

6-Week Data Analytics Portfolio Professional Documentation

This document presents a comprehensive professional documentation of a six-week Data Analytics portfolio. It covers project objectives, methodologies, technical implementations, business insights, visual guidelines, testing evidence, and industry applications across multiple domains.

Portfolio Overview

This portfolio demonstrates structured analytics work across Business, Healthcare, Sports, Finance, and E-commerce domains. Each project follows a standardized analytical framework ensuring clarity, reproducibility, and professional quality.

Overall Project Goals

Apply data analytics techniques to real-world datasets.

Generate actionable insights for business and operational decisions.

Develop domain-specific analytical and visualization skills.

Create a unified, job-ready analytics portfolio.

Week 1 – Business Sales Analysis

Objective: Analyze sales trends, customer behavior, and product performance.

Methodology includes data cleaning, exploratory analysis, trend identification, and visualization.

Business insights highlight peak sales periods, top-performing products, and customer purchase patterns.

Industry application includes retail, FMCG, and sales forecasting.

Week 2 – Healthcare Data Analysis

Objective: Analyze patient statistics, treatment outcomes, and hospital performance metrics.

Methodology includes data validation, statistical analysis, and KPI computation.

Insights include patient demographics, recovery rates, and hospital efficiency metrics.

Applicable in hospitals, healthcare analytics firms, and public health organizations.

Week 3 – Sports Analytics

Objective: Evaluate player performance, team statistics, and match outcomes.

Methodology includes metric selection, comparative analysis, and predictive reasoning.

Insights focus on performance indicators and outcome trends.

Applicable in sports analytics teams, coaching staff, and fantasy sports platforms.

Week 4 – Financial Market Analysis

Objective: Analyze stock trends, portfolio performance, and risk.

Methodology includes time-series analysis and volatility assessment.

Insights support investment decisions and risk evaluation.

Applicable in finance, investment firms, and fintech companies.

Week 5 – E-commerce Analytics

Objective: Understand customer segmentation, purchase patterns, and recommendation insights.

Methodology includes behavioral analysis and segmentation techniques.

Insights improve personalization and customer engagement.

Applicable in e-commerce platforms and digital marketing teams.

Week 6 – Portfolio Integration & Presentation

Objective: Integrate all projects into a unified professional portfolio.

Deliverables include dashboards, executive summary, and documentation.

Applicable for interviews, internships, and client presentations.

Setup Instructions

Install Python 3.x and required libraries such as pandas, numpy, matplotlib, seaborn, and Jupyter Notebook.

Clone the project repository and execute notebooks sequentially.

Code Structure

Standard project hierarchy includes data, notebooks, scripts, visuals, and reports directories.

Technical & Testing Details

Includes data validation checks, missing value handling, calculation verification, and visualization consistency checks.

Quality Standards Checklist

Clear objectives, organized code, professional visuals, technical explanations, and testing evidence are included.

Tips & Resources

Use real-world datasets, document assumptions, focus on business impact, and explore platforms such as Kaggle and Yahoo Finance.

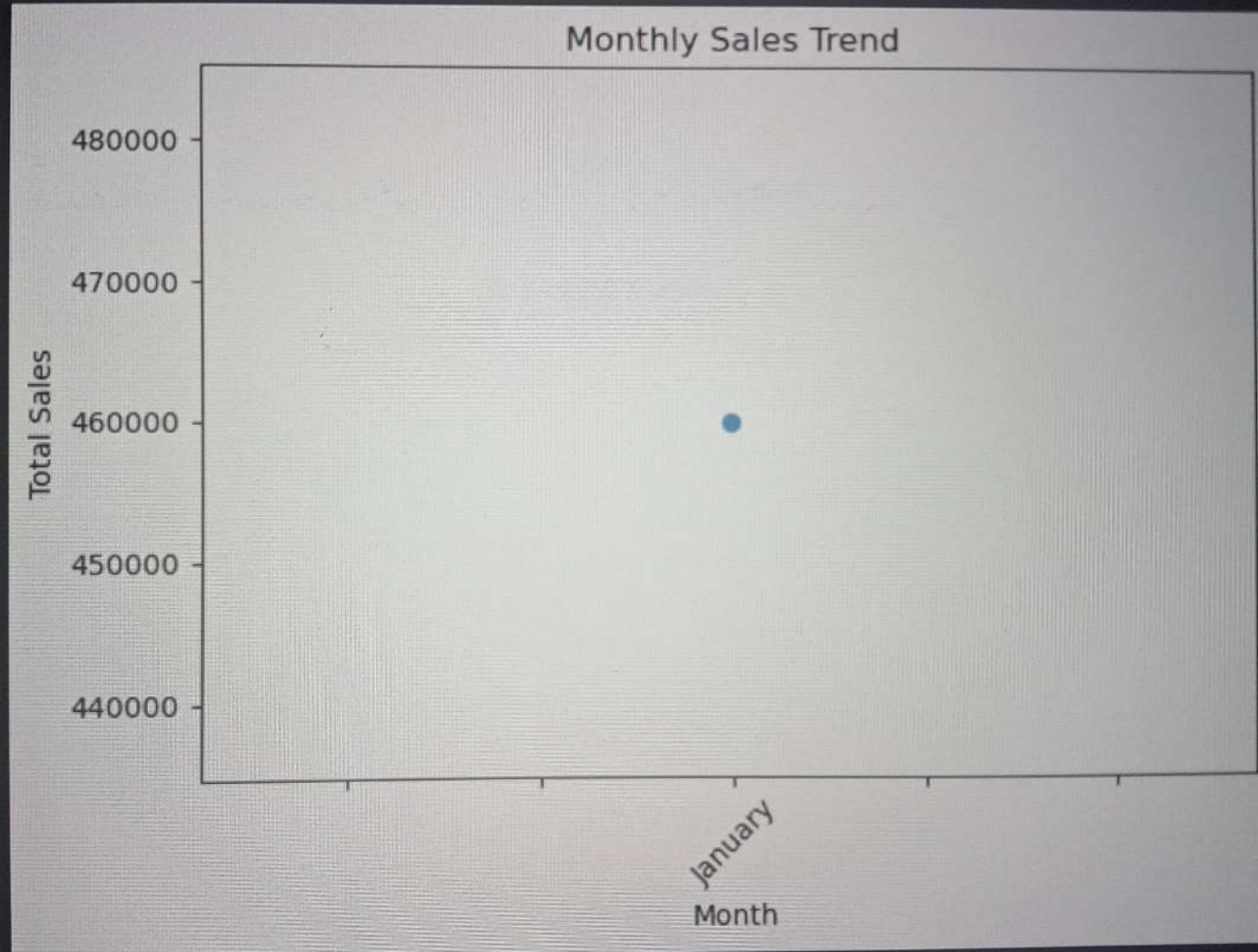
Conclusion

This documentation demonstrates strong analytical foundations, domain knowledge, and professional reporting skills suitable for Data Analyst and Business Analyst roles.

```
plt.savefig("Monthly_Sales.png")  
plt.show()
```

