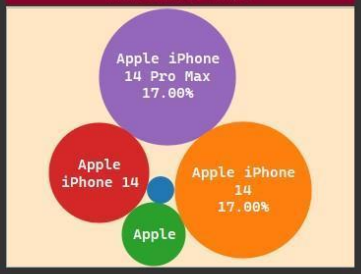
Year: 2013 | Brand: MOTOROLA | Colour: (All)

KPI

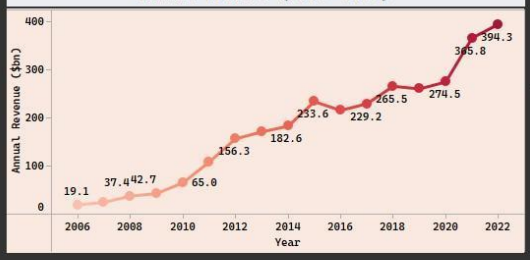
| Units sold (mm) | Revenue Generated ($bn) | Active Users (mm) |
|---|---|---|
| 150.2 | 91.2 | 329.0 |

| Brand | Mrp | Sale Price | Star Rating | Discount Percentage | Number Of Reviews |
|---|---|---|---|---|---|
| Apple | 59,900 | 54,999 | 5 | 8 | 3,331 |

Model wise share




Annual Revenue (2006- 2022)




iRevolution- Think DIFFERent

Model specification

| Model | Processor | Front Cam.. | Colour | Rear Camera | |
|---|---|---|---|---|---|
| MOTO C PLUS | Mediatek MIK6737 Quad Core 1.3Ghz | 2MP | Starry Black | 8MP | ₹ 17,999.00 |
| MOTO G71 5G | Qualcomm Snapdragon 695 | 16MP | Neptune Green | 50MP + 8MP + 2MP | ₹ 22,999.00 |
| MOTOROLA E7 POWER | MediaTek Helio G25 | 5MP | Tahiti Blue | 13MP + 2MP | ₹ 11,999.00 |
| MOTOROLA E13 | Unisoc T606 | 5MP | Aurora Green | 13MP | ₹ 20,998.00 |
| | | | Cosmic Black | 13MP | ₹ 20,998.00 |

ation | Battery type | Brand Price comaprison | Model wise share | Country-wise best selling smart... | Quarterly share | Annual Revenue | KPI | GMS | Dashboard 1 | Dashboard 2 | Story 1 | Story 2

Apple continues to strengthen its standing in the smartphone market. The brand has risen to a position of particular dominance in the US.

6 of the top 10 most sold smartphone models in January 2021 were designed by Apple.

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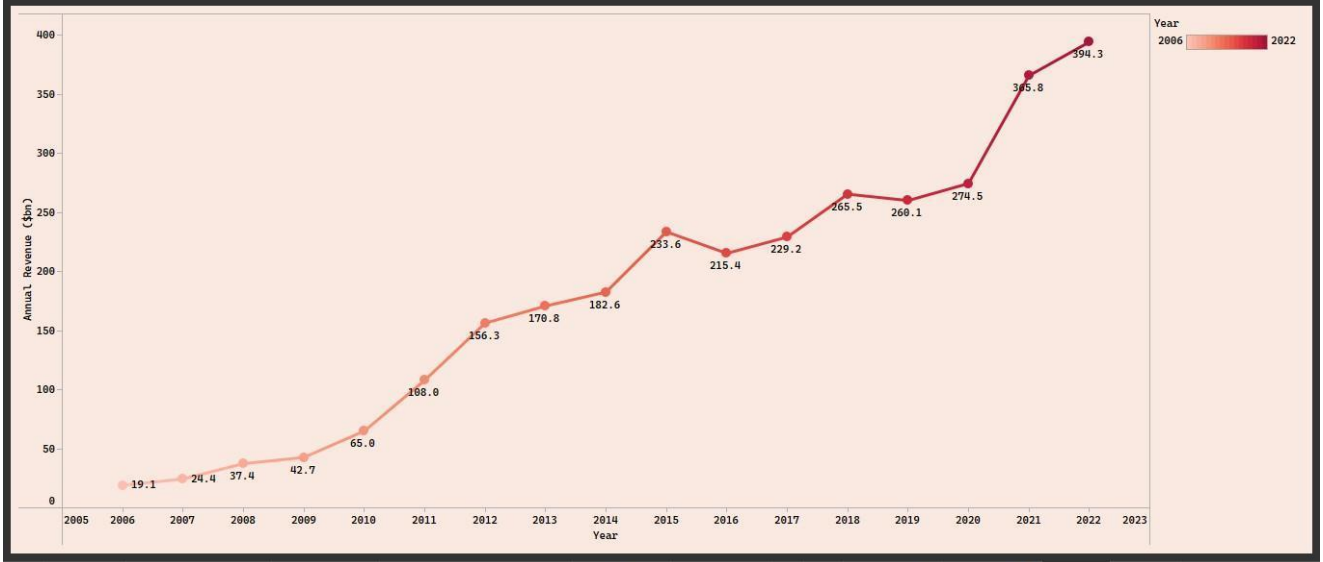
iPhone sales generated $205 billion revenue for Apple in 2022, more than Microsoft's total revenue. It sold 232 million iPhone units that year.

