Inventory management for Etsy small business

By Dariga Kokenova

Data overview:

Source:
- 2020 sales data provided by small business owner
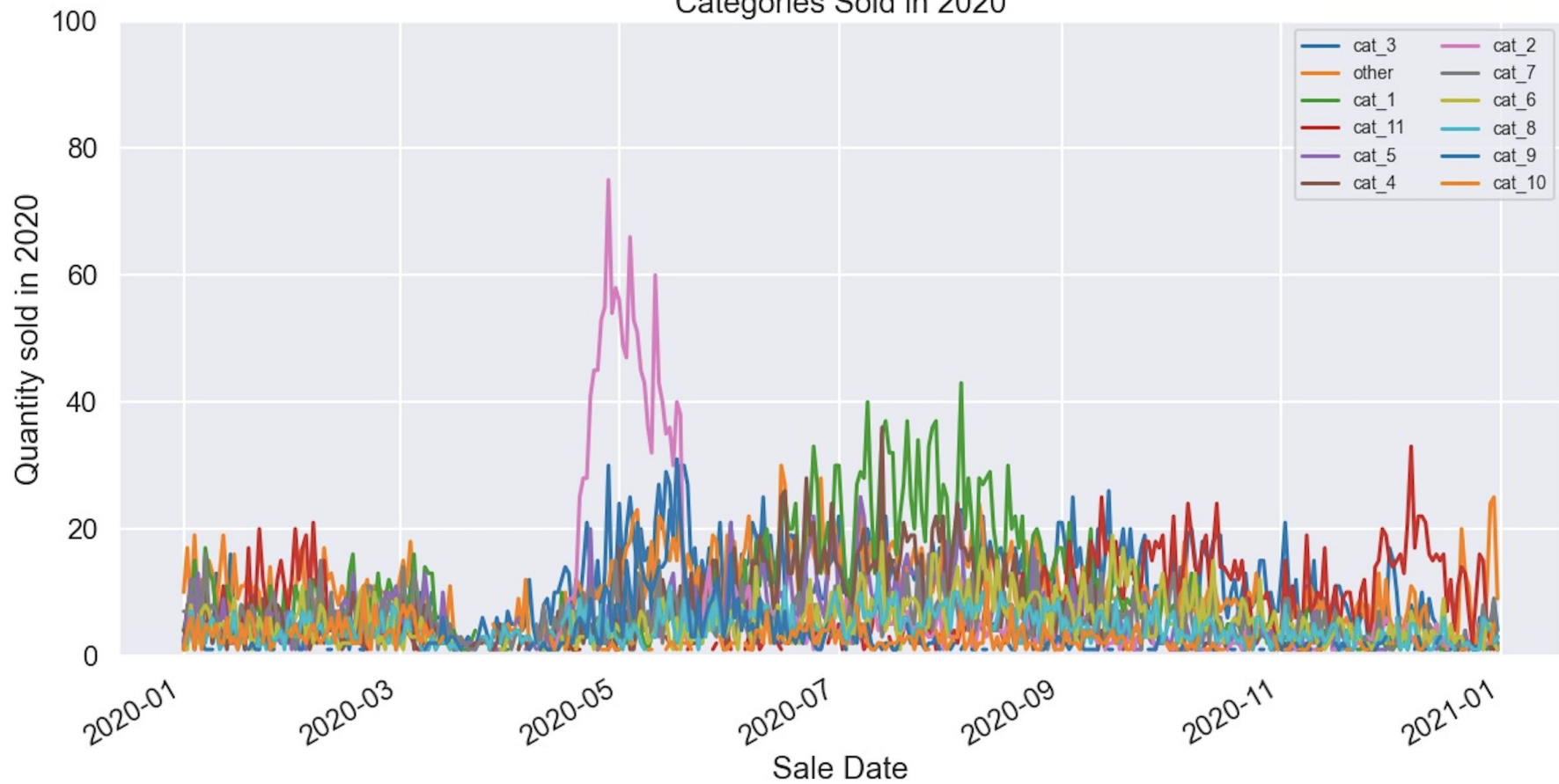- Detailed item description obtained from Etsy API

