

SALES

Forecasting

Group Name: Scooby Data Doo

Members:

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OBJECTIVE:

To forecast the sales and the demand in “Global Mart- An online Store Super Giant” for the next 6 months which will help in managing revenue and inventory.

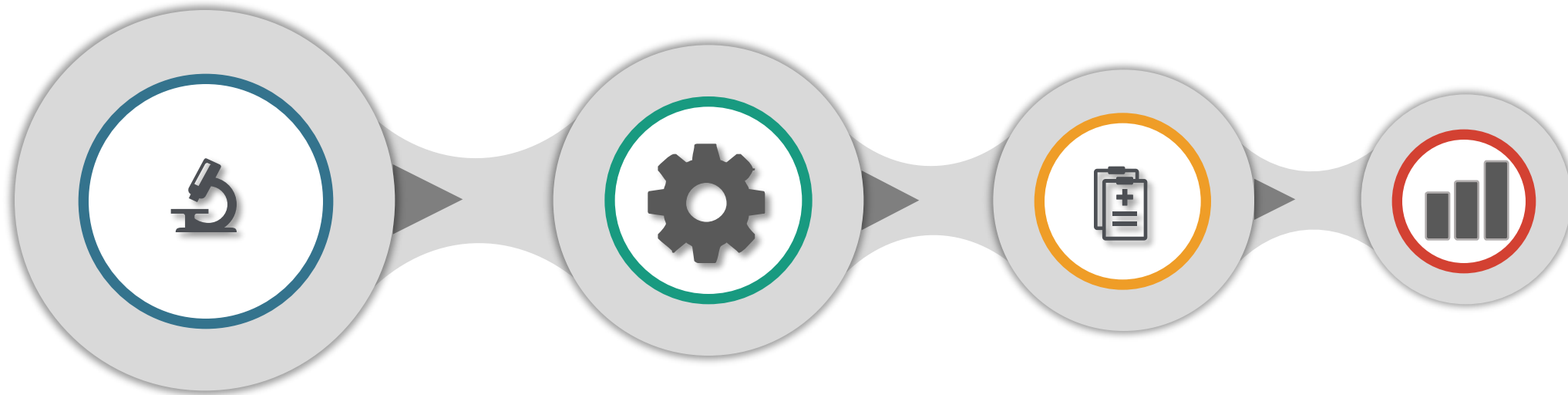
APPROACH STRATEGY:

To analyze historical data at granular level and identify two most consistently profitable segments.

PROBLEM SOLVING METHODOLOGY:

- Data Cleaning:
 - Checking for Missing values: Non-US countries have no Postal code. We have ignored it.
 - Standardizing Date format.
- Segment attribute tells about the segment that customer belongs to : **Consumer, Corporate & Home Office**
- Market represents the geographical market sector : **Africa, APAC, Canada, EMEA, EU, LATAM, US**
- Segment the whole dataset into the 21 buckets(7 Market * 3 Segment).
- Convert the transaction-level data into a time series.
- Aggregate the 3 attributes : Sales, Quantity & Profit over Order-Date to arrive at monthly values for these attributes.
- Find the two most consistently profitable segments using coefficient of variation.

DATA FLOW



DATA UNDERSTANDING PREPARATION & EDA

(Data Correction, Data Conversion, Checking for Data Quality issues)

DATA ANALYSIS

(To analyze historical data at granular level and identify two most profitable and consistently profitable segments.)