[4]

...



```
#Top 10 Customers
```

Analysis.ipynb X

Analysis.ipynb > #Top 10 Customers

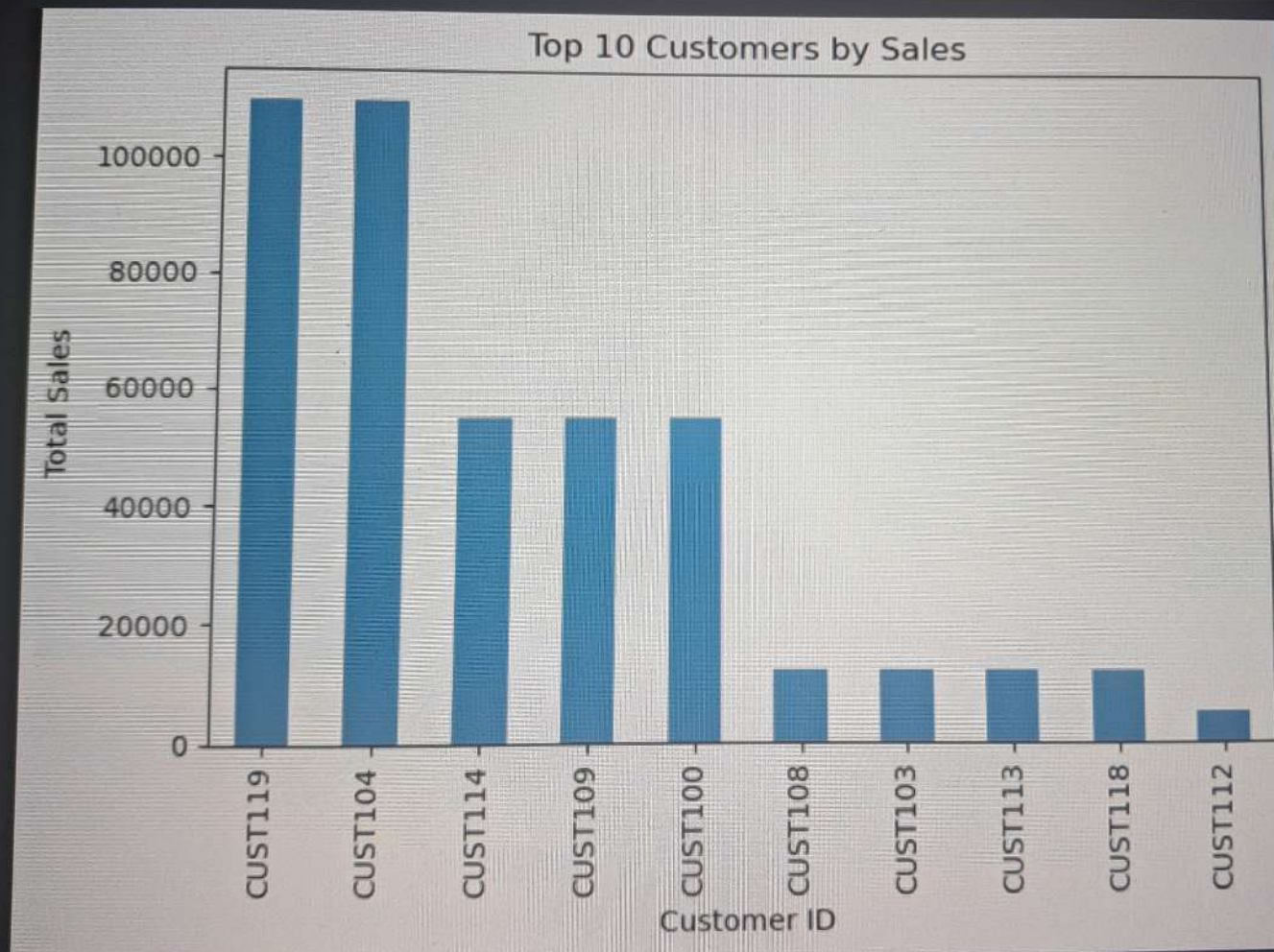
Generate + Code + Markdown | Run All Clear All Outputs | Outline ...

Select Kernel

```
plt.savefig("Top_Customers.png")  
plt.show()
```

[5]

