

What's Next?

Market Segmentation and Demand Forecasting using Time-Series Modeling

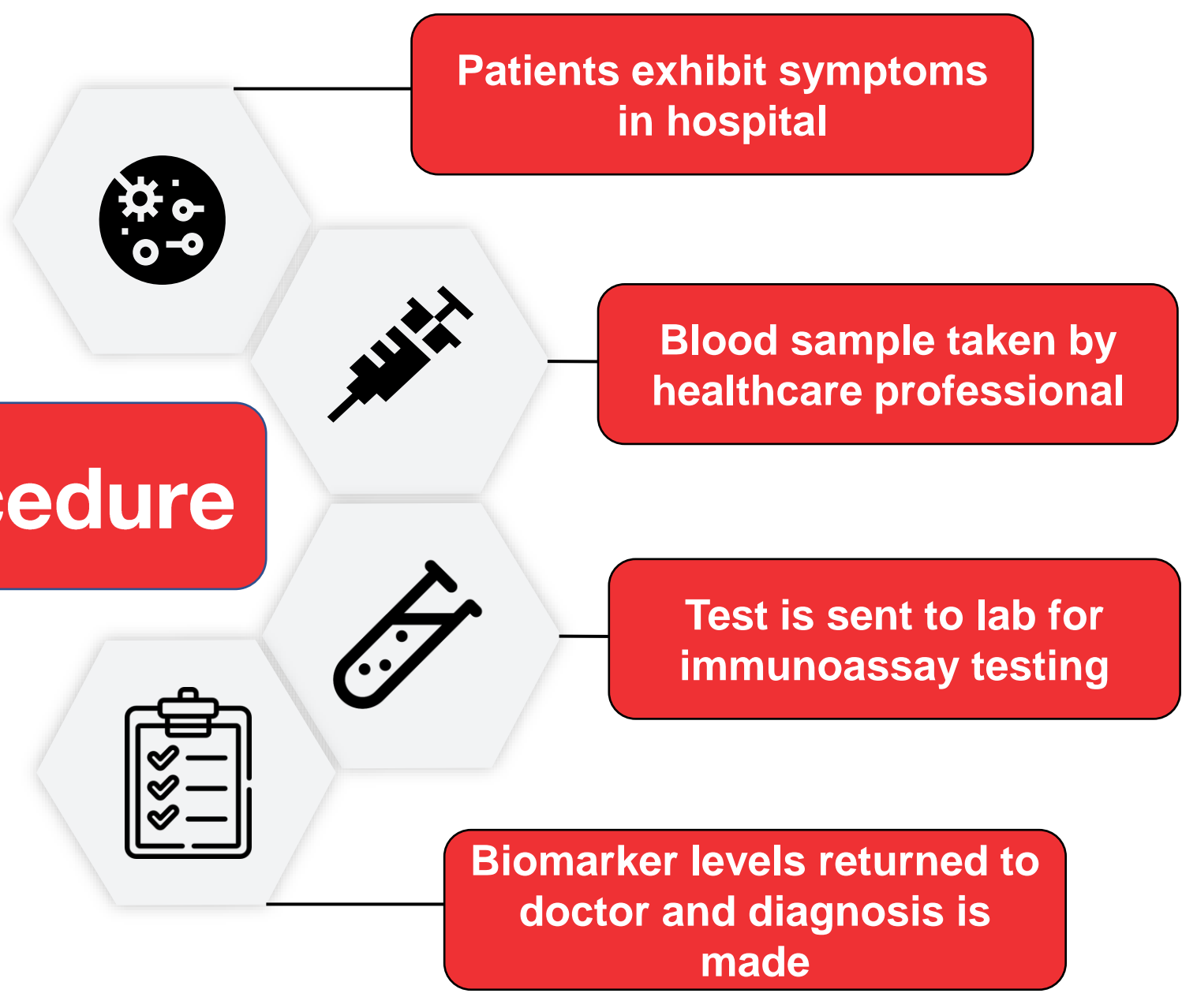
Project 1

Target US geographic locations to maximize the adoption and success of a novel medical procedure

Data Description

Clinic Data	Medical Facility Name - Name and type of facility
	State - US State Abbreviation
Medical Codes	ICD-10 Code - Alphanumeric code for disease / health condition category
	CPT Code - Medical procedure code
Claims Data	Year - Date year
	Claims - Number of claims for procedure
	Average Charge - Monetary value of charge for procedure

