



TIME SERIES APPROACH

Liquor Revenue Forecasting

By Shuo Jia



Who Is The Business Audience?

Wholesale Distributor

Benefits of Revenue Forecasting

- Budget Planning
- Resource Allocation
- Cash Flow Management
- Customer Insights

CASE BACKGROUND



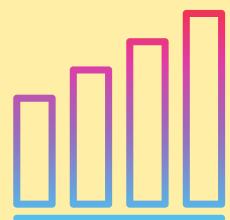
- Distributor - Iowa Alcoholic Beverage Division
- Key Output - Forecast Monthly Liquor Revenue

DATA I TOOLS

- Iowa State Gov Data Portal
- Wholesale Purchase of Liquor Since 2012
- Features:
 - Transaction Order Details
 - Vendor Info
 - Retail Price



METHODOLOGY



EXPLORATORY ANALYSIS

- Retail chains
- E.g. Target



MODEL BUILDING

- Dickey-Fuller test
- ACF & PACF plots
- SARIMA model
- Grid search & expanding window



BENCHMARK

- FBprophet



MODEL EVALUATION

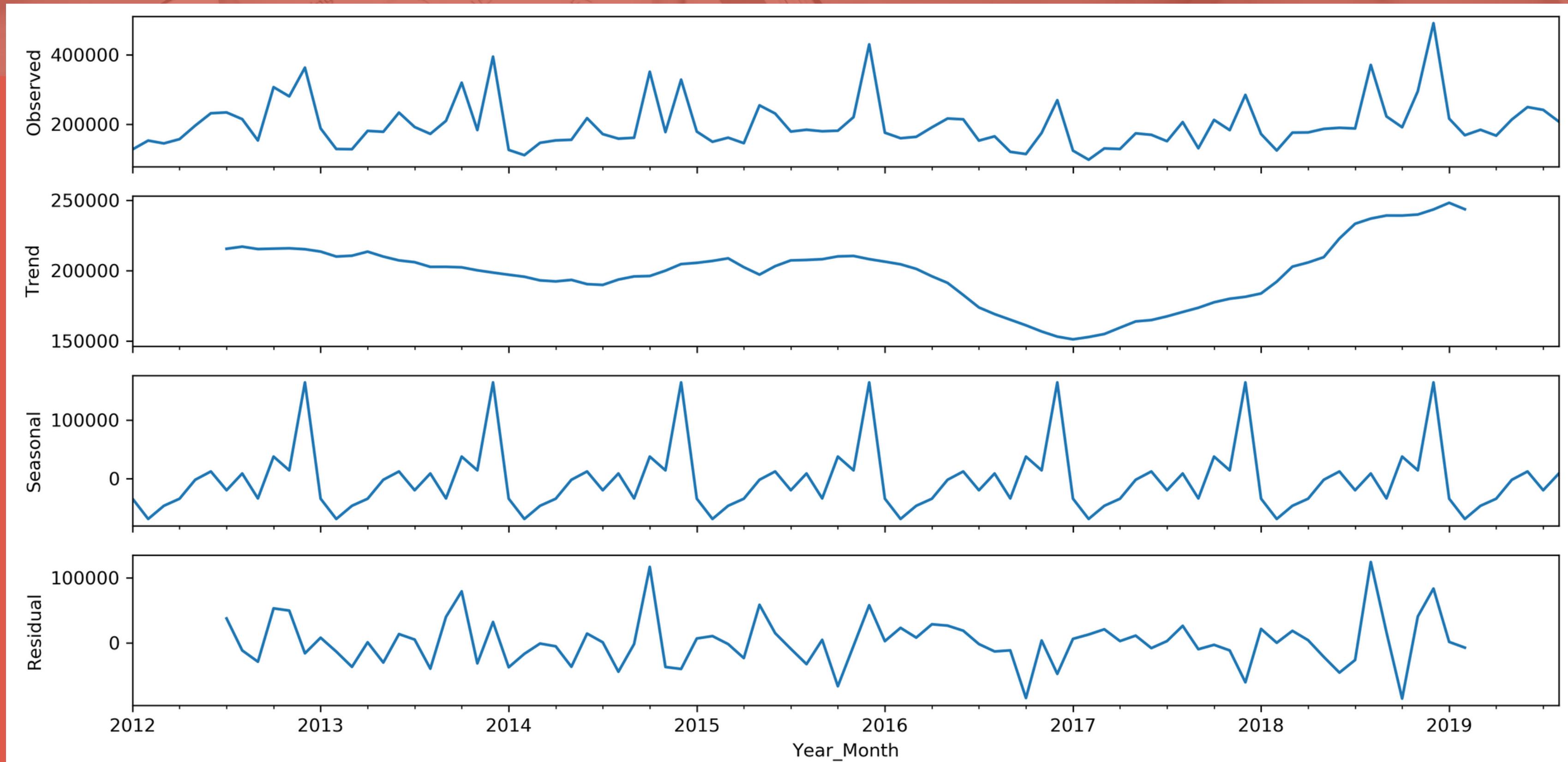
- Residual diagnostic plots
- Error scores



