RETAIL-GIANT SALES FORECASTING

SUBMISSION

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Abstract

Business Understanding:

• Global Mart is an online store with worldwide operations.

• It takes orders and delivers across the globe and deals with all the major product categories - consumer, corporate & home office.

• The store caters to 7 different market segments and in 3 major categories.

Goal:

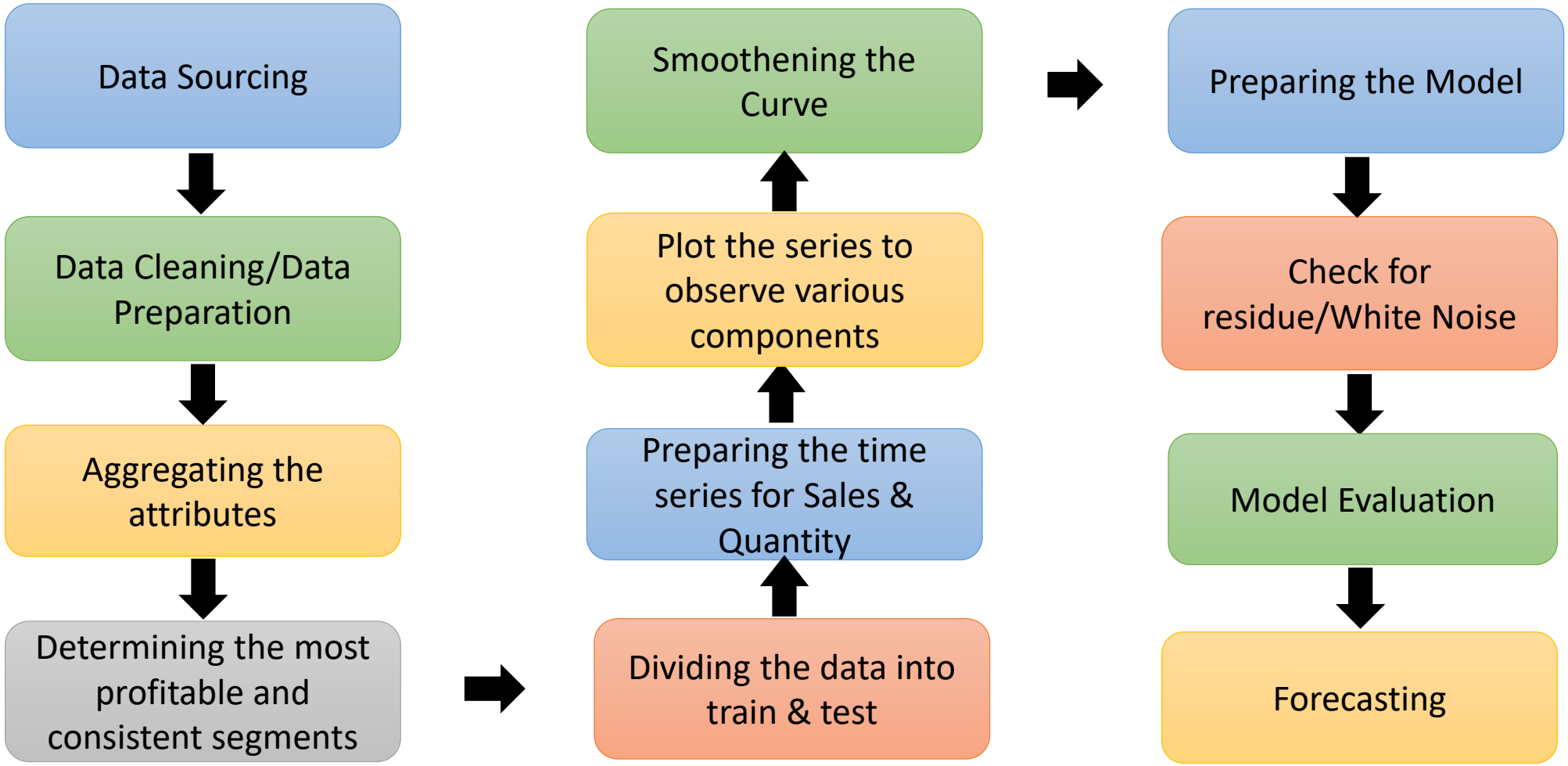
• To Forecast Sales and Demand For Next 6 Months which would help us manage the revenue and inventory accordingly

