Super Store

Project

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- **Project Title:** *Super Store Project*

- **Group:** *Gharbia Governorate – G1 Data 1 Graduates*

- **Company Name:** *ITC Tanta*

- **Instructor:** *Ahmed Ayman EL-Saey*

- **Group Name:** *G2*

- **Members:** *Zekrayat Wael*

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1. Objective

The objective of this analysis was to forecast future monthly sales using real business data from the cleaned dataset that includes shipping information. The goal was to identify trends and estimate short-term future performance.

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2. Data Overview

The dataset used for this report is the latest cleaned version, which includes:

- Processed sales transactions

- Shipping days calculated from order and ship dates

- Postal codes converted to string format for consistency

The cleaned dataset provided a solid base for building a predictive model.

Monthly Sales Data (Real):

Month	Sales ($)	Month	Sales ($)	Month	Sales ($)	Month	Sales ($)
1	14,205.71	13	18,066.96	25	18,542.49	37	43,476.47
2	4,519.89	14	11,951.41	26	22,978.82	38	19,920.99
3	55,205.80	15	32,339.32	27	51,165.06	39	58,863.41
4	27,906.86	16	34,154.47	28	38,679.77	40	35,541.91
5	23,644.30	17	29,959.53	29	56,656.91	41	43,825.98
6	34,322.94	18	23,599.37	30	39,724.49	42	48,190.73
7	33,781.54	19	28,608.26	31	38,320.78	43	44,825.10
8	27,117.54	20	36,818.34	32	30,542.20	44	62,837.85
9	81,623.53	21	63,133.61	33	69,193.39	45	86,152.89
10	31,453.39	22	31,011.74	34	59,583.03	46	77,448.13
11	77,907.66	23	75,249.40	35	79,066.50	47	117,938.16
12	68,167.06	24	74,543.60	36	95,739.12	48	83,030.39

Note: This table presents a clear, concise view of the actual sales data used to train the forecasting model

Model Used

A Linear Regression model was applied to the monthly aggregated sales data.

This model was selected for its simplicity and interpretability in identifying general upward or downward sales trends.

Model Performance:

- R² = **0.2479**

- Average Monthly Growth Rate = **$888.31**

*While the model explains about **25%** of sales variation, it captures the growth pattern in the business data.*

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3. Forecast Results

The model forecasted sales for the next six months as follows:

Month	Forecasted Sales ($)
49	68,879.00
50	69,767.31
51	70,655.62
52	71,543.93
53	72,432.25
54	73,320.56

These forecasts indicate a steady upward trend in expected sales, suggesting a moderate but consistent improvement over time.

4. Key Insights

- Overall, sales show fluctuations but maintain positive momentum.

- Predicted month-over-month growth is around $888.

- Highest performing region: West

- Highest performing category: Technology

- Total historical sales: $2,261,536.78

- Average order value: $230.77

- Total unique customers: 793
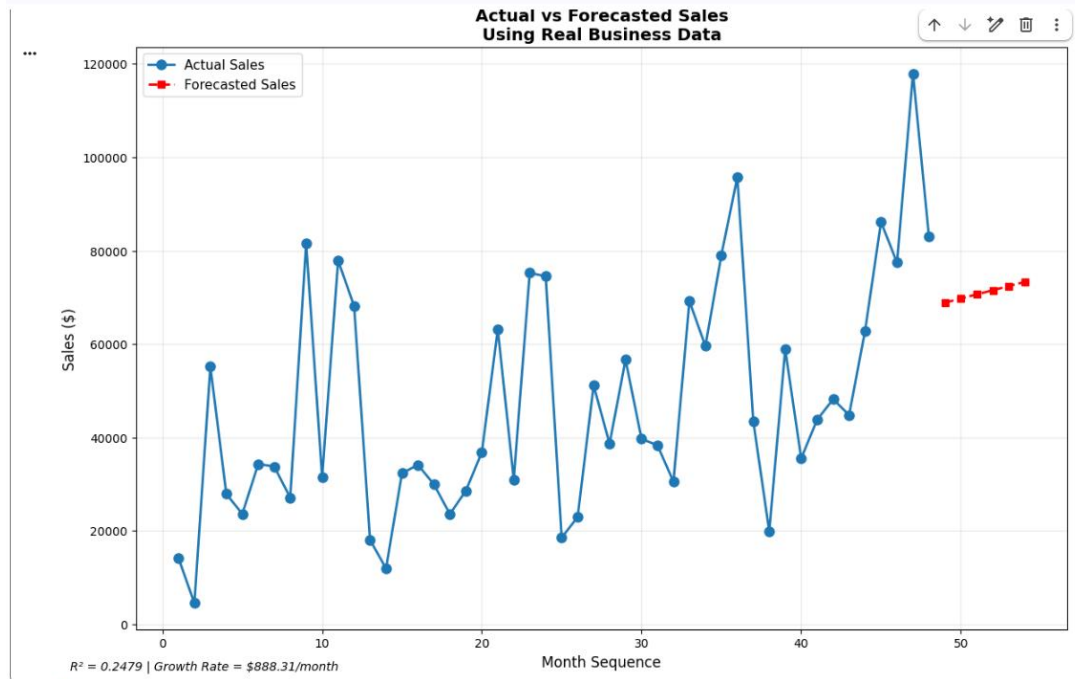
- Forecasted 6-month revenue: $426,598.67

Recommendations:

- Align marketing and inventory strategies with projected sales increase.

- Focus resources on top-performing regions and categories.

- Consider expanding product availability during high-growth periods.

6.   Visualization

Actual vs Forecasted Sales Using Real Business Data

R² = 0.2479 | Growth Rate = $888.31/month

The chart should show that the forecast continues the upward movement observed in recent months, supporting the conclusion of gradual business growth.

7. Conclusion

The Week 3 analysis demonstrates that despite moderate variance, sales are trending upward.

Future forecasts suggest stable and gradual growth, which can guide decision-making in inventory planning and marketing strategy.

Codes Reference: https://colab.research.google.com/drive/1ykz3gHAbQw7TSU_zP-fyfDlgB8h_Uz3K?usp=sharing