BUSINESS APPLICATION

- Other applicable fields

DECOMPOSITION



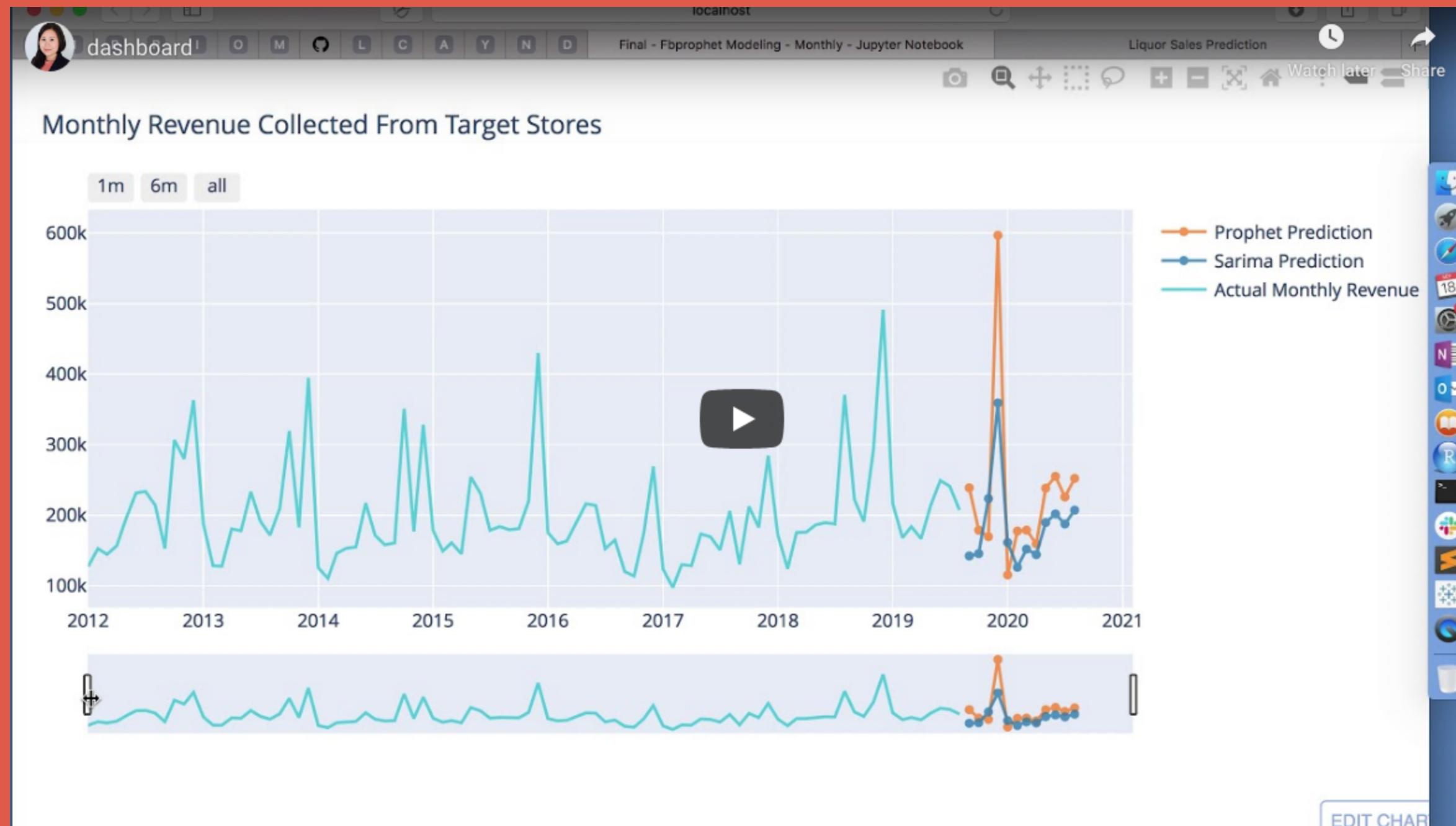
SARIMA PERFORMANCE

- RMSE: \$56,213
 - MAE: \$42,502
 - MAPE: 16.2%
-

PROPHET PERFORMANCE

- RMSE: \$84,815
- MAE: \$68,796
- MAPE: 28.6%

DASHBOARD DEMO



BUSINESS APPLICATIONS

Other Applicable Fields:



Demand Forecasting



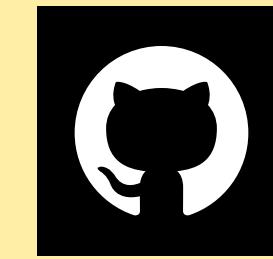
Inventory Planning



Thank You!



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