Data Understanding

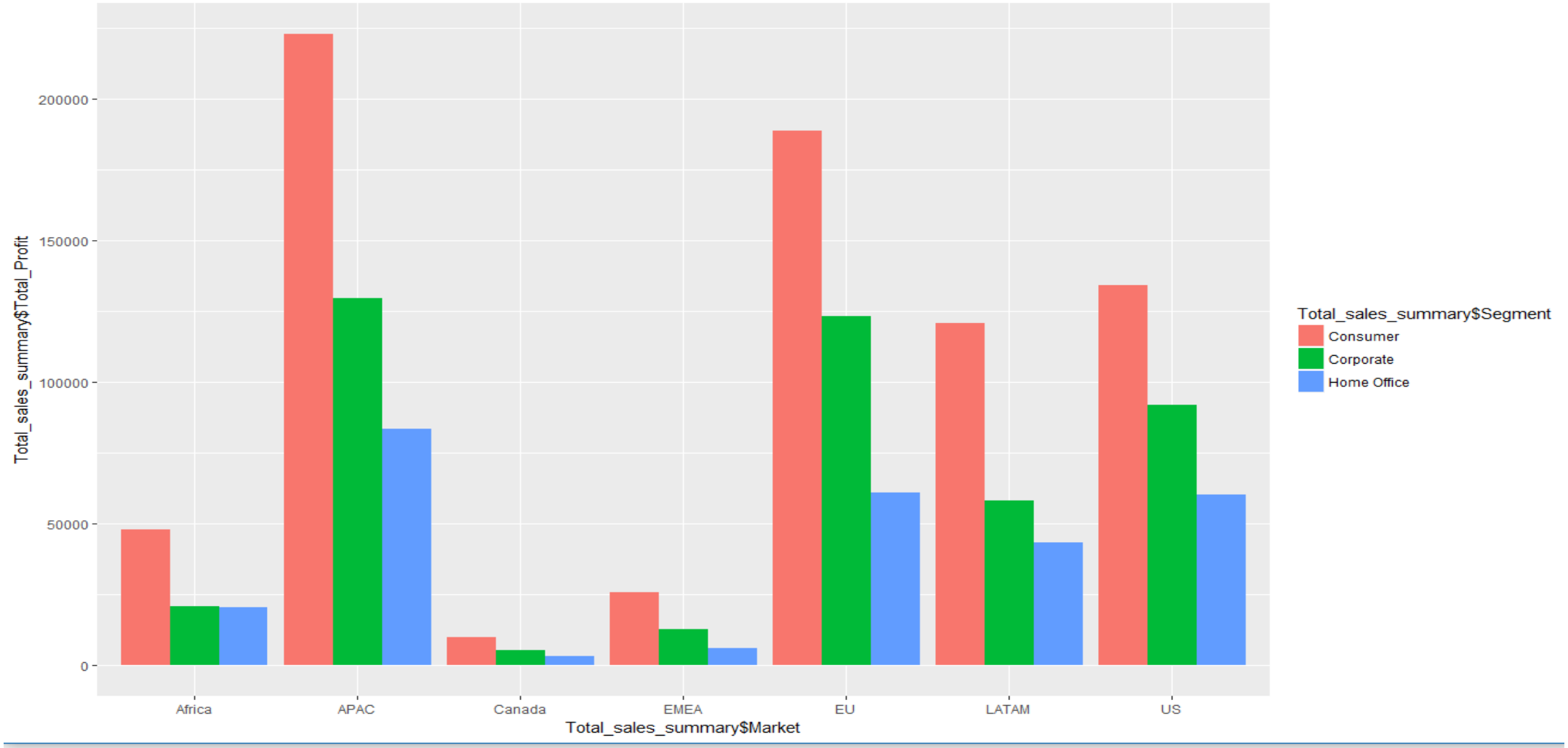
- The data currently has the transaction level data, where each row represents a particular order made on the online store.
- The store caters to 7 different market segments and in 3 major categories. We need to forecast at this granular level, so subsetting our data into 21 (7*3) buckets before analysing these data.

- Attributes of Interest:
  - Segment
  - Market
  - Quantity sold
  - Value of the sale
  - Profit made on the sale

