Using AI to Analyze Business Data Assignment

Brew and Bean Cafe Financial Data

Date	Product	Units Sold	Unit Price	Total	Category
2025-01-01	Latte	30	4.5	135	Sales
2025-01-02	Espresso	25	3	75	Sales
2025-01-03	Tea	20	2.5	50	Sales
2025-01-04	Pastry	15	3.75	56.25	Sales
2025-01-05	Cappuccino	22	4.25	93.5	Sales
2025-01-06	Latte	30	4.5	135	Sales
2025-01-07	Espresso	25	3	75	Sales
2025-01-08	Tea	20	2.5	50	Sales
2025-01-09	Pastry	15	3.75	56.25	Sales
2025-01-10	Cappuccino	22	4.25	93.5	Sales
2025-01-11	Latte	30	4.5	135	Sales
2025-01-12	Espresso	25	3	75	Sales
2025-01-13	Tea	20	2.5	50	Sales
2025-01-14	Pastry	15	3.75	56.25	Sales
2025-01-15	Cappuccino	22	4.25	93.5	Sales
2025-01-16	Latte	30	4.5	135	Sales
2025-01-17	Espresso	25	3	75	Sales
2025-01-18	Tea	20	2.5	50	Sales

Date	Item	Quantity	Price	Total	Category
2025-01-19	Pastry	15	3.75	56.25	Sales
2025-01-20	Cappuccino	22	4.25	93.5	Sales
2025-01-21	Latte	30	4.5	135	Sales
2025-01-22	Espresso	25	3	75	Sales
2025-01-23	Tea	20	2.5	50	Sales
2025-01-24	Pastry	15	3.75	56.25	Sales
2025-01-25	Cappuccino	22	4.25	93.5	Sales
2025-01-26	Latte	30	4.5	135	Sales
2025-01-27	Espresso	25	3	75	Sales
2025-01-28	Tea	20	2.5	50	Sales
2025-01-29	Pastry	15	3.75	56.25	Sales
2025-01-30	Cappuccino	22	4.25	93.5	Sales
2025-01-31	Latte	30	4.5	135	Sales
2025-02-01	Espresso	25	3	75	Sales
2025-02-02	Tea	20	2.5	50	Sales
2025-02-03	Pastry	15	3.75	56.25	Sales
2025-02-04	Cappuccino	22	4.25	93.5	Sales
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2025-02-06	Espresso	25	3	75	Sales
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2025-02-08	Pastry	15	3.75	56.25	Sales
2025-02-09	Cappuccino	22	4.25	93.5	Sales
2025-02-10	Latte	30	4.5	135	Sales
2025-02-11	Espresso	25	3	75	Sales
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2025-02-24	Cappuccino	22	4.25	93.5	Sales
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2025-02-27	Tea	20	2.5	50	Sales

2025-02-28	Pastry	15	3.75	56.25	Sales
2025-03-01	Cappuccino	22	4.25	93.5	Sales
2025-03-02	Latte	30	4.5	135	Sales
2025-03-03	Espresso	25	3	75	Sales
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2025-03-30	Pastry	15	3.75	56.25	Sales
2025-03-31	Cappuccino	22	4.25	93.5	Sales
2025-01-01	Rent			2000	Expense
2025-02-01	Supplies			1500	Expense
2025-03-01	Payroll			6000	Expense
2025-01-01	Utilities			800	Expense
2025-02-01	Rent			2000	Expense
2025-03-01	Supplies			1400	Expense
2025-01-01	Payroll			6000	Expense
2025-02-01	Utilities			850	Expense

2025-03-01	Rent	2000	Expense
2025-01-01	Supplies	1600	Expense
2025-02-01	Payroll	6000	Expense
2025-03-01	Utilities	900	Expense

Following Questions:

1. What was the café's monthly profit or loss for each of the three months?

The café operated at a significant loss each month:

- **January 2025: Loss of $6,050**
- **February 2025: Loss of $6,000**
- **March 2025: Loss of $5,950**

Total Net Loss for the Quarter: $18,000

2. Which product generated the most revenue?

The **Latte** was the top revenue-generating product.

- It brought in a total of **$1,350** over the three-month period.

3. What percentage of expenses went to payroll?

Payroll accounted for 58.0% of total expenses.