Data volume:
- 26,665 daily sales observations
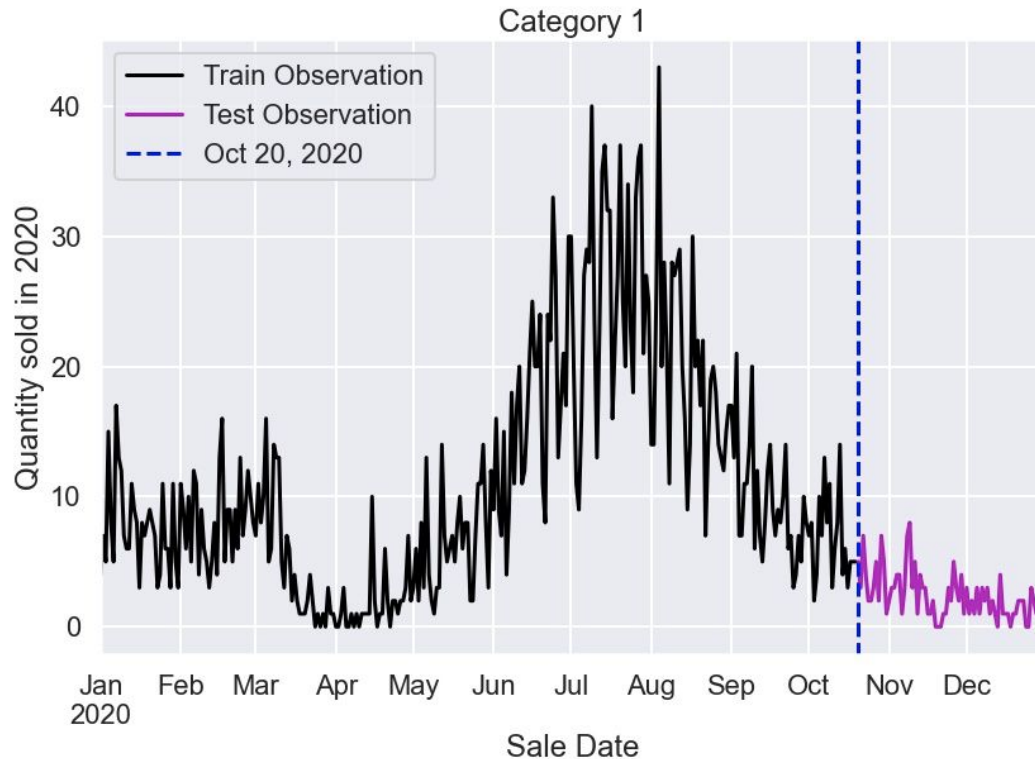- 700 item descriptions currently sold on Etsy

