

INSPIRE Brands Technical Case Study

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GitHub Repo: <https://bit.ly/3lTYte4>

Executive Summary

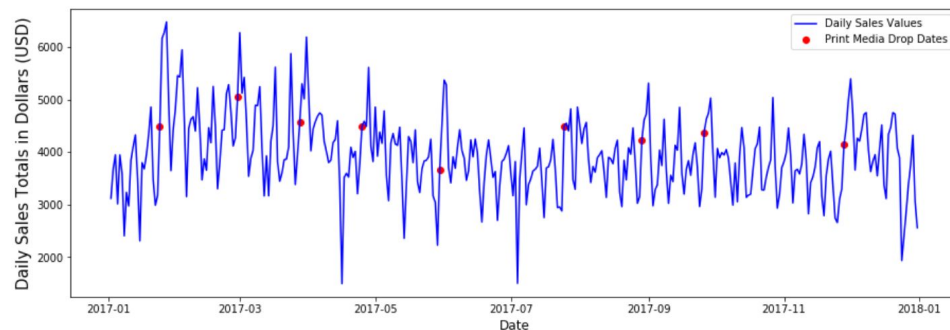
- ❖ Estimated Weekly Sales for Next Week : \$22,542,670.17
- ❖ Print Media Drops show no relationship to increase in sales
- ❖ Combined data from many different sources to build final data set for model
 - Most Important Features were...
 - Time of Year
 - Seasonality
 - Age of Restaurant
 - Older restaurants tend to perform better than newer ones
 - # of Competitors in 1 mile radius
 - There is a sweet spot that increases sales, but most restaurants are unaffected by competitors
 - TV Advertising
 - Effective for existing customers; less effective for non-customers
- ❖ Advice to marketing agencies
 - Rethink approaches to both print and tv media

\$22,542,670.17

*Predicted Weekly Corporate
Sales*

Effectiveness of Print Media

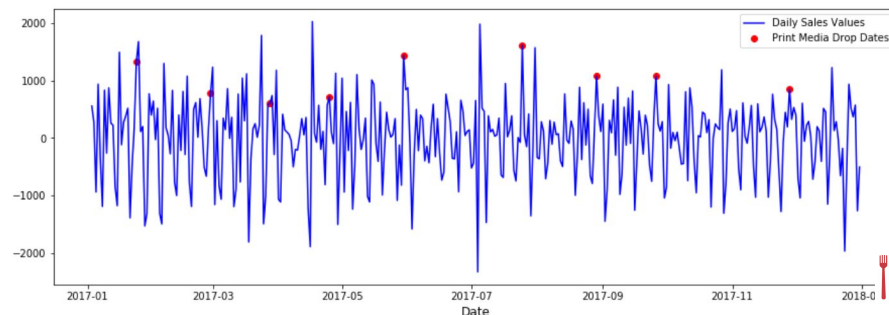
Input the Restaurant Number to Plot Time Series: 1
Input Year to View: 2017
Restaurant # 1 (2017) Sales by Day and Print Media Drop Dates



