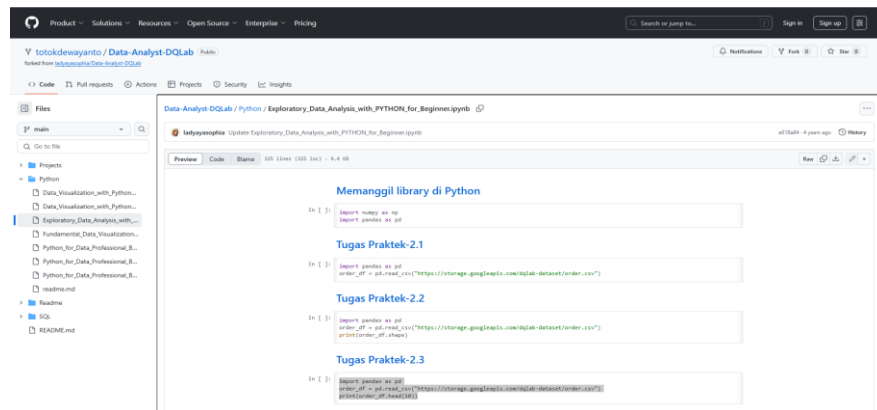


Nama : Naura Nabila Pamursita
NIM : 12030123130112
Kelas : F
Mata kuliah : Pengkodean dan Pemrograman
Tanggal : 23 Mei 2025

PERTEMUAN 12

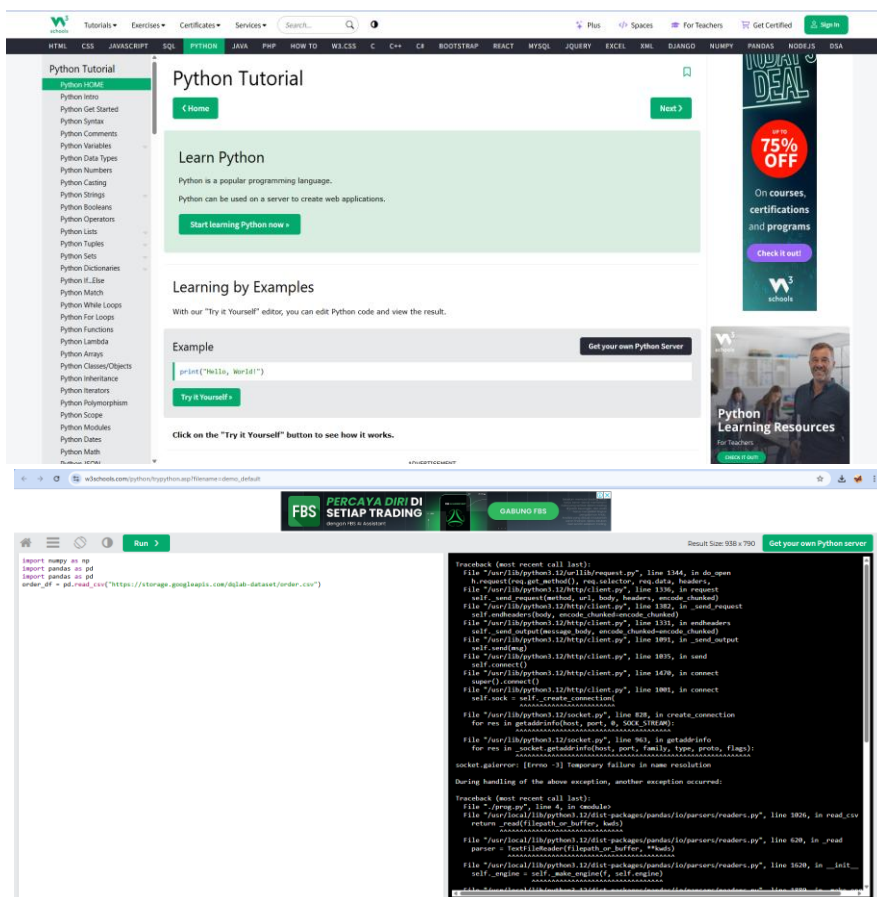
DATASET PERDAGANGAN

Latihan



```
import numpy as np
import pandas as pd

order_df = pd.read_csv("https://storage.googleapis.com/dqlab-dataset/order.csv")
```



Python Tutorial

Learn Python

Python is a popular programming language.

Python can be used on a server to create web applications.

Start learning Python now

Learning by Examples

With our "Try it Yourself" editor, you can edit Python code and view the result.

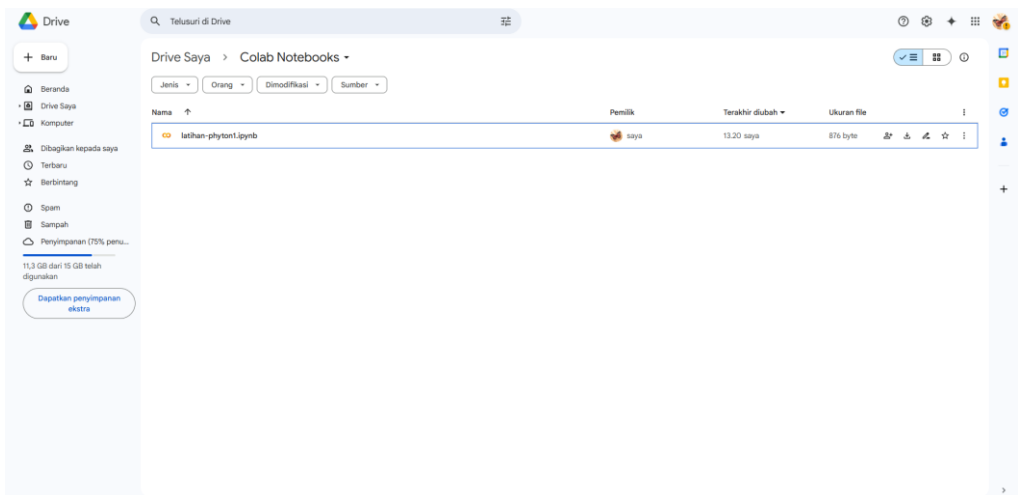
Example

```
print("Hello, World!")
```

Try it Yourself

Click on the "Try it Yourself" button to see how it works.