Comparative analy leading brands i shows that iPhon in India. Its 3% market is depict




ation | Battery type | Brand Price comaprison | Model wise share | Country-wise best selling smart... | Quarterly share | Annual Revenue | KPI | GMS | Dashboard 1 | Dashboard 2 | Story 1 | Story 2

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Since its initial launch, more than 1.9 billion iPhones have been sold.
iPhone sales in 2021 surpassed the 2015 peak, but declined in 2022 to 232.2 million units.

iPhone sales generated $205 billion revenue for Apple in 2022, more than Microsoft's total revenue. It sold 232 million iPhone units that year.

**Comparative analysis amongst various other leading brands in the smartphone industry shows that iPhone is yet to make it's impact in India. Its 3% market share in the global market is depicted in the line-bar graph.**

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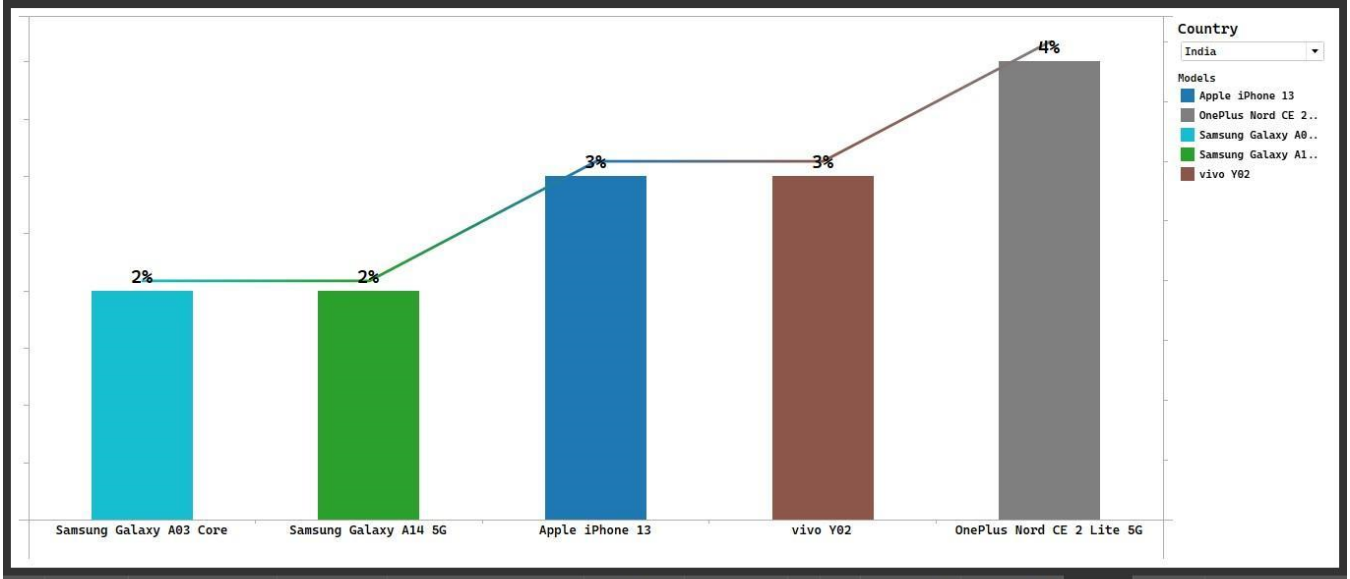
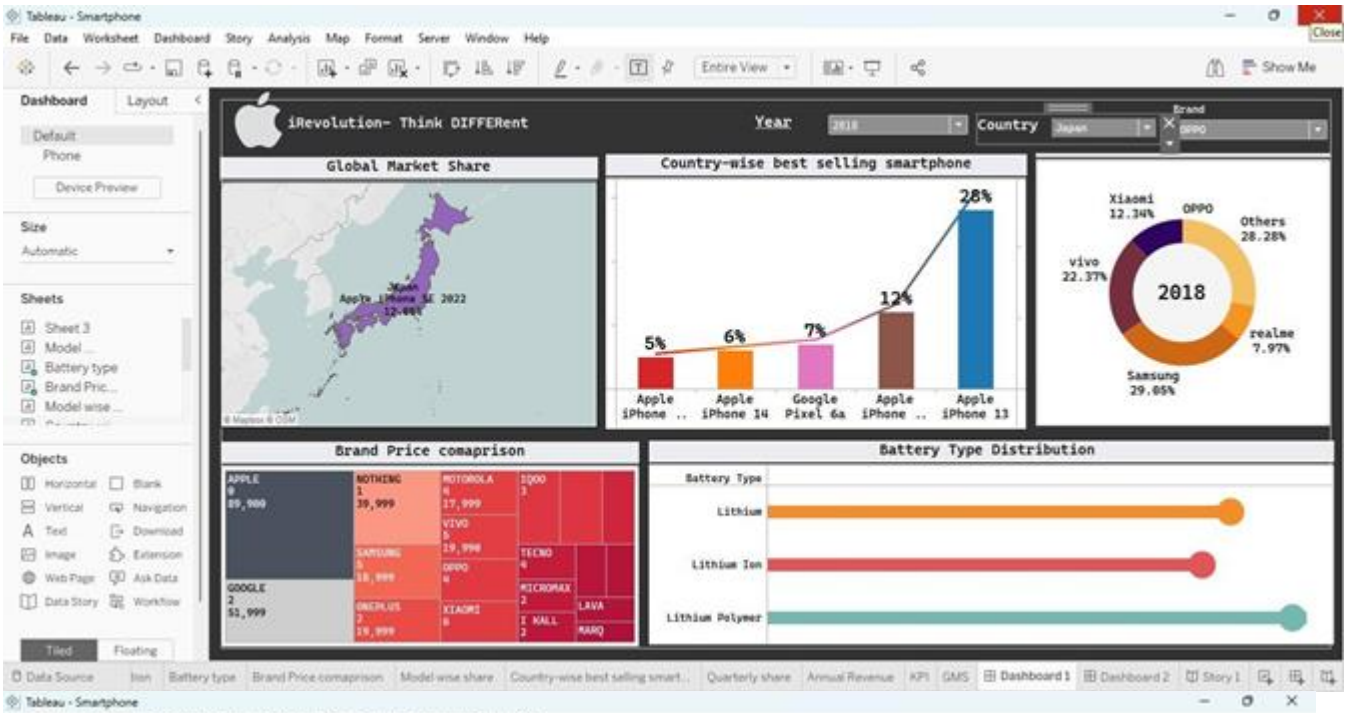
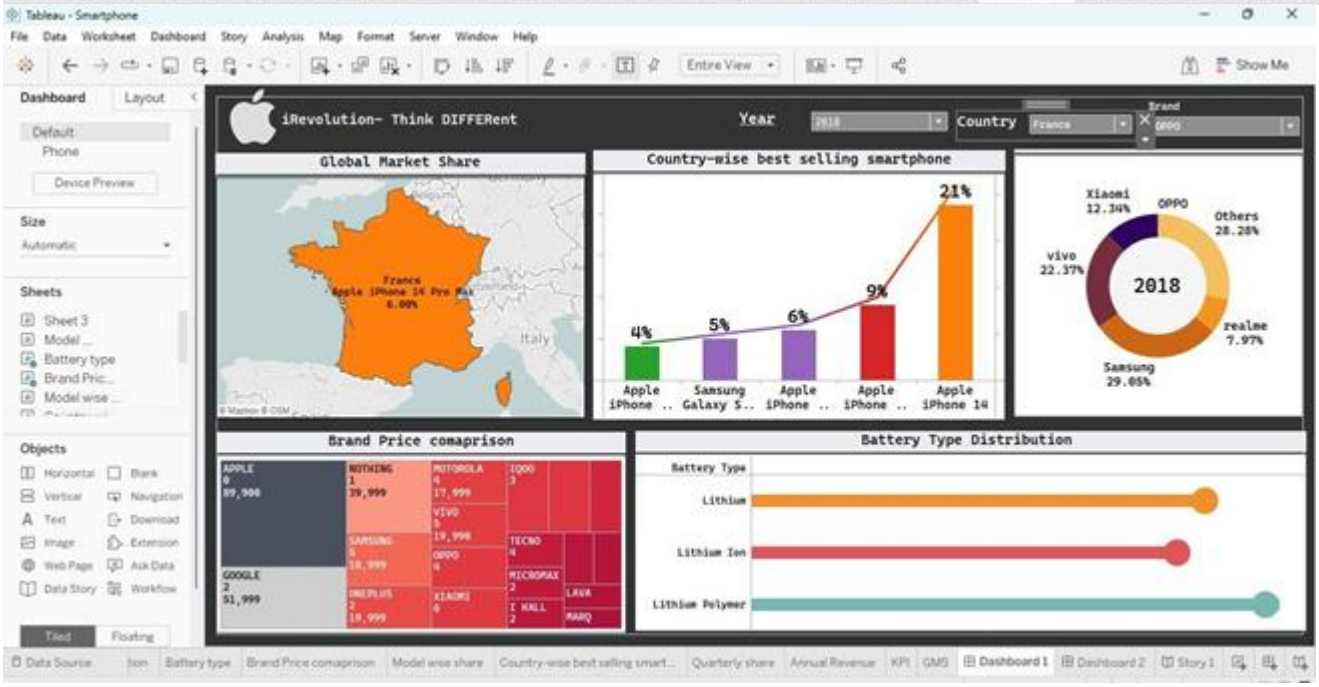
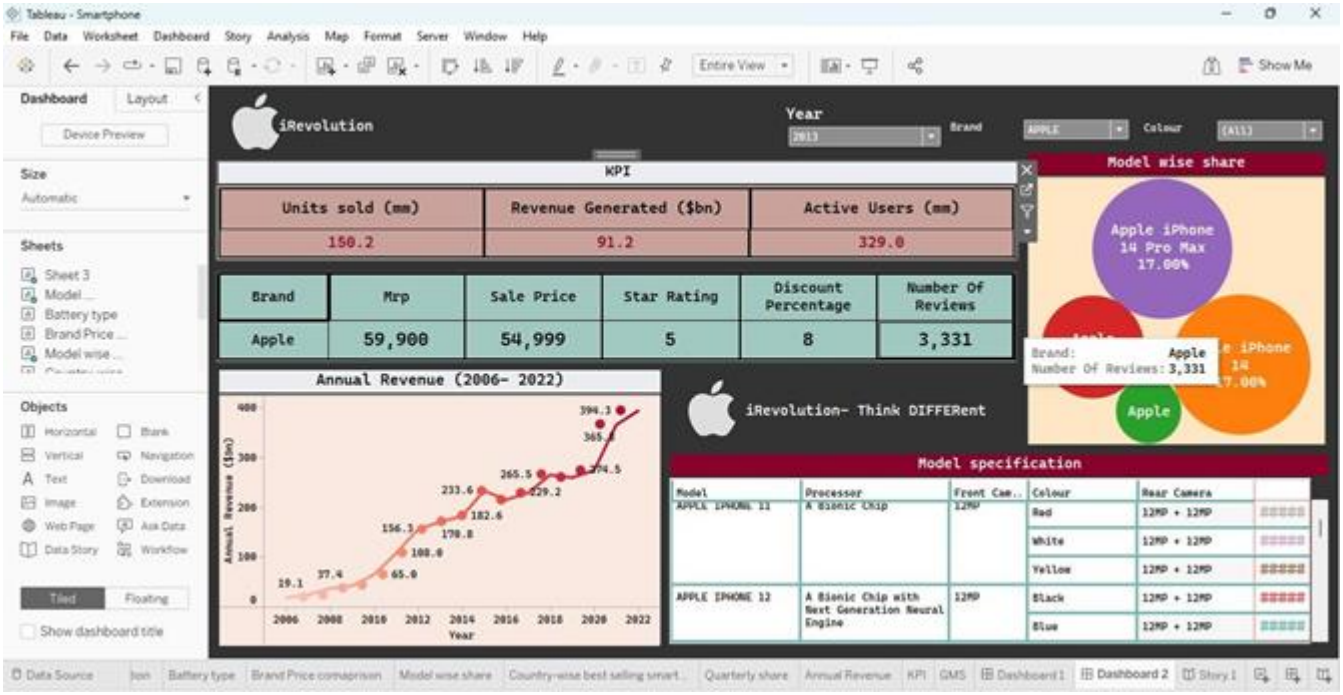