Range of Time: 01/01/2020 - 12/31/2020
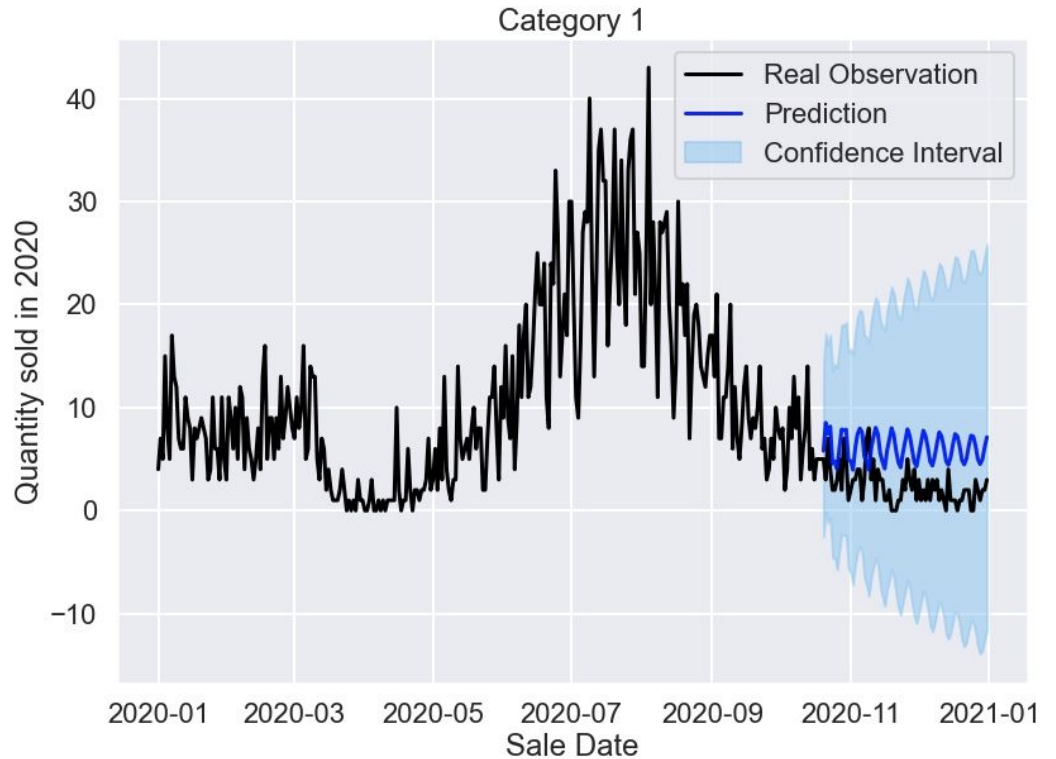
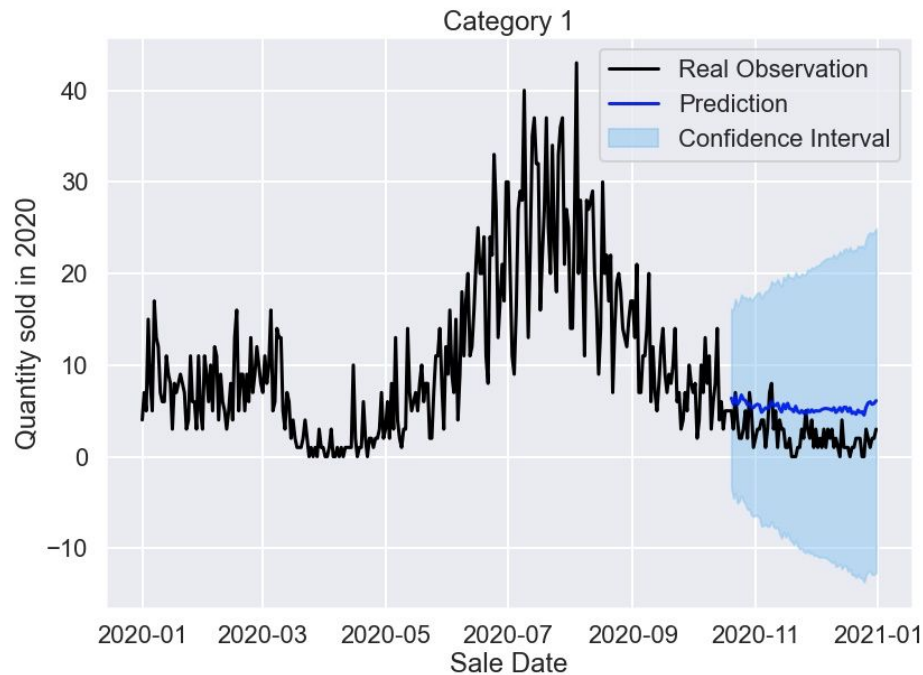**Exogenous variable:** from Google Trends API

Categories Sold in 2020

Category 1

Category 1: ARIMA (order=4,1,5)