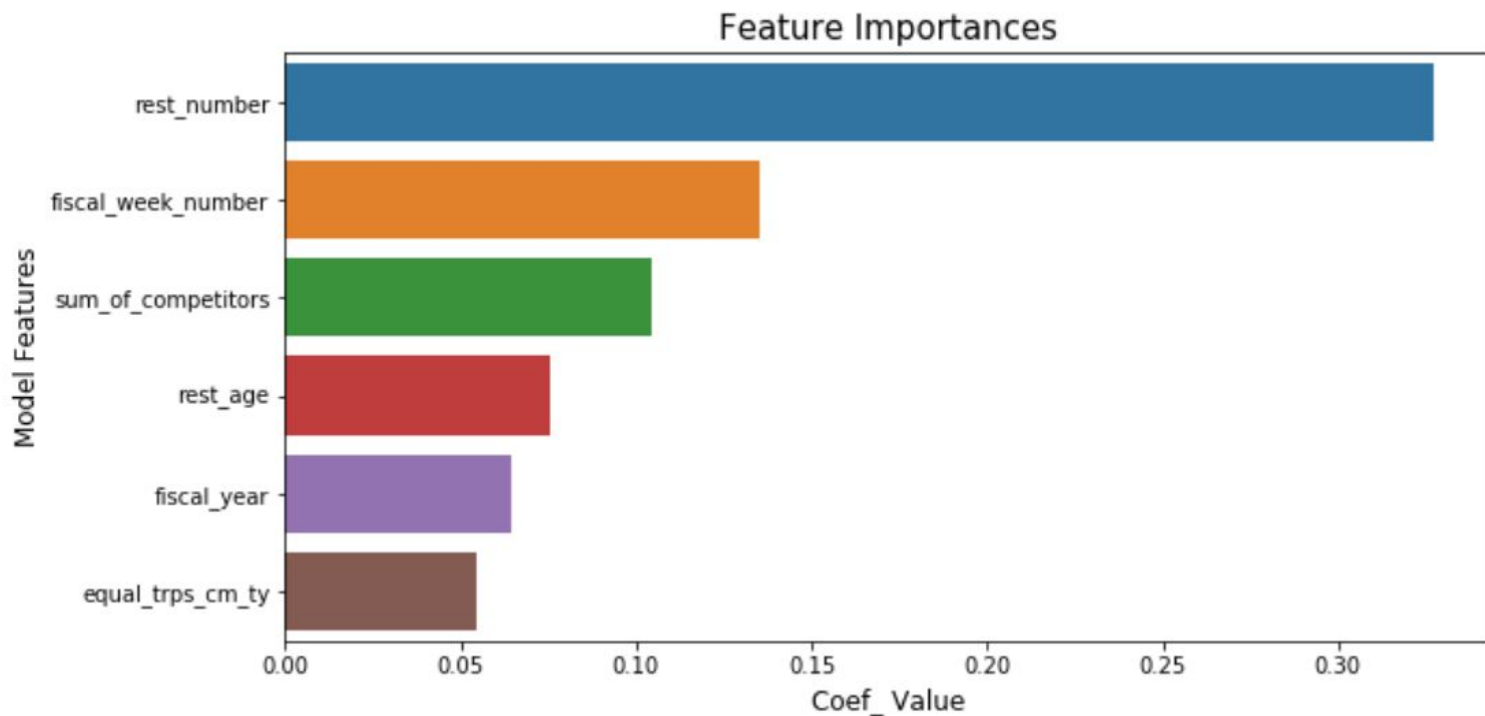
Print Media drop rates seem to increase sales before accounting for weekly seasonality in the data

Increase disappears when using differencing to eliminate seasonality

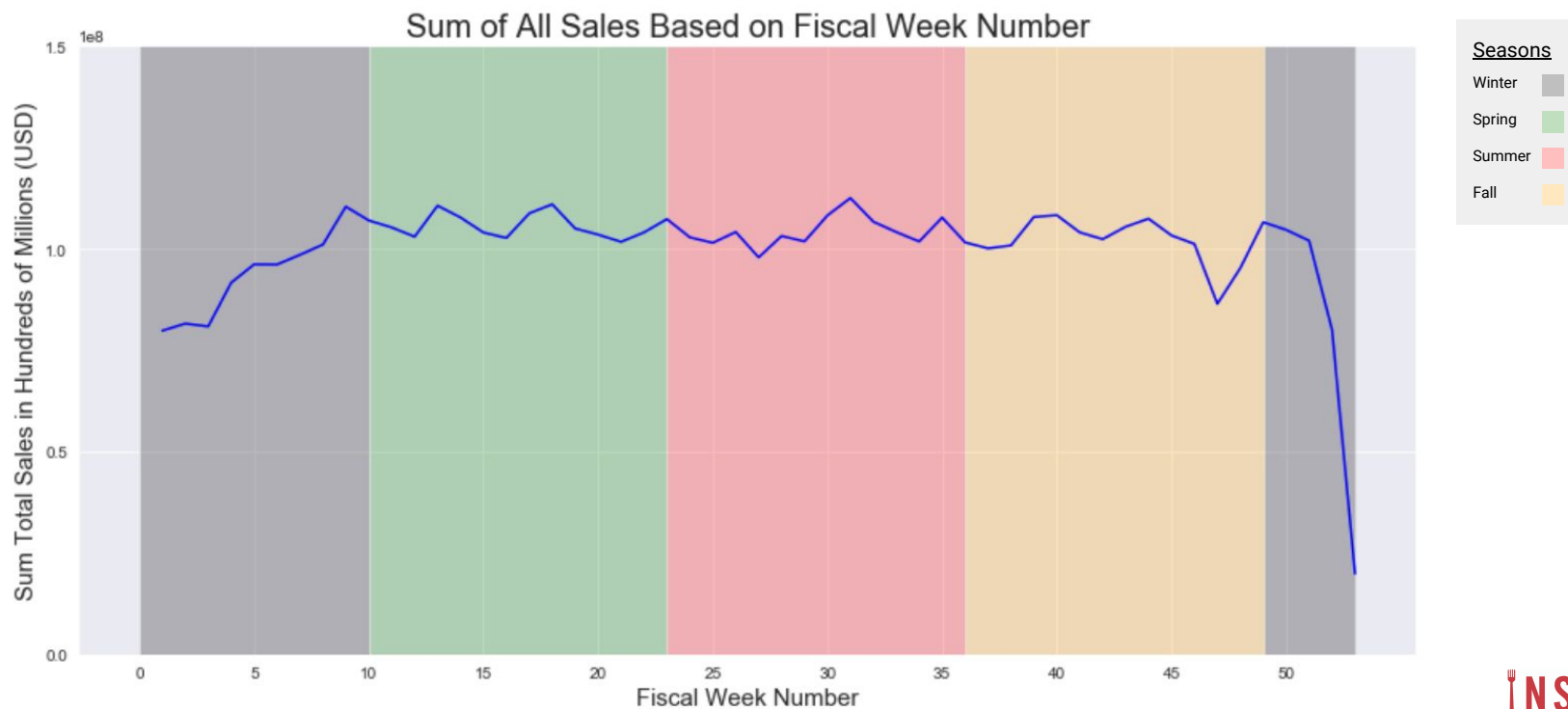
Input the Restaurant Number to Plot Time Series: 1
Input Year to View: 2017
Restaurant # 1 (2017) Sales by Day and Print Media Drop Dates, Seasonality Removed