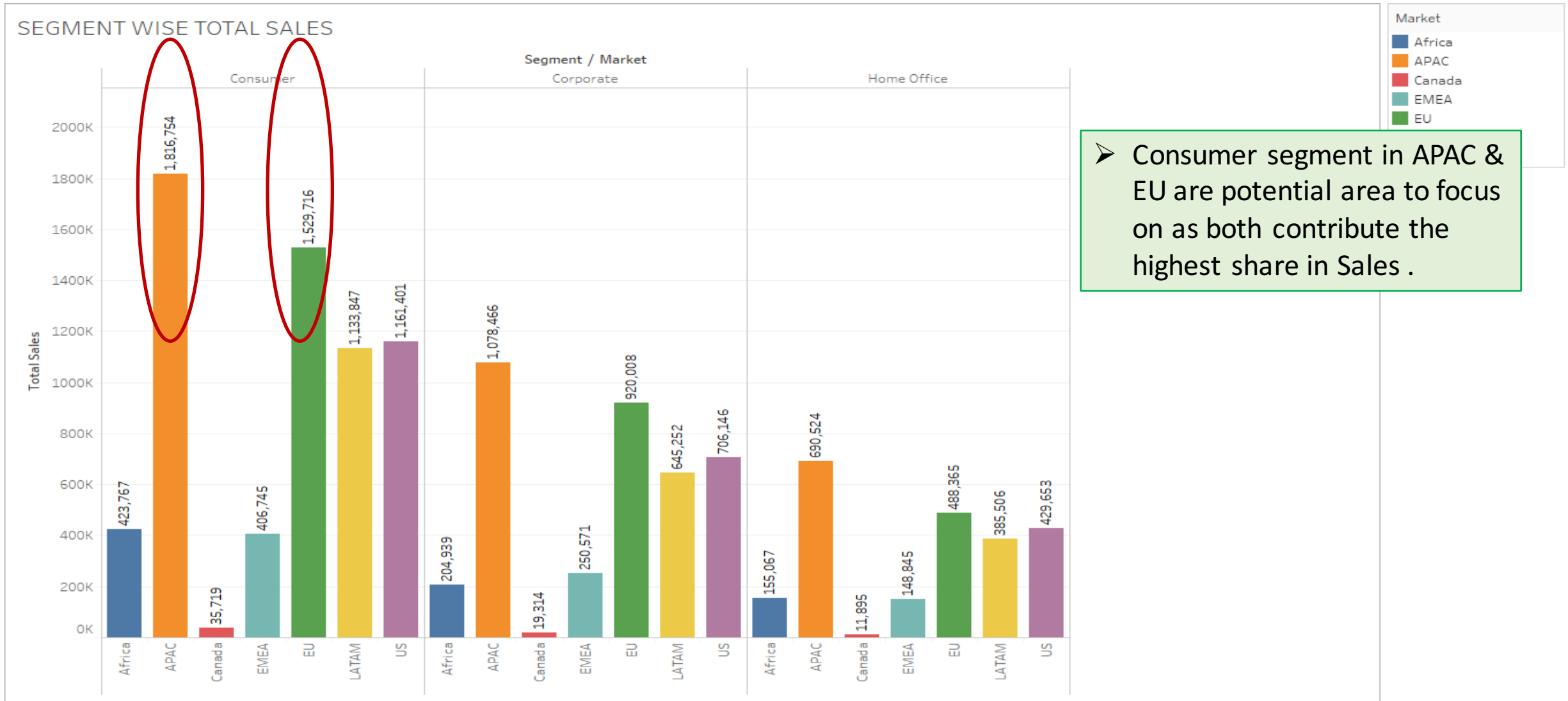
MODEL BUILDING

(Used Classical Decomposition and ARIMA)