Category 1: SARIMAX

Google Trends Report for "party decorations"
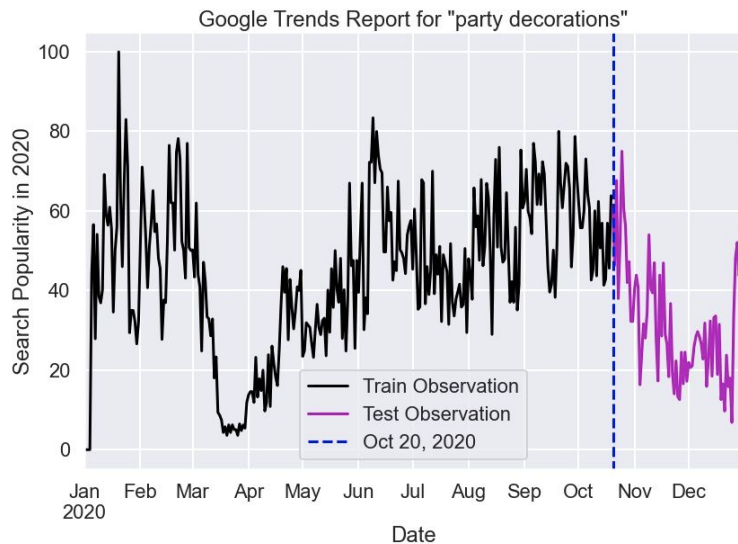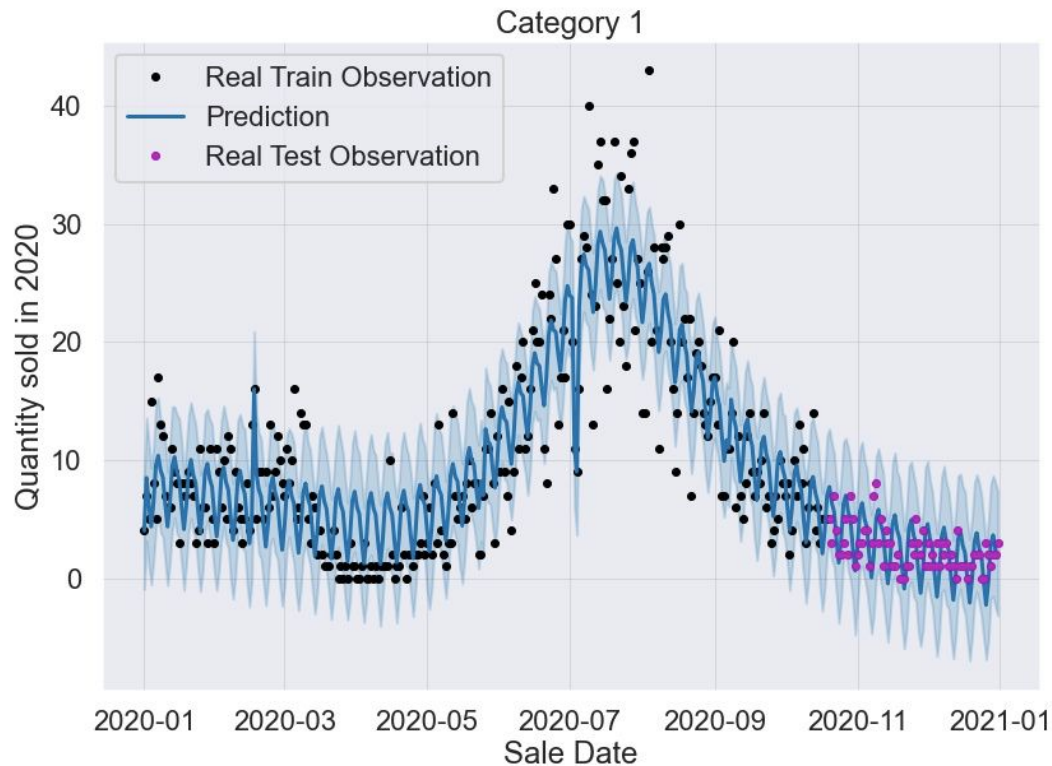

