Rakamin Academy X **Bank Muamalat**

Final Project : Digital User Churn

Business Intelligence Analyst
Rakamin x Bank Muamalat

Presented by
Erra Claudia Damayanti

Google BigQuery   Looker

About Me

I am a graduate **statistics** major with a dedicated and results-oriented passion for **transforming raw data** into meaningful insights. Proficient in various analytical tools and programming languages such as SQL, R, and Python. From developing interactive **dashboards** to presenting actionable **recommendations**, I thrive on translating data into compelling narratives.

Experience

Juny 22'- July 22'
BPS Malang

Data Collection
- Survey
- Data Visualization

July 23'- Aug 23'
PT Petrokimia Gresik

Retail Management
- Data Visualization
- Product management

Feb 23'- Dec 23'
Statistics Consultant UB

Researcher Intern
- Research Analyst
- Proposal Project
- Data Analytics

Jan 23'- Jan 24'
PT Utama Abadi Sejahtera

Data Analyst Research Assistant
- Quantitative and Qualitative Research
- Data Analytics
- Business Consultant

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Condition

The dataset used from rakamin, provided table information on orders, product categories, products and customers in each country from January 1, 2020 to December 31, 2021. the data consists of 339 rows and 22 columns from the combination of the 4 tables. As business intelligence, it will evaluate the company's performance from a case study through 5 challenges.
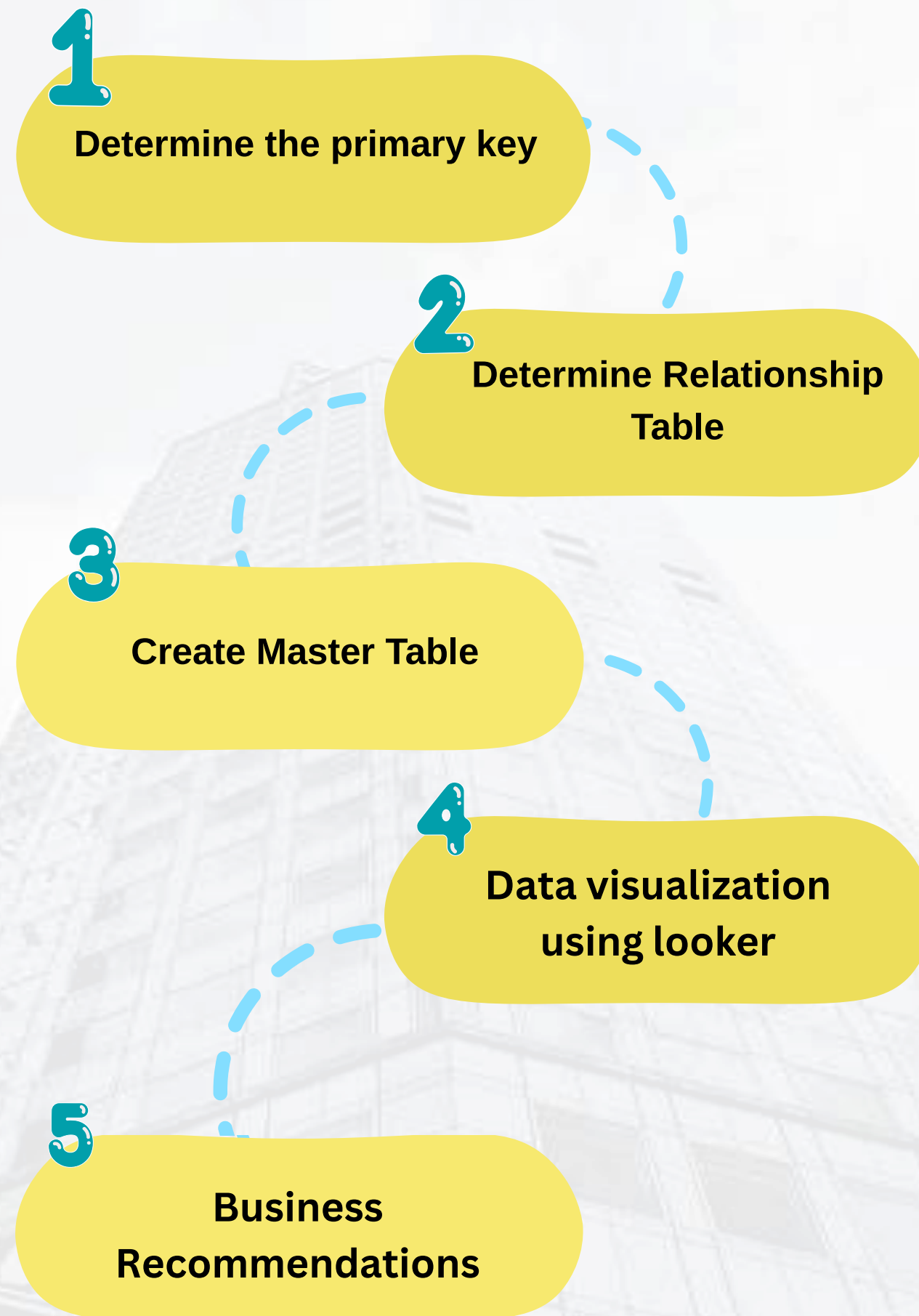
Tabel Customers