Python



▶ ▼

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

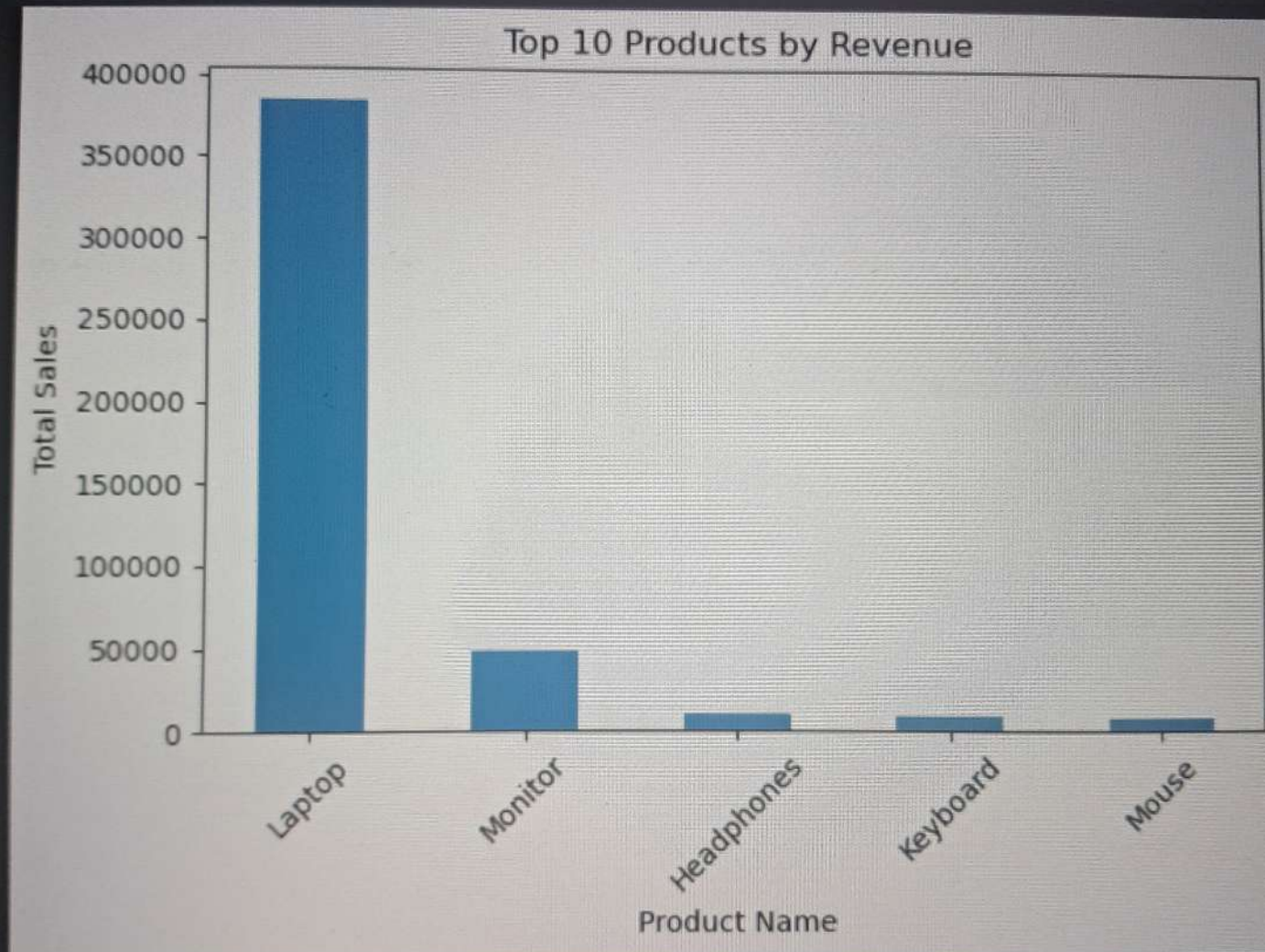
🔍 ↗ ↶ 🗑 ... 🗑

report.pdf

[6]

...

Python



#ABC Product Analysis

```
product_sales = df.groupby('Product Name')['Total Sales'].sum().sort_values(ascending=False)
```

[7]

Python

Spaces: 4 () 🗑

Run Terminal Help ← → project2_healthcare_analysis

Analysis.ipynb × WhatsApp Unknown 2026-01-16 at 1.26,18 PM.zip AgeDistribution.png Report.md

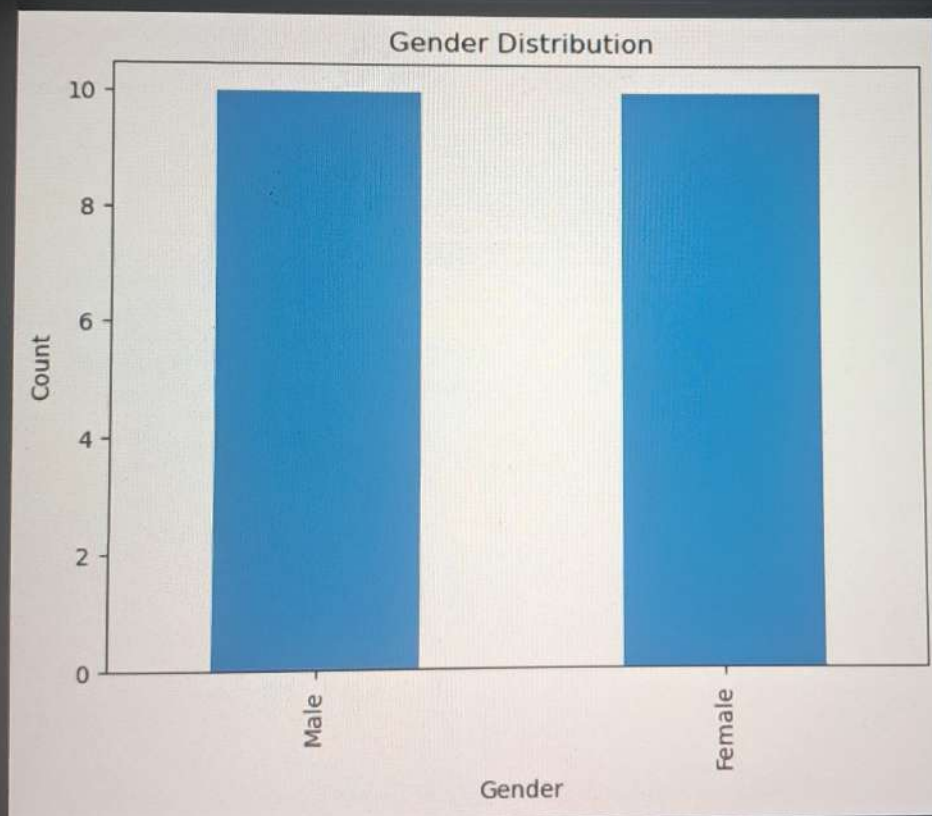
Analysis.ipynb > import pandas as pd

Generate + Code + Markdown | Run All Restart Clear All Outputs Jupyter Variables ... base (Python 3.12.7)

```
patients['Gender'].value_counts().plot(kind='bar')
plt.title('Gender Distribution')
plt.xlabel('Gender')
plt.ylabel('Count')
plt.show()
```

[59]