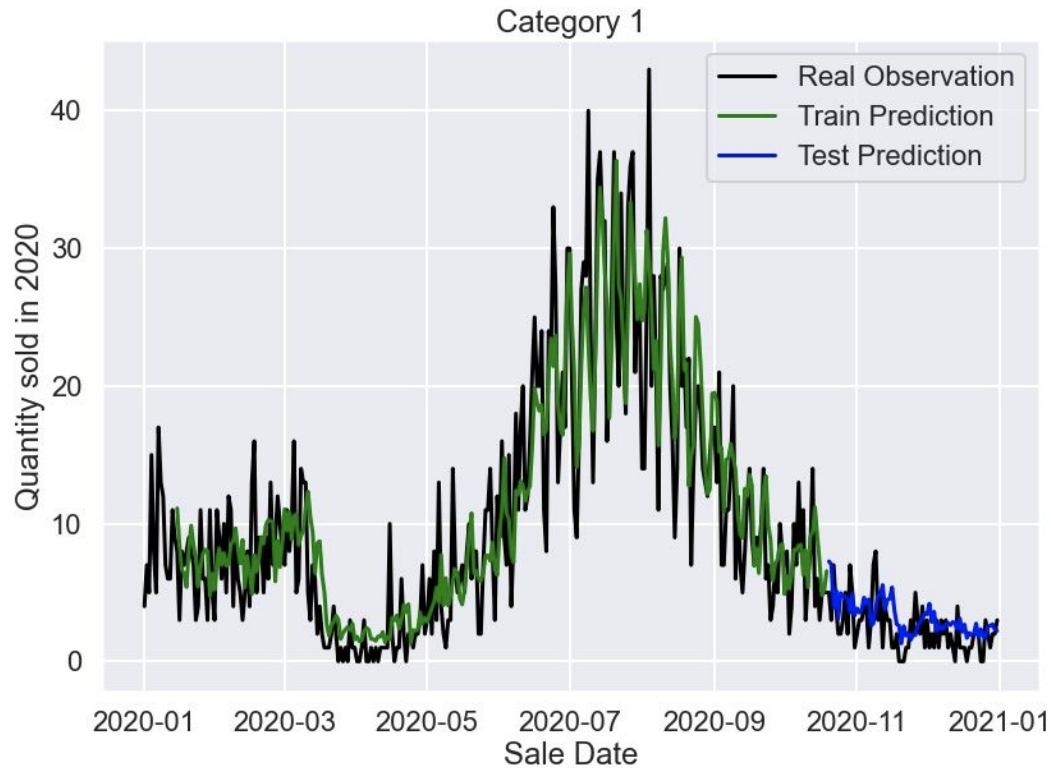Category 1

Category 1:
FB Prophet

growth = 'logistic'
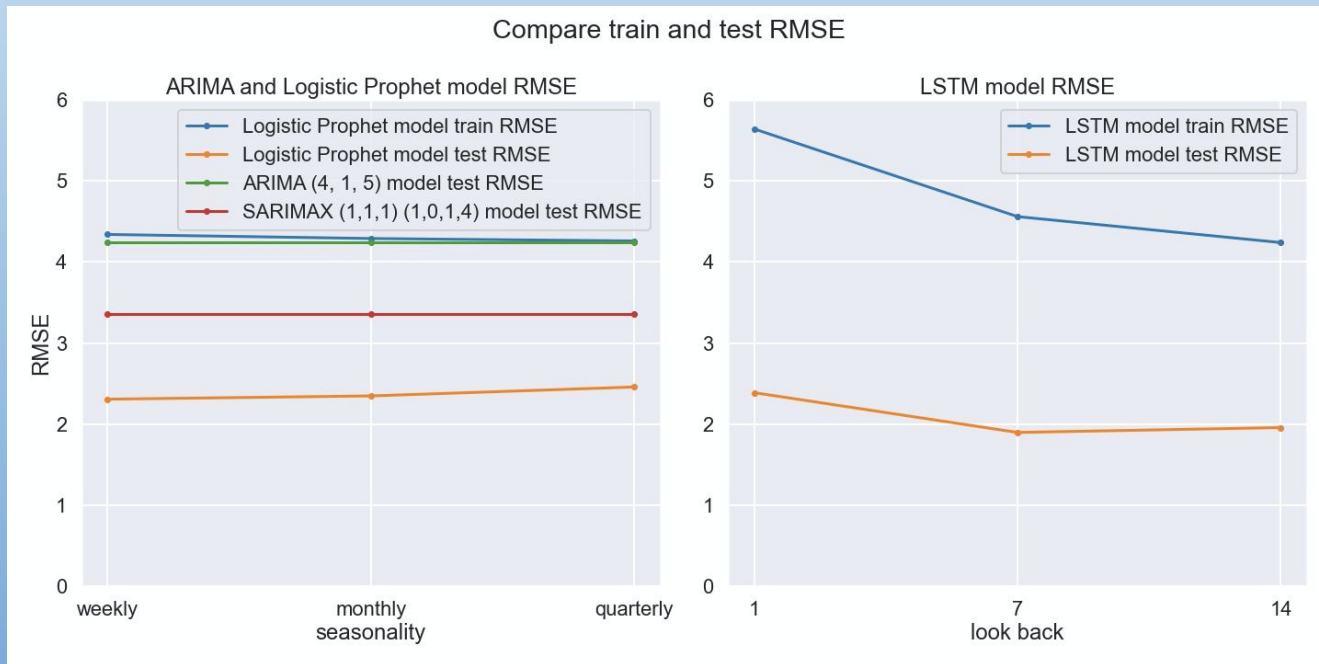cap = 100
floor = 0

seasonality = 'weekly'