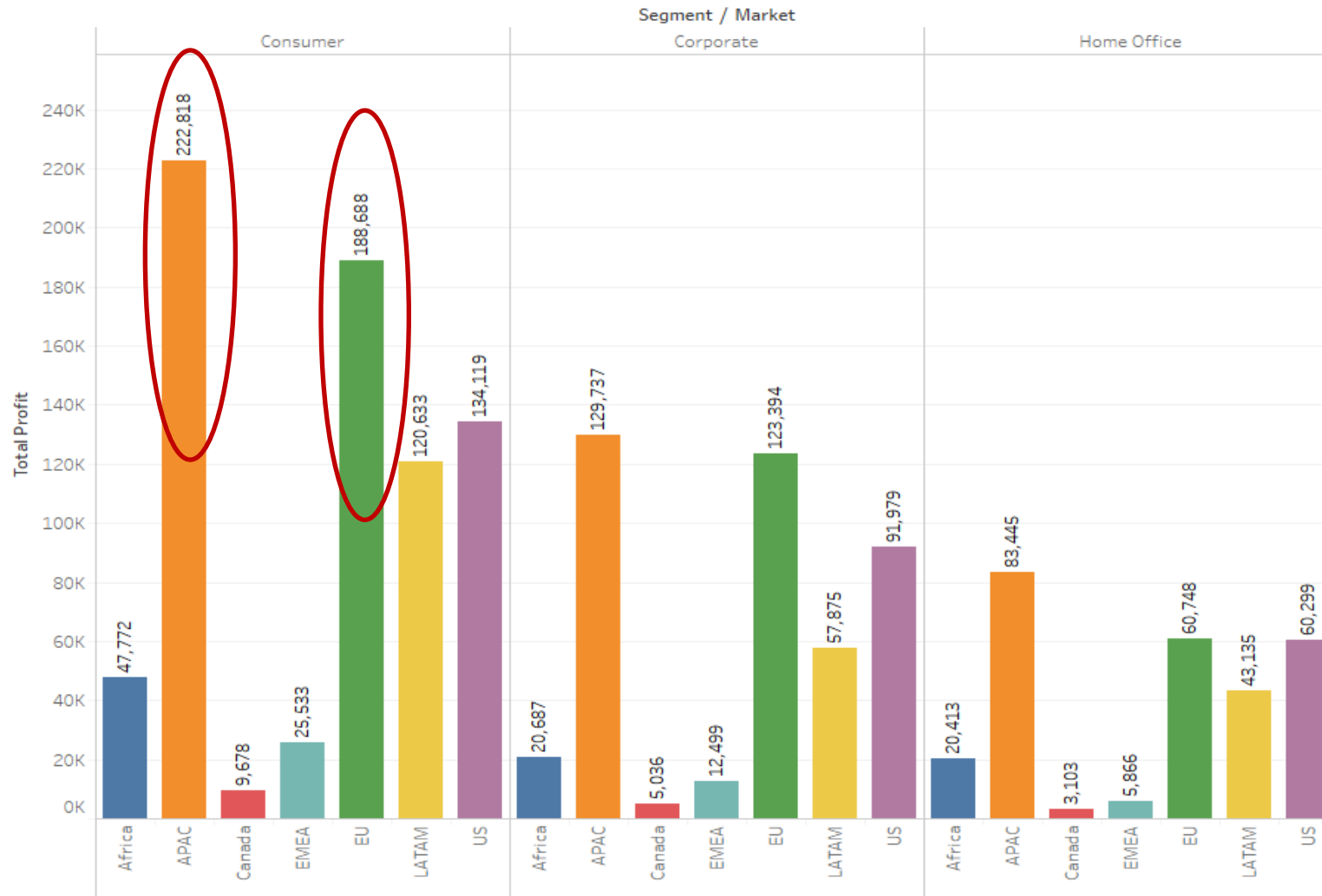
MODEL EVALUATION

(Used ADF and KPSS Tests for stationarity and MAPE for evaluation)

