

Wasail

Demand Forecasting System

Introduction

Problem:

- Imprecise Inventory Orders Hamper Food Supply Chain Efficiency
- Inadequate Communication between Vendors and Grocery Stores

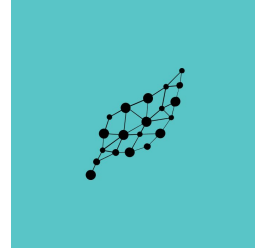
Solution:

- Using Machine Learning to Resolve Inventory Mismanagement
- Mobile-Based platform connecting grocery stores with vendors to address miscommunication issue

Inspiration

Shelf Engine and Guac

- Machine Learning based Demand Forecasting Systems



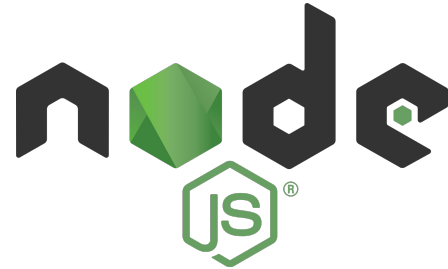
Tajir and Dastgyr

- Help buy inventory for stores and connect vendors and wholesalers to them



Vendor App

- Internationalization
- Inventory Management
- Order Tracking



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Grocery Store App

- Internationalisation
- Discoverability
- Order Recommendation
- Order Placement
- Order Tracking



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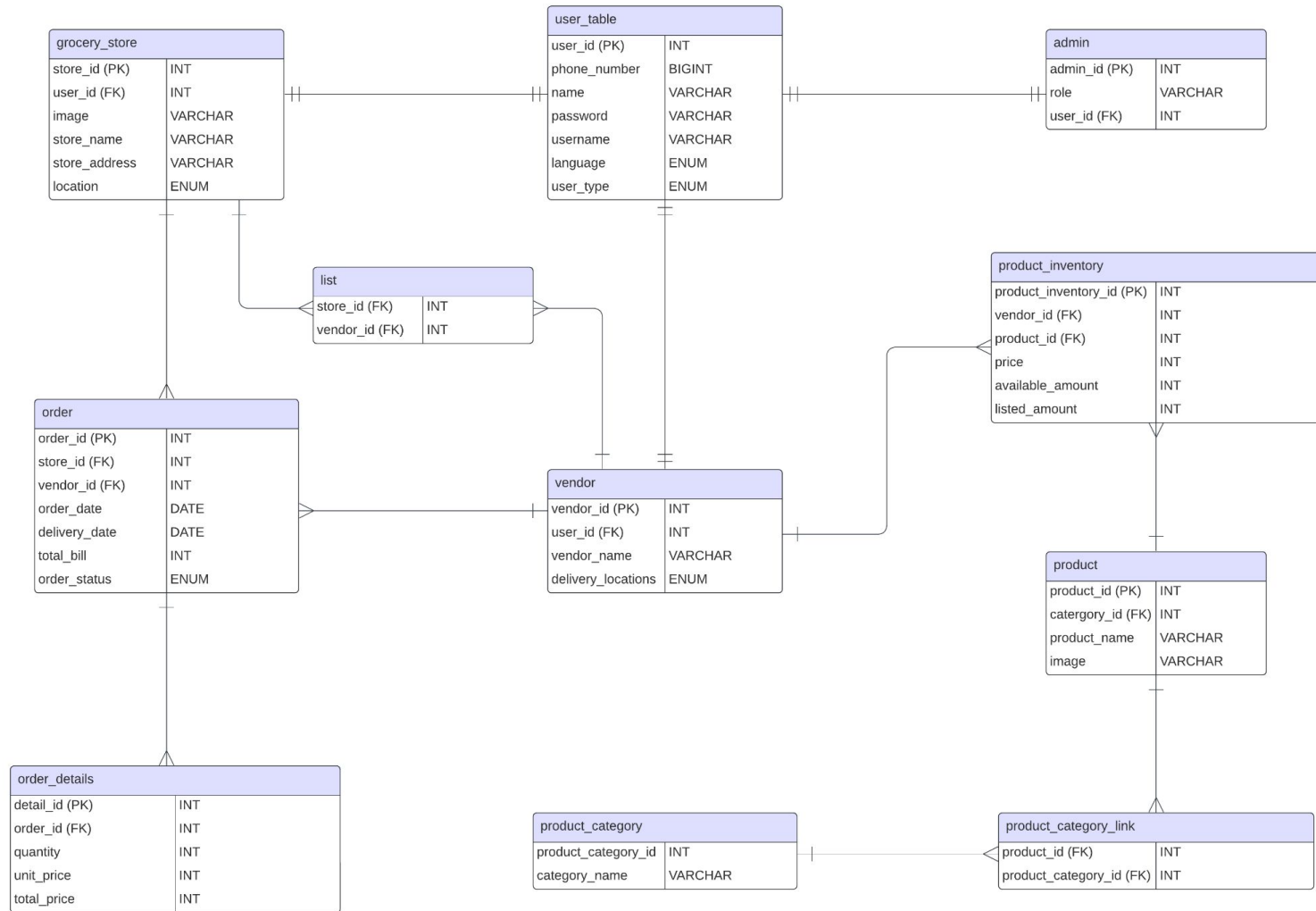
Admin Portal