Seasonality can also be monthly,
quarterly, yearly.

Category 1
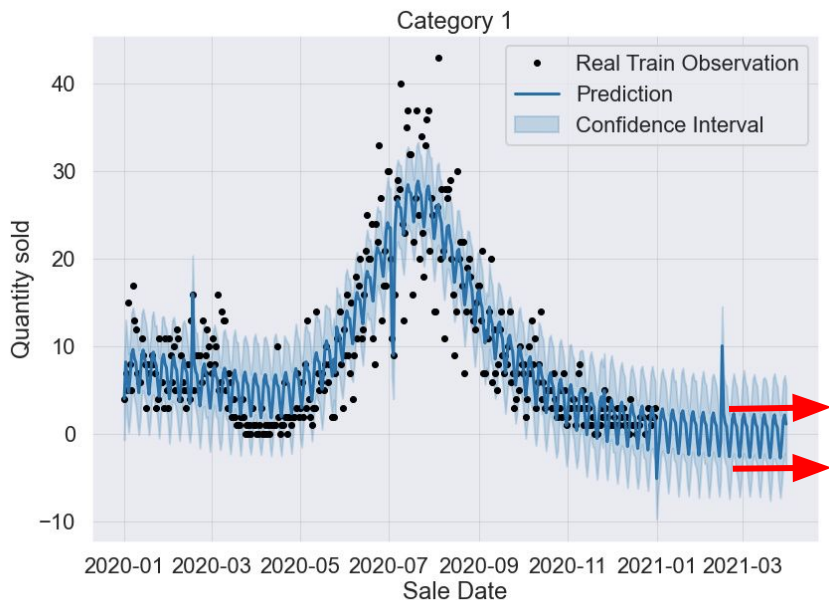
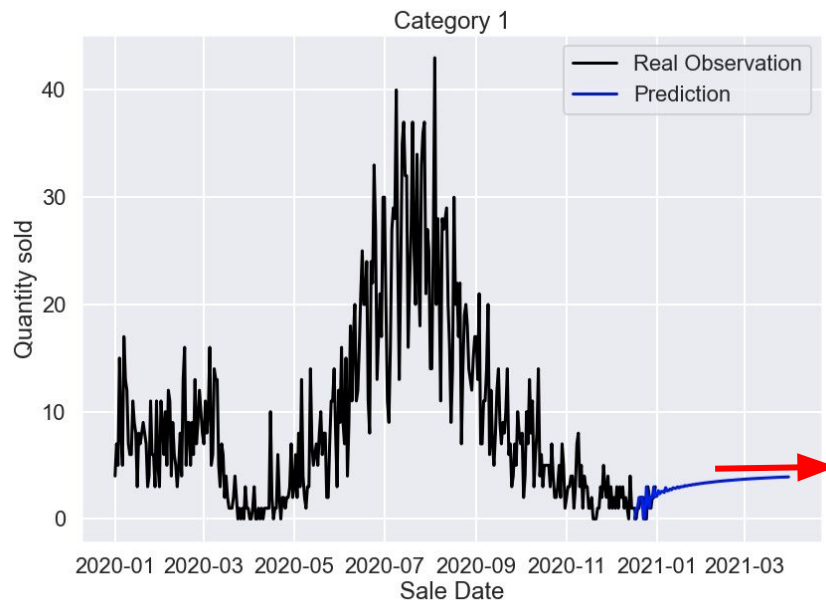# Category 1: LSTM Networks (look_back=14)