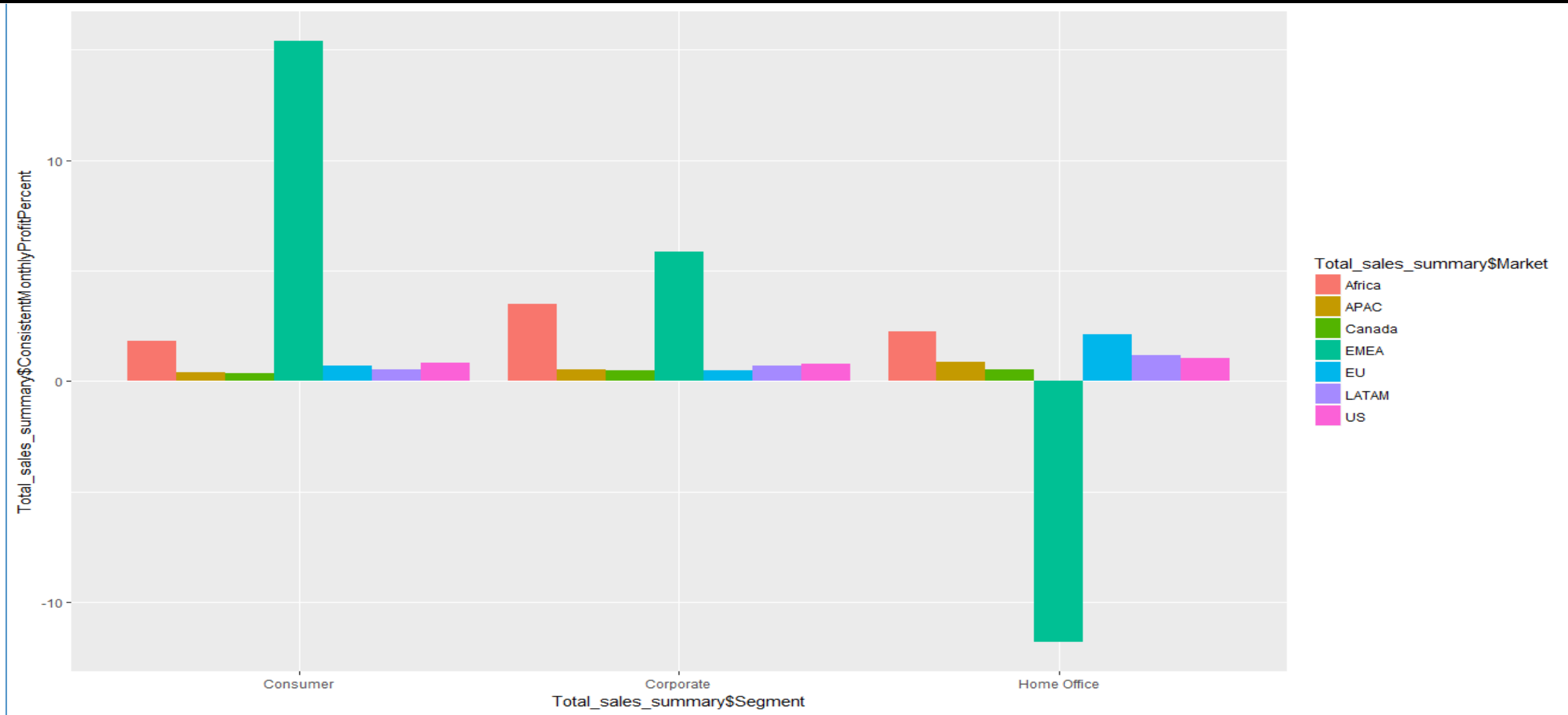
Problem solving methodology



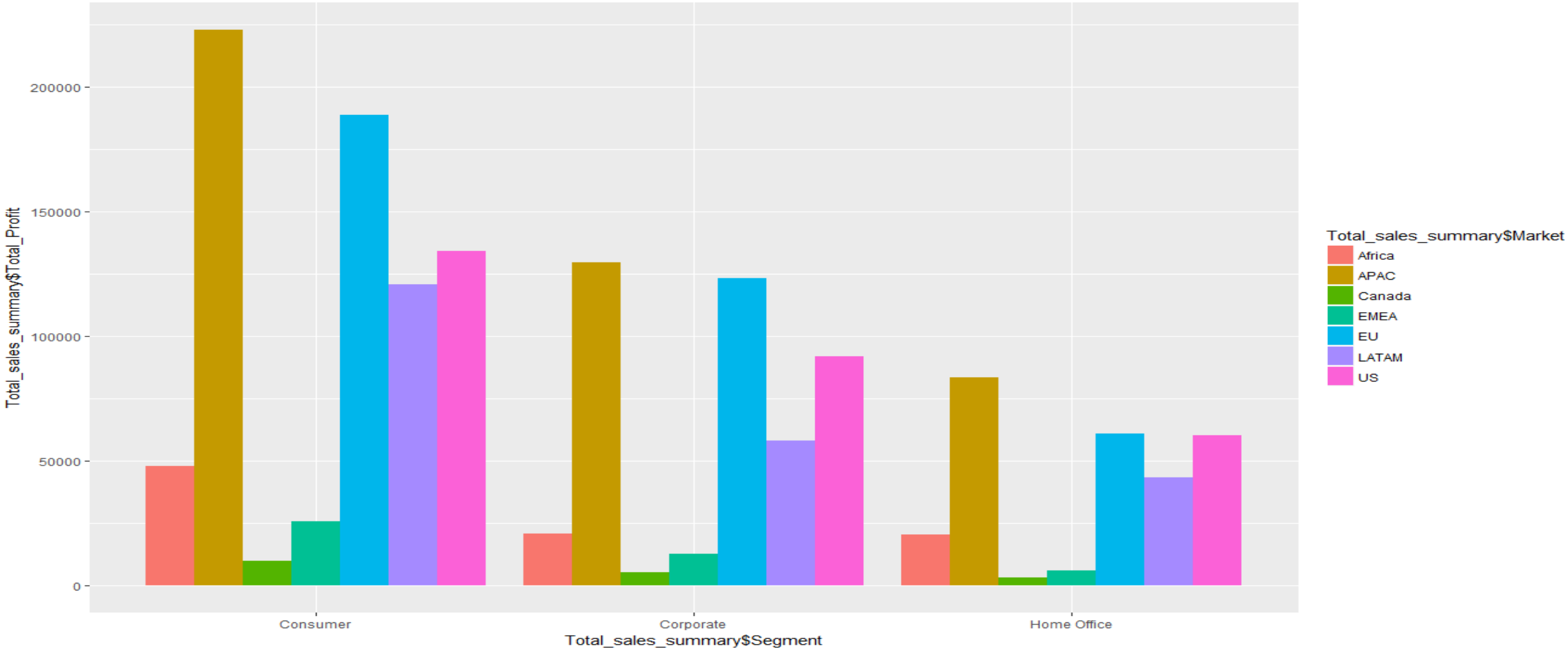
