Presentation

BI PROJECT

LINK VIDEO

LINK VIDEO

Members

Lie Richard
2702276241

Timothy Rafael Darmadi
2702328951

Johansenn Wesley Chu
2702267565

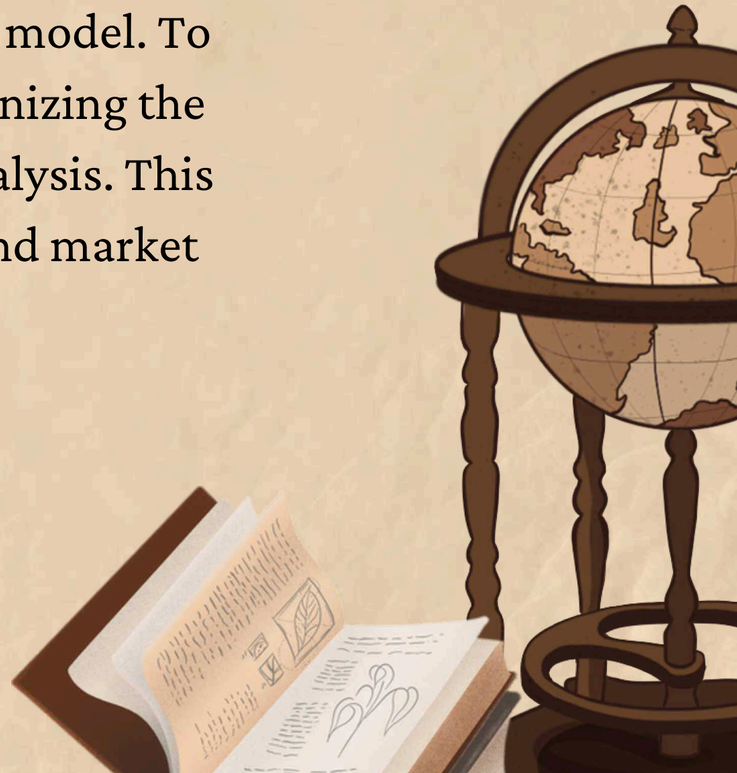
Harold Hamdani
2702342501

Juvensen Ivanlie
2702226312

LINK VIDEO

Background

In the digital era, smartphone markets produce vast, fragmented data across countries, brands, and specs. This project uses a multi-country dataset with prices, features, and companies tied to each phone model. To extract meaningful insights, we apply data warehousing—organizing the data into a star schema for consistency, integration, and fast analysis. This enables strategic decisions on pricing, product development, and market expansion.



LINK VIDEO

Project Objectives

- To Identifying key smartphone specifications that correlate with market demand and pricing tiers, enabling informed R&D investments and product feature prioritization
- To inform dynamic pricing adjustments, localized promotions, and tailored product offerings that account for regional market sensitivities and competition
- To help businesses strategically position their offerings volume vs. value and optimize resource allocation across different product lines.
- To direct targeted marketing, sales promotions, and inventory management, especially during peak demand periods.