CustomerID	FirstName	LastName	CustomerEmail	CustomerPhone	CustomerAddress	CustomerCity	CustomerState	CustomerZip
1	Grazia	Rasmus	grasmusas@i2i.jp#mailto:g	(202) 577-2595	628 Buhler Junctio	Washington	District of Colu	20029
2	Bunny	Trevan	btrevanmj@wordpress.org	917-903-2827	52 Cascade Drive	Jamaica	New York	11436
3	Tracie	Grayston	tgrayston7k@pagesperso-o	404-868-2391	672 Comanche Wa	Atlanta	Georgia	30343
4	Amerigo	Garrelts	agarrelts6e@oaic.gov.au#n	415-190-3290	8252 Village Green	San Francisco	California	94177
5	Shea	Stronghill	sstronghillc1@google.nl#m	432-775-7828	542 3rd Point	Midland	Texas	79705
6	Geoffry	Bonde	gbonde90@vimeo.com#ma	415-176-9919	781 Larry Place	San Francisco	California	94159
7	Noelle	Carlile	ncarlile37@mit.edu#mailto	405-745-9826	539 Crowley Parkw	Oklahoma City	Oklahoma	73114

Tabel Orders

OrderID	Date	CustomerID	ProdNumber	Quantity
1	01/01/2020	1866	EB514	2
2	01/01/2020	1567	RS706	3
3	01/01/2020	2064	TV804	6
4	01/01/2020	287	DK203	1
5	01/01/2020	422	EB517	5
6	01/01/2020	954	EB519	5
7	02/01/2020	726	RK604	2

Tabel Product Category

CategoryID	CategoryName	CategoryAbbreviation
1	Blueprints	BP
2	Drone Kits	DK
3	Drones	DS
4	eBooks	EB
5	Robot Kits	RK
6	Robots	RS
7	Training Videos	TV

Tabel Product

ProdNumber	ProdName	Category	Price
BP101	All Eyes Drone Blueprint	1	9,99
BP102	Bsquare Robot Blueprint	1	8,99
BP104	Cat Robot Blueprint	1	4,99
BP105	Creature Robot Arms Blueprint	1	12
BP106	Hexacopter Drone Blueprint	1	8,99
BP107	Ladybug Robot Blueprint	1	12