Run



latihan-phyton1.ipynb

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Q Commands + Code + Text

Generate a slider using jupyter widgets

Close

```
[1] import numpy as np
import pandas as pd

[2] import pandas as pd
order_df = pd.read_csv("https://storage.googleapis.com/dqlab-dataset/order.csv")

[3] import pandas as pd
order_df = pd.read_csv("https://storage.googleapis.com/dqlab-dataset/order.csv")
print(order_df.shape)
(49999, 12)

[4] import pandas as pd
order_df = pd.read_csv("https://storage.googleapis.com/dqlab-dataset/order.csv")
print(order_df.head(10))
```

	product_id	price
0	267a84276fb09756ca58c18d7bfc047	2
1	267a84276fb09756ca58c18d7bfc047	1
2	e1fa5a72109417f56a8280a4e07f315	1
3	33657a26b9a4275a6d692567918af657	1
4	71383d7693b399f5bdc5376124c0cfa	1
5	be5bc2f96a140871a265451ad119d9	1
6	0a0b17a5ee6b789c021f4831304a27	1
7	1ff217aa612f6c2fca255c9f693c8b	1
8	2261379f7d11c59c4347520fc3c79e	1
9	356a492abac2a1fa8b96e4e86212b7	1

```
product_id  price
0  F293394C72905f4d7023301fc21f2c2  1400000
1  c148889268a4b5cfF5b4e04395400  1750000
2  F2c109a8d5470b78b23beef712852  1767000
3  3a080f60cfa235866d431c40b0d0b7  3073000
4  d2998d7ced2f83f9b832f33cf65876  3833000
5  f47d767d3c1c1a6d378a7989c0e29  1400000
6  583916a5da918f5e8b0a6c139141c54  4400000
7  33438c5c1827d83205c6f778e5ee7f7  822000
8  3f81c1e0e01a910910808a0c1111a  3967000
9  eba7488e1c7729f045ab3fac426f2e  4165000
```

Gemini X

buat visualisasi dari tabel yang terakhir anda buat di atas

Mohon maaf, saya tidak dapat membuat visualisasi dari tabel yang Anda sebutkan secara langsung. Saya adalah asisten AI berbasis teks dan tidak dapat menghasilkan grafik atau gambar. Namun, saya dapat membantu Anda membuat kode Python di Google Colab untuk memvisualisasikan data dari `order_df`.

Berikut adalah langkah-langkah untuk melakukan ini:

1. Pilih jenis visualisasi: Bergantung pada apa yang ingin Anda tampilkan, Anda bisa menggunakan berbagai jenis visualisasi seperti:

- Histogram untuk melihat distribusi data numerik.
- Scatter plot untuk melihat hubungan antara dua variabel numerik.
- Bar chart untuk membandingkan kategori.
- Line chart untuk melihat tren dari waktu ke waktu.

2. Pilih kolom data: Tentukan kolom dari `order_df` yang ingin Anda visualisasikan.

3. Gunakan library visualisasi: Library yang umum digunakan untuk visualisasi data di Python adalah Matplotlib dan Seaborn. Anda dapat mengimpor library ini di Colab.

Berikut adalah contoh sederhana menggunakan Seaborn untuk membuat histogram dari kolom `'price'` di `order_df`:

```
import matplotlib.pyplot as plt
import seaborn as sns
import pandas as pd

# Muat Dataframe (jika belum dimuat)
order_df = pd.read_csv("https://storage.googleapis.com/dqlab-dataset/order.csv")

# Buat histogram dari kolom 'price'
```

Enter a prompt here

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0 / 2000

1:25 PM Python 3

latihan-phyton1.ipynb

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Q Commands + Code + Text

```
import matplotlib.pyplot as plt
import seaborn as sns
import pandas as pd

# Muat Dataframe (jika belum dimuat)
order_df = pd.read_csv("https://storage.googleapis.com/dqlab-dataset/order.csv")

# Buat histogram dari kolom 'price'
plt.figure(figsize=(10, 6)) # Mengatur ukuran plot
sns.histplot(data=order_df, x='price', kde=True) # Membuat histogram dengan density curve
plt.title('Distribusi Harga Pesanan') # Memberi judul pada plot
plt.xlabel('Harga') # Memberi label pada sumbu x
plt.ylabel('frekuensi') # Memberi label pada sumbu y
plt.show() # Menampilkan plot
```