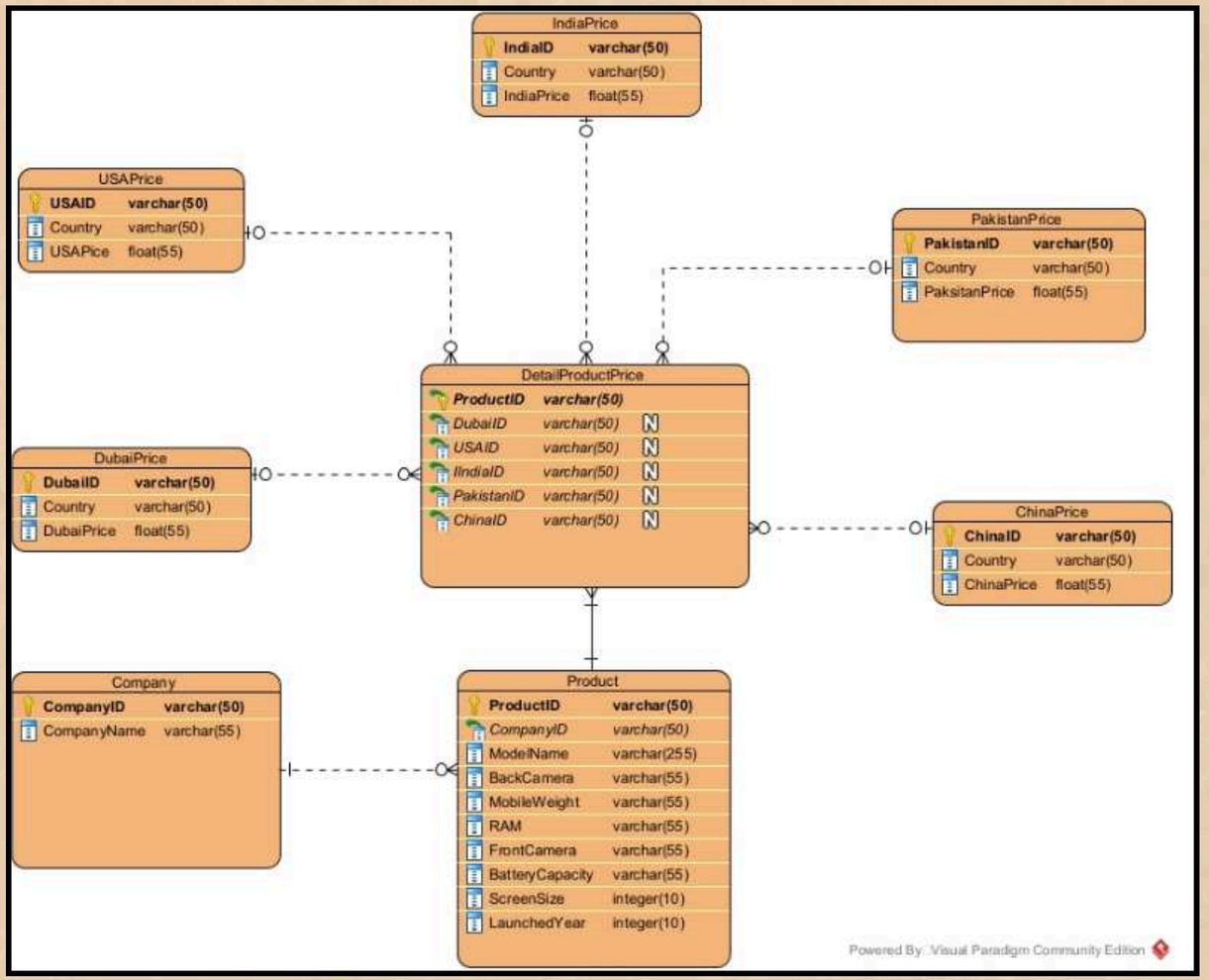
ERD

LINK VIDEO

Original Column/Attribute

- Company Name
- Model Name
- Mobile Weight
- RAM
- Front Camera
- Back Camera
- Processor
- Battery Capacity
- Screen Size
- Launched Price (Pakistan)
- Launched Price (India)
- Launched Price (China)
- Launched Price (USA)
- Launched Price (Dubai)
- Launched Year

(Link of Normalization Process)



Star Schema

LINK VIDEO

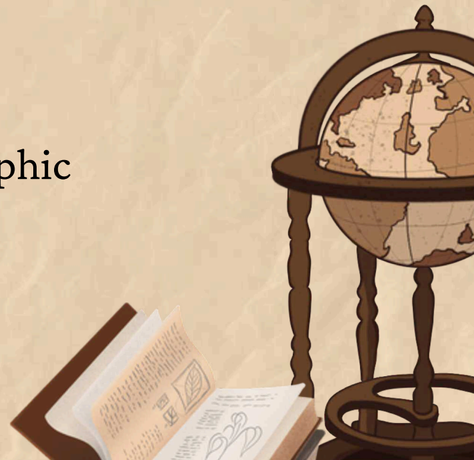
Define Tables

Fact Table:

- DetailProductPrice
  - This table serves as the central fact table, linking each product to its corresponding price across different countries.

Dimension Tables:

- Product
  - This dimension describes detailed product specifications.
- Company
  - This table stores information about the manufacturing companies for each product.
- DubaiPrice, USDPrice, IndiaPrice, PakistanPrice, ChinaPrice
  - These tables provide contextual information about product pricing within each geographic location.



LINK VIDEO

ETL Process

Extract:

The dataset was separated into multiple CSV files, where each file represents a class (or table) derived from the normalized ERD structure. These files were then imported into MySQL under a unified database named BIProject.