Python



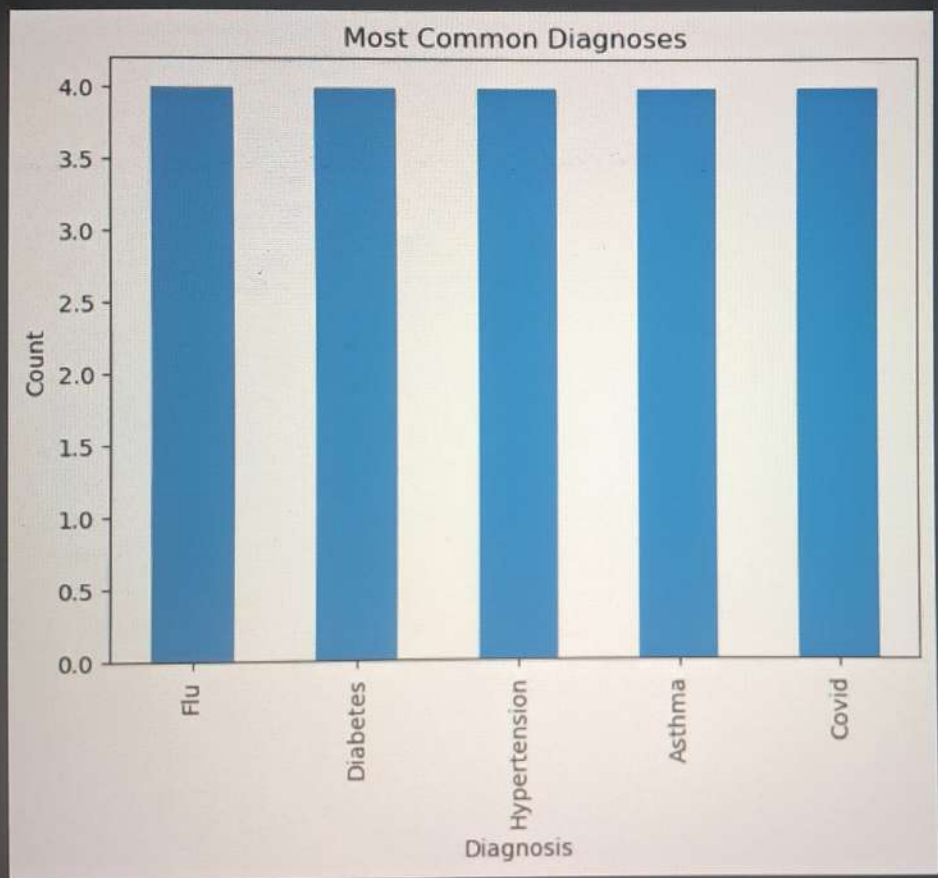
Search




```
plt.xlabel('Diagnosis')
plt.ylabel('Count')
plt.show()
```

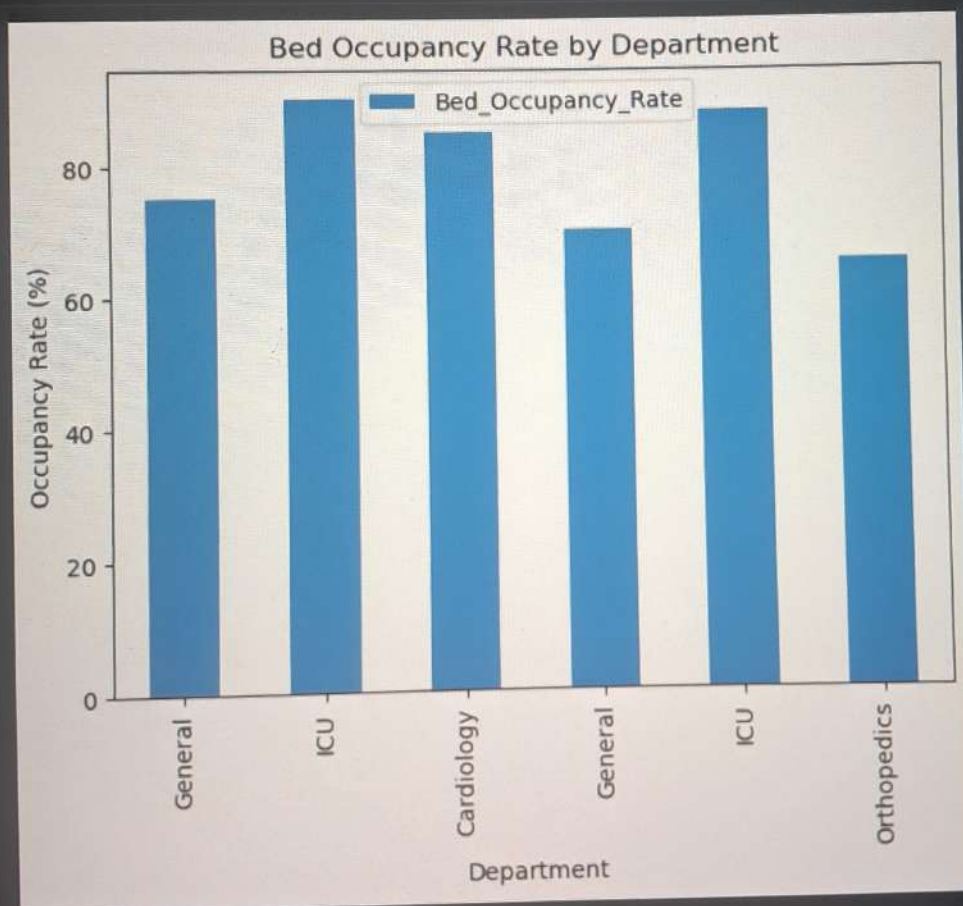
[67]