Evaluation: RMSE

Predict quantity sold until 03/31/2021
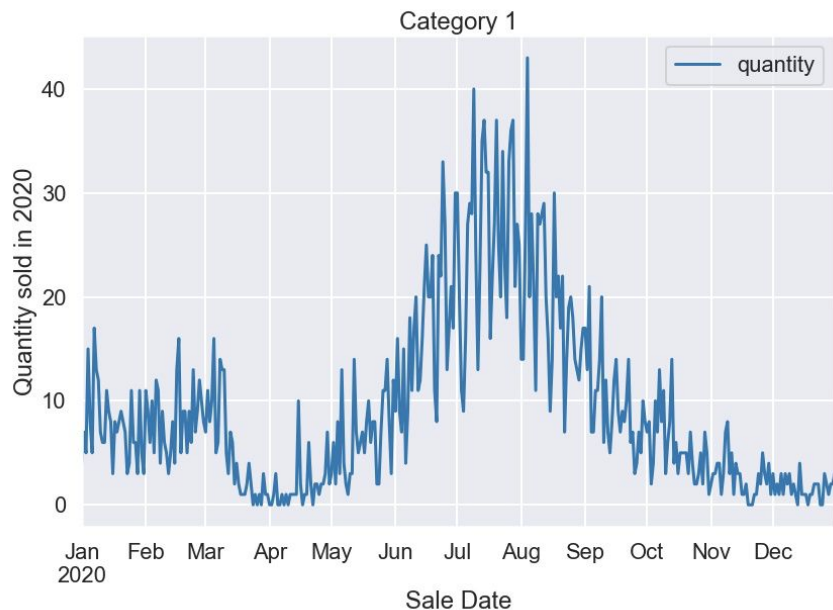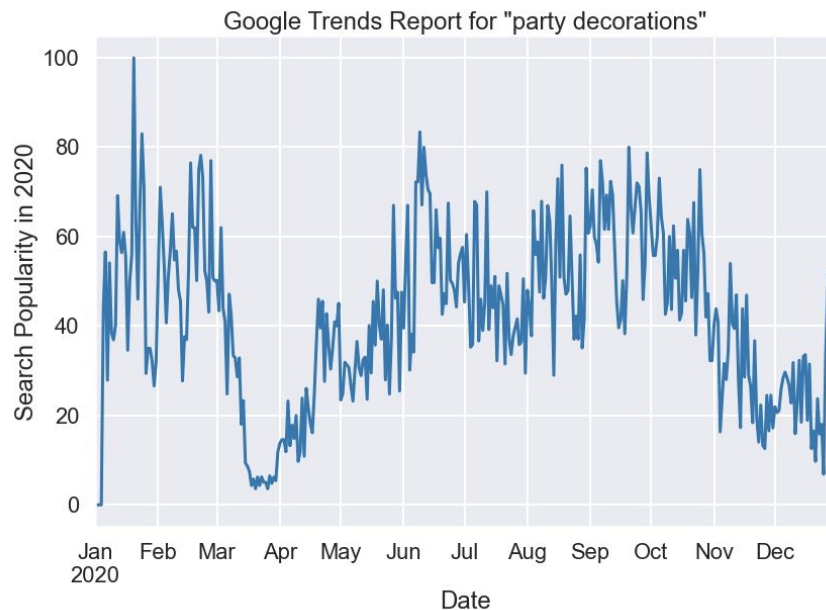
FB Prophet