Total Profits across Market Segements



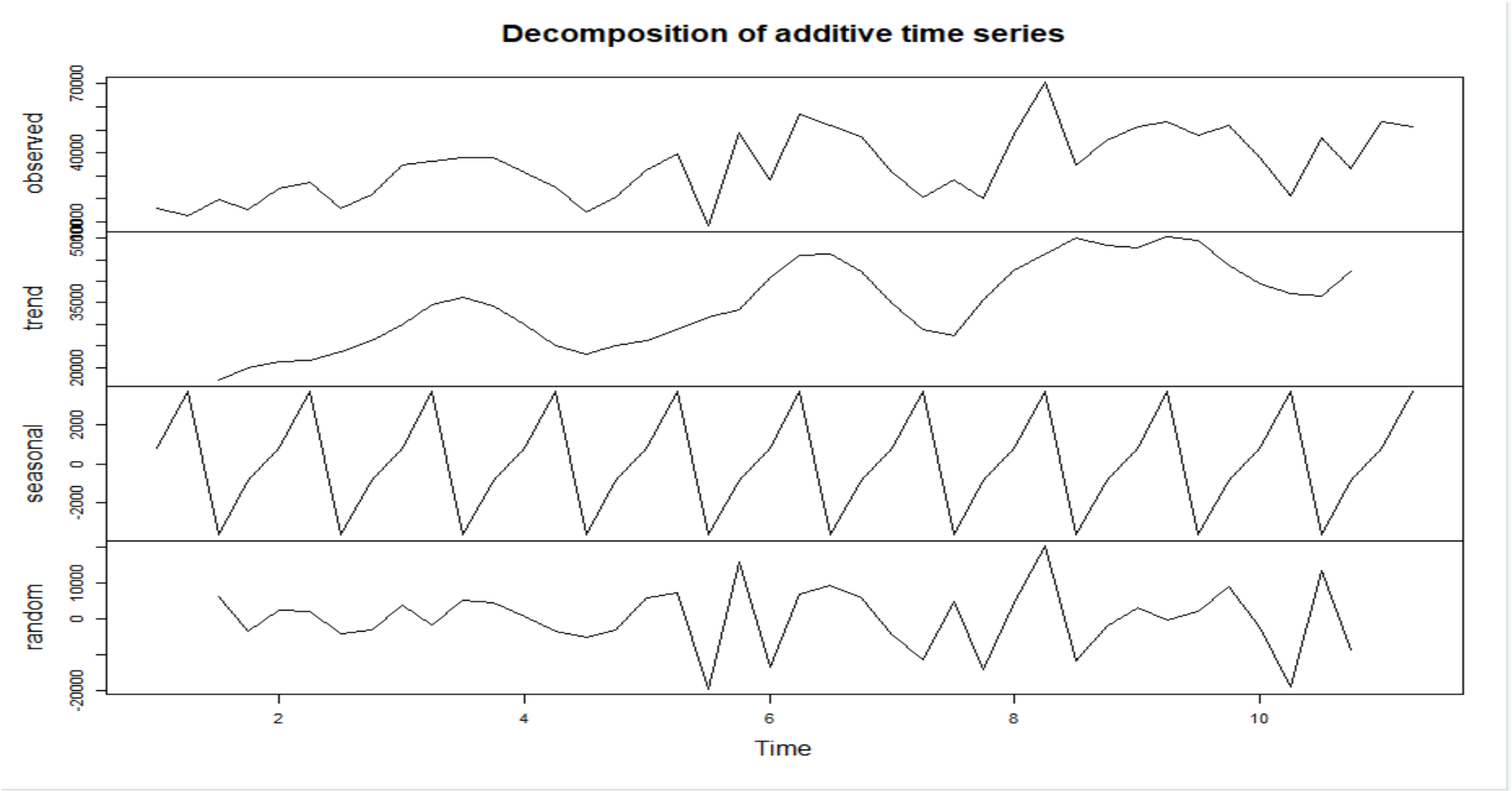
Consistency Profit of Markets across Segments