# Milestone 7: Performance Testing

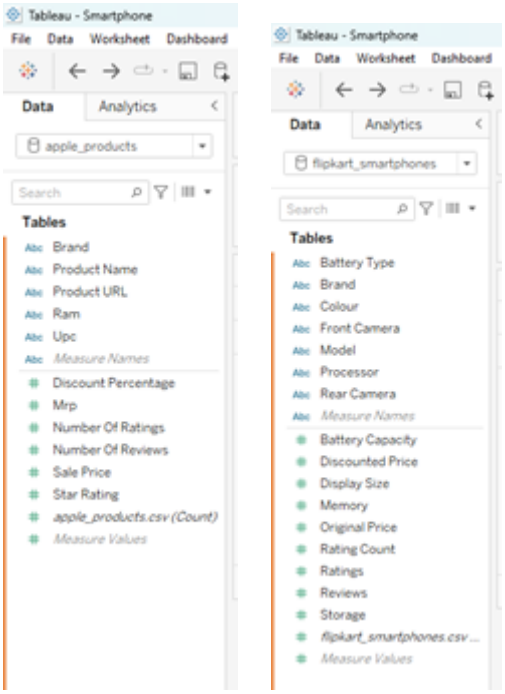
## Activity 1: Utilization of Filters






## Activity 2: No of Calculation Fields




## Activity 3: No of Visualizations/ Graphs

- KPI
- Model Specification
- Model- Wise share
- Battery-Type distribution

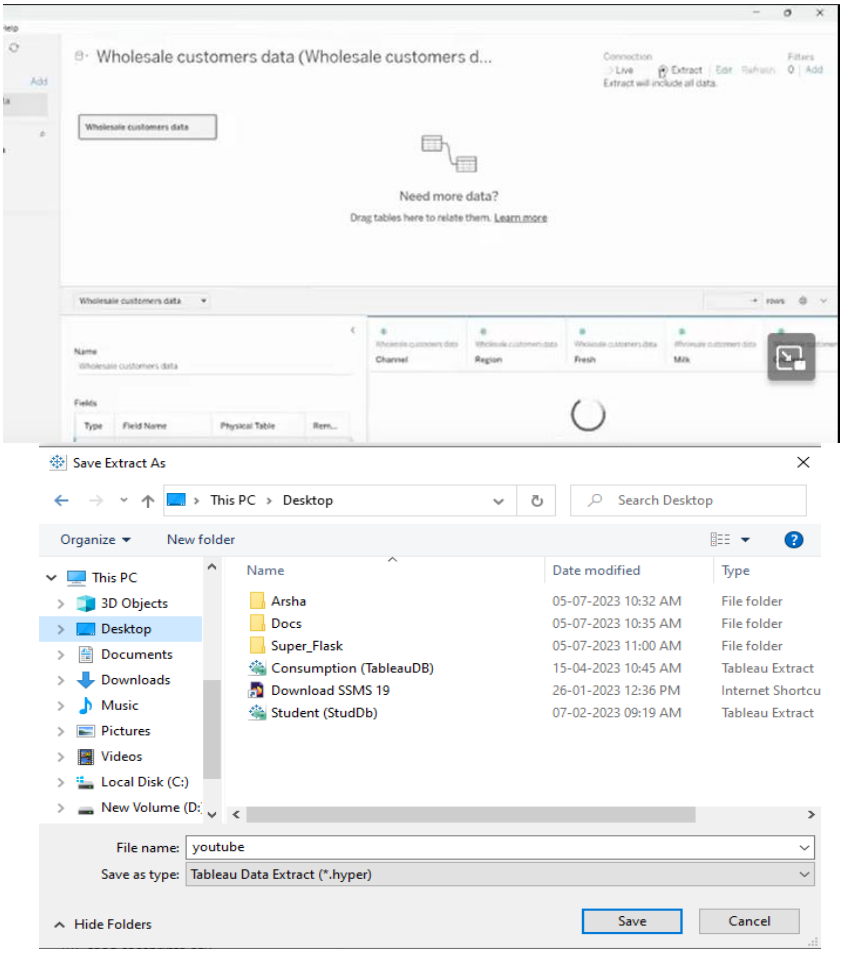
- Brand- Price Comparison
- Model- Wise Share of iPhone