Gemini X

buat visualisasi dari tabel yang terakhir anda buat di atas

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import pandas as pd

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```

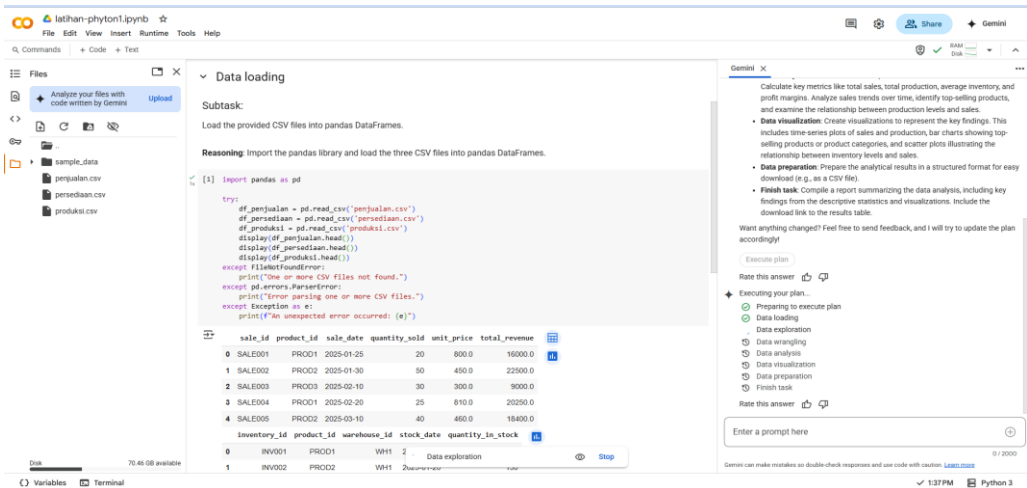
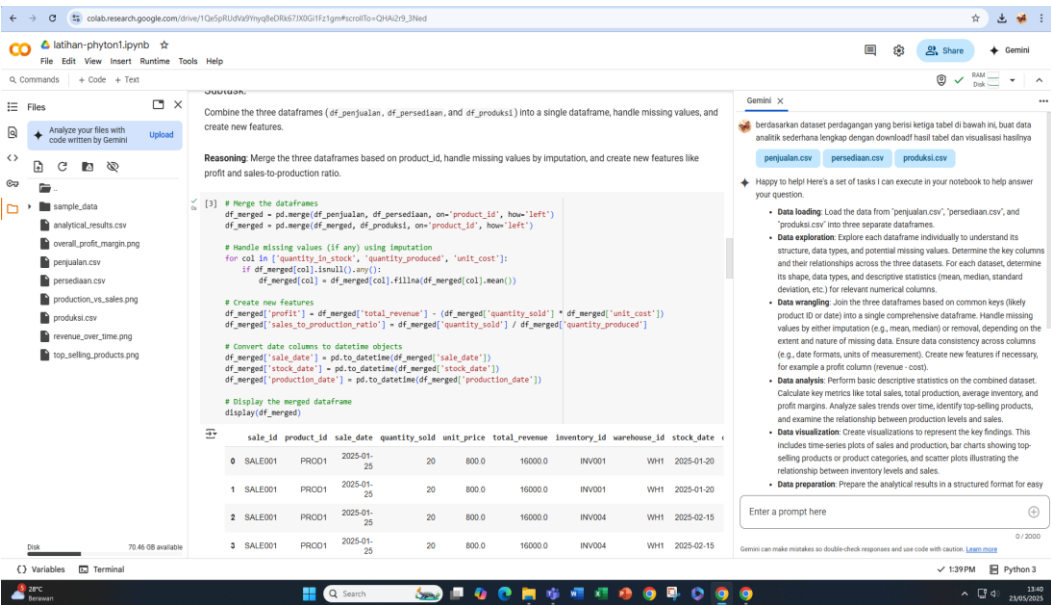
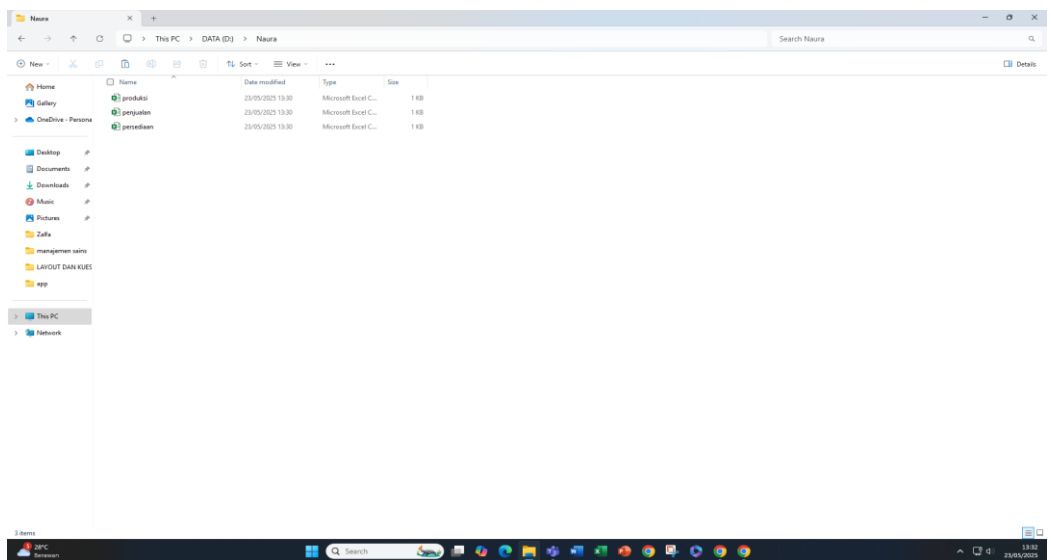
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Tabel dari dataset perdagangan



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import matplotlib.pyplot as plt
import seaborn as sns
import pandas as pd

Muat DataFrame (jika belum dimuat)
order_df = pd.read_csv("https://storage.googleapis.com/qqlab-dataset/order.csv")

Buat histogram dari kolom 'price'
plt.figure(figsize=(10, 6)) # Pengatur ukuran plot
sns.histplot(data=order_df, x='price', kde=True) # Membuat histogram dengan density curve
plt.title('Distribusi Harga Pesanan') # Memberi judul pada plot
plt.xlabel('Harga') # Memberi label pada sumbu x
plt.ylabel('Frekuensi') # Memberi label pada sumbu y
plt.show() # Menampilkan plot

Variables

Terminal

Gemini

buat visualisasi dari tabel yang tersedia anda buat di atas

Mohon maaf, saya tidak dapat membuat visualisasi dari tabel yang Anda berikan secara langsung. Saya adalah asisten AI berbasis teks dan tidak dapat menghasilkan grafik atau gambar.