Current Procedure

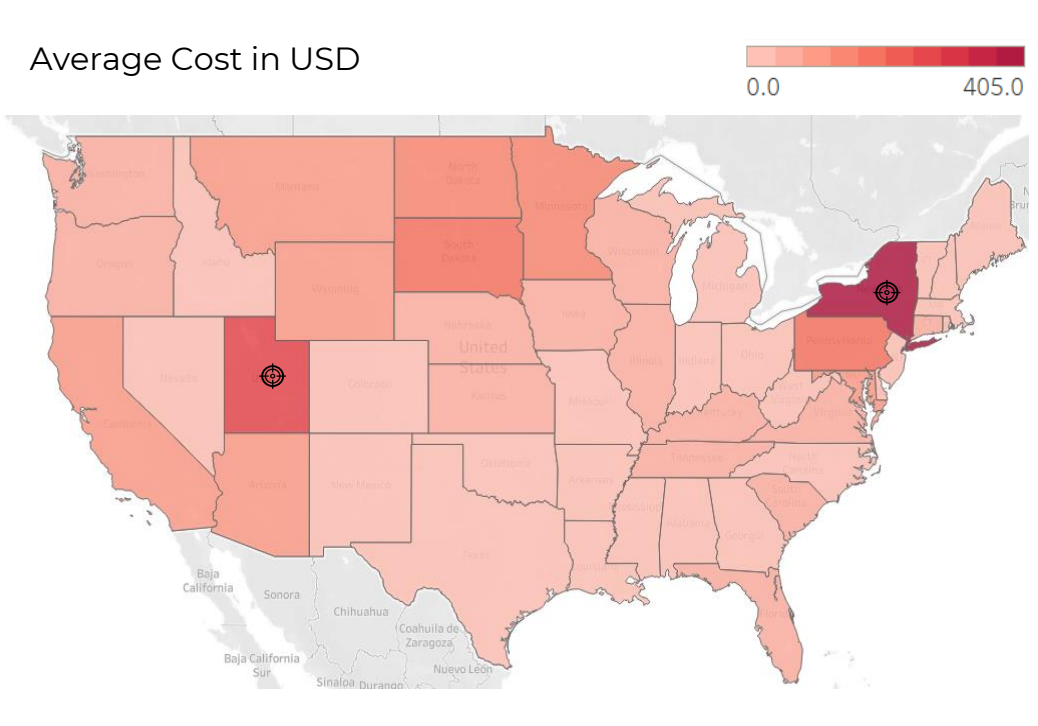
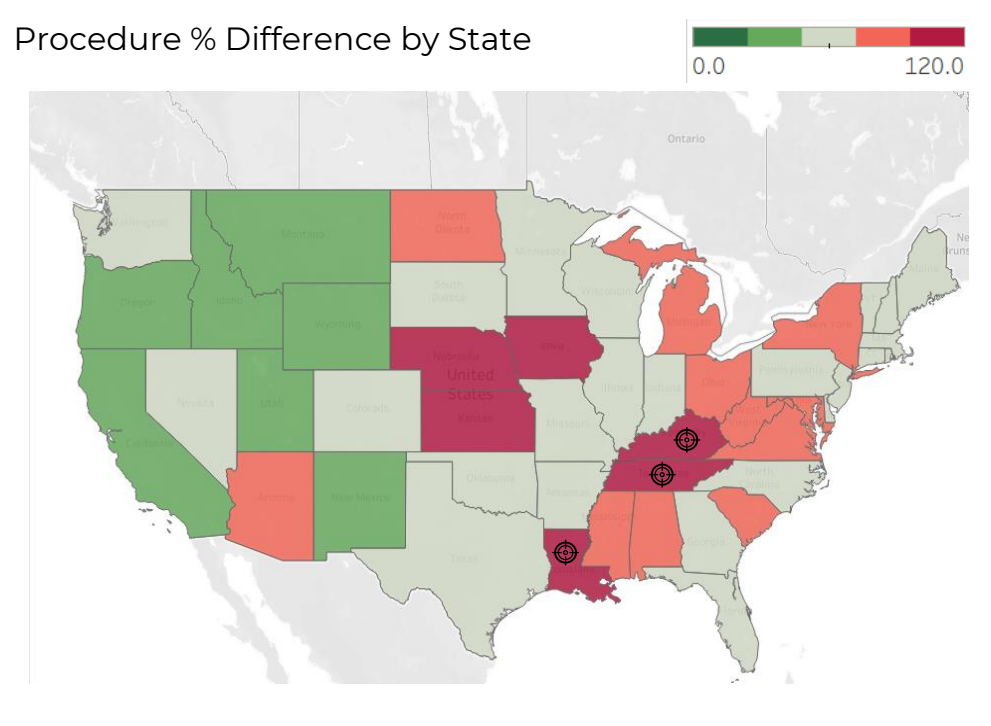


New Procedure, New Market

How do we determine the states where we can maximize our new procedure's success?