- Country-Wise Best-Selling Smartphone
- nnual Revenue Year-Wise
- KPI-2
- Global Market Share

# Milestone 8:Publishing

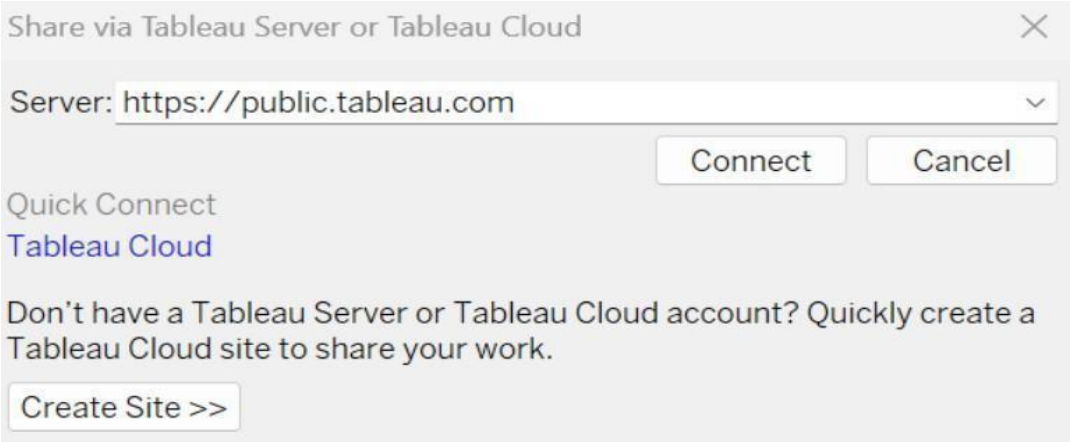
Publishing helps us to track and monitor key performance metrics, to communicate results and progress. help a publisher stay informed, make better decisions, and communicate their performance to others.

