SARIMA Time-Series Models

Capstone Project

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Business Understanding

| Client	Business Goal	Data
Fire Maul Tools	Solve Inventory Issue	5 Years worth of sales: -13,977 units sold -11 Color Options

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Data Understanding

- Import Data from Business Owner with Permission

- Clean Data and look for Trends

- Inspect Historical Prices and Quantities Sold

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Data Understanding

- Top 3 Sellers:
  - Black Grip Kits
  - Red Grip Kits
  - Blue Grip Kits

- Account for over 60% of sales

Grip Kits sold by Color
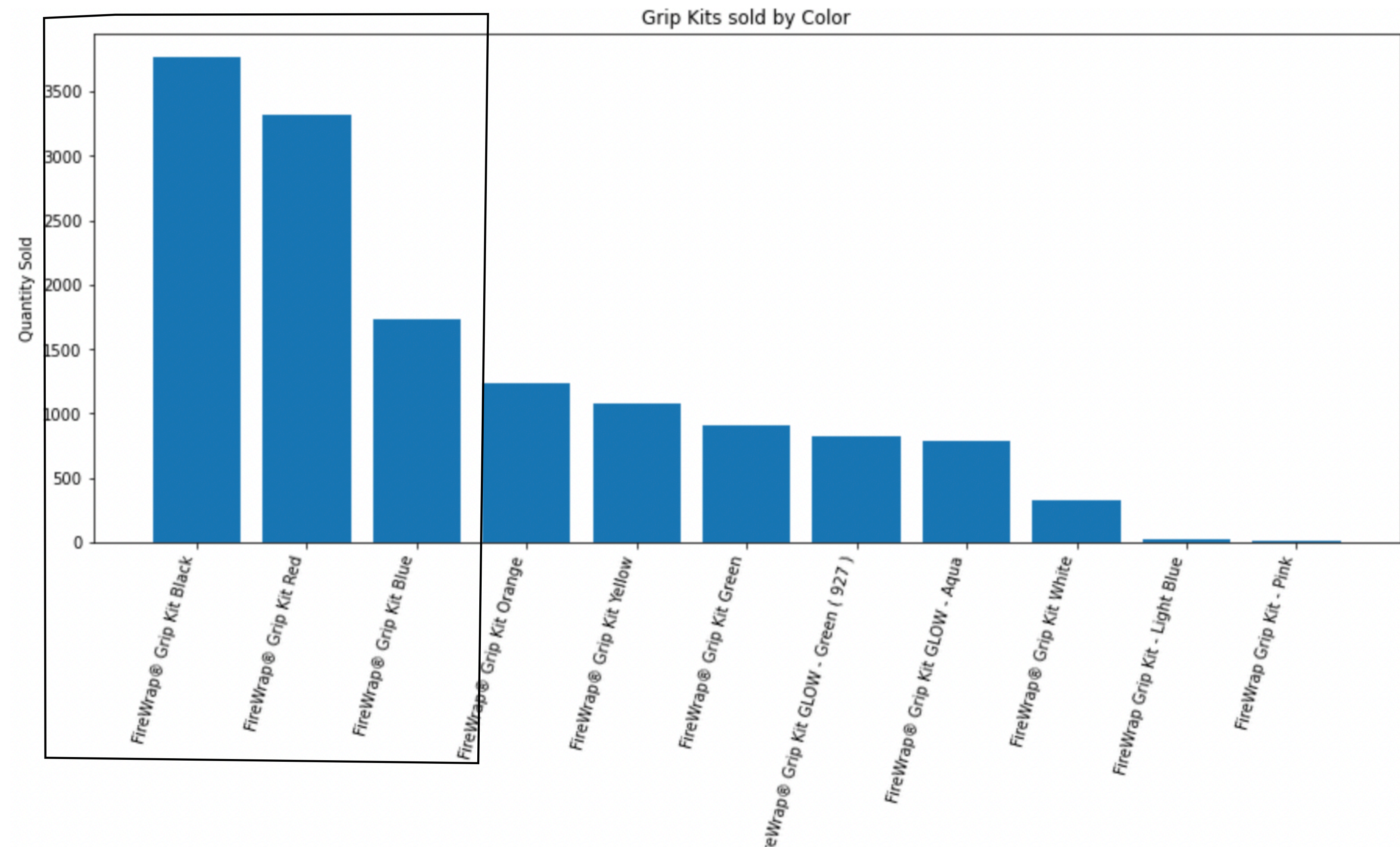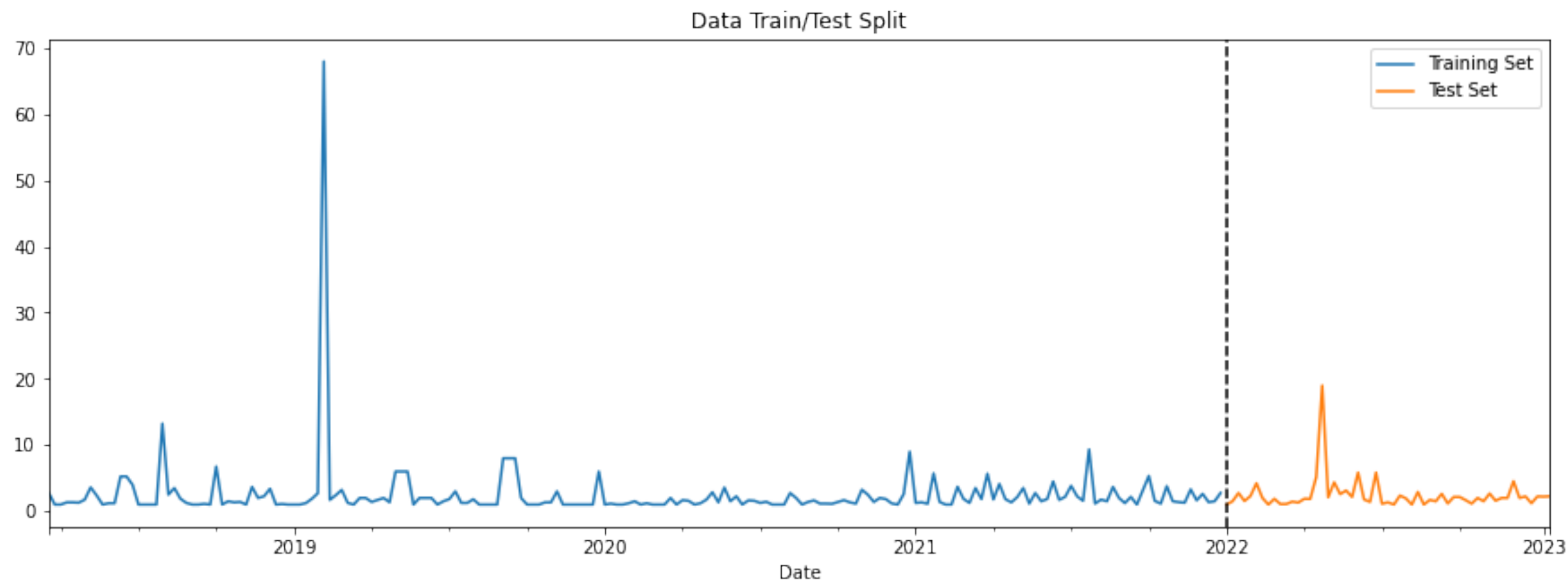