Best Features of Model

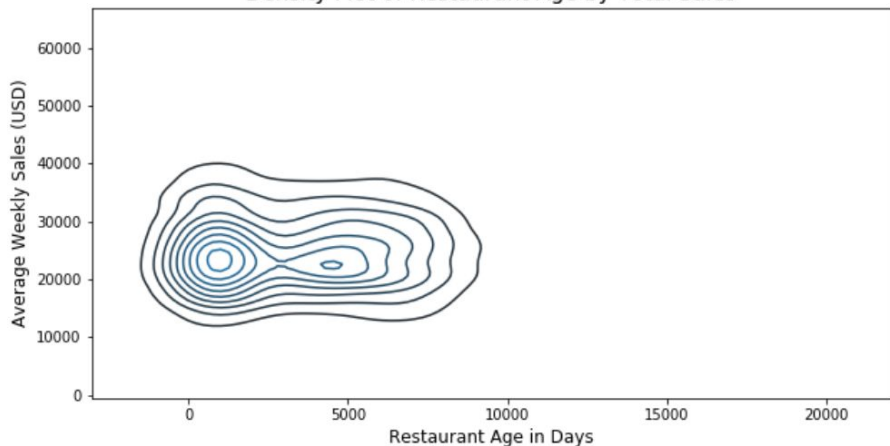


Time of Year (Seasonality)