Strategy 1: Demand

Strategy 2: Revenue



90%

\$405

Potential for Adoption for targeted states

Per procedure for targeted states

Demand: Target states where there is high demand for this procedure to build user base
 Revenue: Target states where we can charge the most per procedure to build revenue

Project 2

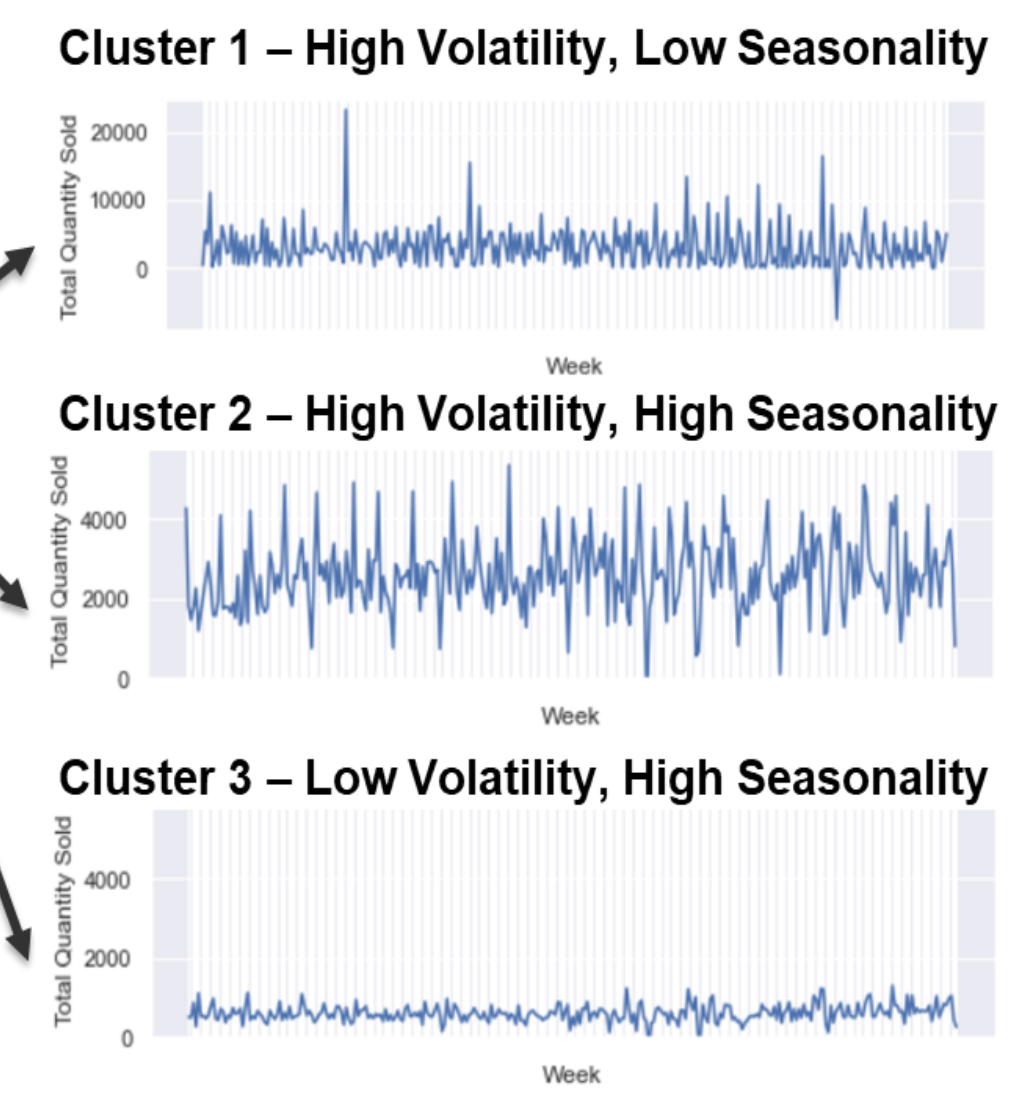
Create a self-service analytics tool to forecast product sales on a global scale