Challenge

1 Determine the primary key

2 Determine Relationship Table

3 Create Master Table

4 Data visualization using looker

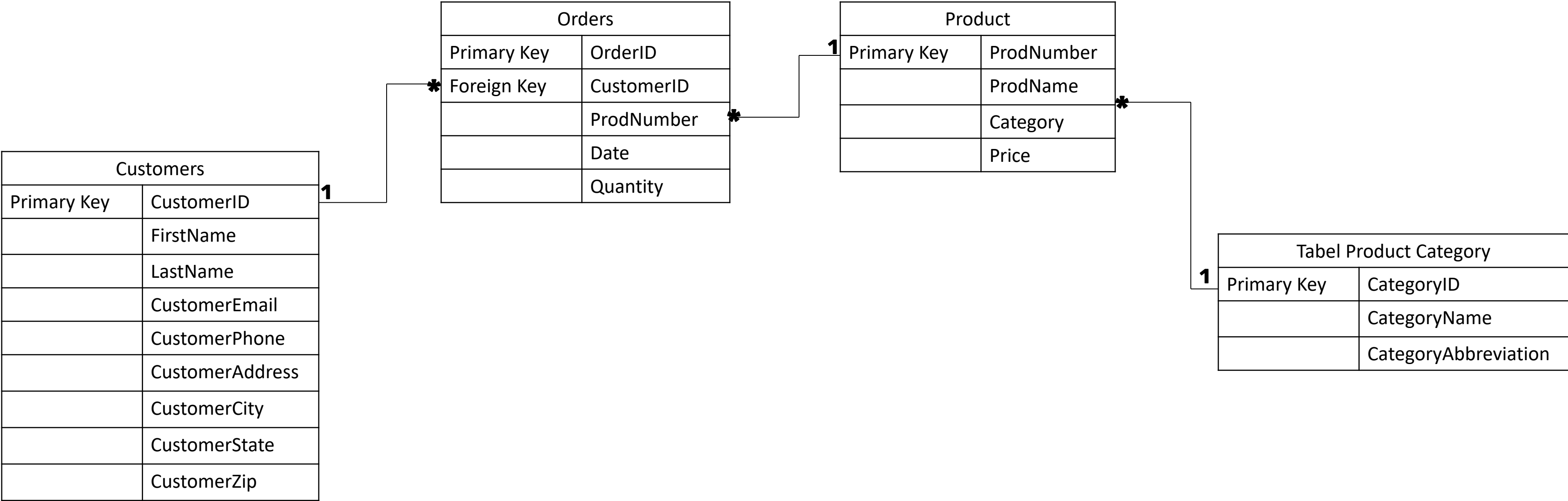**5** Business Recommendations

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A primary key is used to uniquely identify each row or record in a table. Each table in a database can have one primary key. Primary keys must be unique and cannot contain empty values (NULL).

No	Name of Table	Primary Key	Description
1	Orders	OrderID	One OrderID code represents only one transaction by one customer.
2	Product Category	CategoryID	One CategoryID code represents only one product category
3	Products	ProdNumber	One ProdNumber code represents only one product
4	Customers	CustomerID	One CustomerID code represents only one customer

Challenge 2 : Determine Relational Table

Relationship on the table is relationship between one table and another table in the database. Relationship are connected by two tables connected via foreign key column with primary key.

Customer.CustomerID = Orders. CustomerID → **One to Many**
Orders.ProdNumber = Product.ProdNumber → **One to Many**
Product.Category = ProductCategory.CategoryID → **One to Many**

Orders	
Primary Key	OrderID
Foreign Key	CustomerID
	ProdNumber
	Date
	Quantity

Product	
Primary Key	ProdNumber
	ProdName
	Category
	Price

Customers	
Primary Key	CustomerID
	FirstName
	LastName
	CustomerEmail
	CustomerPhone
	CustomerAddress
	CustomerCity
	CustomerState
	CustomerZip

Tabel Product Category	
Primary Key	CategoryID
	CategoryName
	CategoryAbbreviation

Challenge 3:
Table Master Query & Result


```
Untitled query          ▶ RUN    SHARE    SCHEDULE    MORE    SAVE    DOWNLOAD
1   SELECT
2     `Final_Task.Orders`.Date as order_date,
3     `Final_Task.ProductCategory`.CategoryName as category_name,
4     `Final_Task.Products`.ProdName as product_name,
5     `Final_Task.Products`.Price as product_price,
6     `Final_Task.Orders`.Quantity as order_qty,
7     (`Final_Task.Orders`.Quantity * `Final_Task.Products`.Price) as
8     total_sales,
9     `Final_Task.Customers`.CustomerEmail as cust_email,
10    `Final_Task.Customers`.CustomerCity as cust_city,
11  FROM `Final_Task.Customers`
12  INNER JOIN
13    `Final_Task.Orders` ON `Final_Task.Customers`.CustomerID = `Final_Task.Orders`.CustomerID
14  INNER JOIN
15    `Final_Task.Products`ON `Final_Task.Orders`.ProdNumber = `Final_Task.Products`.ProdNumber
16  INNER JOIN
17    `Final_Task.ProductCategory` ON `Final_Task.Products`.Category =`Final_Task.ProductCategory`.CategoryID
18  ORDER BY order_date;
```

The master query table is created in google bigquery as in the query beside, the table is created to display columns in the form of order date, category, product, product price, quantity, customer email, customer city and total sales by using aggregate multiplication. then using inner join to combine tables by taking data similarity between tables.

the results of the table that has been incorporated will become a master table that will be stored in CSV form which is used to create dashboards in looker studio.

| Row	order_date	category_name	product_name	product_price	order_qty	total_sales	cust_email	cust_city
1	2020-02-24	Drone Kits	BYOD-100	54.0	1	54.0	ogottschalk7l@vinaora.com#m...	Minneapolis
2	2020-07-23	Drone Kits	BYOD-100	54.0	2	108.0	ameinerrd@google.ca#mailto:...	San Francisco
3	2020-08-21	Drone Kits	BYOD-100	54.0	2	108.0	doliverpaullmb@vinaora.com# mailto:doliverpaullmb@vinaor a.com#	Fort Wayne
4	2020-09-05	Drone Kits	BYOD-100	54.0	2	108.0	ymayzebv@gravatar.com#mail...	Ridgely
5	2020-12-28	Drone Kits	BYOD-100	54.0	2	108.0	dnockb7@ycombinator.com#...	Austin
6	2021-03-16	Drone Kits	BYOD-100	54.0	2	108.0	tfernhk@trellian.com#mailto:tf...	Seattle
7	2021-03-27	Drone Kits	BYOD-100	54.0	2	108.0	cgrethambu@mashable.com#...	Topeka
8	2021-07-16	Drone Kits	BYOD-100	54.0	2	108.0	jrosgenpy@marriott.com#mailt...	Philadelphia
9	2021-08-31	Drone Kits	BYOD-100	54.0	2	108.0	tarchnl@gnu.org#mailto:tarchn...	Peoria
10	2020-07-30	Drone Kits	BYOD-100	54.0	4	216.0	vnemchinovq7@wiley.com#ma...	Temple