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Berikut adalah contoh sederhana menggunakan Seaborn untuk membuat histogram dari kolom `'price'` di `order_df`:

```
import matplotlib.pyplot as plt  
import seaborn as sns  
import pandas as pd  
  
# Muat DataFrame (jika belum dimuat)  
order_df = pd.read_csv("https://storage.googleapis.com/qqlab-dataset/order.csv")  
  
# Buat histogram dari kolom 'price'
```

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sample_data
analytical_results.csv
overall_profit_margin.png
penjualan.csv
persediaan.csv
production_vs_sales.png
produksi.csv
revenue_over_time.png
top_selling_products.png

Combine the three dataframes (`df_penjualan`, `df_persediaan`, and `df_produkts`) into a single dataframe, handle missing values, and create new features.

Reasoning: Merge the three dataframes based on `product_id`, handle missing values by imputation, and create new features like profit and sales-to-production ratio.

```
[3] # Merge the dataframes  
df_merged = pd.merge(df_penjualan, df_persediaan, on='product_id', how='left')  
df_merged = pd.merge(df_merged, df_produkts, on='product_id', how='left')  
  
# Handle missing values (if any) using imputation  
for col in ['quantity_in_stock', 'quantity_produced', 'unit_cost']:  
    if df_merged[col].isnull().any():  
        df_merged[col] = df_merged[col].fillna(df_merged[col].mean())  
  
# Create new features  
df_merged['profit'] = df_merged['total_revenue'] - (df_merged['quantity_sold'] * df_merged['unit_cost'])  
df_merged['sales_to_production_ratio'] = df_merged['quantity_sold'] / df_merged['quantity_produced']  
  
# Convert date columns to datetime objects  
df_merged['sale_date'] = pd.to_datetime(df_merged['sale_date'])  
df_merged['stock_date'] = pd.to_datetime(df_merged['stock_date'])  
df_merged['production_date'] = pd.to_datetime(df_merged['production_date'])  
  
# Display the merged dataframe  
display(df_merged)
```

sale_id	product_id	sale_date	quantity_sold	unit_price	total_revenue	inventory_id	warehouse_id	stock_date	
0	SALE001	PROD01	2025-01-25	20	800.0	16000.0	INV001	WH01	2025-01-20
1	SALE001	PROD01	2025-01-25	20	800.0	16000.0	INV001	WH01	2025-01-20
2	SALE001	PROD01	2025-01-25	20	800.0	16000.0	INV004	WH01	2025-02-15
3	SALE001	PROD01	2025-01-25	20	800.0	16000.0	INV004	WH01	2025-02-15

Variables

Terminal

Gemini

berdasarkan dataset perdagangan yang berisi ketiga tabel di bawah ini, buat data analitis sederhana langkah dengan download hasil tabel dan visualisasi hasilnya

Happy to help! Here's a set of tasks I can execute in your notebook to help answer your question.

- Data loading:** Load the data from `'penjualan.csv'`, `'persediaan.csv'`, and `'produkts.csv'` into three separate dataframes.
- Data exploration:** Explore each dataframe individually to understand its structure, data types, and potential missing values. Determine the key columns and their relationships across the three datasets. For each dataset, determine its shape, data types, and descriptive statistics (mean, median, standard deviation, etc.) for relevant numerical columns.
- Data wrangling:** Join the three dataframes based on common keys (likely `product_id` or `date`) into a single comprehensive dataframe. Handle missing values by either imputation (e.g., mean, median) or removal, depending on the extent and nature of missing data. Ensure data consistency across columns (e.g., date formats, units of measurement). Create new features if necessary, for example a profit column (`revenue - cost`).
- Data analysis:** Perform basic descriptive statistics on the combined dataset. Calculate key metrics like total sales, total production, average inventory, and profit margins. Analyze sales trends over time, identify top-selling products, and examine the relationship between production levels and sales.
- Data visualization:** Create visualizations to represent the key findings. This includes time-series plots of sales and production, bar charts showing top-selling products or product categories, and scatter plots illustrating the relationship between inventory levels and sales.
- Data preparation:** Prepare the analytical results in a structured format for easy

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sample_data
analytical_results.csv
overall_profit_margin.png
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persediaan.csv
production_vs_sales.png
produksi.csv
revenue_over_time.png
top_selling_products.png

Data loading

Subtask:

Load the provided CSV files into pandas DataFrames.

Reasoning: Import the pandas library and load the three CSV files into pandas DataFrames.

```
import pandas as pd  
  
try:  
    df_penjualan = pd.read_csv('penjualan.csv')  
    df_persediaan = pd.read_csv('persediaan.csv')  
    df_produkts = pd.read_csv('produkts.csv')  
    display(df_penjualan.head())  
    display(df_persediaan.head())  
    display(df_produkts.head())  
except FileNotFoundError:  
    print("One or more CSV files not found.")  
except pd.errors.ParserError:  
    print("Error parsing one or more CSV files.")  
except Exception as e:  
    print(f"An unexpected error occurred: {e}")
```

Now, like what you see? Visit the [data lab notebook](#) to learn more about interactive tables

inventory_id	product_id	warehouse_id	stock_date	quantity_in_stock	
0	INV001	PROD01	WH01	2025-01-20	80
1	INV002	PROD02	WH01	2025-01-20	150
2	INV003	PROD03	WH02	2025-02-05	100
3	INV004	PROD01	WH01	2025-02-15	90
4	INV005	PROD02	WH02	2025-03-05	120

production_id	product_id	product_name	production_date	quantity_produced	unit_cost	
0	PRD001	PROD01	Laptop	2025-01-10	100	800.0

Variables

Terminal

Gemini

profit margins. Analyze sales trends over time, identify top-selling products, and examine the relationship between production levels and sales.

