Project 5 Proposal:
Forecasting Sales for Business Planning

Problem
Business owners often struggle to plan their staff schedules, inventory, and workload—especially with perishable inventory (e.g., flowers) and fluctuating demand (e.g., seasonality, holidays). Based on past orders, I want to help my aunt predict future order volume on a daily or weekly basis to optimize her planning and use of inventory.

Data
My aunt's notekeeping system—from which I have pulled 5 years' worth of CSV files containing product, order, and customer information.

Products Ordered Report

Independent Variable	Type	Description	Use for Model?
Order #	Int	Identifier of a unique order	N
Product ID	String (object)	All "Product IDs" are labeled as "takeorder"	N
Product Name	String (object)	"Special Product for POS", some have order/delivery notes (ex. "9am pick up" or "IF NOT AT HOME PLZ LEAVE IN SAFE PLACE ON PORCH") or "recommended by __"	N
~~Description~~	~~String (object)~~	~~Actual product description (ex. "Designer's Choice", "DC", "Designers Choice", "1 Anthurium plant, dressed up", "1. One doz lavender roses in bouquet $65; and 2. One plant (easy to care for) w/silk (lavender) - long lasting - to put on bar counter 75", "two double mini orchid plants", "In The Banksia as on website"), "1. ONE spray, ikebana like "colorful." Mix of colors w/reds - celebration of life - three(3) birds of paradise (5'tall, 30"w) $300; 2. ribbon 10"~~	~~Y~~
Category	String (object)	~50% "Uncategorized", some say "Funeral", "Get well", "Fresh Flowers", "Blooming Plants"	Y
QTY	Int	Number of products… ~99% are 1	Maybe?

Basic Sales Report

Independent Variable	Type	Description	Use for Model?
Order #	Int	Identifier of a unique order	N
Transaction Type	String (object)	Most are "Sale", others include "HA Payment", "Adjustment", "Refund"	N
Order Time	String (object)	Time of day and weekday	Y
Order Date	String (object)	Date the product was ordered	Y
Delivery Date	String (object)	Date the product was scheduled for delivery	Y
Sender	String (object)	First and last name of person who ordered the flowers	Y
Product Total	String (object)	Dollar amount of the price	Y
Delivery	String (object)	Dollar amount of the delivery fee	Y

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Grand Total	String (object)	Dollar amount of the product total + delivery fee + tax	Y
Payment Method	Categorical string/object	Credit Card, CC Terminal/Square, Check/Money Order, Cash, Account Credit	Y
Order Type	Categorical string/object	Delivery, Pickup, Taken, Wire Out	Y
Customer Type	Categorical string/object	Phone, Walk-in, Standing Order	Y

Customers

Independent Variable	**Type**	**Description**	**Use for Model?**
First Name	String (object)	First name of person who ordered the flowers	N
Last Name	String (object)	Last name of person who ordered the flowers	N
Company	String (object)	(If applicable) Company who ordered the flowers	Maybe?
City	String (object)	City of person who ordered the flowers	Y
State	String (object)	State of person who ordered the flowers	Y
Zipcode	String (object)	Zip code of person who ordered the flowers	N
Average Purchase	String (object)	Average amount spent across all purchases from a given customer	Maybe?
Total Purchase	String (object)	Total amount spent across all purchases from a given customer	Maybe?

Dependent Variable	**Type**	**Description**	**Use for Model?**
(Product) Description	String (object) → Clean up free text and turn into count of orders for specific products	Actual product description (ex. “Designer’s Choice”, “DC”, “Designers Choice”, “1 Anthurium plant, dressed up”, “1. One doz lavender roses in bouquet $65; and 2. One plant (easy to care for) w/silk (lavender) - long lasting - to put on bar counter 75”, “two double mini orchid plants”, “In The Banksia as on website”), “1. ONE spray, ikebana-like "colorful." Mix of colors w/reds - celebration of life--three(3) birds of paradise (5'tall, 30"w) $300; 2. ribbon 10”	Y

Known Unknowns/Barriers

- To get the products (arrangements) requires a lot of text cleaning
- The actual flowers/supplies and the quantities used is not always listed in the products, so I’ll need to do additional research with my aunt about what actual supplies and flowers go into each product.

Potential Resources

- NumPy, Pandas
- Statsmodels, SK Learn
- Matplotlib, Seaborn

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- Possibly other data sources or scraping resources, if time permits/available

MVP

Facebook Prophet has a time series model that I can use to predict orders at varying time intervals. I plan to use their model to predict order counts for all products for my MVP, and then I will break down the products separately into different categories or flower arrangements.

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