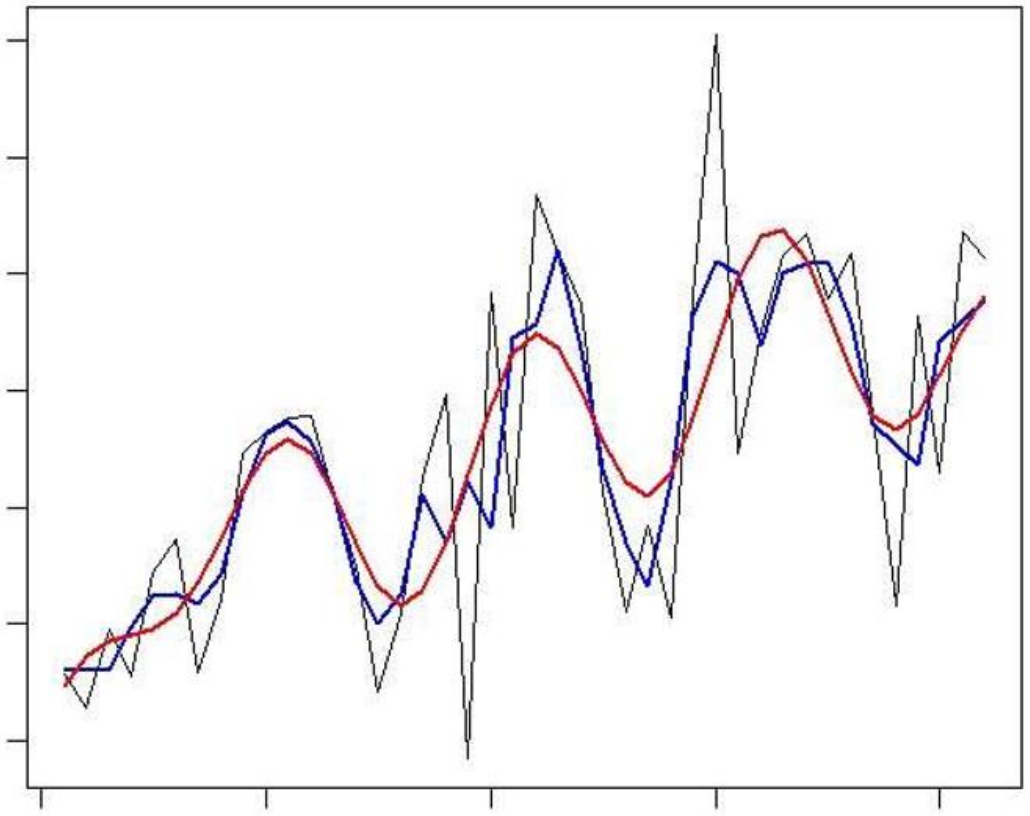
- APAC Consumer and EU Consumer remains profitable and consistent over the past years.