Segment Wise Market Analysis

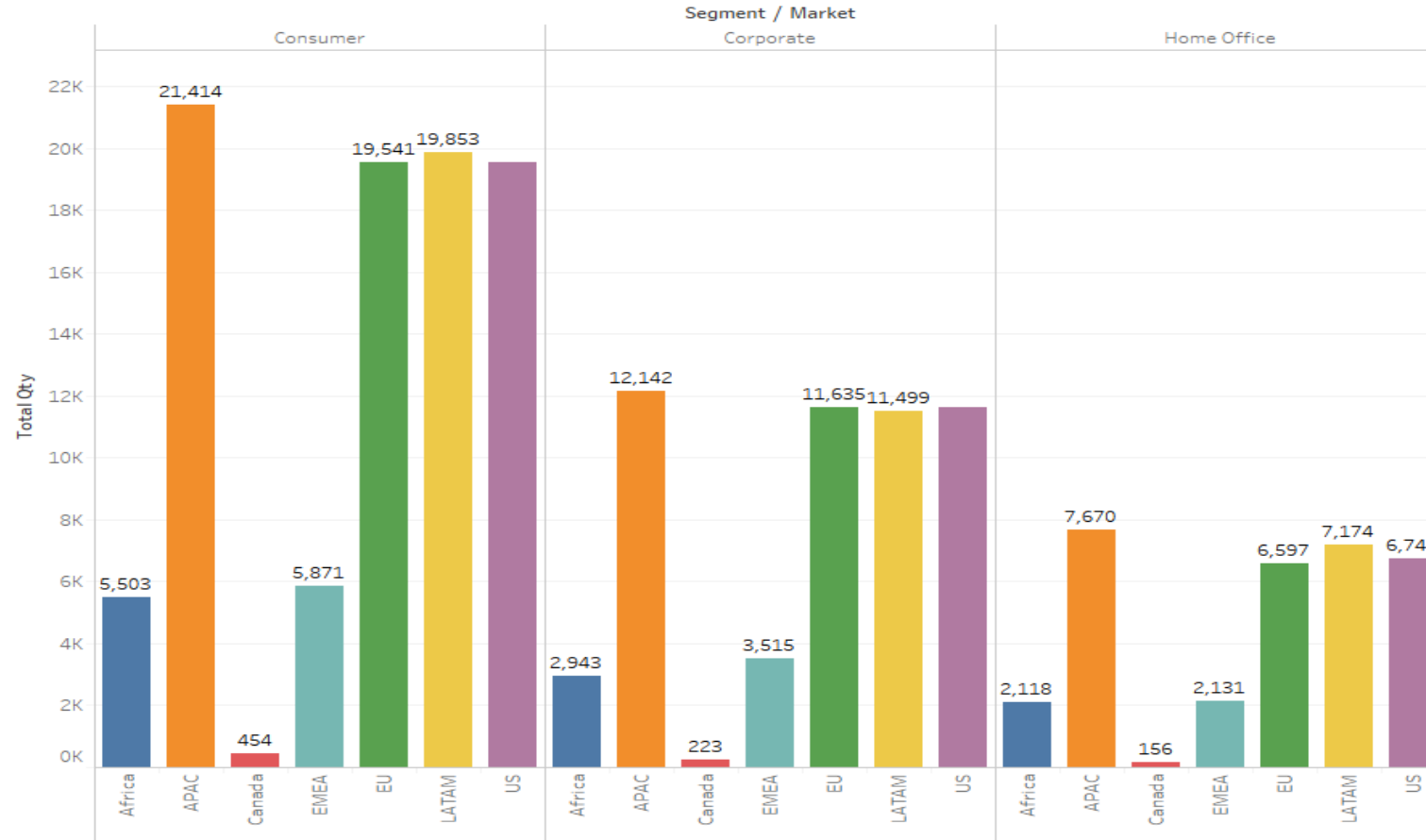


SEGMENT WISE TOTAL PROFIT



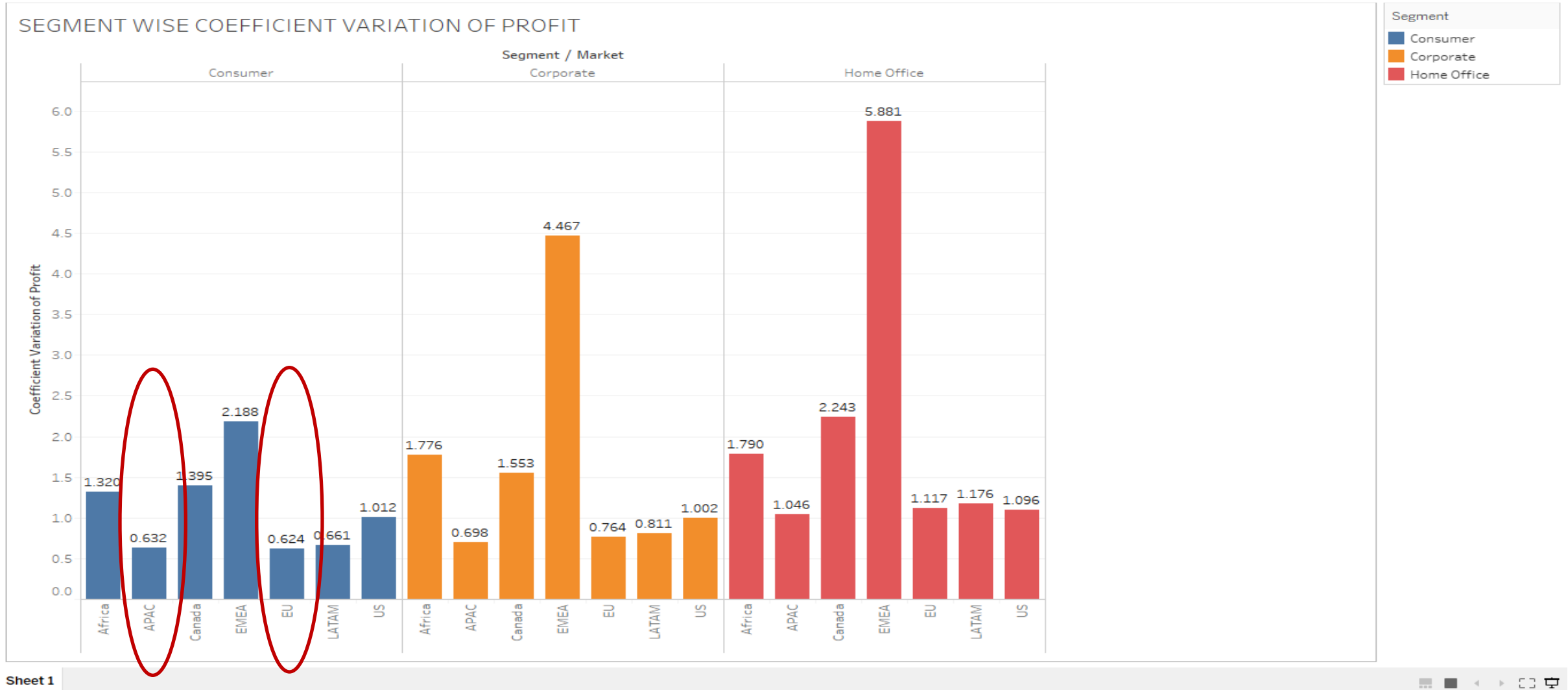
➤ APAC and EU of Consumer Segments are Highly Profitable Segments.

SEGMENT WISE TOTAL QUANTITY



