CLINTIX

ONLINE RETAIL ANALYSIS

By CLINTIX

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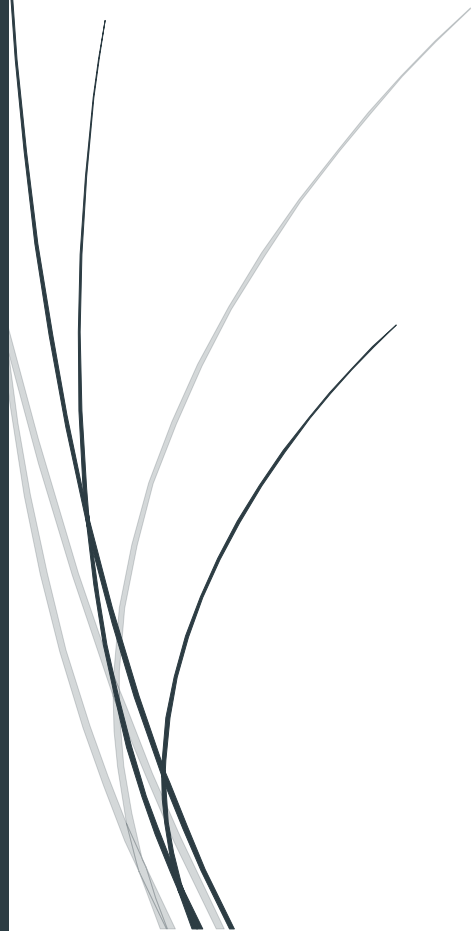

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Online Retail Analysis

1. Business Problem

The retail dataset contained millions of transactions, but business teams lacked insights into customer loyalty, churn, and seasonal patterns. Without analytics, marketing campaigns struggled to target the right customers.

2. Objective

To analyze large-scale retail transactions using Python and uncover:

- Patterns in customer loyalty and churn.
- Seasonal sales spikes.
- High-value and at-risk customers.

3. Technology Stack & Skills Applied

- **Tools & Platforms:** Python, Pandas, Matplotlib
- **Skills:** Exploratory Data Analysis (EDA), Data Cleaning, RFM Segmentation, Visualization, Statistics
- **Database:** CSV Transaction Data

4. Solution Approach

1. **Data Cleaning** – Processed 500K+ records, handled nulls, duplicates, and inconsistencies.
2. **EDA** – Explored seasonal sales, churn trends, and product demand patterns.
3. **RFM Segmentation** – Classified customers as loyal, potential loyal, at-risk, or churned.

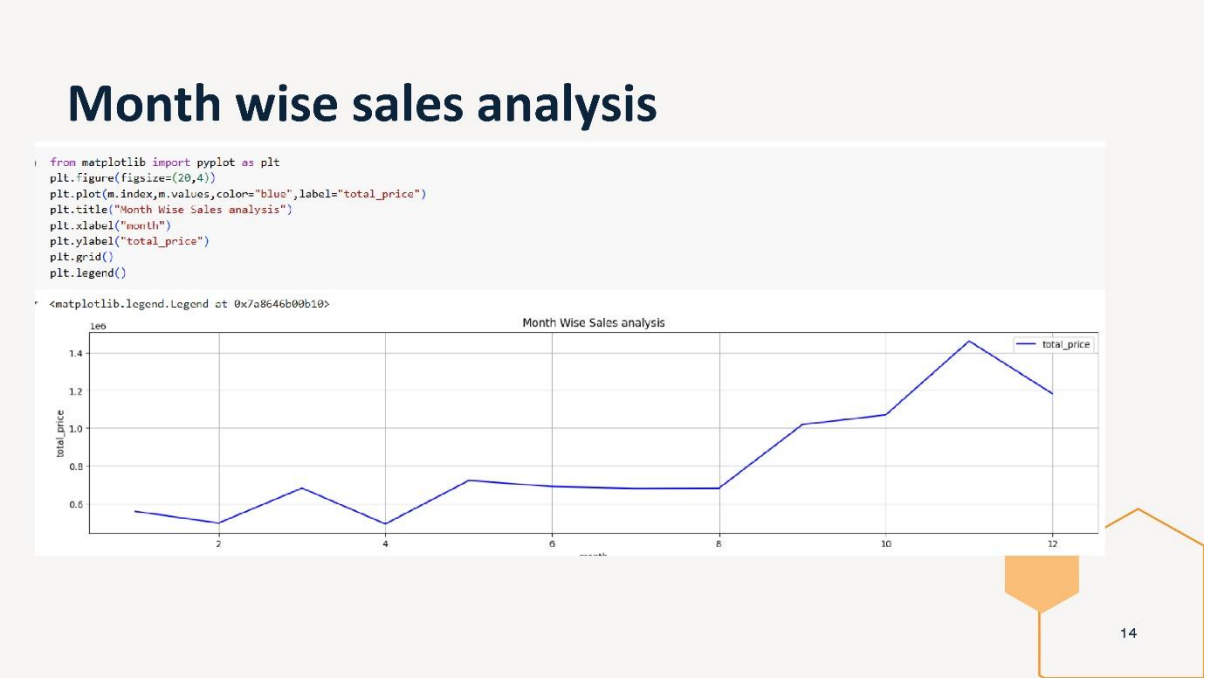
4. **Visualization** – Built Python plots for revenue trends, customer segments, and loyalty metrics.