Python




```
plt.show()
```

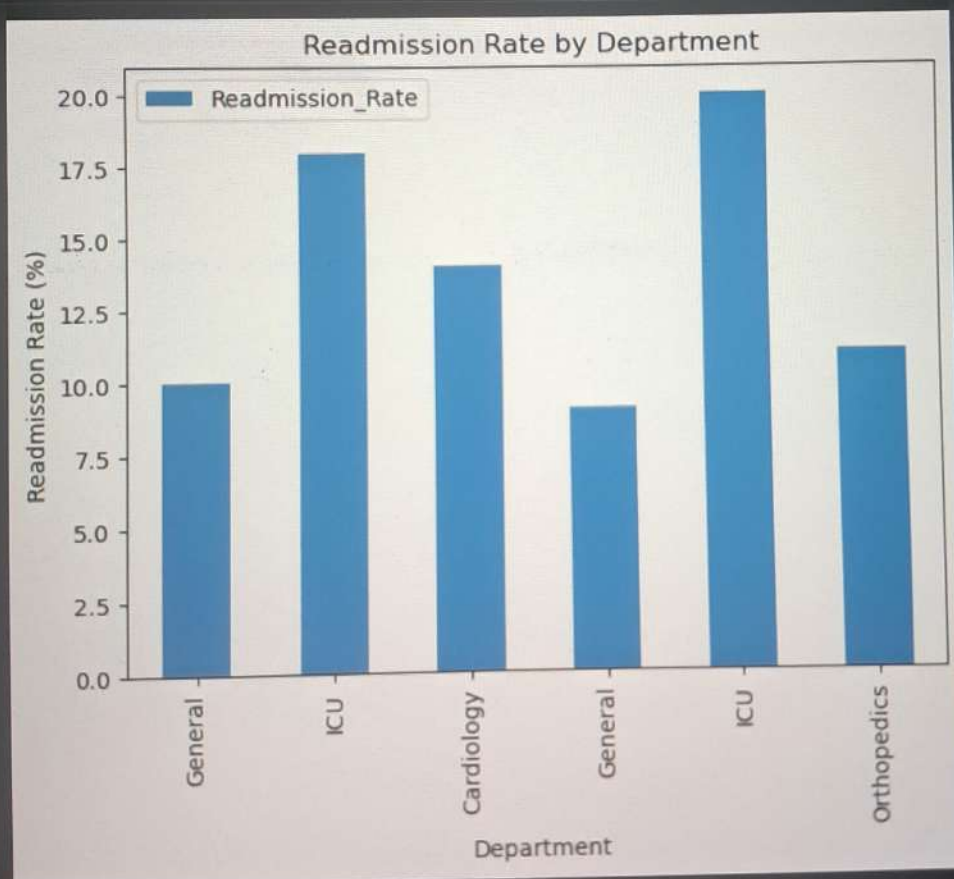
[64]



Search



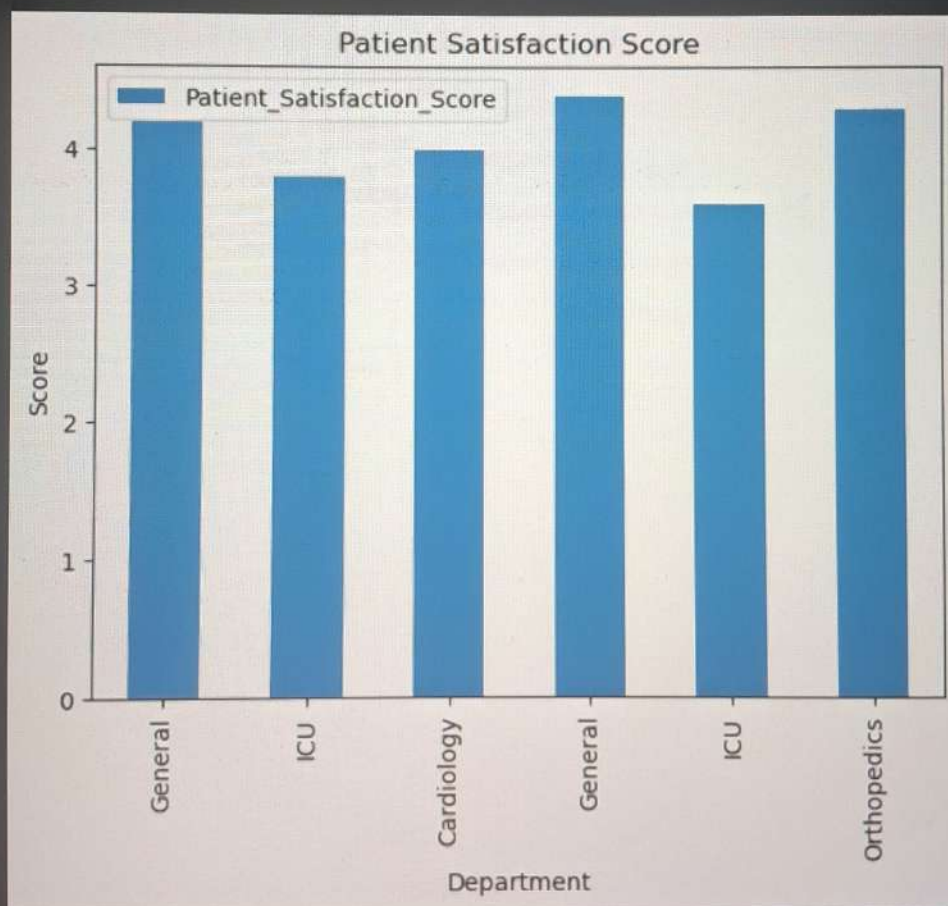
[65]



```
hospital.plot(x='Department', y='Patient_Satisfaction_Score', kind='bar')
```

```
plt.xlabel('Department')
plt.ylabel('Score')
plt.show()
```

[66]