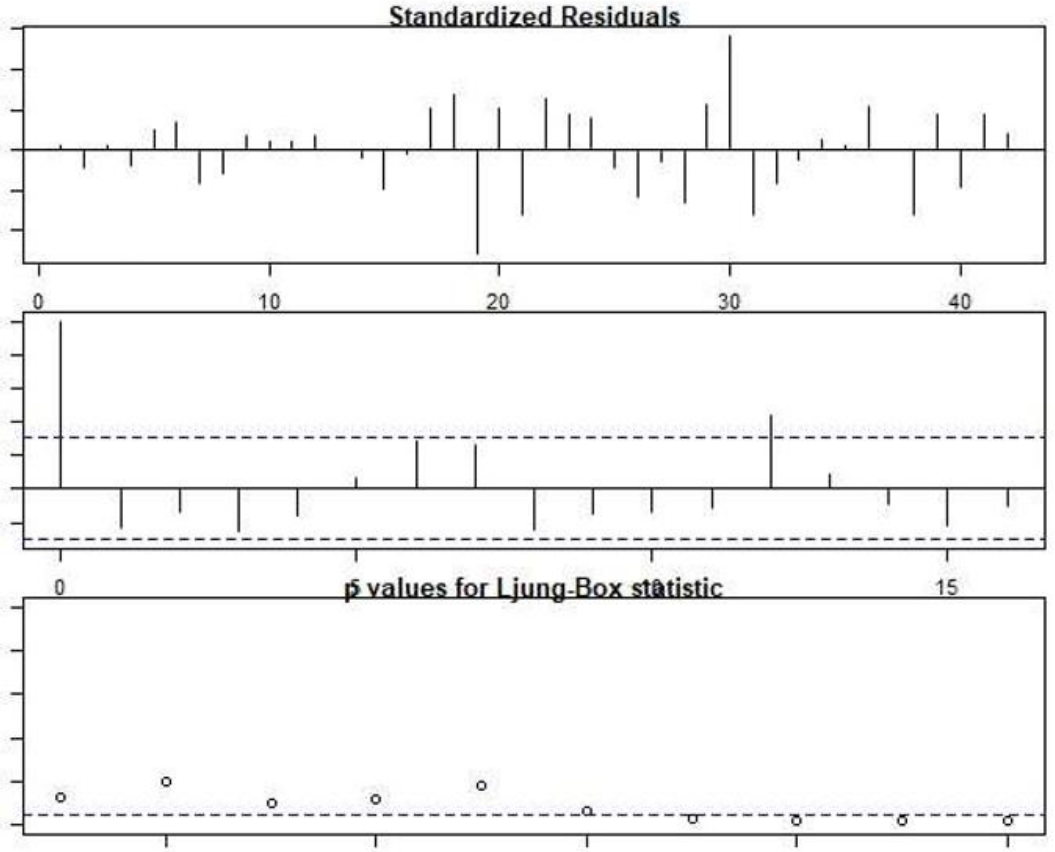


APAC Consumer - Sales

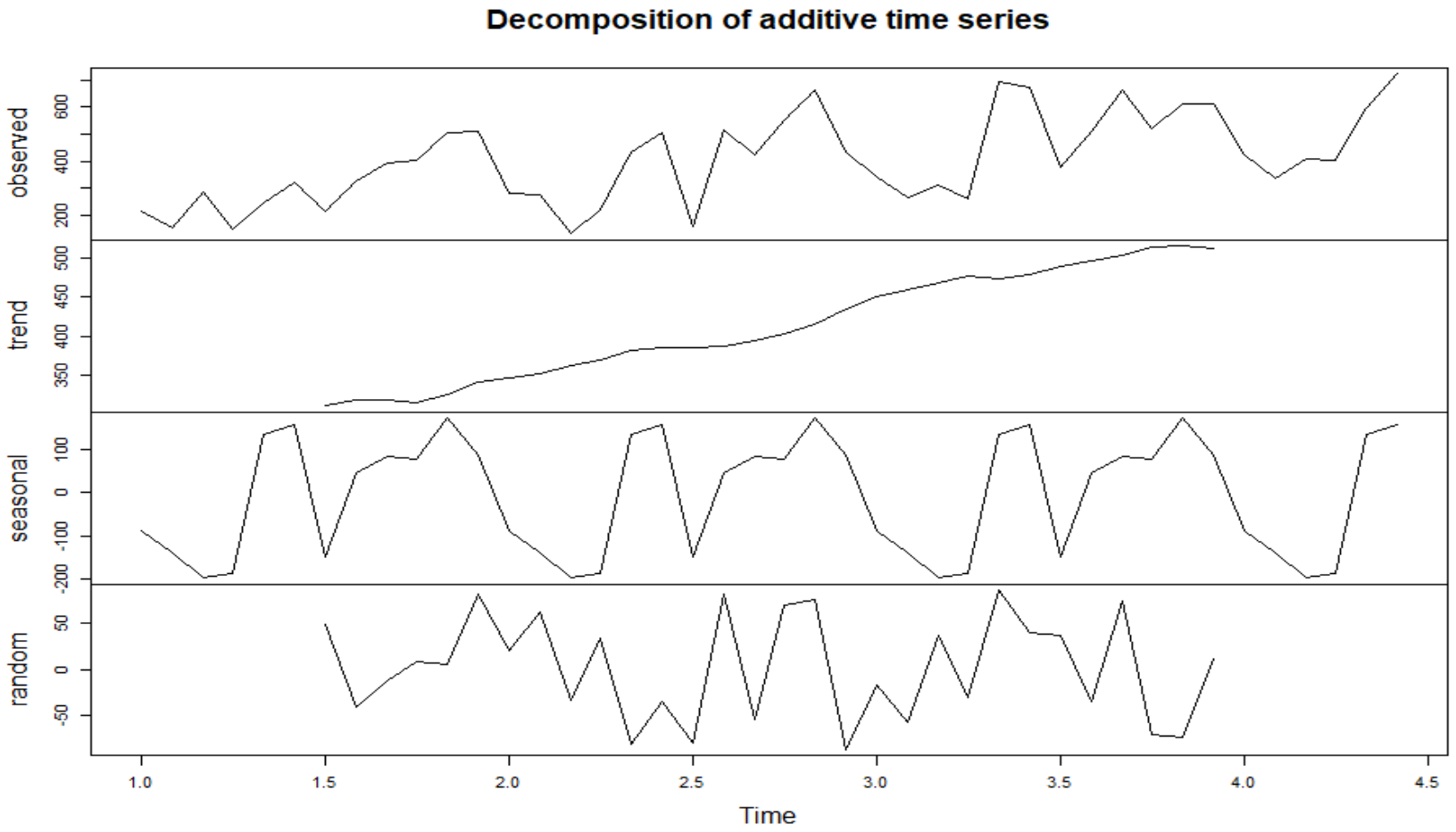