- Total Q1 Expenses: $31,050
- Total Q1 Payroll: $18,000
- Calculation: ($18,000 / $31,050) * 100 = 58.0%

This is an extremely high percentage, indicating labor costs are the primary financial burden.

4. What trends or risks did the AI identify in its analysis?

The AI's analysis highlighted several critical trends and risks:

- **Sustained Financial Losses:** The café is consistently losing around $6,000 per month, which is not financially sustainable and poses an existential threat to the business.
- **Cripplingly High Fixed Costs:** The core problem is that fixed operating expenses (like Payroll and Rent) are more than double the monthly revenue, creating an impossible business model.

- **Revenue Stagnation:** The sales data shows perfectly flat, repetitive revenue each month, suggesting no growth, seasonality, or variability. In a real-world scenario, this indicates an inability to attract new customers or increase sales.
- **Structural Profitability Issue:** The business model itself is flawed. The current sales volume and pricing cannot support the basic operational costs, regardless of efficiency gains in other areas.

5. Do you agree with the AI's findings? Why or why not?

Yes, I strongly agree with the AI's findings.

The findings are not subjective opinions but a direct, mathematical interpretation of the data. The numbers unequivocally show that expenses are vastly outpacing revenue. The conclusion that the business is unsustainable and that the high fixed costs are the primary driver of losses is logically sound and accurately reflects the financial reality presented in the spreadsheet.

6. How would you improve the café's financial performance?

To improve performance, the café needs a two-pronged strategy: **drastic cost reduction** and **aggressive revenue growth.**

1. Drastic Cost Reduction (Immediate Priority):

- **Address Payroll (58% of expenses):** This is the biggest lever. Conduct a thorough review of staffing schedules. Can the café operate with fewer employees per shift? Could part-time roles replace some full-time positions? Is automation (e.g., a self-service kiosk) feasible for simple orders?
- **Renegotiate Fixed Costs:** Approach the landlord to renegotiate the **Rent**($2,000/month). If this is impossible, the most drastic but necessary step would be to consider relocating to a smaller, more affordable space.
- **Optimize Supplies:** While a smaller expense, consistently look for bulk purchasing discounts and cheaper, high-quality suppliers for coffee, milk, and pastries.

2. Aggressive Revenue Growth:

- **Increase Sales Volume:**
    - **Marketing & Promotions:** Run "Happy Hour" specials, launch a loyalty program, or offer a free pastry with a drink purchase before 9 AM.
    - **Upselling:** Train staff to consistently ask "Would you like a pastry with your coffee?" or "Would you like to try our large size today?"
- **Increase Revenue Per Sale:**
    - **Menu Engineering:** Introduce new, high-margin items (e.g., specialty flavored lattes, signature breakfast sandwiches) that can be sold at a premium.
    - **Strategic Price Increases:** Given their popularity, a small price increase on Lattes and Cappuccinos could significantly boost revenue without drastically impacting demand.
- **Diversify Revenue Streams:**
    - **New Channels:** Offer local delivery through apps like Uber Eats or DoorDash.

- ○ **Catering:** Target local businesses for morning meeting coffee and pastry orders.
- ○ **Merchandise:** Sell bags of branded coffee beans or reusable cups.
- ○ **Space Utilization:** Host paid events in the evening (e.g., book clubs, poetry readings) to generate revenue during typically closed hours.

3. Financial Analysis and Planning:

- **Calculate the Break-Even Point:** Determine the exact daily sales number (in units and dollars) required to cover all costs. This becomes the primary target for the entire team.
- **Implement Detailed Tracking:** Start tracking customer traffic and average transaction value daily to understand what initiatives are actually working.

REFLECTION:

Was the AI helpful in analyzing business data?

Yes, not only did it provide a baseline reference for how the business is going, but it also provided a multi-step elaboration as to how to improve the business and its operations. It even went as far as elaborating on each step with bullet points that give context as to how the step is achieved.

What were the strengths and limitations of using AI for this task?

GPT was limited to only allow one document for analysis, which had me move to Deepseek to complete the assignment. Depending on the language model, certain features can only be accessed if they are paid for, which can be very limiting to a user that needs multiple documents analyzed.

How could AI improve small business decision-making in the future?

AI could notice the trajectory that a business is moving towards before humans can determine or predict it for themselves, which would help it to realize and make decisions that humans didn't consider to make a priority. This would not only improve upon an individual's "tunnel vision", but it would also give better context for decision makers that need a more in-depth analysis of their business.