Transform:

1. Data Type Mismatches:
2. Attribute Renaming (Schema Alignment)
3. Standardizing Data Formats

```
ALTER TABLE DetailProduct
ADD PRIMARY KEY (IDProduct),
ADD FOREIGN KEY (IDProduct) REFERENCES Product(IDProduct),
ADD FOREIGN KEY (PakistanID) REFERENCES PakistanPrice(PakistanID),
ADD FOREIGN KEY (IndiaID) REFERENCES IndiaPrice(IndiaID),
ADD FOREIGN KEY (ChinaID) REFERENCES ChinaPrice(ChinaID),
ADD FOREIGN KEY (USAID) REFERENCES USDPrice(USAID),
ADD FOREIGN KEY (DubaiID) REFERENCES DubaiPrice(DubaiID);
```

4. Foreign Key & Primary Key Constraints

```
ALTER TABLE IndiaPrice
MODIFY COLUMN IndiaID VARCHAR(50),
ADD PRIMARY KEY (IndiaID);

ALTER TABLE PakistanPrice
MODIFY COLUMN PakistanID VARCHAR(50),
ADD PRIMARY KEY (PakistanID);

ALTER TABLE USDPrice
MODIFY COLUMN USDID VARCHAR(50),
ADD PRIMARY KEY (USDID);
```

```
ALTER TABLE dubaiPrice
MODIFY COLUMN DubaiID VARCHAR(50),
ADD PRIMARY KEY (DubaiID);

ALTER TABLE chinaPrice
MODIFY COLUMN ChinaID VARCHAR(50),
ADD PRIMARY KEY (ChinaID);

ALTER TABLE Company
MODIFY COLUMN CompanyID VARCHAR(20),
MODIFY COLUMN CompanyName VARCHAR(100),
ADD PRIMARY KEY (CompanyID);
```

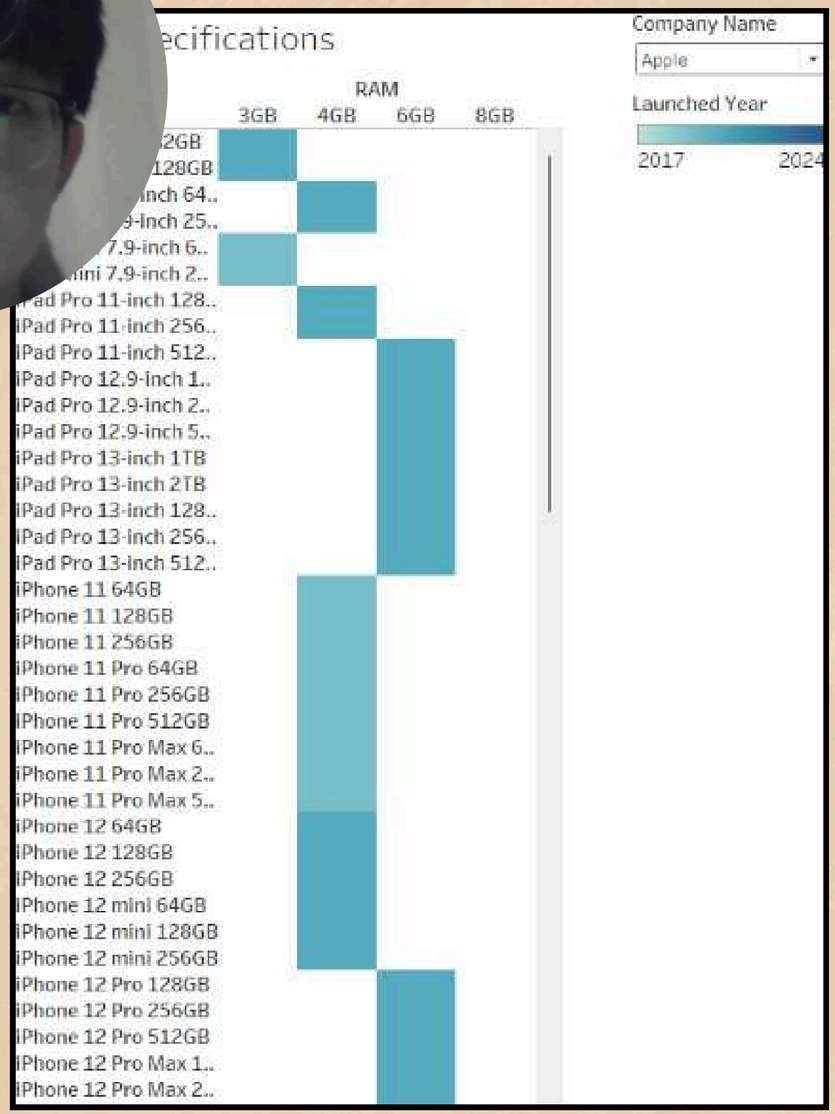
5. Cleaning and Validation
6. Data Enrichment and Aggregation

```
ALTER TABLE Product
MODIFY COLUMN CompanyID VARCHAR(20),
MODIFY COLUMN IDProduct VARCHAR(50),
MODIFY COLUMN ModelName VARCHAR(255),
MODIFY COLUMN `Mobile Weight` VARCHAR(20),
MODIFY COLUMN RAM VARCHAR(20),
MODIFY COLUMN `Front Camera` VARCHAR(50),
MODIFY COLUMN `Back Camera` VARCHAR(100),
MODIFY COLUMN Processor VARCHAR(100),
MODIFY COLUMN `Battery Capacity` VARCHAR(20),
MODIFY COLUMN `Screen Size` VARCHAR(50),
MODIFY COLUMN `Launched Year` INT;

ALTER TABLE product
MODIFY COLUMN IDProduct VARCHAR(50),
ADD FOREIGN KEY (IDProduct) REFERENCES Product(IDProduct);

ALTER TABLE Product
ADD PRIMARY KEY (IDProduct),
ADD FOREIGN KEY (CompanyID) REFERENCES Company(CompanyID);
```