Challenge 4: Data Visualization

Link : bit.ly/DashboardFinalTask

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Data Visualization

Sales Trend 2020-2021
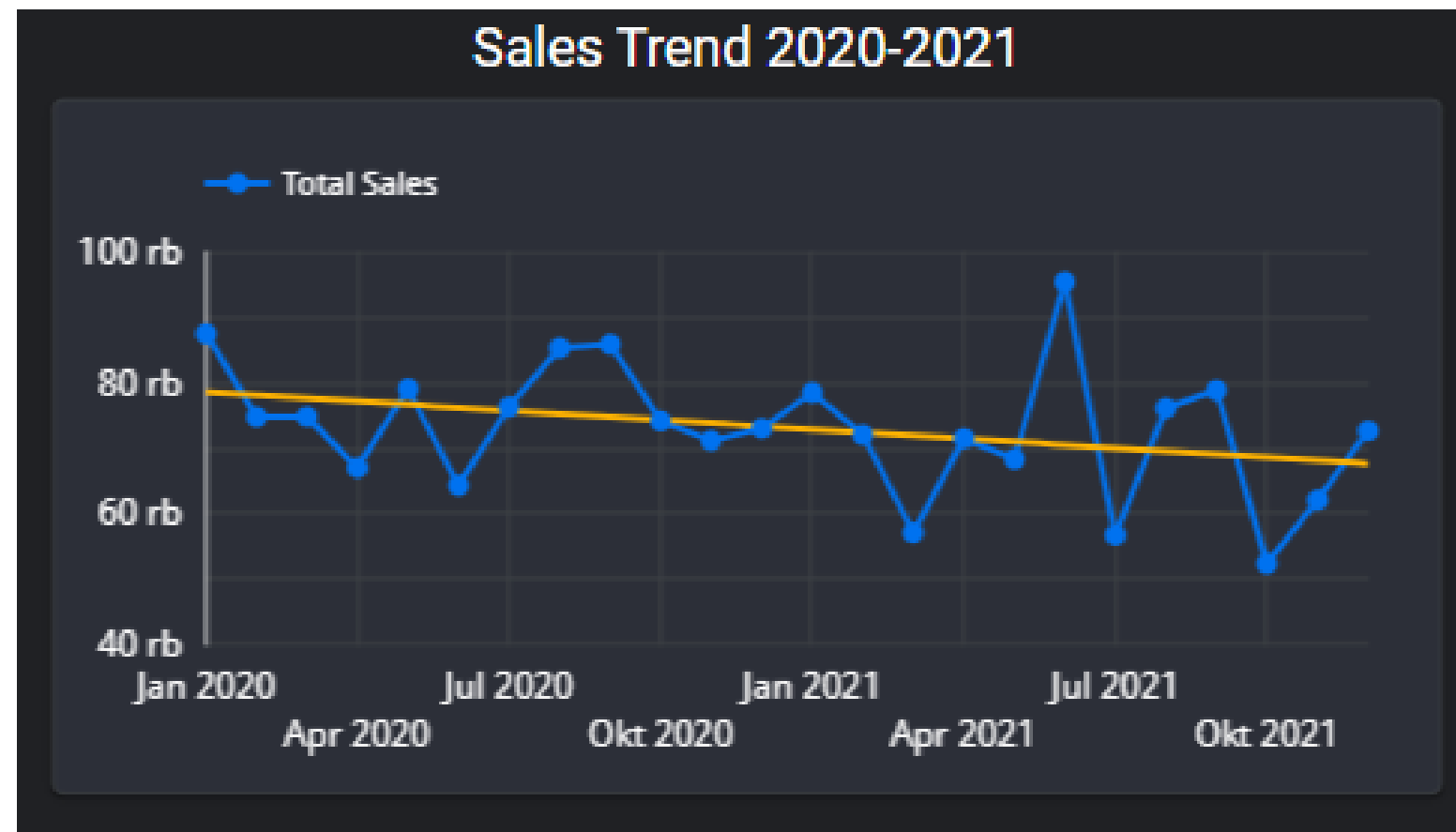
Based on the sales trend, it is known that sales from January 2020 to December 2021 tend to decrease. although every month