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Data Preparation

- Create 3 Separate DataFrames for Each Top Selling Color

- Set Parameters For Each of the 3 DataFrames

- Run Each DataFrame through a SAMIRA time-series model

Blue
12

Red
23

Top 3
Colors

Black
26

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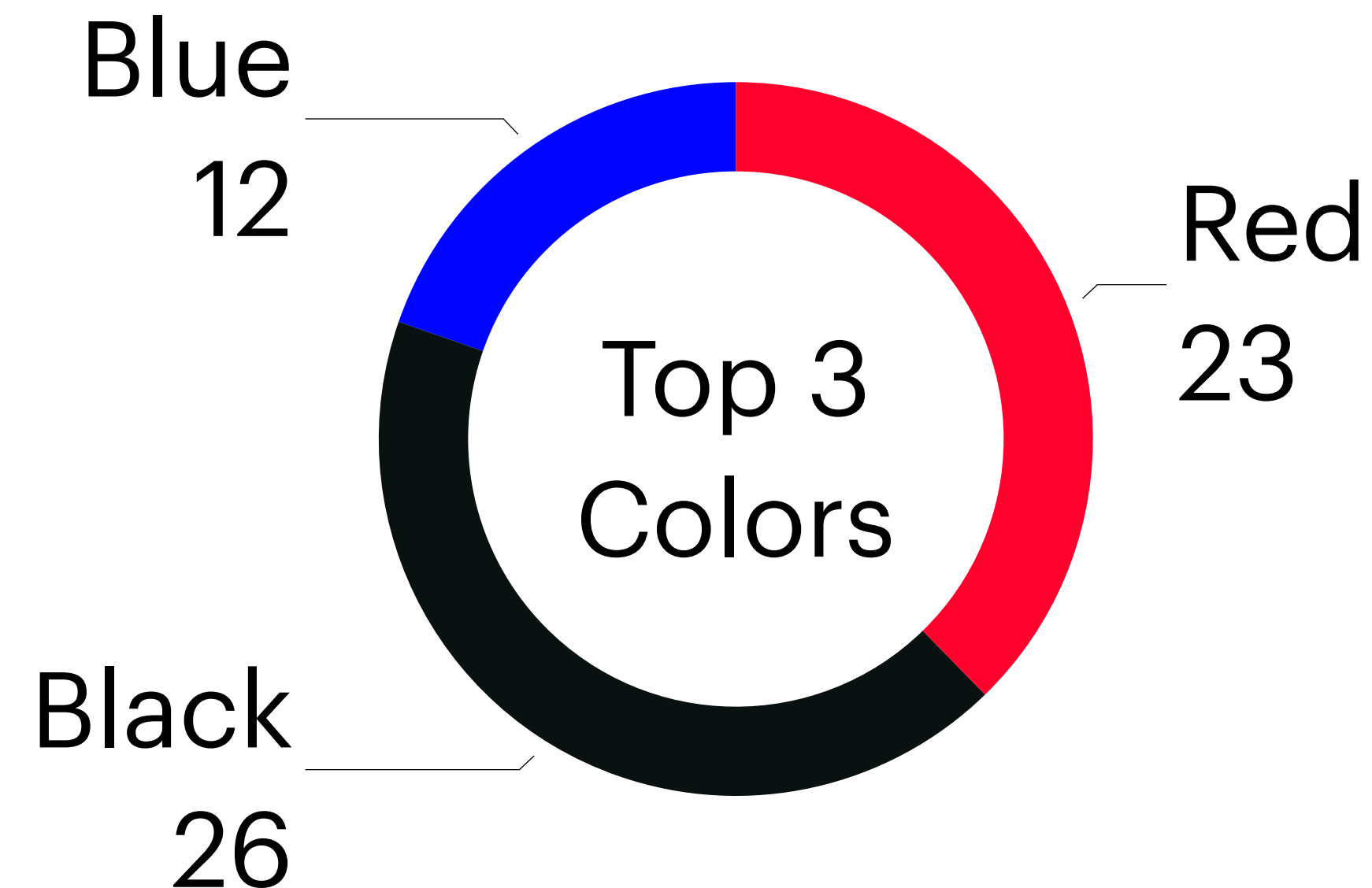
Models