- Data visualization:** Create visualizations to represent the key findings. This includes time-series plots of sales and production, bar charts showing top-selling products or product categories, and scatter plots illustrating the relationship between inventory levels and sales.
- Data preparation:** Prepare the analytical results in a structured format for easy download (e.g., as a CSV file).
- Final task:** Compile a report summarizing the data analysis, including key findings from the descriptive statistics and visualizations. Include the download link to the results table.

Want anything changed? Feel free to send feedback, and I will try to update the plan accordingly.

Execute plan

Rate this answer

Executed plan:

- Preparing to execute plan
- Data loading
- Data exploration
- Data wrangling
- Data analysis
- Data visualization
- Data preparation
- Final task

I've finished executing the plan for you!

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analytical_results.csv

overall_profit_margin.png

penjualan.csv

persediaan.csv

production_vs_sales.png

produksi.csv

revenue_over_time.png

top_selling_products.png

4

PRD005

PROD2

Smartphone

2025-03-01

180

295.0

Error: Runtime no longer has a reference to this dataframe, please re-run this cell and try again.

Data exploration

Subtask:

Explore the loaded datasets to understand their structure, identify key columns, and check for missing values.

Reasoning: Explore the datasets by examining their shapes, data types, missing values, descriptive statistics, and key columns for joining.

```
[2] # Shape of each DataFrame
print("Shape of df_penjualan:", df_penjualan.shape)
print("Shape of df_persediaan:", df_persediaan.shape)
print("Shape of df_produk:", df_produk.shape)

# Data types of each column
print("\nData types of df_penjualan:\n", df_penjualan.dtypes)
print("\nData types of df_persediaan:\n", df_persediaan.dtypes)
print("\nData types of df_produk:\n", df_produk.dtypes)

# Missing values
print("\nMissing values in df_penjualan:\n", df_penjualan.isnull().sum())
print("\nMissing values in df_persediaan:\n", df_persediaan.isnull().sum())
print("\nMissing values in df_produk:\n", df_produk.isnull().sum())

# Descriptive statistics
print("\nDescriptive statistics of df_penjualan:\n", df_penjualan.describe())
print("\nDescriptive statistics of df_persediaan:\n", df_persediaan.describe())
print("\nDescriptive statistics of df_produk:\n", df_produk.describe())

# Identify key columns for joining
print("\nKey columns for joining:")
print("- df_penjualan: product_id, sale_date")
print("- df_persediaan: product_id, stock_date")
print("- df_produk: product_id, stock_date")
```

0/3000

139PM Python 3

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Rate this answer

Executed plan

- Preparing to execute plan
- Data loading
- Data exploration
- Data wrangling
- Data analysis
- Data visualization
- Data preparation
- Finish task

I've finished executing the plan for you!

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Commands Code Text

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Analyze your files with code written by Gemini

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overall_profit_margin.png

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persediaan.csv

production_vs_sales.png

produksi.csv

revenue_over_time.png

top_selling_products.png

3

df_persediaan: product_id, stock_date

df_produk: product_id, production_date

Data wrangling

Subtask:

Combine the three dataframes (df_penjualan, df_persediaan, and df_produk) into a single dataframe, handle missing values, and create new features.

Reasoning: Merge the three dataframes based on product_id, handle missing values by imputation, and create new features like profit and sales-to-production ratio.

```
# Merge the dataframes
df_merged = pd.merge(df_penjualan, df_persediaan, on='product_id', how='left')
df_merged = pd.merge(df_merged, df_produk, on='product_id', how='left')

# Handle missing values (if any) using imputation
for col in ['quantity_in_stock', 'quantity_produced', 'unit_cost']:
    if df_merged[col].isnull().any():
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df_merged['profit'] = df_merged['total_revenue'] - (df_merged['quantity_sold'] * df_merged['unit_cost'])
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# Convert date columns to datetime objects
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# Display the merged dataframe
display(df_merged)
```

0/3000

139PM Python 3

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production_vs_sales.png

produksi.csv

revenue_over_time.png

top_selling_products.png

2

Next steps: Generate code with df_merged View recommended plots New interactive sheet

Data analysis

Subtask:

Analyze the merged dataset to identify key trends and relationships.

Reasoning: Calculate key descriptive statistics, analyze sales trends, identify top-selling products, examine the relationship between production and sales, and calculate the profit margin. Store the results in variables for later use.

```
# Calculate key descriptive statistics
total_sales = df_merged['total_revenue'].sum()
total_production = df_merged['quantity_produced'].sum()
average_inventory = df_merged['quantity_in_stock'].mean()
average_profit = df_merged['profit'].mean()

# Analyze sales trends over time
sales_by_date = df_merged.groupby('sale_date')['total_revenue'].sum()

# Identify top-selling products
top_selling_products = df_merged.groupby('product_id')['quantity_sold'].sum().nlargest(5)

# Examine the relationship between production levels and sales
correlation = df_merged['quantity_produced'].corr(df_merged['quantity_sold'])

# Calculate the overall profit margin
overall_profit_margin = df_merged['profit'].sum() / df_merged['total_revenue'].sum()

# Store results
print(f"Total sales: {total_sales}")
print(f"Total production: {total_production}")
print(f"Average inventory: {average_inventory}")
print(f"Average profit: {average_profit}")
print(f"Sales by date: {sales_by_date}")
print(f"Top selling products: {top_selling_products}")
```

0/3000

139PM Python 3

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- Data wrangling
- Data analysis
- Data visualization
- Data preparation
- Finish task

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overall_profit_margin.png

penjualan.csv

persediaan.csv

production_vs_sales.png

produksi.csv

revenue_over_time.png

top_selling_products.png

Correlation between production and sales: 0.9126302278141889

Overall profit margin: 0.35768201964735515

Data visualization

Subtask: Visualize the key findings from the data analysis.