Market

- Africa
- APAC
- Canada
- EMEA
- EU
- LATAM
- US

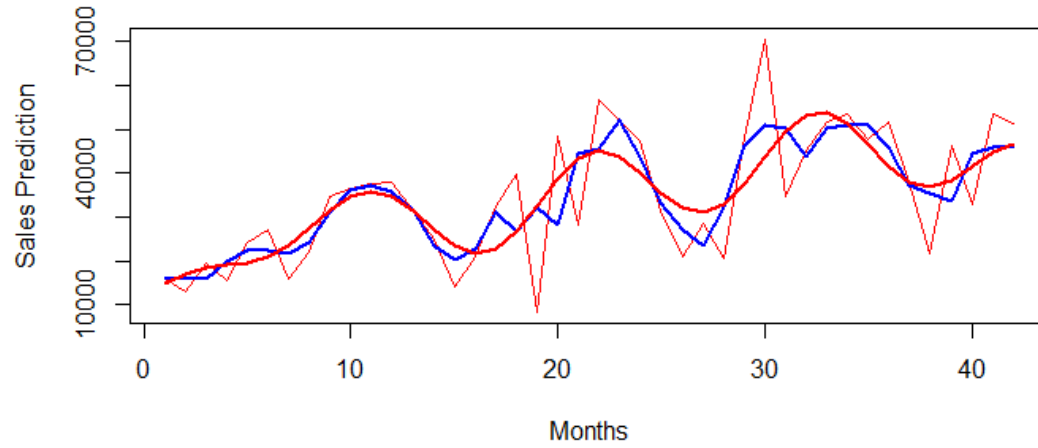


Lower the CV, better the option. We have observed that APAC and EU Consumer possess low Coefficient Variation of Profit.