it still fluctuates. the most sales occurred in June 2021 amounting to 95,401 products. while the lowest sales were in October 2021. Total product sales from January to December 2021 amounted to 1,754,750.
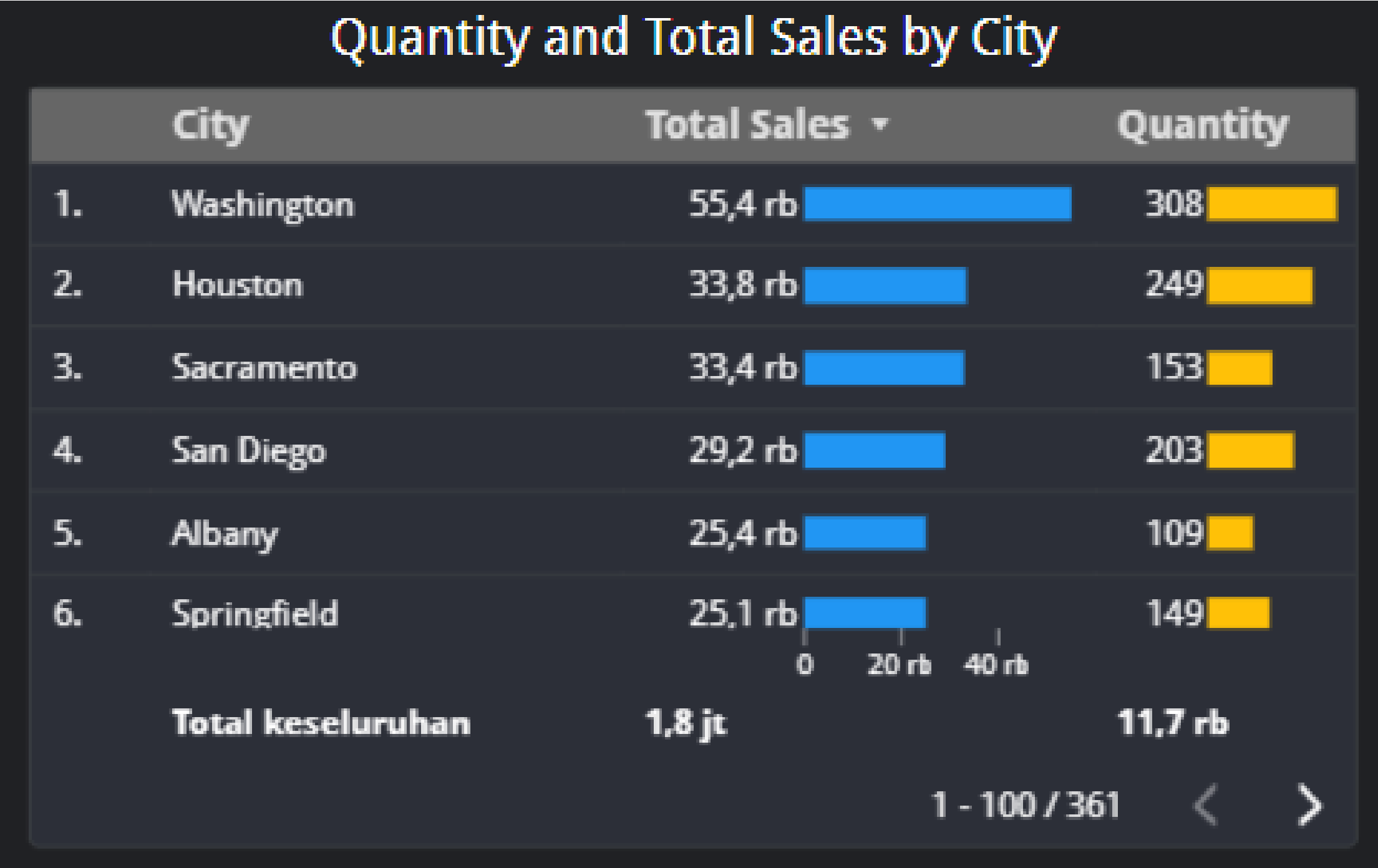
Total Sales	Quantity	Customer
1.754.750,57	11,7 rb	1,7 rb
17.0%	16.5%	11.4%