Reasoning: Visualize the key findings using matplotlib, including a time-series plot of total revenue, a bar chart of top-selling products, a scatter plot of production vs. sales, and a bar chart of the overall profit margin. Save each plot as a PNG image.

```
import matplotlib.pyplot as plt

# 1. Time-series plot of total revenue
plt.figure(figsize=(10, 6))
sales_by_date.plot(kind='line', color='skyblue', marker='o')
plt.xlabel('Sale Date')
plt.ylabel('Total Revenue')
plt.title('Total Revenue Over Time')
plt.grid(True)
plt.savefig('revenue_over_time.png')
plt.show()

# 2. Bar chart of top 5 selling products
plt.figure(figsize=(8, 6))
top_selling_products.plot(kind='bar', color='lightcoral')
plt.xlabel('Product ID')
plt.ylabel('Quantity Sold')
plt.title('Top 5 Selling Products')
plt.xticks(rotation=0)
plt.savefig('top_selling_products.png')
plt.show()

# 3. Scatter plot of quantity produced vs. quantity sold
plt.figure(figsize=(8, 6))
plt.scatter(df_merged['quantity_produced'], df_merged['quantity_sold'], color='mediumseagreen')
plt.xlabel('Quantity Produced')
```

70.46 GB available

Variables Terminal

Gemini X

profit margins. Analyze sales trends over time, identify top-selling products, and examine the relationship between production levels and sales.

- Data visualization:** Create visualizations to represent the key findings. This includes time-series plots of sales and production, bar charts showing top-selling products or product categories, and scatter plots illustrating the relationship between inventory levels and sales.
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Execute plan

Rate this answer

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top_selling_products.png

0.0 Overall Profit Margin

Data preparation

Subtask: Prepare the analytical results for download as a CSV file.

Reasoning: Combine all the analytical results into a single DataFrame and save it as a CSV file.

```
# Create a DataFrame for analytical results
analytical_results = pd.DataFrame({
    'Metric': ['Total Sales', 'Total Production', 'Average Inventory', 'Average Profit', 'Overall Profit Margin'],
    'Value': [total_sales, total_production, average_inventory, average_profit, overall_profit_margin]
})

# Add sales trend data
sales_trend_df = sales_by_date.reset_index()
sales_trend_df.rename(columns={'sale_date': 'Sale Date', 'total_revenue': 'Total Revenue'}, inplace=True)
analytical_results = pd.concat([analytical_results, sales_trend_df], ignore_index=True)

# Add top-selling products data
top_products_df = top_selling_products.reset_index()
top_products_df.rename(columns={'product_id': 'Product ID', 'quantity_sold': 'Quantity Sold'}, inplace=True)
analytical_results = pd.concat([analytical_results, top_products_df], ignore_index=True)

# Add correlation data
correlation_df = pd.DataFrame({'Metric': ['Correlation (Production, Sales)'], 'Value': [correlation]})
analytical_results = pd.concat([analytical_results, correlation_df], ignore_index=True)

# Add the original data to the analytical results
analytical_results = pd.concat([analytical_results, df_merged], ignore_index=True)

# Save the DataFrame to a CSV file
analytical_results.to_csv('analytical_results.csv', index=False)
```

70.46 GB available

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PROD2 PROD1 PROD3

Quantity Produced vs. Quantity Sold

Quantity Sold

Quantity Produced

Overall Profit Margin

Margin

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Variables Terminal

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```
plt.title('Quantity Produced vs. Quantity Sold')
plt.savefig('production_vs_sales.png')
plt.show()