Load:

Although no restructuring was needed between the ERD and the data warehouse schema due to the direct mapping via Star Schema, the Load phase was completed using INSERT INTO SELECT MySQL queries to move data into the final tables.

Insights



LINK VIDEO

Phone Spec

Business Trends:

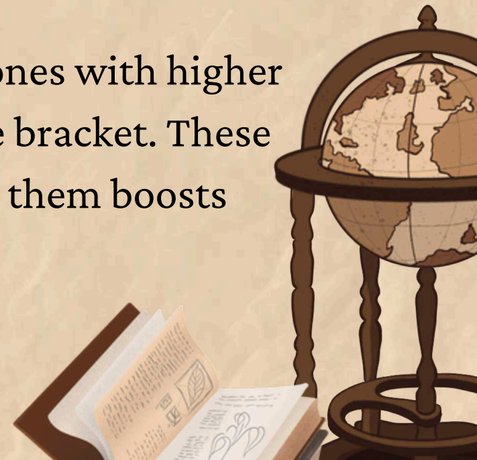
- The trend shows that products with higher specifications (RAM, storage, battery) are increasingly more common.
- Mid-range phones are offering flagship-level specs, increasing competition in that segment.

Product Performance:

- Devices with 6GB+ RAM, >4000mAh battery, and large displays are more frequently launched.
- These specs correlate with moderate-to-high price points and strong consumer demand.

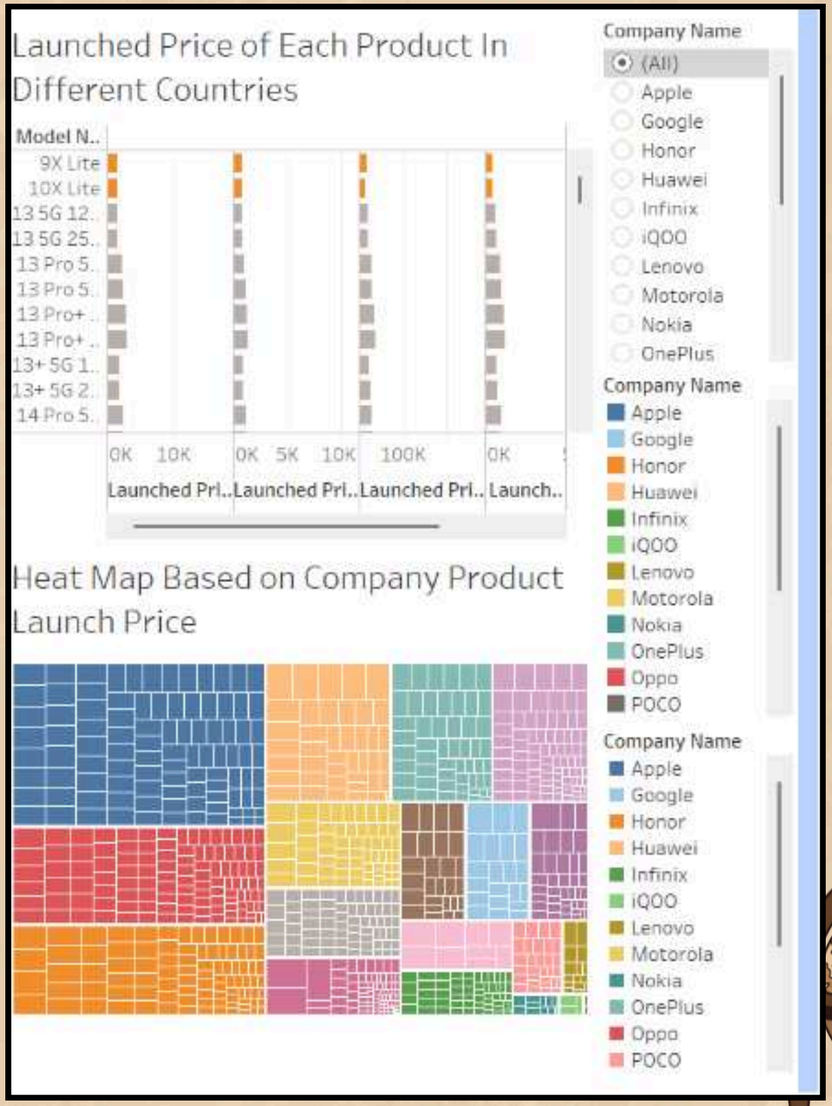
Recomendations:

Focus product development and marketing on phones with higher RAM and battery, especially in the mid-range price bracket. These specs are now a baseline expectation, and meeting them boosts competitiveness



Insight

Product Launch Price Comparison



Business Trends:

- Significant variation in launch pricing across regions.
- Some companies adjust pricing more aggressively depending on the market.

Product Performance:

- Products launched in certain countries (e.g., India or Indonesia) are priced lower, potentially due to price sensitivity or local competition.

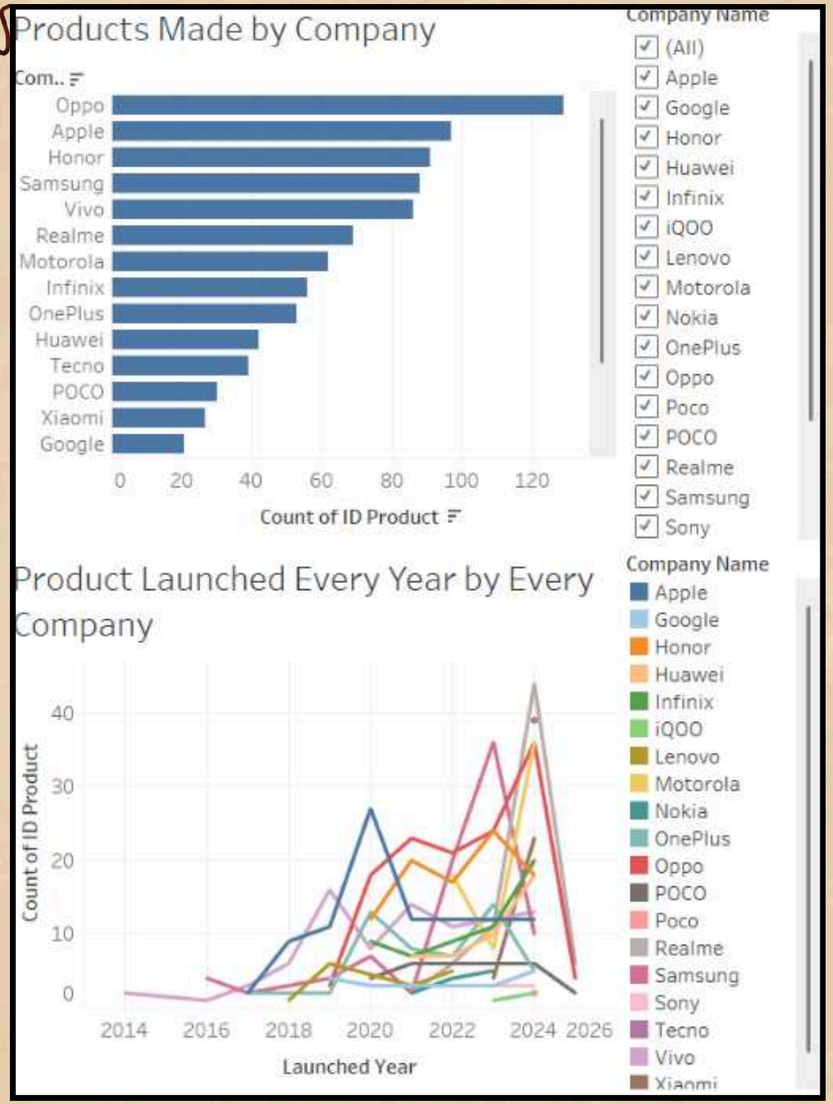
Recomendations:

Apply price optimization strategies for each market. Consider bundling, promotions, or trimmed-down specs to cater to price-sensitive regions without affecting profitability

LINK VIDEO

Insight

LINK VIDEO



Product Launched by Each Company

Business Trends:

- Certain brands (likely Xiaomi, Samsung, etc.) dominate the number of product launches. Other companies release fewer but more premium models.