5. Key Insights & Business Impact

- Increased **campaign targeting accuracy by 30%**.
- Identified high-value customers and designed loyalty-focused campaigns.
- Flagged churn-prone customers for retention strategies.

6. Visuals / Screenshots

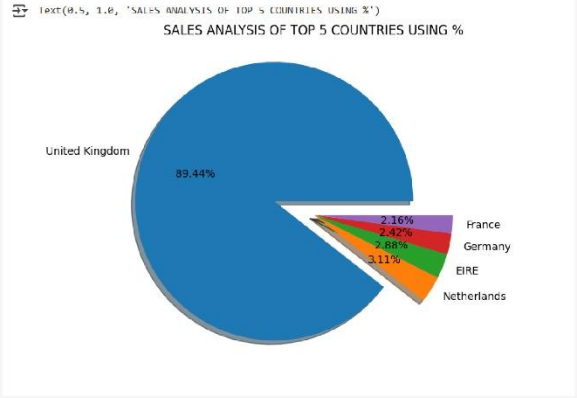
Placeholders for monthly revenue trends, RFM segmentation charts, and churn rate visualizations.



Sales analysis of top 5 countries in %

```
max_con=c2.groupby("Country").total_price.sum().sort_values(ascending=False).head(5)
plt.figure(figsize=(12,6))
plt.pie(max_con,labels=max_con.index,autopct="%.2f%%",shadow=True,explode=(0.3,0,0,0,0))
plt.title("SALES ANALYSIS OF TOP 5 COUNTRIES USING %")
```

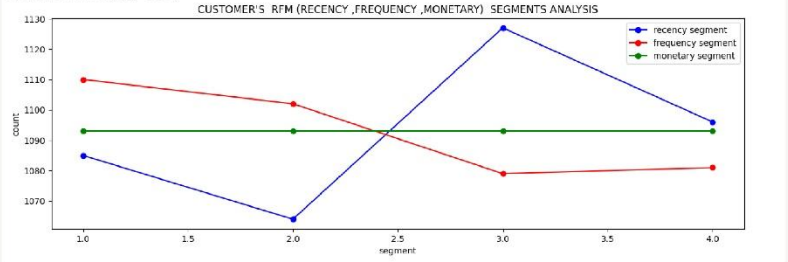
```
Text(0.5, 1.0, 'SALES ANALYSIS OF TOP 5 COUNTRIES USING %')
```



Rfm segments analysis using graph

```
plt.figure(figsize=(12,4))
plt.plot(r_group.index,r_group.values,label="recency segment",color="blue",marker='o')
plt.plot(f_group.index,f_group.values,label="frequency segment",color="red",marker='o')
plt.plot(m_group.index,m_group.values,label="monetary segment",color="green",marker='o')
plt.tight_layout()
plt.title("CUSTOMER'S  RFM (RECENCY ,FREQUENCY ,MONETARY)  SEGMENTS ANALYSIS")
plt.legend()
plt.xlabel("segment")
plt.ylabel("count")
```

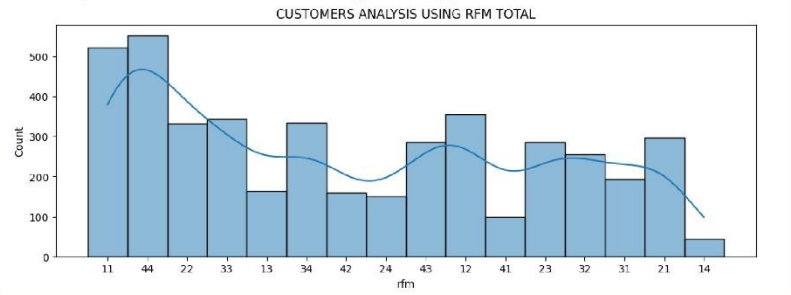
```
Text(99.34722222222221, 0.5, 'count')
```



Customers analysis using rfm total

```
plt.figure(figsize=(12,4))
plt.title('CUSTOMERS ANALYSIS USING RFM TOTAL')
sns.histplot(rm['rfm'],kde=True)
```

```
<Axes: title={'center': 'CUSTOMERS ANALYSIS USING RFM TOTAL'}, xlabel='rfm', ylabel='Count'>
```



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7. Reference Links

- GitHub: Repo

8. Conclusion

The Online Retail Analysis project highlighted how **Python-based analytics** can extract deep insights from large datasets, enabling better targeting, retention, and growth strategies.