



SALES PREDICTION



TIME SERIES
ANALYSIS USING
SUPERVISED
MACHINE LEARNING
AND TABLEAU

NEXT →

AGENDA

TODAY, WE WILL BE DISCUSSING:

* Objective and Importance

* Data Collection

* Feature Engineering

* Modeling

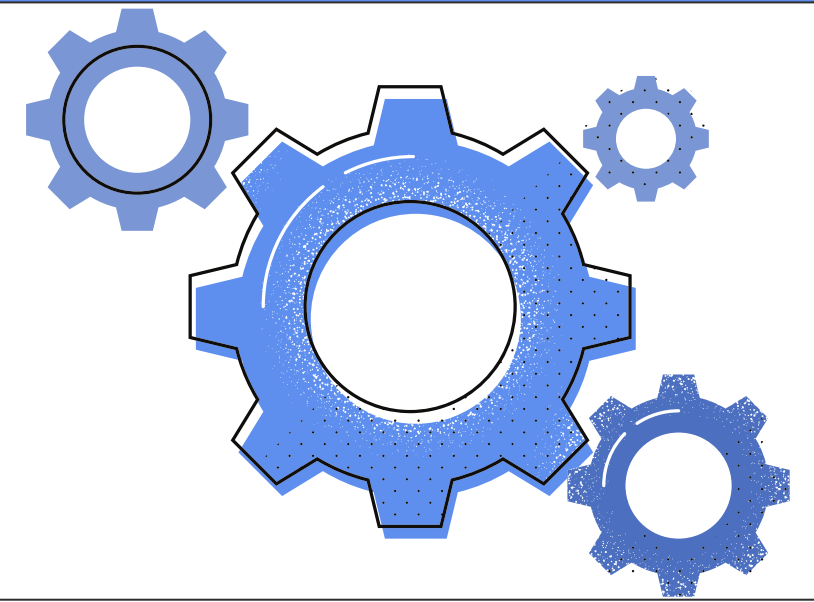
* Feature Importance

* Challenges and Conclusions



OBJECTIVE AND IMPORTANCE

BUILD A SALES FORECASTING MACHINE LEARNING MODEL AND TABLEAU DASHBOARD THAT TAKES ALL FEATURES INTO ACCOUNT.



- * OPTIMIZES OPERATIONS AND RESOURCE ALLOCATION
- * OPTIMIZES INVENTORY LEVELS
- * REDUCES COSTS AND IMPROVES SUPPLY CHAIN EFFICIENCY
- * DRIVES TARGETED MARKETING
- * HELPS IN DEVELOPING CONTINGENCY PLANS AND RISK MITIGATION STRATEGIES

DATA COLLECTION

kaggle

* **4 YEARS** WORTH OF THOROUGHLY
RECORDED HISTORICAL INFORMATION
ON STORE SALES

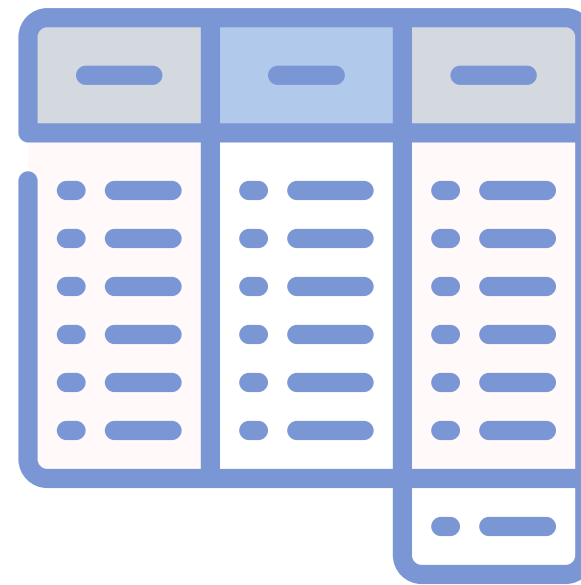
* HAS INFORMATION REGARDING THE
ORDER DATE OF SALE, PRODUCT
CATEGORY, CITIES, STATES AND
SEGMENTS OF THE PRODUCTS.