# 4. Bar chart for overall profit margin
plt.figure(figsize=(8, 4))
plt.bar(['Overall Profit Margin'], [overall_profit_margin], color='gold')
plt.ylabel('Profit Margin')
plt.title('Overall Profit Margin')
plt.ylim(0, 1) # Set y-axis limit for better visualization
plt.savefig('overall_profit_margin.png')
plt.show()
```

Total Revenue Over Time

Top 5 Selling Products

Gemini X

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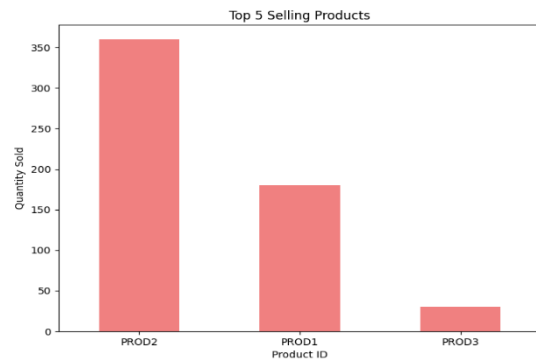
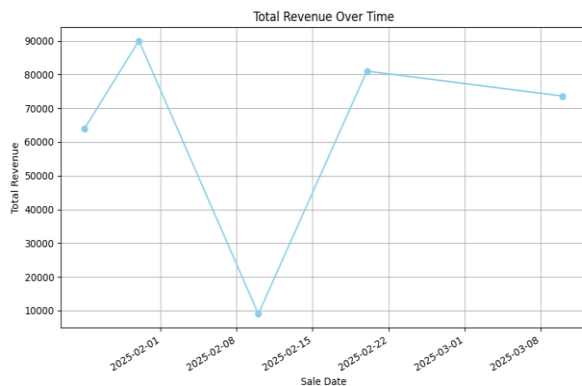
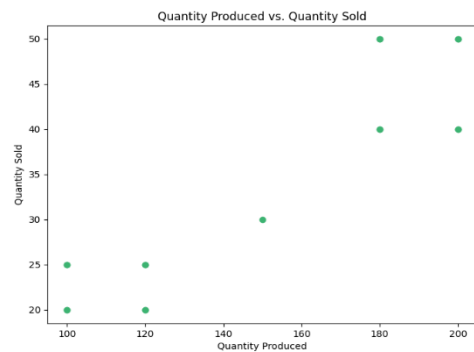
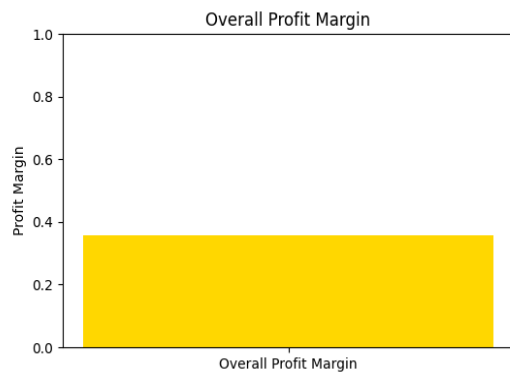
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top_selling_products.png

Quantity Produced vs. Quantity Sold

Product ID	Quantity Produced	Quantity Sold
PROD2	100	25
PROD2	120	25
PROD1	150	30
PROD3	180	40
PROD3	200	40

Overall Profit Margin

Gemini X

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```
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plt.savefig('production_vs_sales.png')
plt.show()

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plt.figure(figsize=(6, 4))
plt.bar(['Overall Profit Margin'], [overall_profit_margin], color='gold')
plt.ylabel('Profit Margin')
plt.title('Overall Profit Margin')
plt.ylim(0, 1) # Set y-axis limit for better visualization
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```

Total Revenue Over Time

Top 5 Selling Products

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```
df_persediaan = pd.read_csv('persediaan.csv')
df_produk = pd.read_csv('produksi.csv')
display(df_penjualan.head())
display(df_persediaan.head())
display(df_produk.head())
except FileNotFoundError:
    print("One or more CSV files not found.")
except pd.errors.ParserError:
    print("Error parsing one or more CSV files.")
except Exception as e:
    print(f"An unexpected error occurred: {e}")
```

None Like what you see? Visit the [data table notebook](#) to learn more about interactive tables.

Inventory_id	product_id	warehouse_id	stock_date	quantity_in_stock	
0	INV001	PROD1	WH1	2025-01-20	80
1	INV002	PROD2	WH1	2025-01-20	150
2	INV003	PROD3	WH2	2025-02-05	100
3	INV004	PROD1	WH1	2025-02-15	90
4	INV005	PROD2	WH2	2025-03-05	120

production_id	product_id	product_name	production_date	quantity_produced	unit_cost	
0	PRD001	PROD1	Laptop	2025-01-10	100	500.0
1	PRD002	PROD2	Smartphone	2025-01-15	200	300.0
2	PRD003	PROD3	Tablet	2025-02-01	150	200.0
3	PRD004	PROD1	Laptop	2025-02-10	120	510.0
4	PRD005	PROD2	Smartphone	2025-03-01	180	295.0

Error: Runtime no longer has a reference to this dataframe, please re-run this cell and try again.

Data exploration

Subtask:

Explore the loaded datasets to understand their structure, identify key columns, and check for missing values.

Gemini X

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```
print("\nDescriptive statistics of df_penjualan:\n", df_penjualan.describe())
print("\nDescriptive statistics of df_persediaan:\n", df_persediaan.describe())

# Identify key columns for joining
print("Key columns for joining:")
print("- df_penjualan: product_id, sale_date")
print("- df_persediaan: product_id, stock_date")
print("- df_produk: product_id, production_date")

Shape of df_penjualan: (5, 6)
Shape of df_persediaan: (5, 5)
Shape of df_produk: (5, 6)

Data types of df_penjualan:
sale_id      object
product_id   object
sale_date    object
quantity_sold int64
unit_price   float64
total_revenue float64
dtype: object

Data types of df_persediaan:
inventory_id  object
product_id    object
warehouse_id  object
stock_date    object
quantity_in_stock int64
dtype: object

Data types of df_produk:
production_id  object
product_id     object
product_name   object
production_date object
quantity_produced int64
unit_cost      float64
dtype: object

Missing values in df_penjualan:
sale_id      0
product_id   0
sale_date    0
quantity_sold 0
unit_price   0
total_revenue 0
```

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```
# Display the merged dataframe
display(df_merged)
```

	sale_id	product_id	sale_date	quantity_sold	unit_price	total_revenue	inventory_id	warehouse_id	stock_date
0	SALE001	PROD1	2025-01-25	20	800.0	16000.0	INV001	WH1	2025-01-20
1	SALE001	PROD1	2025-01-25	20	800.0	16000.0	INV001	WH1	2025-01-20
2	SALE001	PROD1	2025-01-25	20	800.0	16000.0	INV004	WH1	2025-02-15
3	SALE001	PROD1	2025-01-25	20	800.0	16000.0	INV004	WH1	2025-02-15
4	SALE002	PROD2	2025-01-30	50	450.0	22500.0	INV002	WH1	2025-01-20
5	SALE002	PROD2	2025-01-30	50	450.0	22500.0	INV002	WH1	2025-01-20
6	SALE002	PROD2	2025-01-30	50	450.0	22500.0	INV005	WH2	2025-03-05
7	SALE002	PROD2	2025-01-30	50	450.0	22500.0	INV005	WH2	2025-03-05
8	SALE003	PROD3	2025-02-10	30	300.0	9000.0	INV003	WH2	2025-02-05
9	SALE004	PROD1	2025-02-20	25	810.0	20250.0	INV001	WH1	2025-01-20
10	SALE004	PROD1	2025-02-20	25	810.0	20250.0	INV001	WH1	2025-01-20
11	SALE004	PROD1	2025-02-20	25	810.0	20250.0	INV004	WH1	2025-02-15
12	SALE004	PROD1	2025-02-20	25	810.0	20250.0	INV004	WH1	2025-02-15
13	SALE005	PROD2	2025-03-10	40	460.0	18400.0	INV002	WH1	2025-01-20
14	SALE005	PROD2	2025-03-10	40	460.0	18400.0	INV002	WH1	2025-01-20