LSTM Networks

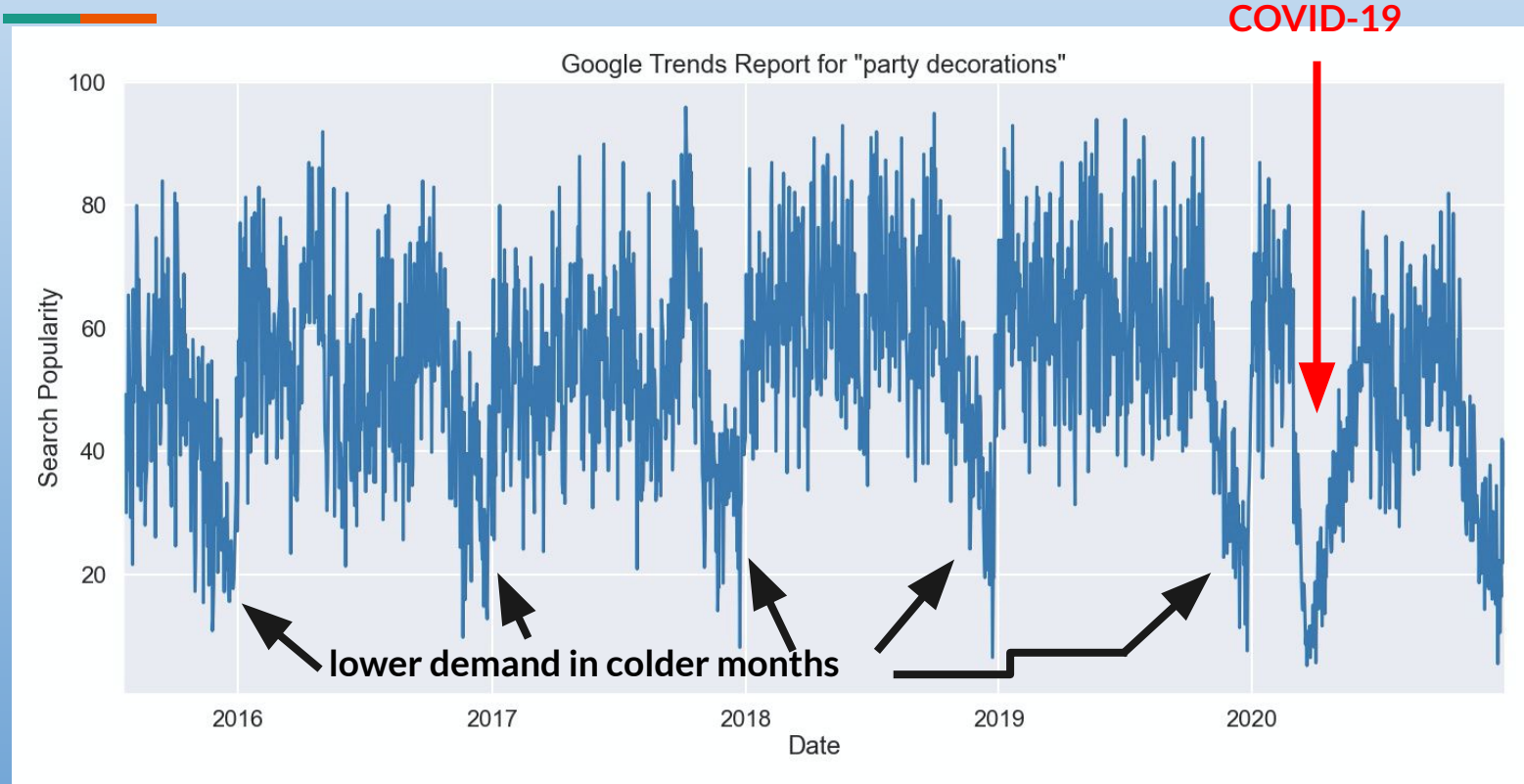# Explanation for seasonal variability

Category 1

Google Trends

"Party decorations" on Google Trends

Next Steps

- Get access to more data (before and after 2020)
- Add more exogenous variable(s), such as weather temperature
- Perform analysis and forecast on exogenous variable(s)
- Add models with yearly seasonality

Questions?

GitHub: https://github.com/darigak/Inventory_management

LinkedIn: https://www.linkedin.com/in/darigakokenova/