- User Management
 - Admins
 - Grocery Stores
 - Vendors
- Content Management
 - Categories
 - Products
- Analytics

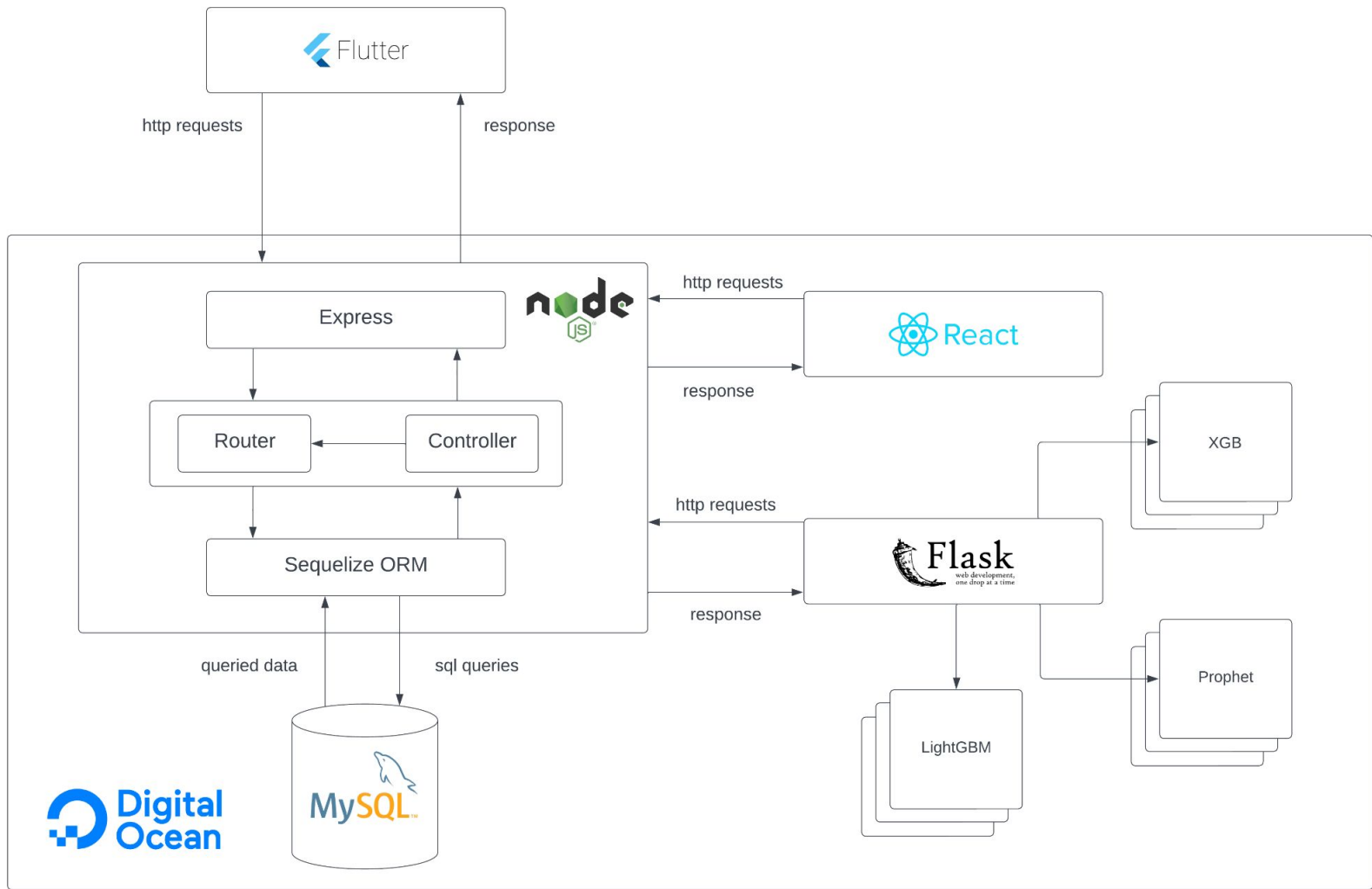


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Database Diagram



Architecture Diagram



Data

- 54 Stores
- 33 Categories
- Promotion
- Holiday
- Oil Prices



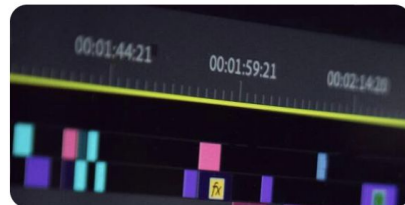
KAGGLE · GETTING STARTED PREDICTION COMPETITION · ONGOING

Submit Prediction



Store Sales - Time Series Forecasting

Use machine learning to predict grocery sales



Machine Learning Models

- RandomForest
- XGBoost
- Prophet
- LightGBM
- Recurrent Neural Networks
- Neural Basis Expansion Analysis
- DeepAR