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```
correlation = df_merged['quantity_produced'].corr(df_merged['quantity_sold'])

# Calculate the overall profit margin
overall_profit_margin = df_merged['profit'].sum() / df_merged['total_revenue'].sum()

# Store results
print(f"Total sales: {total_sales}")
print(f"Total production: {total_production}")
print(f"Average Inventory: {average_inventory}")
print(f"Average profit: {average_profit}")
print(f"Sales by date: {sales_by_date}")
print(f"Top selling products: {top_selling_products}")
print(f"Correlation between production and sales: {correlation}")
print(f"Overall profit margin: {overall_profit_margin}")

Total sales: 317600.0
Total production: 2550
Average inventory: 189.41176470588235
Average profit: 6682.35294117647
Sales by date:
sale_date
2025-01-25    64000.0
2025-01-30    90000.0
2025-02-10     9000.0
2025-02-20    81000.0
2025-03-10    73600.0
Name: total_revenue, dtype: float64

Top selling products:
product_id
PROD2    308
PROD1    180
PROD3     30
Name: quantity_sold, dtype: int64

Correlation between production and sales: 0.9126362278141889

Overall profit margin: 0.35768261964735515
```

Gemini X

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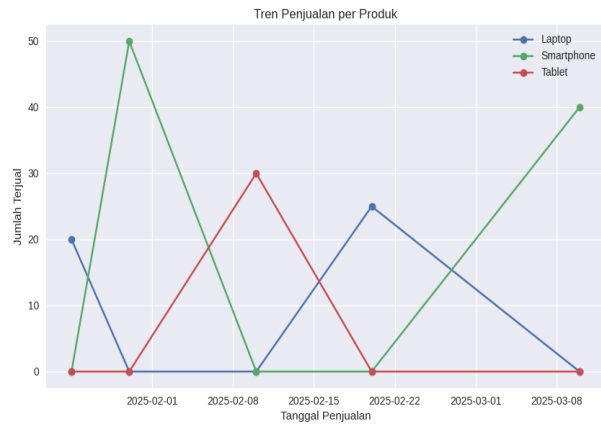
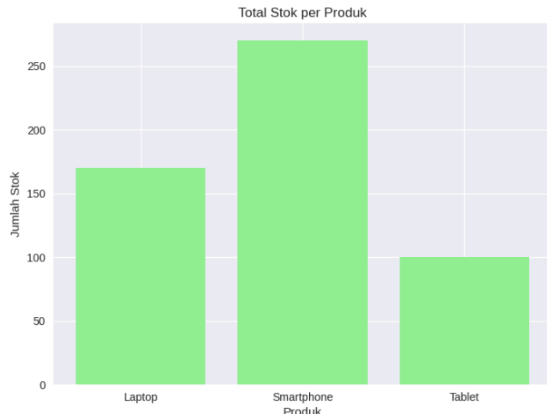
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Data visualization

Subtask:



latihan-phyton1.ipynb

File Edit View Insert Runtime Tools Help

Q Commands + Code + Text

Files

- sample_data
- analytical_results.csv
- overall_profit_margin.png
- penjualan.csv
- penjualan_plot.png
- persediaan.csv
- production_vs_sales.png
- produksi.csv
- produksi_plot.png
- revenue_over_time.png
- stok_plot.png
- top_selling_products.png
- trade_summary.csv
- tren_penjualan_plot.png

Analyze your files with code written by Gemini

Download

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download grafik dari hasil di atas

Anda dapat menggunakan perintah `files.download()` dari `google.colab` untuk mengunduh file grafik yang sudah Anda simpan menggunakan `plt.savefig()`. Tambahkan kode berikut setelah semua grafik dibuat dan disimpan:

```
from google.colab import files

# Download the saved image files
try:
    files.download('produksi_plot.png')
    files.download('stok_plot.png')
    files.download('penjualan_plot.png')
    files.download('tren_penjualan_plot.png')
except FileNotFoundError:
    print("One or more image files not found. Please ensure the visualizations were generated and saved correctly.")
```

Fakta Menarik: Produk dengan margin keuntungan tertinggi adalah Smartphone dengan total margin \$14175.00. Semua produk memiliki stok yang memadai.

from google.colab import files

Download the saved image files

```
try:
    files.download('produksi_plot.png')
    files.download('stok_plot.png')
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    files.download('tren_penjualan_plot.png')
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    print("One or more image files not found. Please ensure the visualizations were generated and saved correctly.")
```

Data loading

Subtask:

Load the provided CSV files into pandas DataFrames.

Reasoning: Import the pandas library and load the three CSV files into pandas DataFrames.

```
[1] import pandas as pd
```

Penjelasan:

- from google.colab import files: Mengimpor modul files dari google.colab.
- files.download('nama_file.png'): Perintah ini akan memulai proses pengunduhan untuk file yang ditemukan namanya. Pastikan nama file di sini sama persis dengan nama file yang Anda gunakan saat menyimpan grafik dengan `plt.savefig()`.
- Blok `try...except FileNotFoundError` ditambahkan untuk menangani `FileNotFoundError` jika salah satu file tidak dapat ditemukan.

Enter a prompt here

Gemini can make mistakes so double-check responses and use code with caution. [Learn more](#)

2:00 PM Python 3