



# Purple Analytics

## **Restaurant Forecasting Web Application**

Butch Cassidy Group

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# Team Members

- 1. Chris Langeveldt** | (Bsc III Computer Science)  
Backend – Machine Learning
- 2. Markus Sass** | (Bsc III Computer Science)  
Backend & Frontend
- 3. Willem Wannenburg** | (Bsc III Bioinformatics)  
Frontend

# Technology Stack

1. **Frontend:** ReactJS + [Apex Graphs]
2. **Backend:** Python + [Django, Pandas, LightGBM]

# Project Description

## Overview:

- Web application, dashboard for forecasting order quantities, sales and other, smaller metrics.
- Based on a user-system, such that similar restaurants could possibly draw from the models.
- Restaurant owner uploads data, application processes it

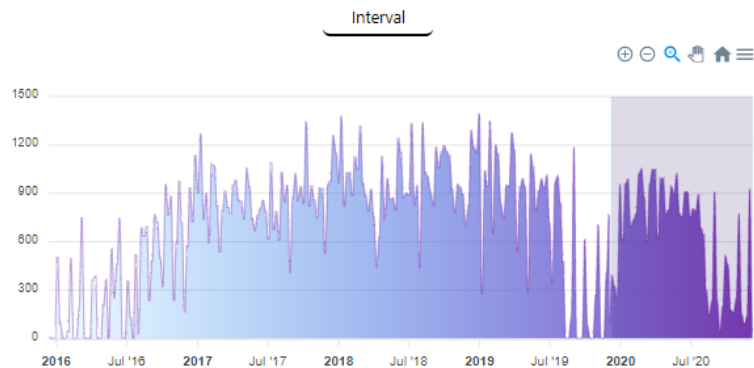
£34.95 | 7.6 items  
For an average order

Butter Chicken  
Best item yesterday

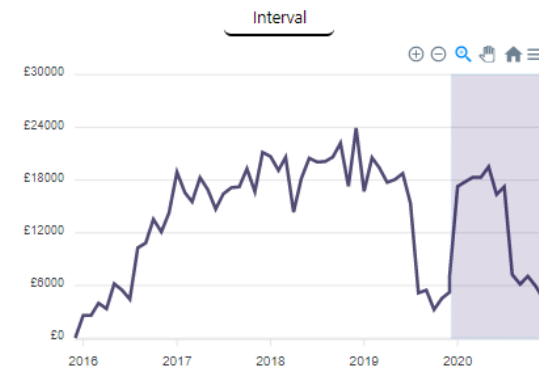
2.7  
Expected orders for today

149.3% increase  
Expected sales for tomorrow

## Quantities Sold



## Sales



## Insights

### Frequently bought together

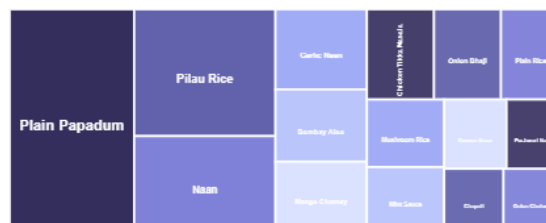
enter a product name  Search

Commonly bought together:

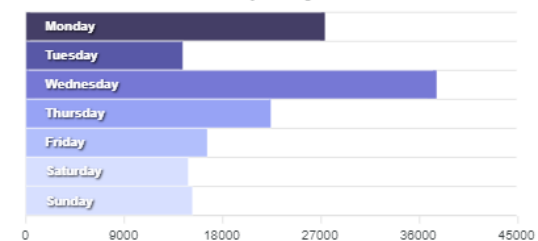
Naan
Bombay Aloo
Chicken Chaat (Main)