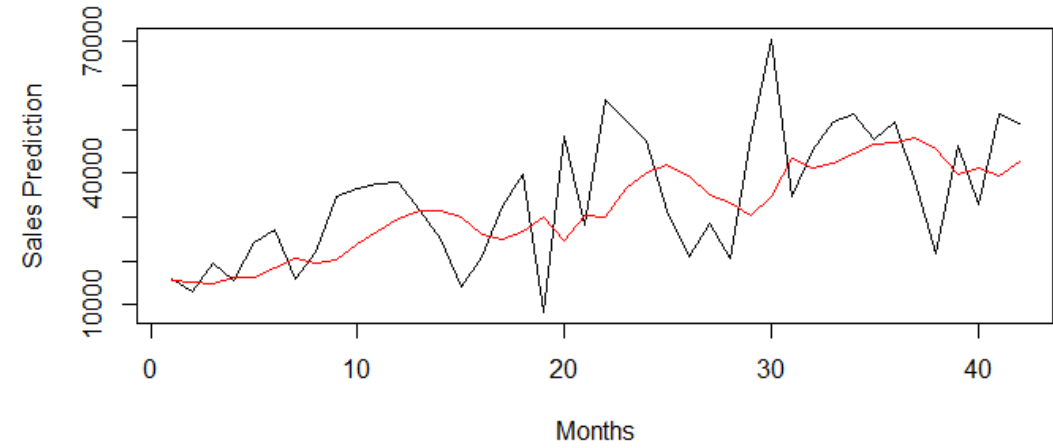
Forecasting -APAC

Sales Forecasting

APAC Consumer Sales- Classical Decomposition

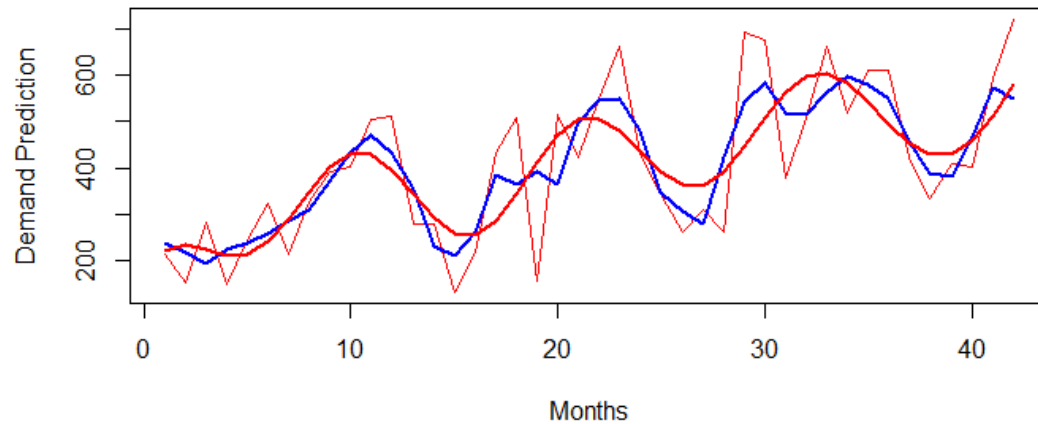


APAC CONSUMER SALES - ARIMA

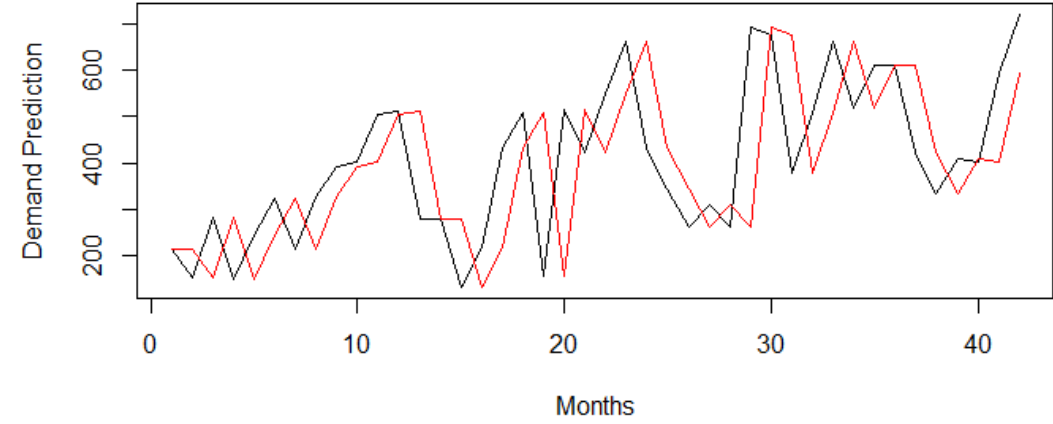


Demand Forecasting

APAC Consumer Demand- Classical Decomposition



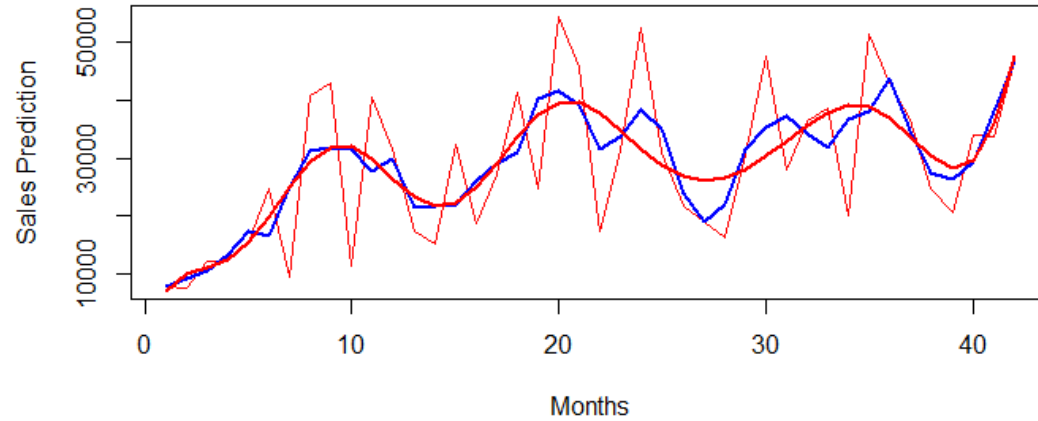
APAC CONSUMER DEMAND - ARIMA



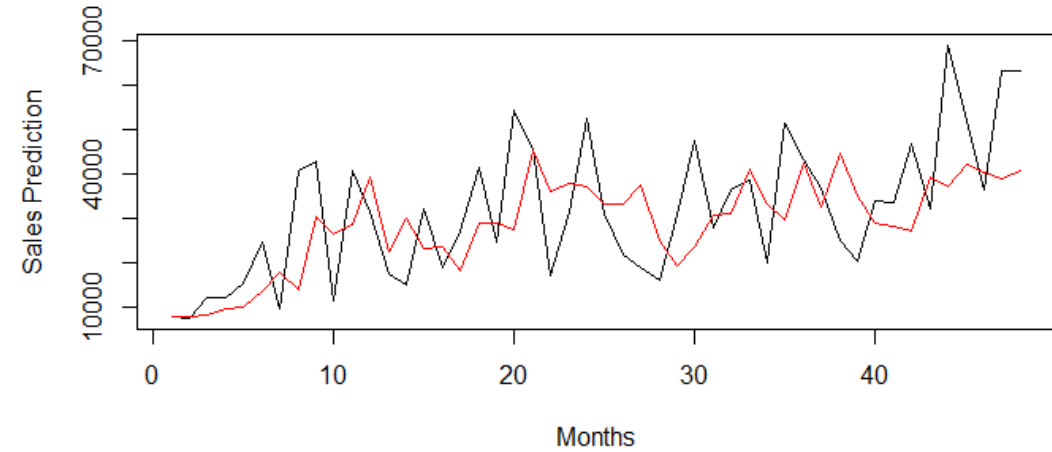
Forecasting -EU

Sales Forecasting