Machine Learning Libraries

PROPHET

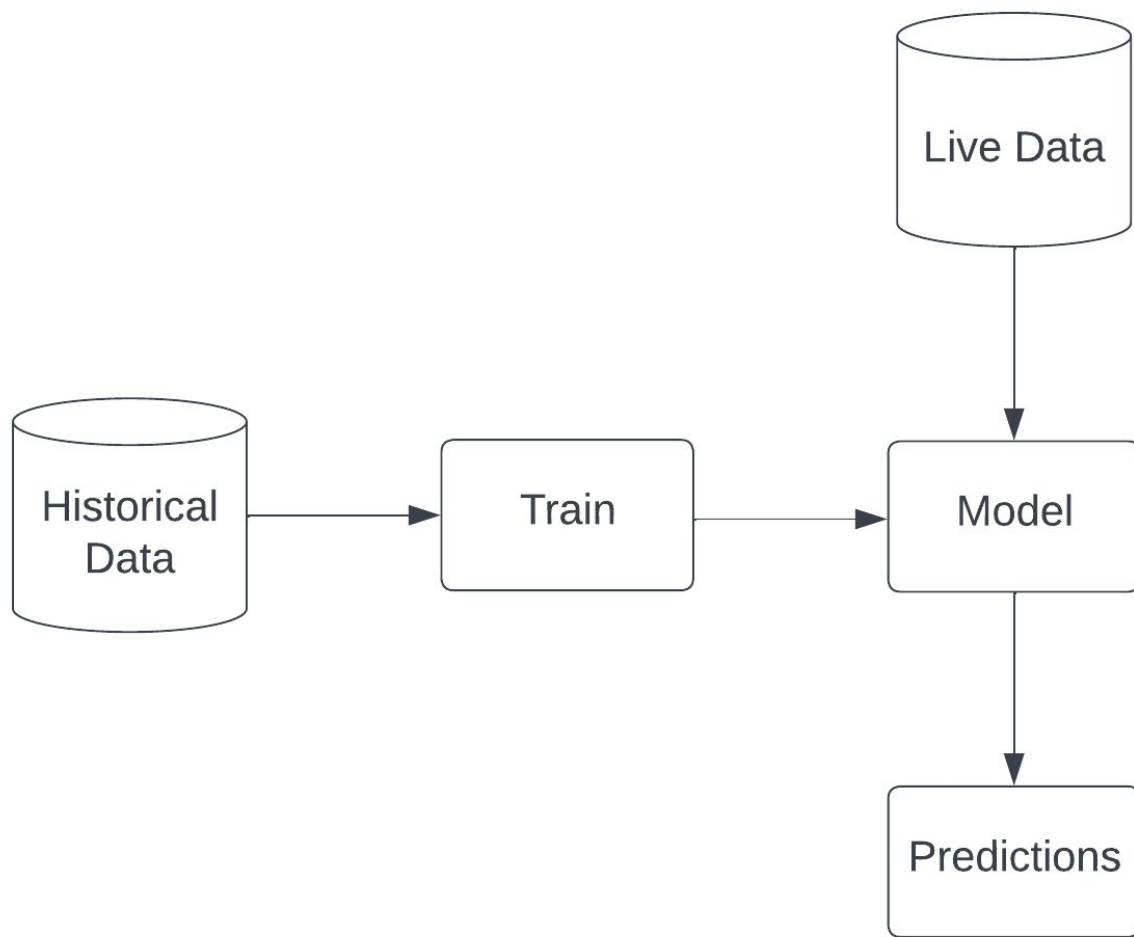
 PyTorch

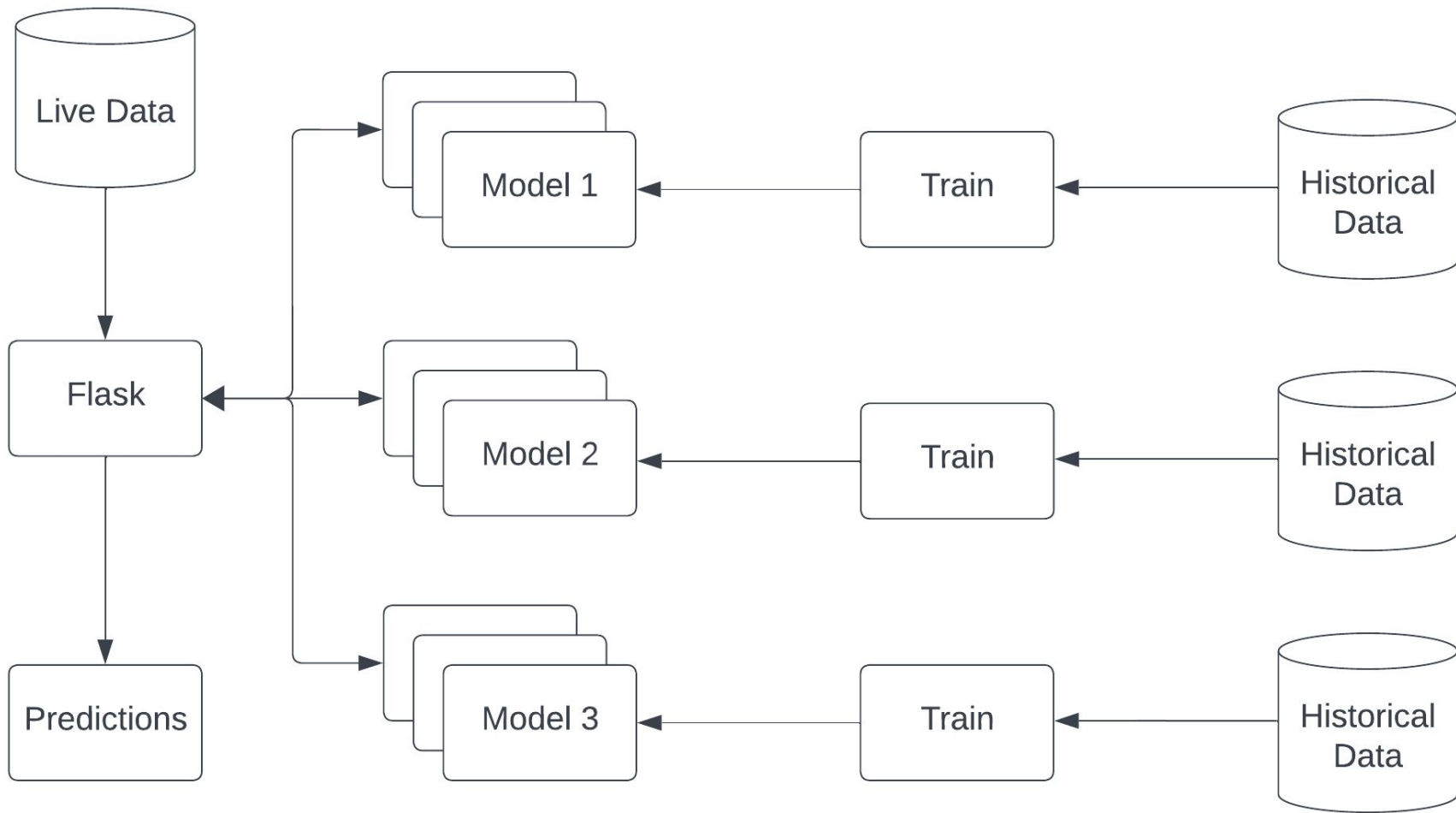
Darts 

 scikit
learn


TensorFlow

Machine Learning Architecture








Machine Learning Results

	RMSE	RMSLE
Random Forest	220	0.749
XGBoost	232	0.763
Prophet	170	0.766
LightGBM	216	0.706
Recurrent Neural Network	508	1.984
N-BEATS	681,939	1.191

Store Sales - Time Series Forecasting

[Submit Prediction](#)[Overview](#)[Data](#)[Code](#)[Models](#)[Discussion](#)[Leaderboard](#)[Rules](#)[Team](#)[Submissions](#)

#	Team	Members	Score	Entries	Last	Join
1	zhishiXUEBAO		0.37768	16	8d	
2	Jaso1024		0.37786	1	1mo	