# Data Visualization


Quantity and Sales by Product Category
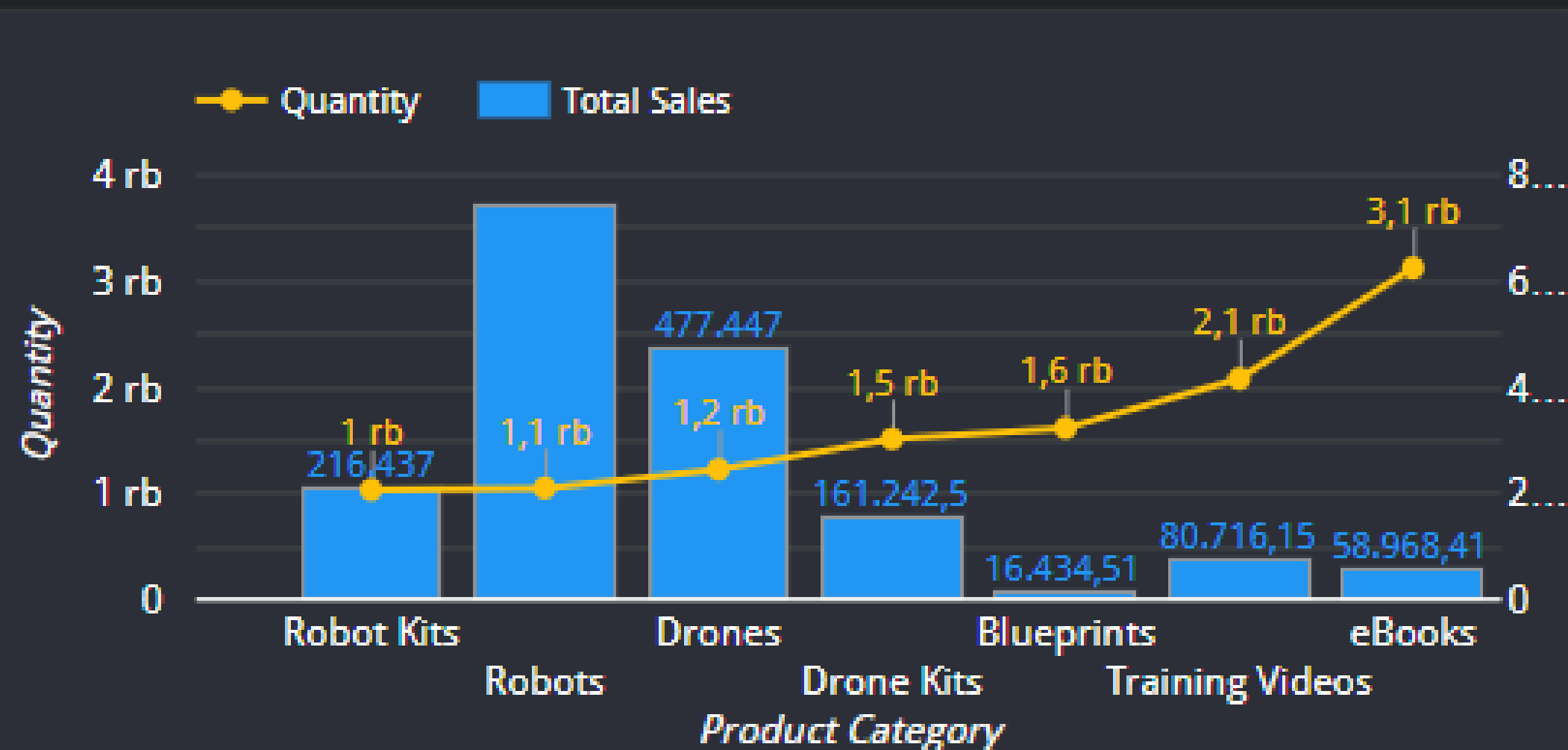
Robots, Drones, and robot kids have a low number of purchases, but a high number of sales, while **drone kits, blueprints, training videos and ebooks** have a high number of purchases, but a low number of sales.

Data Visualization

Quantity and Total Sales by City

	City	Total Sales ▾	Quantity
1.	Washington	55,4 rb	308
2.	Houston	33,8 rb	249
3.	Sacramento	33,4 rb	153
4.	San Diego	29,2 rb	203
5.	Albany	25,4 rb	109
6.	Springfield	25,1 rb	149
	Total keseluruhan	1,8 jt	11,7 rb

1 - 100 / 361

The city of washington is the city that has **the highest** number of sales and orders with sales of 55,400 and an order quantity of 308 orders. The cities of Houston and Sacramento have almost the same number of sales but the order **quantity is still higher** in Houston.