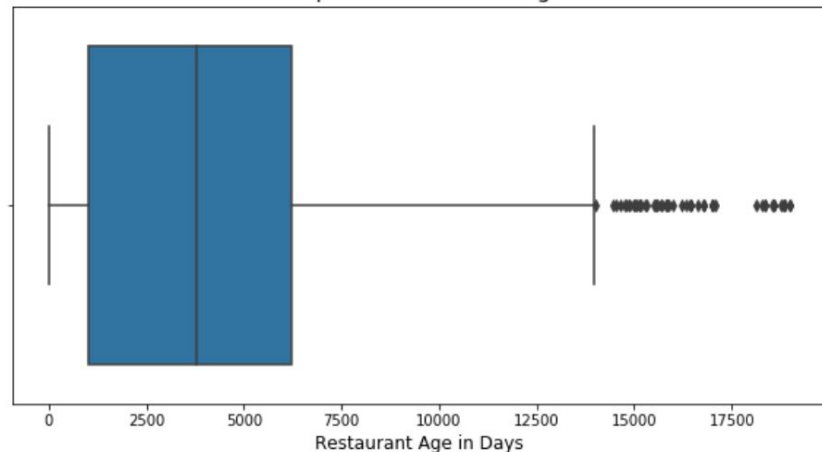


Age of Restaurant

Density Plot of Restaurant Age by Total Sales



Boxplot of Restaurant Age



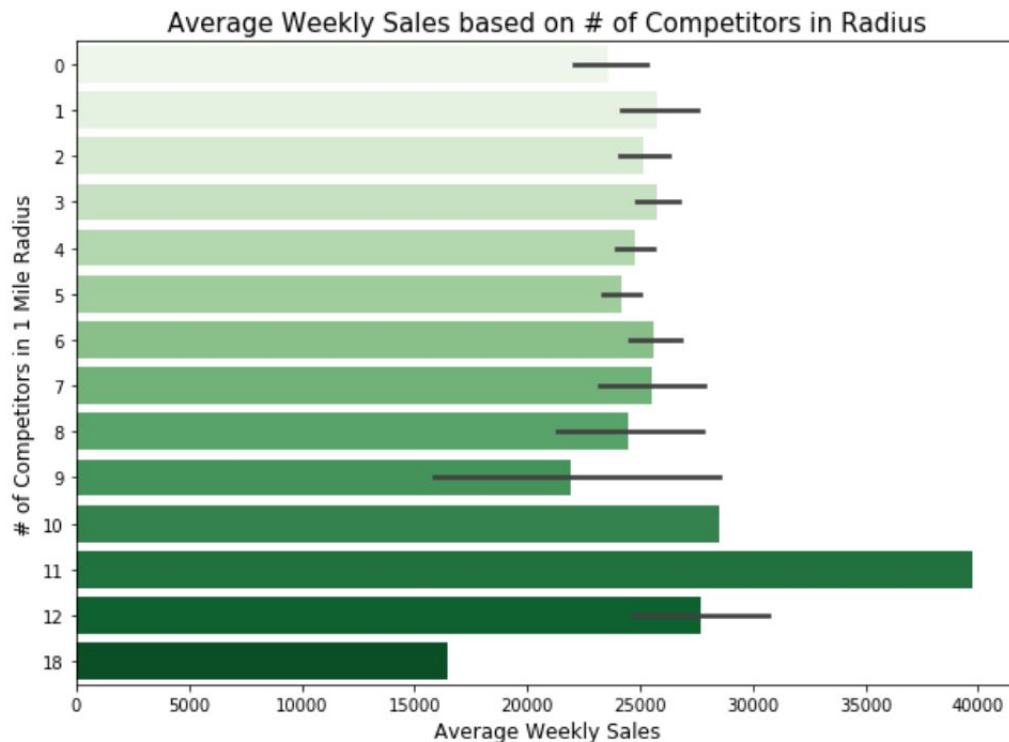
Average age in days of bottom 500 performing restaurants: 12.7 years

Average age in days of top 500 performing restaurants: 11.4 years

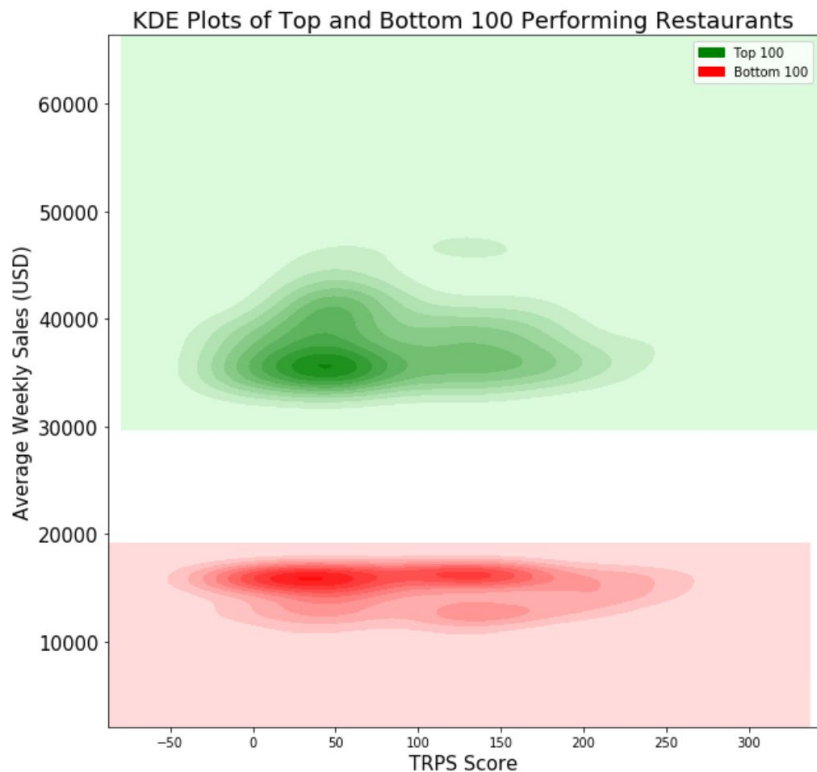
Percent difference: 10%

Average age of all restaurants: 12.0 years

Number of Competitors in 1 Mile Radius



TV Advertising Effectiveness



Average TRPS Score for Bottom 100 Restaurants: 102.0
Average TRPS Score for Top 100 Restaurants: 90.24
Average TRPS Score for All Restaurants: 89.09

Marketing Strategies Recommendations

- ❑ Rethink approach to print media
 - ❑ Tuesday drop to target weekends do not seem to have an impact
- ❑ Rethink TV Marketing campaign
 - ❑ The right people are seeing the tv commercials but they are not being converted to customers

Future Work

- ❑ Explore additional ways to plot geographic data (DMA Codes)
- ❑ Further examine time series models that can effectively deal with seasonal data (SARIMA)
- ❑ Get customer feedback to perform sentiment analysis between older and newer restaurants (find out their secret)
- ❑ Integrate weather data into the model
- ❑ Deploy model using Flask API

Thanks and let me know if you have
any questions!