EU Consumer Sales Prediction through Classical Decomposition

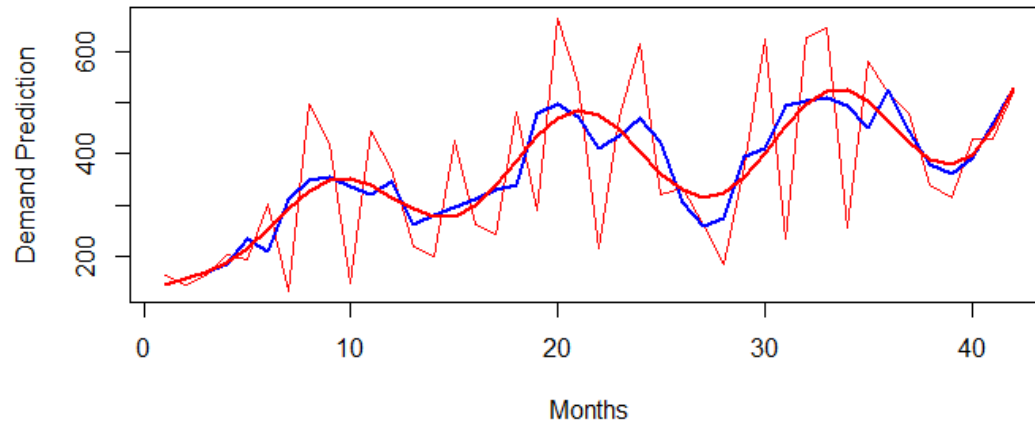


EU Consumer Sales- ARIMA

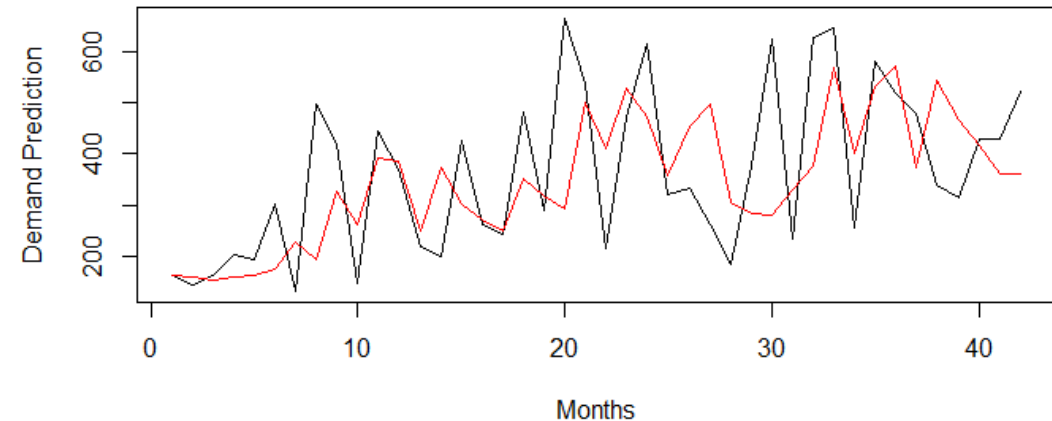


Demand Forecasting

EU CONSUMER DEMAND - Classical Decomposition



EU CONSUMER DEMAND - ARIMA



CONCLUSION

- We have identified two highly Profitable Segments:
 - EU-Consumer
 - APAC-Consumer
- We have forecasted Sales and Demand(Quantity) for next 6 months using Classical Decomposition and ARIMA models.
- **EU Consumer Forecast:**
 - Sales: ARIMA Model did better than a Classical Decomposition and forecasted sales values lie between 39297.86 - 40589.28
 - Demand: Both Models perform almost same and forecasted demand values lie between 452.71- 478.77
- **APAC Consumer Forecast:**
 - Sales: Both Models perform almost same and forecasted sales values lie between 45635.11-46539.11
 - Demand: Both Models perform almost same and forecasted demand values lie between 514.89 - 522.57