3	Javier Reinoso Velasco		0.37793	1	6d	

Machine Learning Demo

Local Deployment

- <http://127.0.0.1:5000>

Digital Ocean Deployment

- [Hammerhead App](#)

Digital Ocean



wasail

DEFAULT




Web Application / Development / Final Year Project

Resources


Activity













Settings

APPS (3)

 stingray-app	stingray-app-t83a2.ondigitalocean.app	Starter	...
 sea-lion-app	sea-lion-app-wbl8m.ondigitalocean.app	Basic	...
 hammerhead-app	hammerhead-app-6m6td.ondigitalocean.app	Professional	...

DATABASE CLUSTERS (1)

 db-mysql-nyc3-39234	Primary only	...
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<div><div> yrrebeere Commit 43.0(Vendor App)</div><div>1bf8557 · now 440 Commits</div></div>		
<div> BackEnd</div>	Commit 42.2 (Order Count)	2 days ago
<div> Data</div>	Commit 24.3 (Prophet)	2 months ago
<div> Documentation</div>	Commit 26.7 (RNN)	last month
<div> FrontEnd</div>	Commit 43.0(Vendor App)	now
<div> MachineLearning</div>	Commit 40.9 (Demo)	4 days ago
<div> ModelDeployment</div>	Commit 42.5 (Store App)	yesterday
<div> .gitignore</div>	Commit 41.3 (Admin Portal)	3 days ago
<div> README.md</div>	Commit 1.1 (Read Me)	7 months ago

Future Improvements

- Roman Urdu as a Language
- Notifications
- Scan ID Cards to Increase Security
- OTP Code

Thank You