**Publishing dashboard and reports to tableau public**

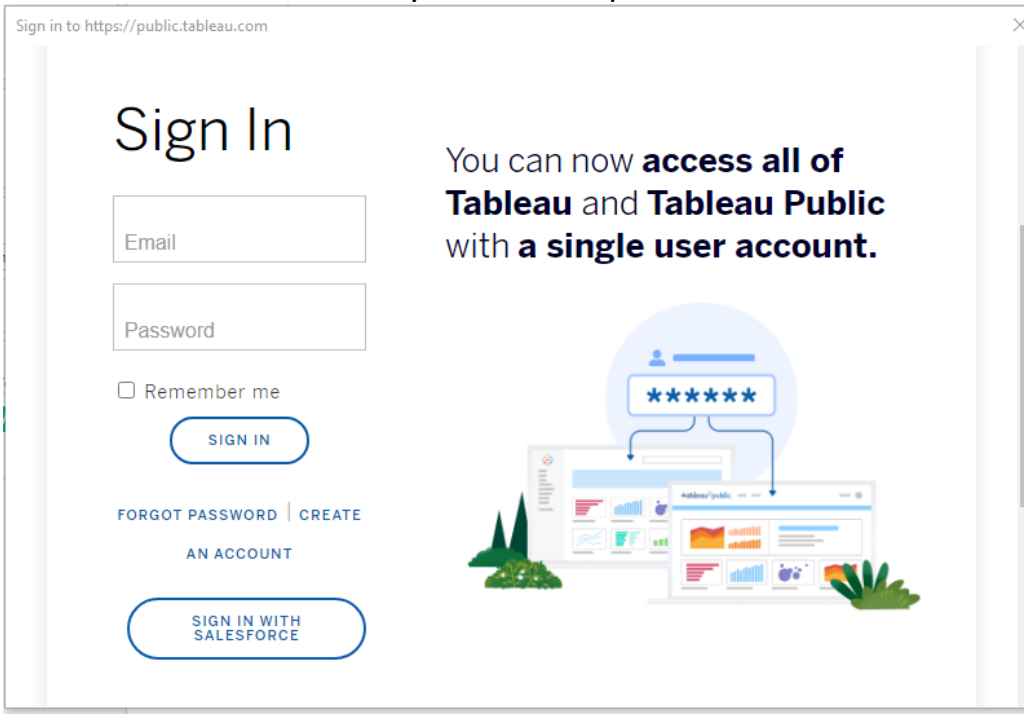
Step 1 Go to data Source and Select Extract so that .hyper extension files are created and save it at your desktop.
(please wait for pop up of file to save)




Step 2: Go to Dashboard/story, click on share button on the top ribbon



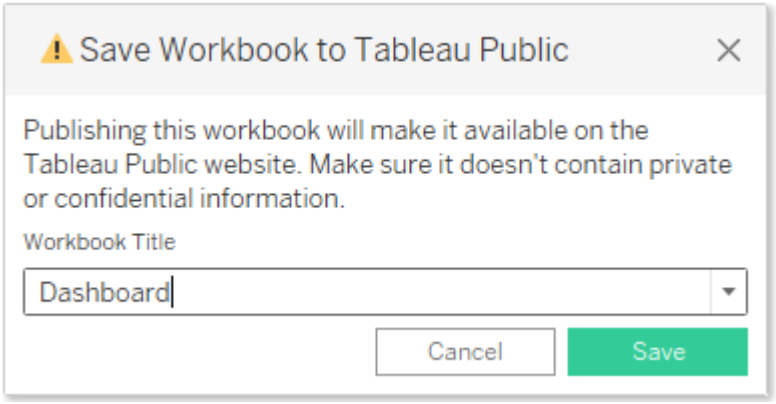

Give the server address of your tableau public account and click on connect.




Sign in to your Tableau Public account or create a new account if you don't have one. You can visit the Tableau Public website (public.tableau.com) and click on the "Sign In" or "Join" button.

In the "Tableau Public Sign In" window, enter your Tableau Public account credentials and click "Sign In."

Next, you'll need to provide a title and description for your workbook. Fill in the appropriate details in the provided field of workbook Title




Click on the "Save" button to start the publishing process. Tableau Desktop will upload your workbook to Tableau Public.

Once the upload is complete, a browser window will automatically open, displaying your published workbook on Tableau Public. Review the workbook to ensure that everything appears as expected.

So in Similar way we can also publish Story to tableau public.

## Milestone 9: Project Demonstration & Documentation

Below mentioned deliverables to be submitted along with other deliverables.

**Activity 1: Record explanation Video for project end to end solution**

**Activity 2: Project Documentation-Step by step project development procedure**

Create a document as per the template provided.