FEATURE ENGINEERING



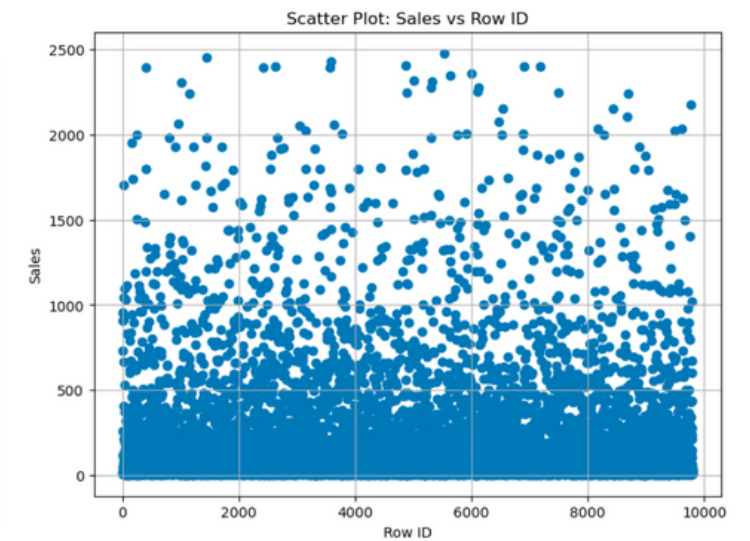
**CHECKED FOR NULL
VALUES**

dropped the "Postal Code" column



**CREATED DAY,MONTH
AND YEAR COLUMNS**

extracted the day,month and year from
the "order date" column

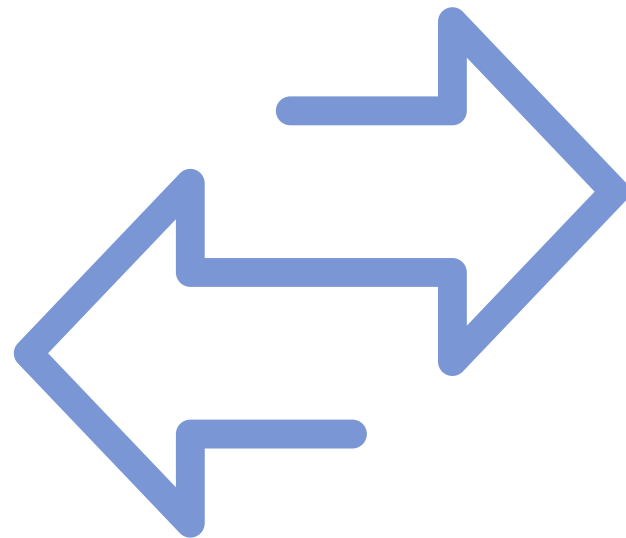


TRIMMED OUTLIERS

used Percentile Method Trimming on
the "sales" column

MODELING

! Time Series



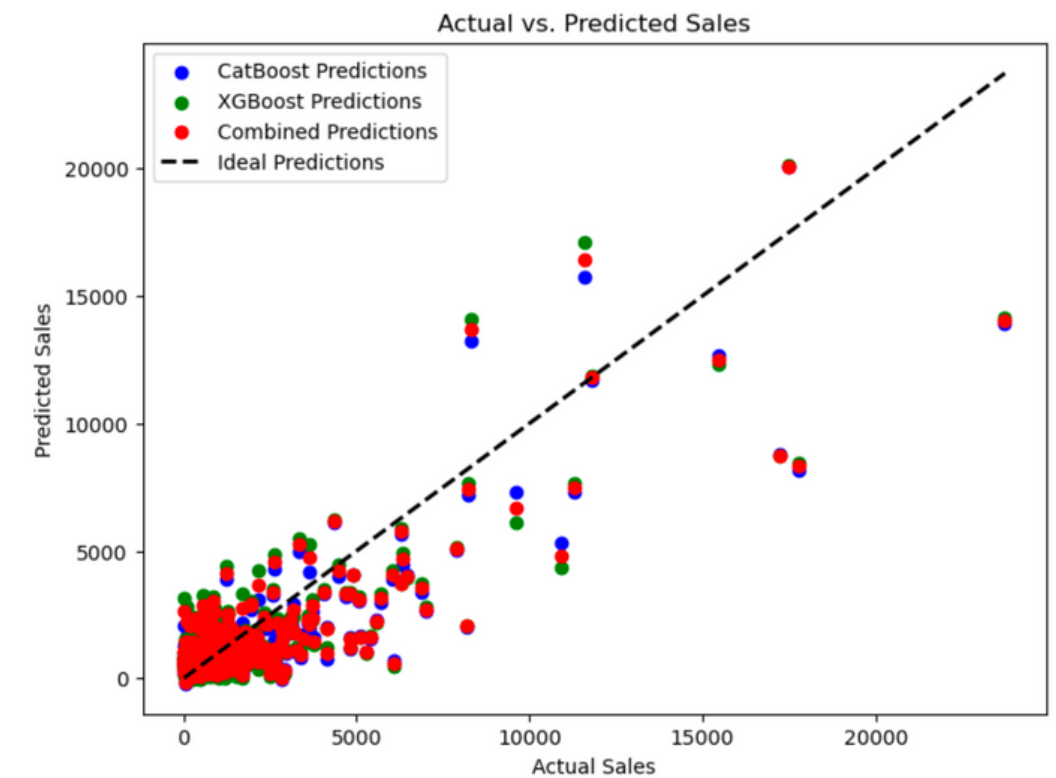
SPLIT X AND Y TRAIN-