Data Visualization

Although **robots** are the **number one seller** among other product categories, they are **not in the top 5 most ordered quantity**. While **ebooks** are the **number one order** quantity among other product categories, but are **not included in the top 5 product sales**. In addition, the dominating product category is **ebooks**, which is around **24.6%** of the total order quantity.
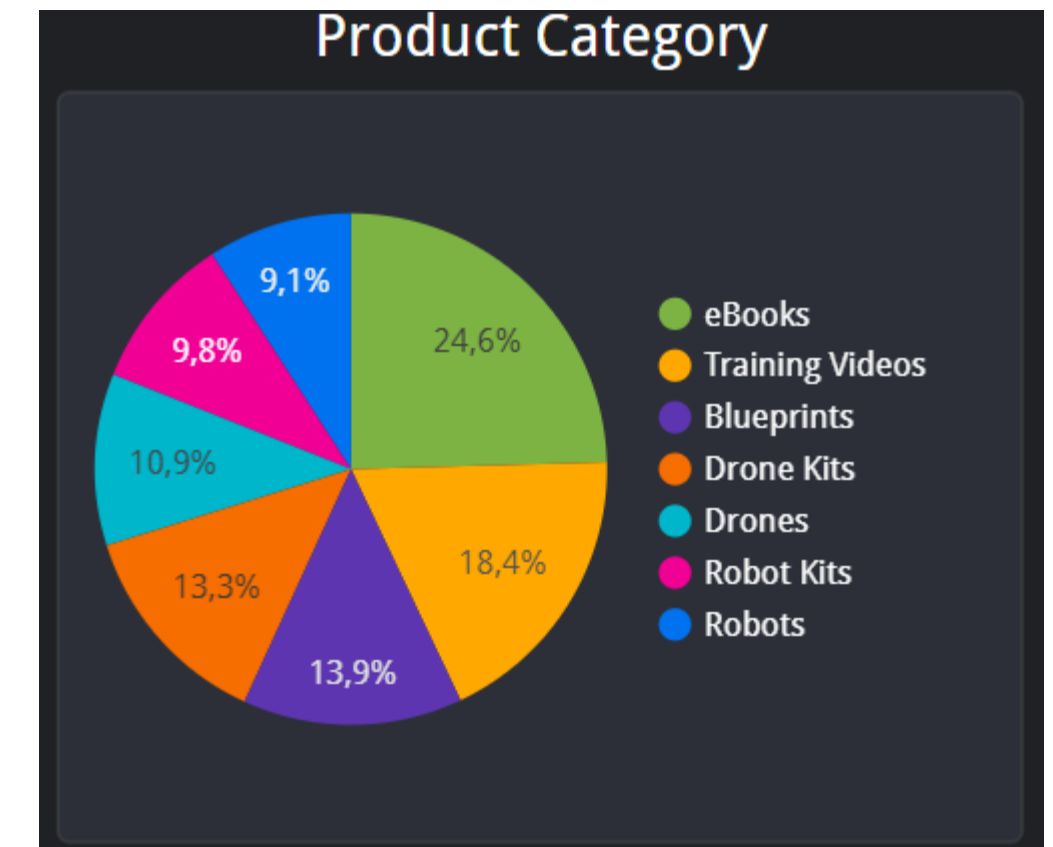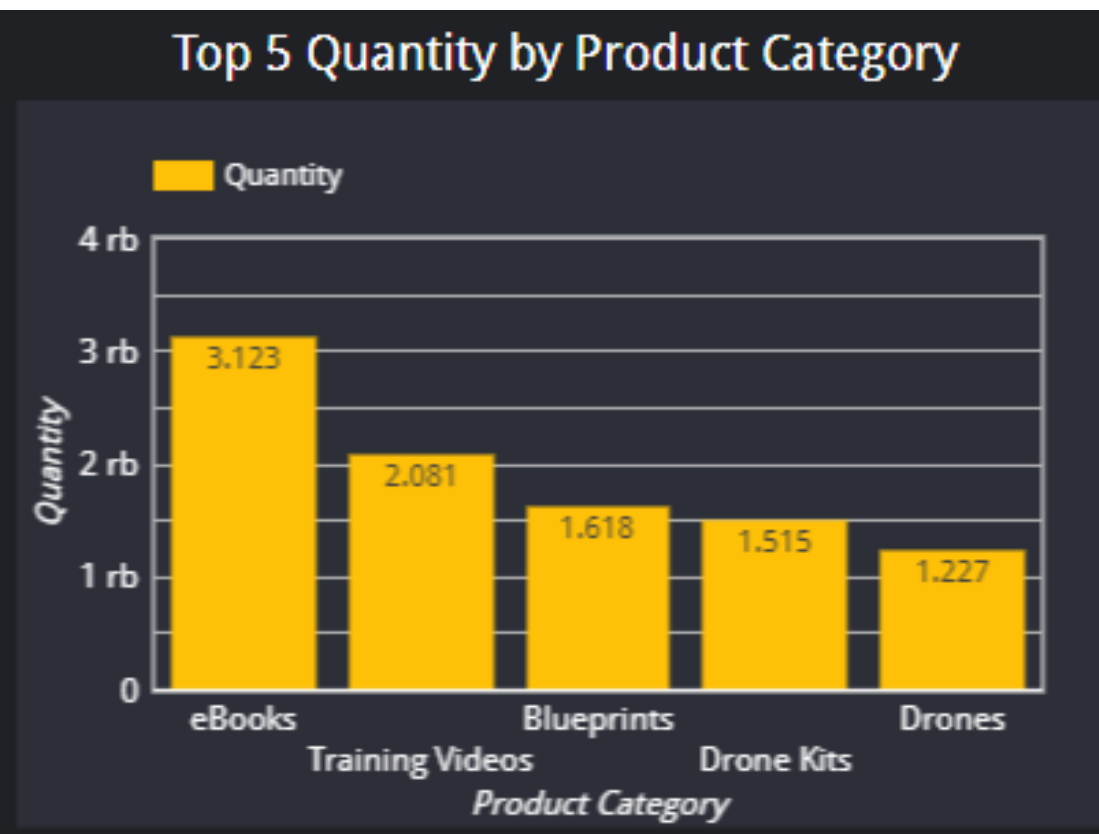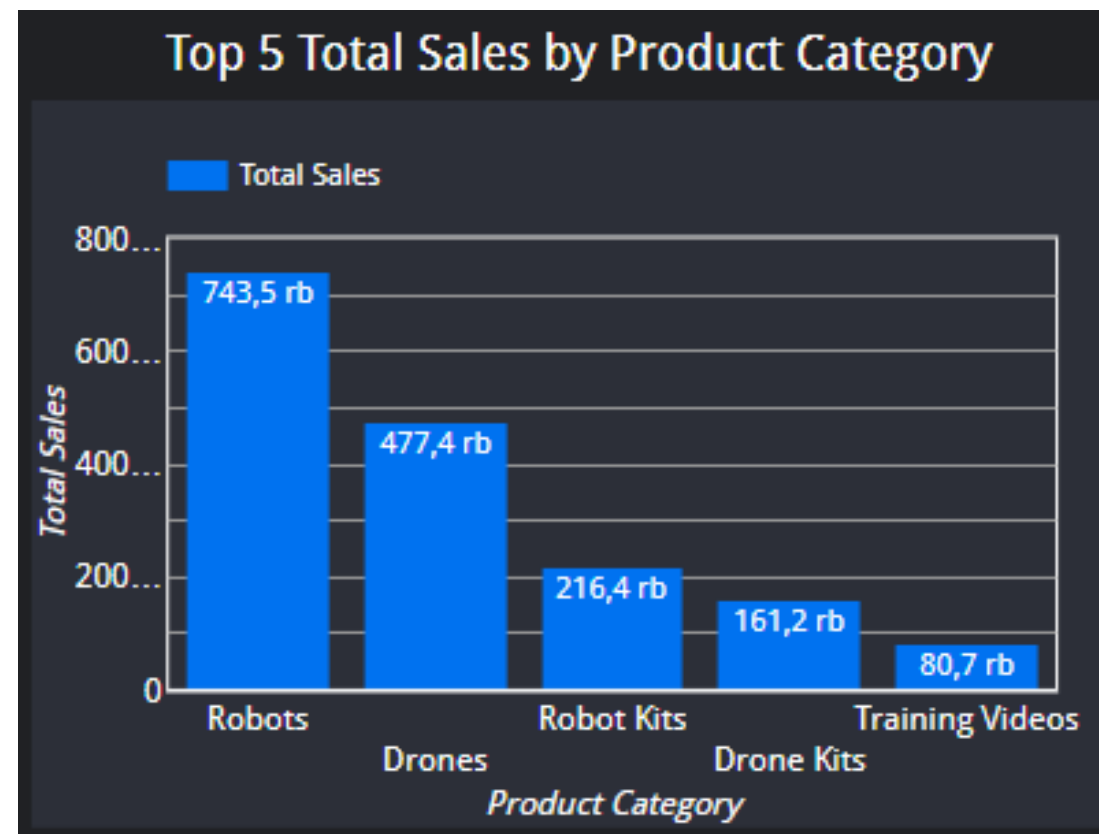
As a BI Analyst, suggestions that can be given to maintain sales or increase sales are increase sales with transaction tables, namely

1. Provide **product bundling packages** that can provide higher sales for products that are rarely purchased and then combined with products that are in demand. the hope is to increase branding awareness and customers become loyal.

2. Can provide incentives in the **form of gifts** or attractive offers to customers randomly. the hope is that old and new customers can get the same product experience. This intensive can be done at certain times according to the trend that occurs during sales and will determine the increase in sales.

3. Based on the data that has been processed, **Washington** is an area that has generated more sales than other areas in the last 2 years. This is a top priority for conducting targeted and effective marketing to generate better revenue in the future with maximum sales.