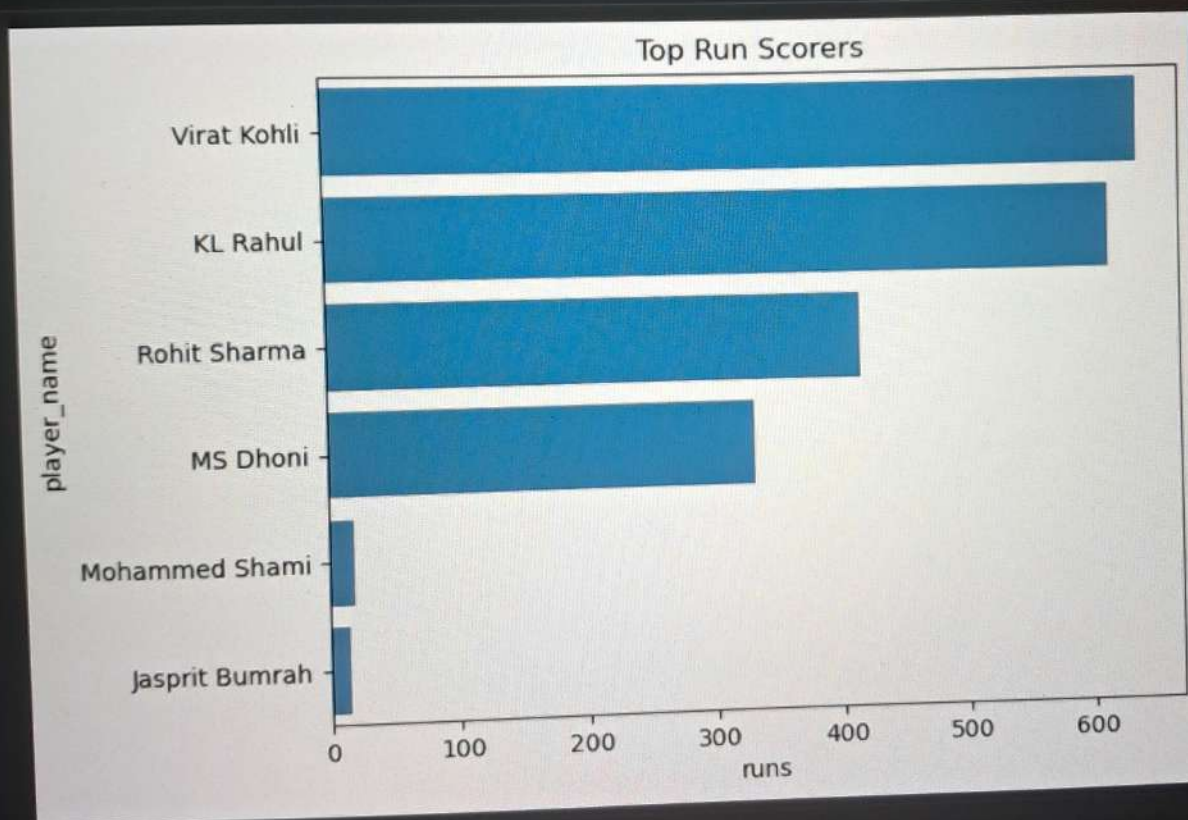
Search



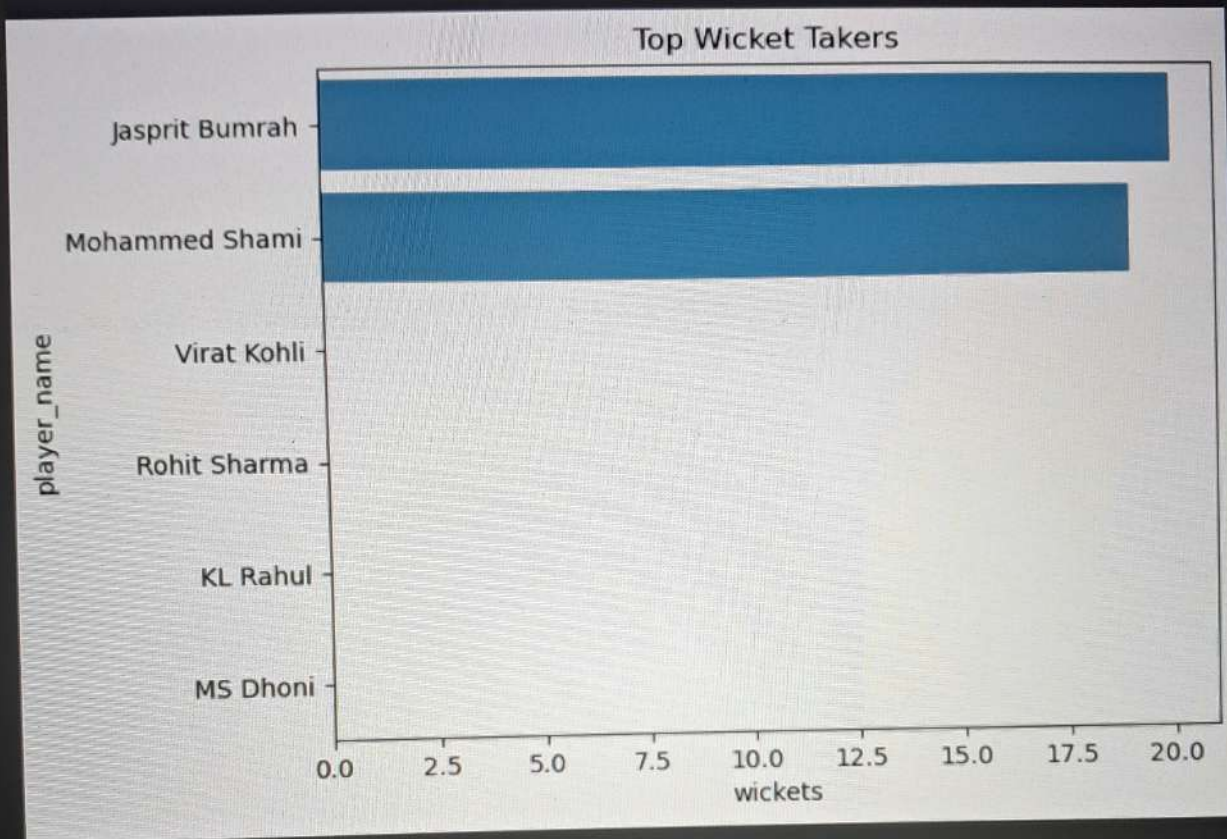
```
> # Top wicket takers
top_bowlers = players.sort_values(by="wickets", ascending=False)

plt.figure()
sns.barplot(x="wickets", y="player_name", data=top_bowlers)
plt.title("Top Wicket Takers")
plt.show()
```