Data Description

Sales Data	Date - Sale Date
	Invoice Quantity - Total Amount of Product in Invoice
Product Data	Invoice Number - Unique Invoice Identifier
	Net Sales Data - Revenue from Sale
	Ship To Customer Country - Country of Invoice
Product Data	Product Number - Unique Product Identifier
	Product Name - Non-unique Product Name
	Product Levels and Attributes - Product Groups

Clustering

Clustering Method	Silhouette Score
K-means - 2	0.98
K-means - 3	0.97
K-means - 4	0.72
K-means - 5	0.71
DBSCAN	0.69
Mean Shift	0.65
K-means - 10	0.60
GMM Clustering	0.42
K-means - 100	0.28

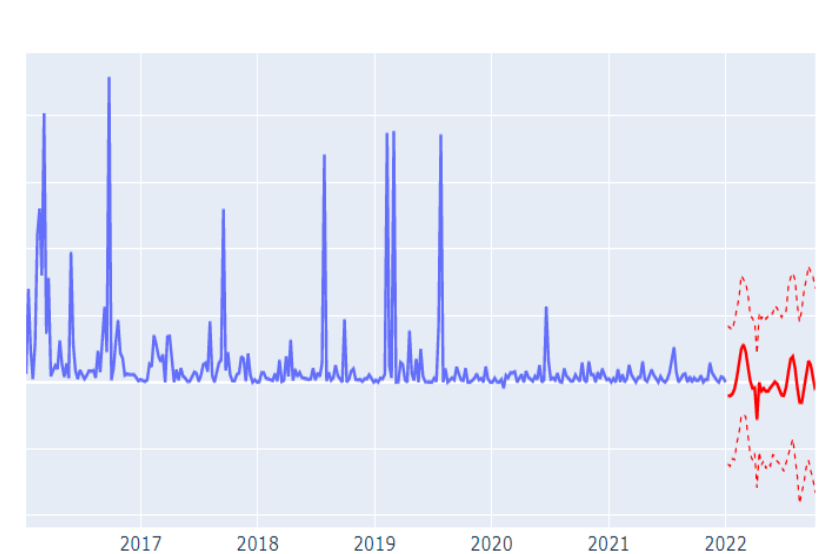


Self-service Analytics Tool

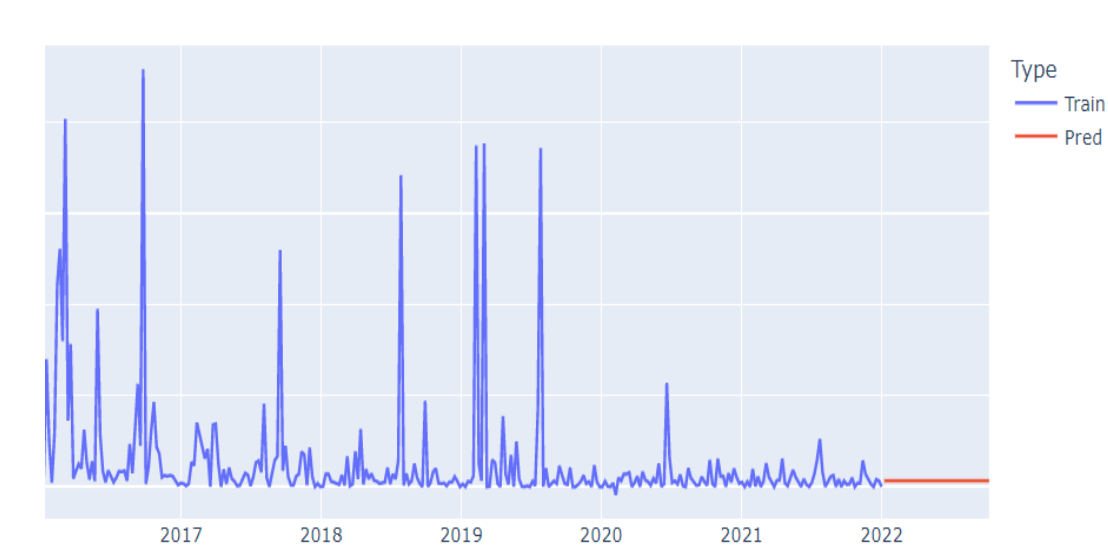
Practicality vs Precision, do we favor speed or accuracy?

Prophet Model - Practical

Neural Net LSTM Model - Precise



Runtime: 16 sec
MAE: 3.19



Runtime: 125 sec
MAE: 1.2

Application