APAC Consumer Sales – Curve fitting & Residue Analysis

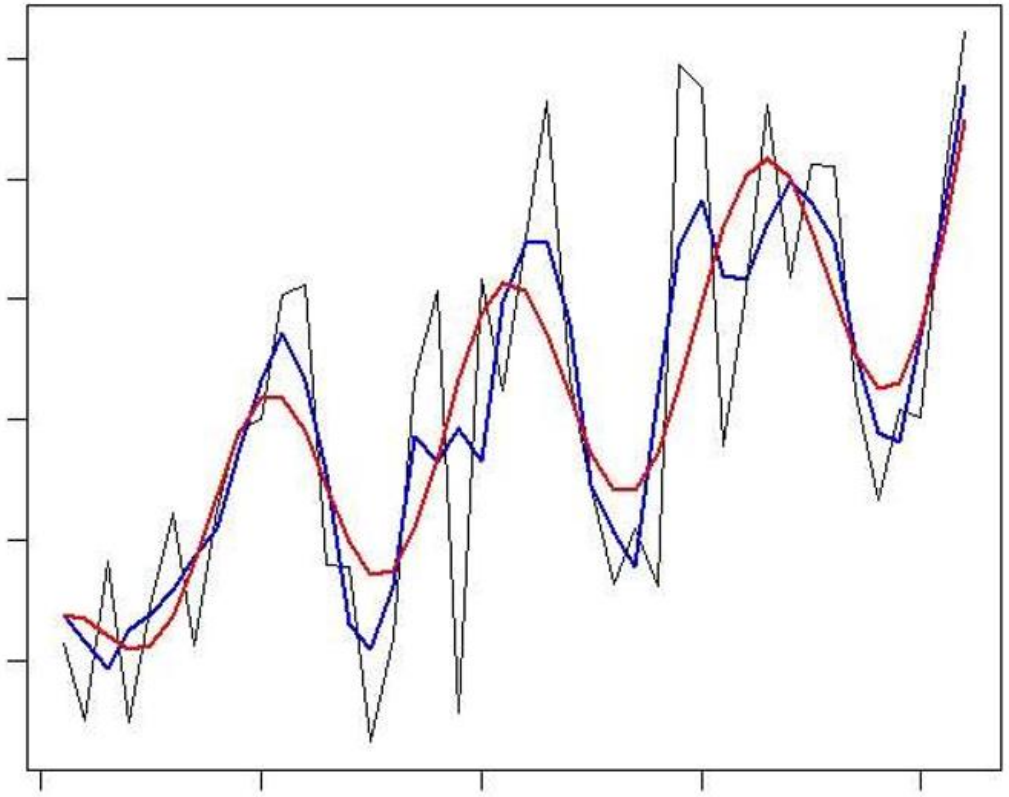


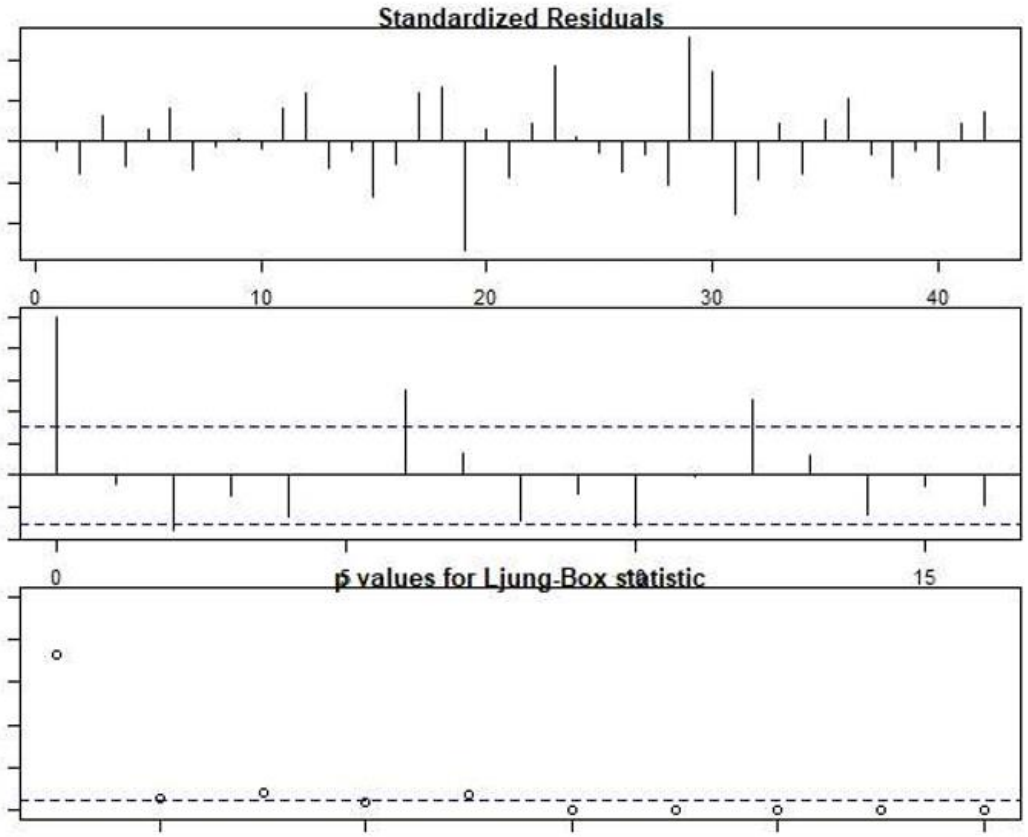


