

# ADS 506 — Week 5 Submission: Storytelling with Shiny

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## Part I — Links and Description (required)

- **Deployed Shiny App URL:** [https://8tf8jm-bart-teeuwen.shinyapps.io/Australian\\_Wine\\_Forecasting\\_Analysis/](https://8tf8jm-bart-teeuwen.shinyapps.io/Australian_Wine_Forecasting_Analysis/)
- **Code URL:** <https://ed8c371ec72e49dc80223cef12ae50a4.app.posit.cloud/>

**App Name:** Forecasting Australian Wine Sales

**Description:** This dashboard can help a sales leader for Australian winery explore historical wine sales and predicting where the australian wine market is heading next under the supervision of a data scientist. The dashboard takes monthly sales data (from 1980–1994) and applies forecasting models to visualize trends across dizerent wine varietals based on user selected details such as date range, accuracy metrics, forecast settings, and confidence.

### Main Features:

- **Historical Sales** - Filter and visualize sales data for specific wine types (like Sparkling, Red, Fortified, etc) across data ranges.
- **Easy Modeling** - Click forecasting models and the app does all the work to visualize model performance.
- **Model Comparison** - At a glance model performance comparison using clear, color-coded accuracy tables.
- **Looking Ahead** - Ability to forecast sales 12 months ahead with two confidence levels to see the potential range of future sales.

### How to Use It:

The dashboard is easy to use but business leaders wil require supervision to translate technical data to business insights.

**Step 1:** in the filters on the left side select wine varietals, date range, accuracy metrics, forecast models, and confidence level.

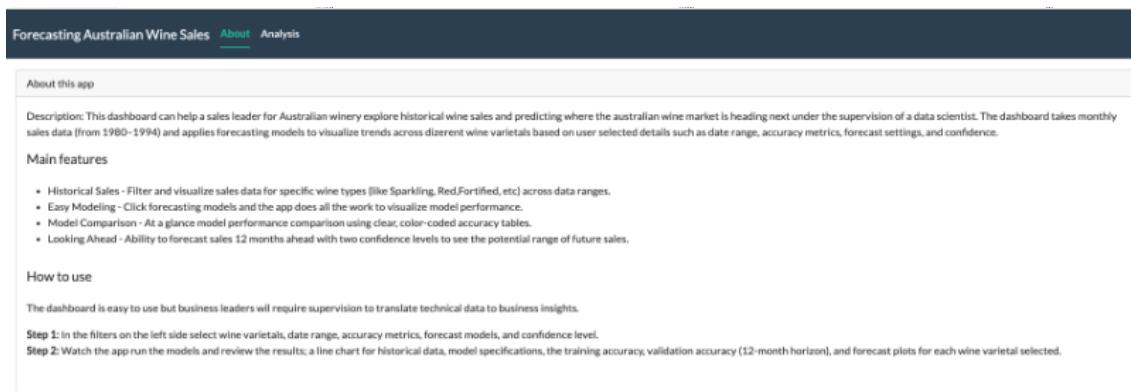
**Step 2:** watch the app run the models and review the results; a line chart for historical data, model specifications, the training accuracy, validation accuracy (12-month horizon), and forecast plots for each wine varietal selected.

## Part II — Data Story (◆ 2 pages total)

**Insight** ARIMA is the top-performing model for Red, Rose, and Fortified wines, but struggles with the complex seasonality of Sparkling and Sweet White varietals, which is where the SNAIVE and ETS model provide better accuracy.

The dashboard shows that it's hard if at all possible to use a model that works well across the board in forecasting wine sales; the Australian winery must deploy different models for each varietal they sell as sales by varietal follow unique trends that require different models to properly plan for future wine sales.

**Evidence** Dashboard of Australian Wine Forecast for fictional Australian winery.



## References

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- Hyndman, Rob. 2023. *Fpp3: Data for "Forecasting: Principles and Practice" (3rd Edition)*. <https://CRAN.R-project.org/package=fpp3>.
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- OpenAI. 2023. “ChatGPT (Nov 24 Version) [Large Language Model].” <https://chat.openai.com>.
- Wickham, Hadley. 2023. *Tidyverse: Easily Install and Load the 'Tidyverse'*. <https://CRAN.R-project.org/package=tidyverse>.