Python



Spaces: 4 () Finish Setup



```
#Team Statistics Analysis
```

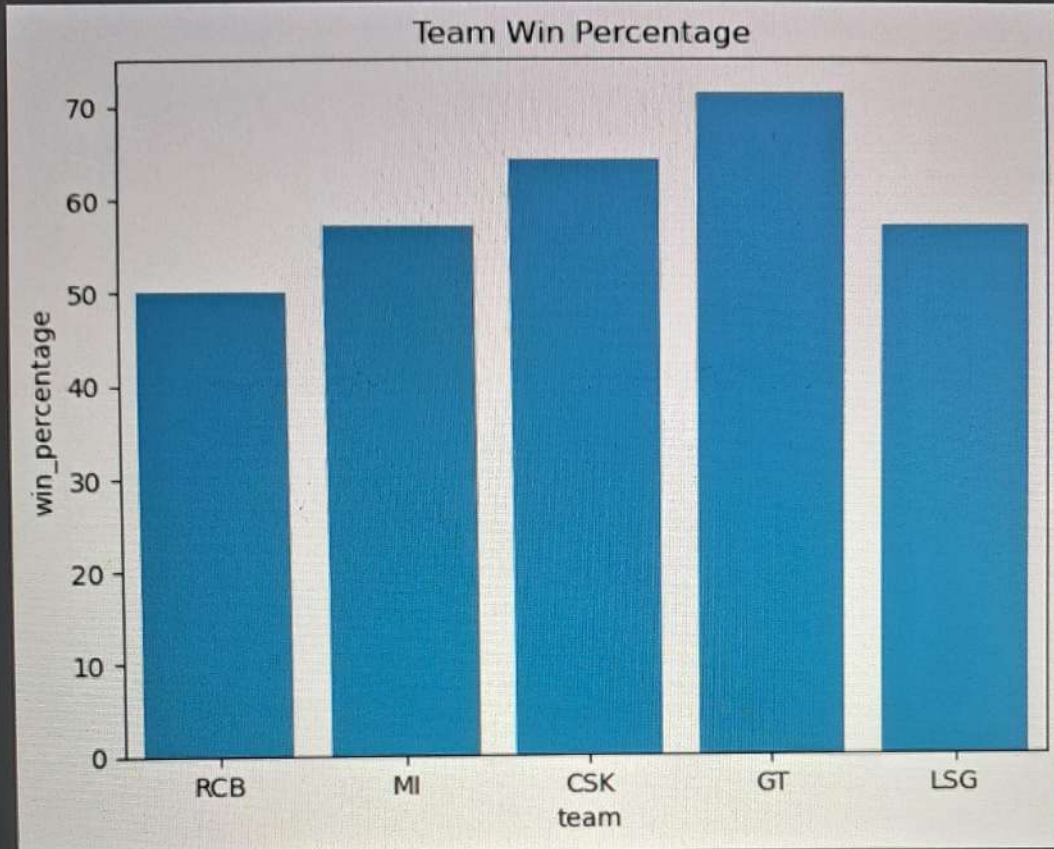
```
# Win percentage  
teams["win_percentage"] = (teams["wins"] / teams["matches_played"]) * 100
```

[12]

Python Spaces: 4 ()

Search

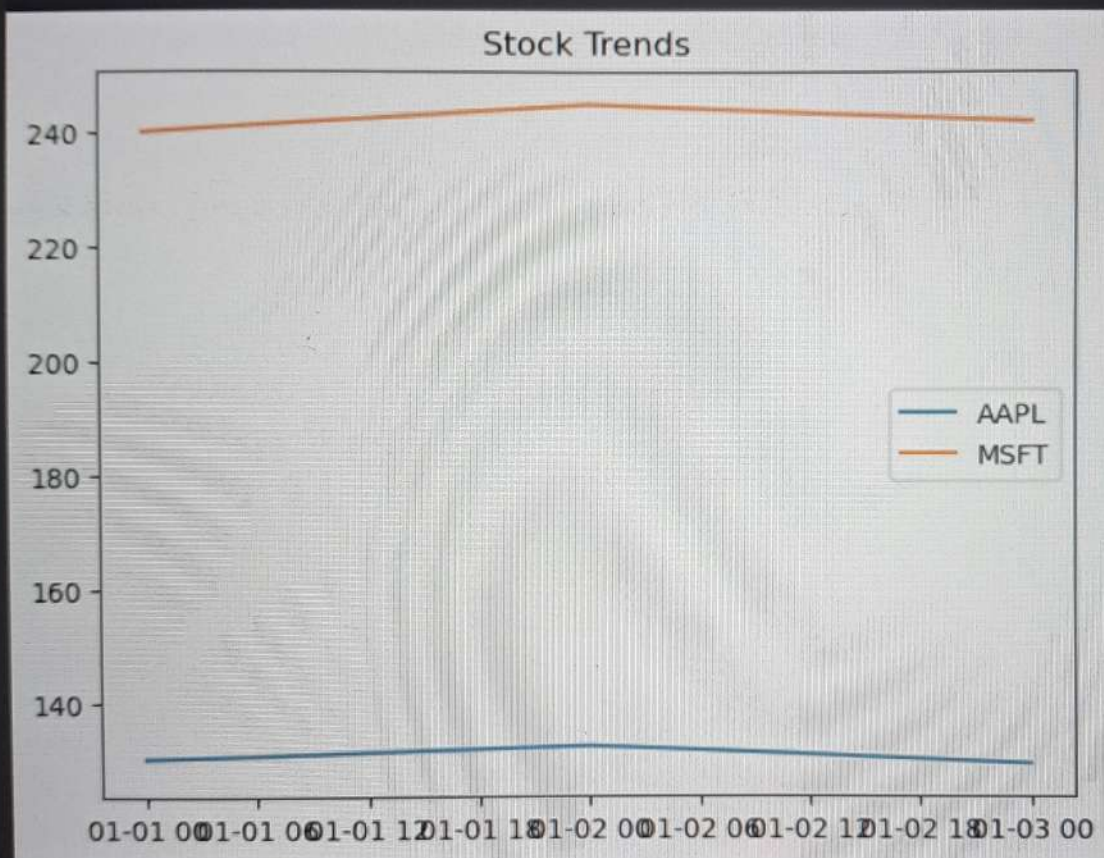





```
plt.legend()  
plt.title("Stock Trends")  
plt.show()
```

[]

...