### Item Distribution

check for an item type  Search



### Order quantities per weekday



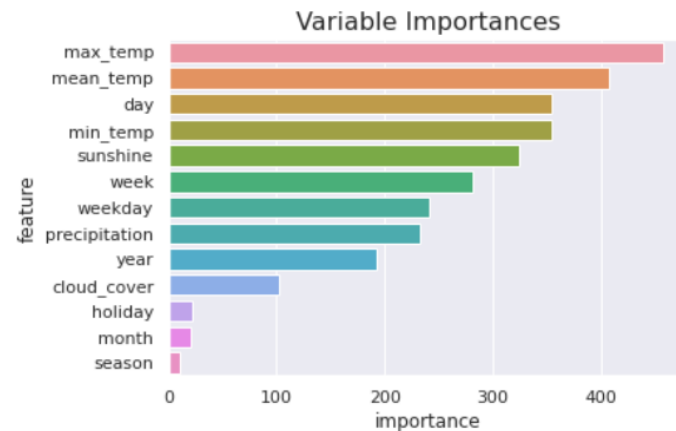
# Project Description

## Metrics in Application:

1. Global view of order quantities per day + forecasted for 12 months
2. Global view of total sales per day + forecasted for 12 months
3. Items commonly bought together based on a search
4. Treemap of popular items based on a search
5. Bar graph of quantity distribution per weekday
6. Average order value and number of items
7. Expected number of orders for today
8. Prediction of sales change for the next day

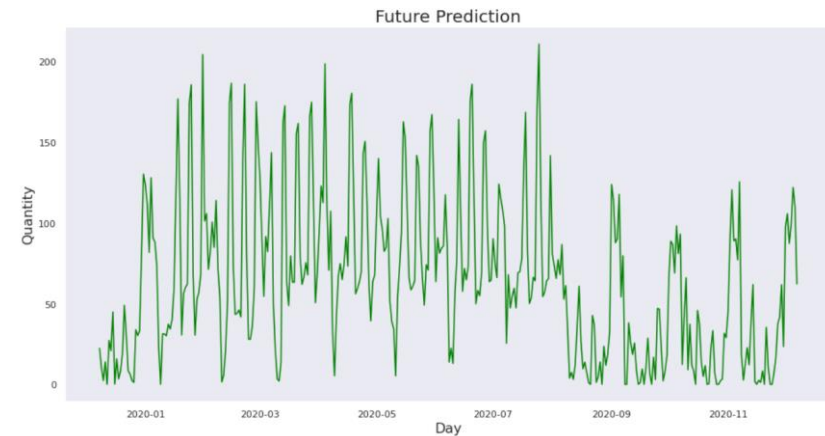
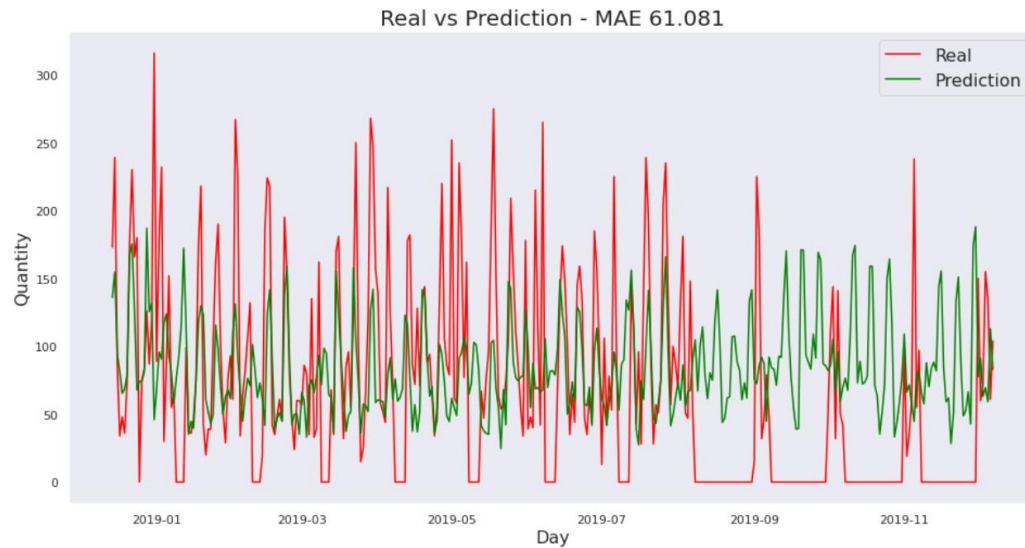
# Solution Walkthrough

1. Light Gradient Boosting Machine – efficient, accurate, ease of use
2. Data included for predictions
  - Weather – cloud cover, sunshine, max temperature, mean temperature, min temperature, precipitation
  - Holidays
  - Day, Week, Month, Year
  - Day of week
  - Season





# Solution Walkthrough



Data Trained and Tested on total quantities per day

Thank you|

Send