- To produce our SARIMA models the data was split into test/training sets

- The optimal parameters were then fitted to allow us to make predictions
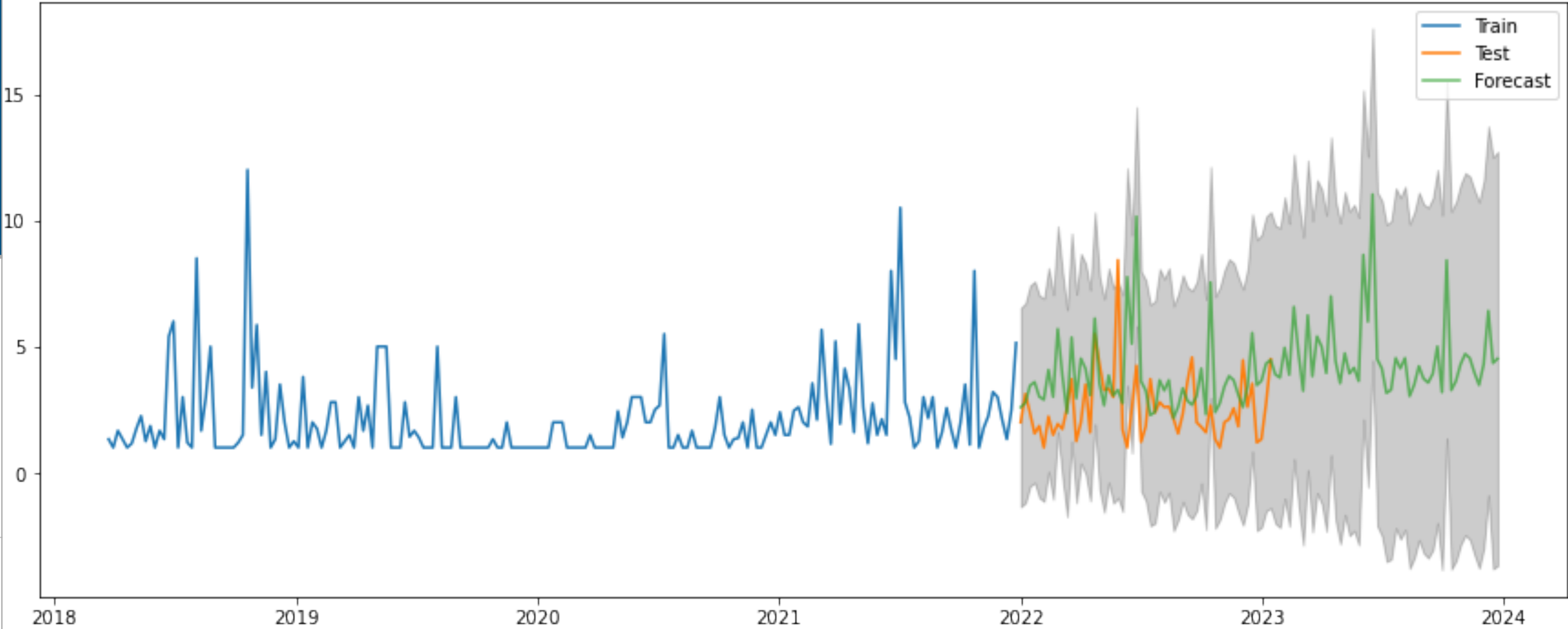

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Models

-      Model Predictions For the Next Year by Week:

Black	Red	Blue
Qty: 2.377	Qty: 3.707	Qty: 2.365
CI Range: 8	CI Range: 8	CI Range: 9

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Conclusions

- Based on the predictions of our models we recommend that Fire Maul Tool anticipate to sell on the high end of the confidence interval, based off last years sales.

- The company should always be prepared to sell a minimum of 7-10 units a week for the top 3 colors
- There will always be weeks with fewer or large sales, but this method will help inventory issue

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Next Steps

- Continue to update sales sheet to keep track of trends and extend forecasts

- Perform a time series on all grip kits as a single product

- Measure success of predicted quantities and confidence intervals

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Thank You!

Questions?

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