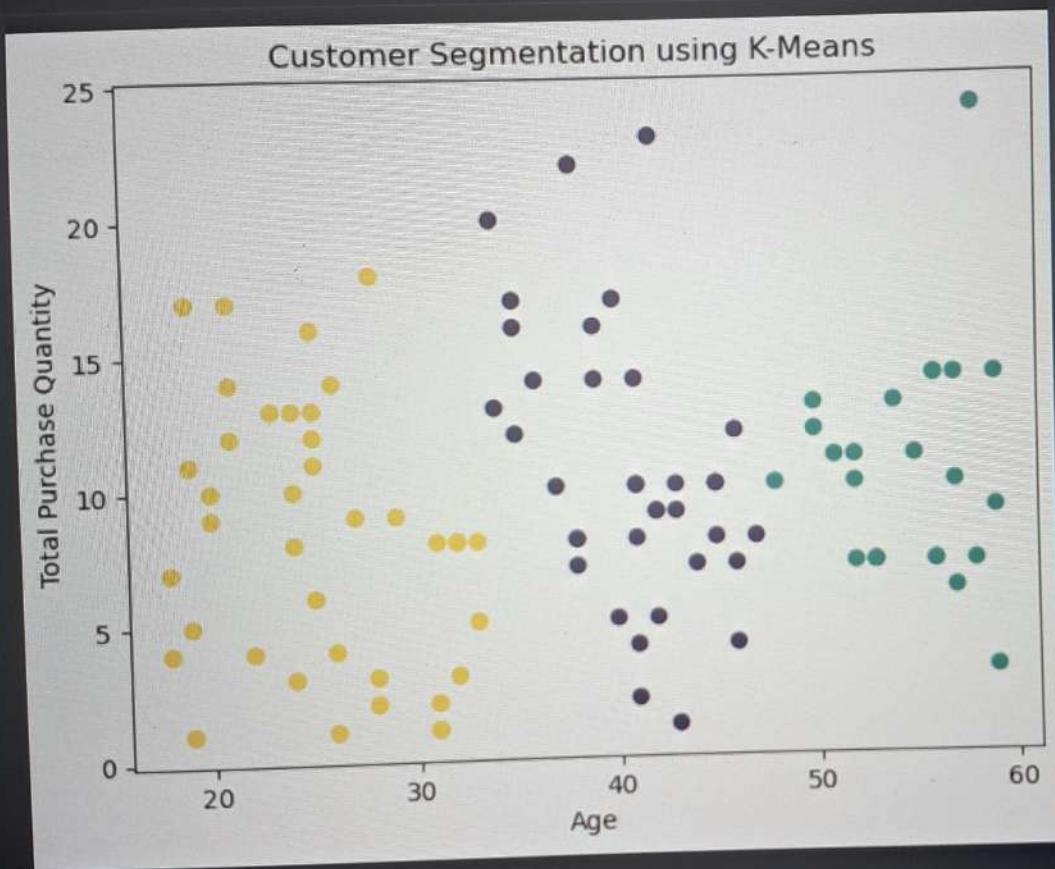
```
#Portfolio Return
```

[15]



```
plt.scatter(data["age"], data["quantity"], c=data["segment"])
plt.xlabel("Age")
plt.ylabel("Total Purchase Quantity")
plt.title("Customer Segmentation using K-Means")
plt.show()
```

[17]



[20]



#Monthly Purchase Trend

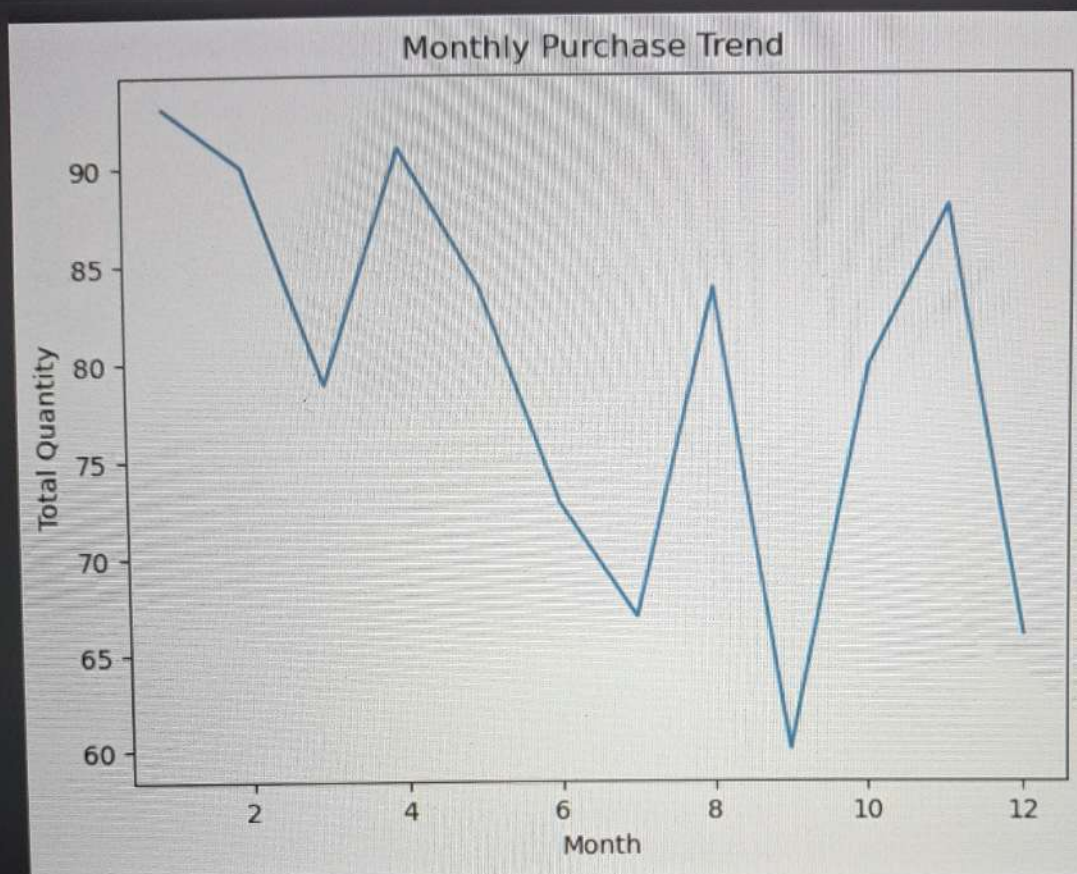
[21]



Search



[21]



```
#Reccomendation Insights
```

```
top_products = orders.groupby("product id")["quantity"].sum().sort_values(ascending=False).head(
```

[22]



Search