Product Performance:

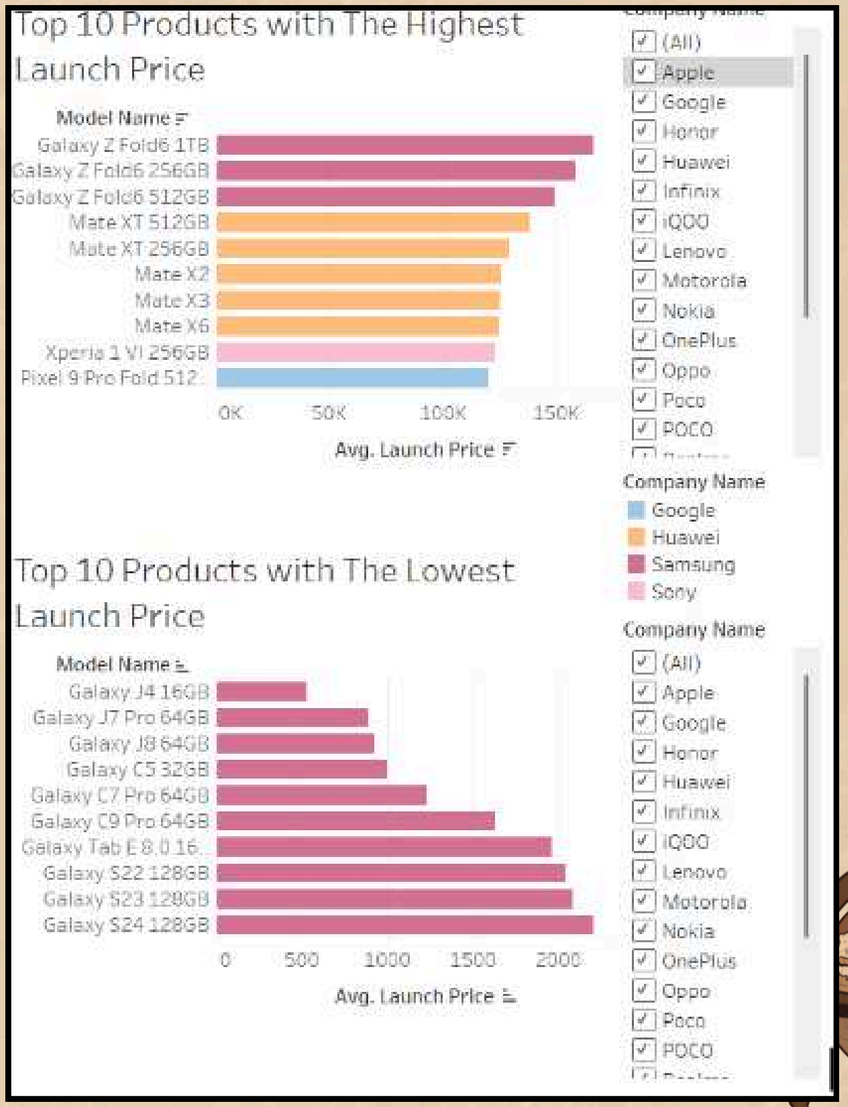
- Frequent launchers may saturate the market, while premium-focused companies retain niche strength.

Recomendations:

For companies launching fewer products, emphasize quality and innovation in marketing. For high-frequency launchers, streamline product lines to avoid cannibalization and focus on standout features.

Insight

Product Price Insight



Business Trends:

- Launch prices follow a bell curve—most products are clustered in the mid-range.
- Premium devices are fewer but command much higher margins.

Product Performance:

- Top-performing models are not always the most expensive value-for-money models that often lead sales.

Recomendations:

Increase marketing investment for high-margin, high-performing models. Consider launching special editions or bundles for top sellers to maximize Q4 revenue.

LINK VIDEO

Conclusion

Ultimately, this data warehouse provides a powerful, unified view of the international smartphone market, allowing businesses to make proactive, data-driven decisions that improve product fit, optimize pricing, and strengthen their competitive position for sustained growth.

LINK VIDEO