TEST

used the 2018 data as Test data and
the rest as Train data



SCALED THE DATA

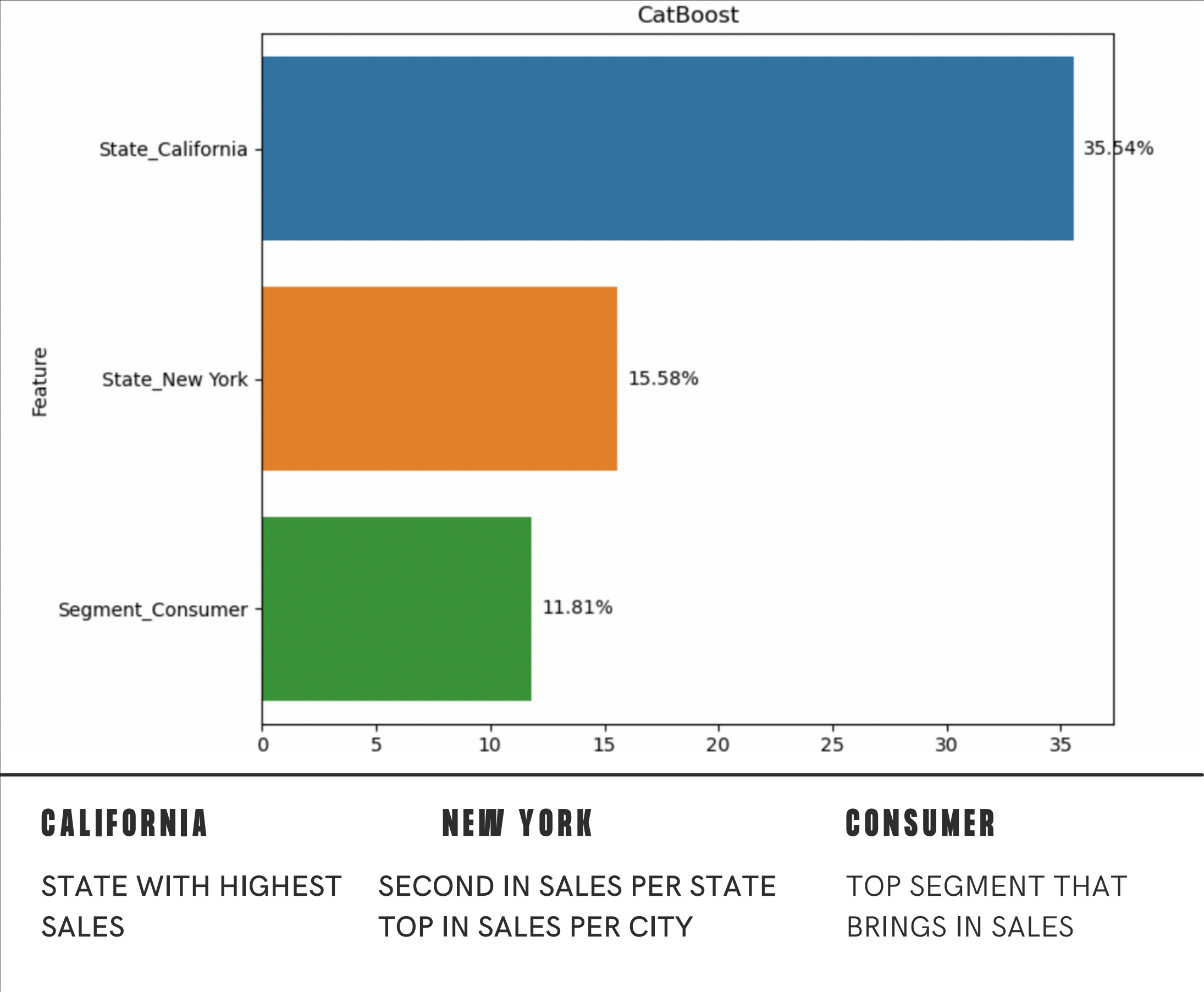
used Standard Scaler



TESTED THE MODEL

used CatBoostRegressor,
XGBRegressor and a mix of both

FEATURE * IMPORTANCE

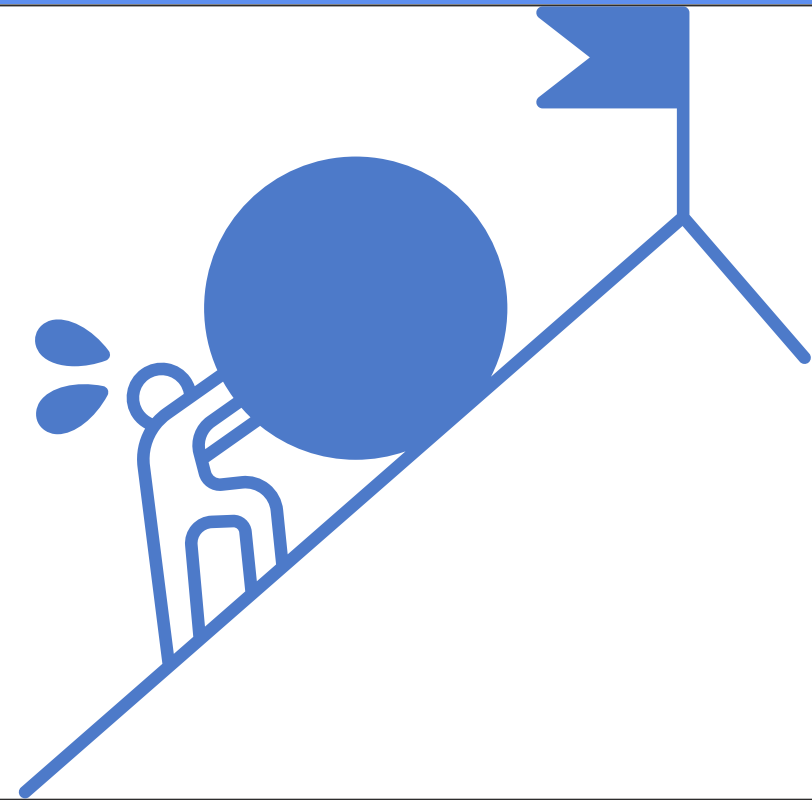


CHALLENGES AND CONCLUSIONS



DIFFICULTIES IN EFFECTIVELY GROUPING DATA TO HAVE ALL THREE MODELS: MONTHLY, QUARTERLY AND YEARLY

! Choose: navigate through combinations/ take more time testing with just a single feature at a time



INDIVIDUAL CONSUMERS DRIVE THE HIGHEST SALES



TREND OBSERVED IN THE HISTORICAL DATA ESTIMATES REALISTIC SALES PREDICTIONS



CITIES THAT ARE NOT RELIANT ON A SINGLE INDUSTRY AND ARE A "CAPITAL" OF A CERTAIN SECTOR TAKES ON THE TOP SPOTS WITH HIGHEST SALES ("SILICON VALLEY")

FIND US ON SLACK!

◆ ANASWARA VIJAYAN

◆ GENEVA UY

**THANK
* YOU**