APAC Consumer - Quantity

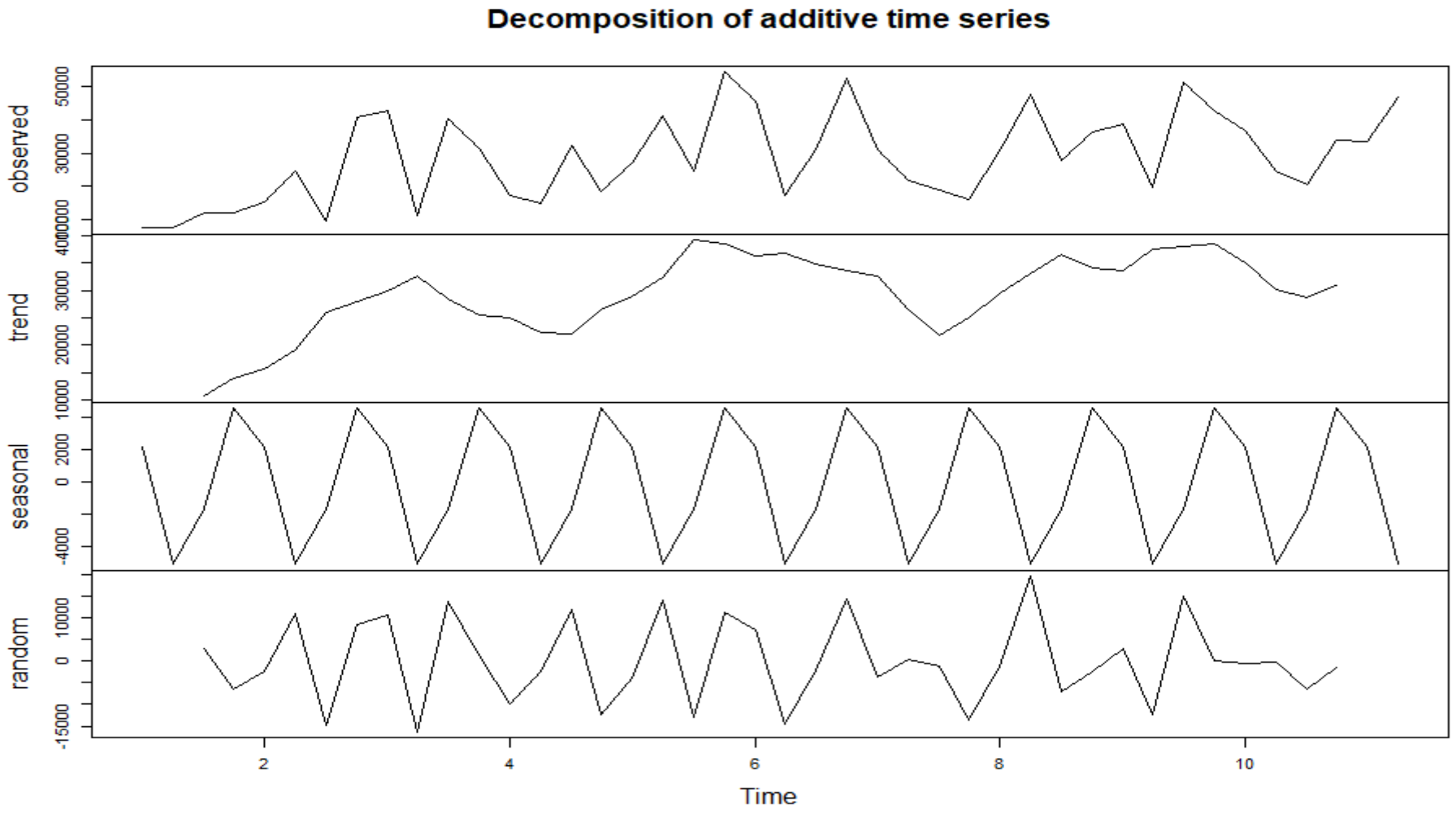


APAC Consumer Quantity – Curve fitting & Residue Analysis

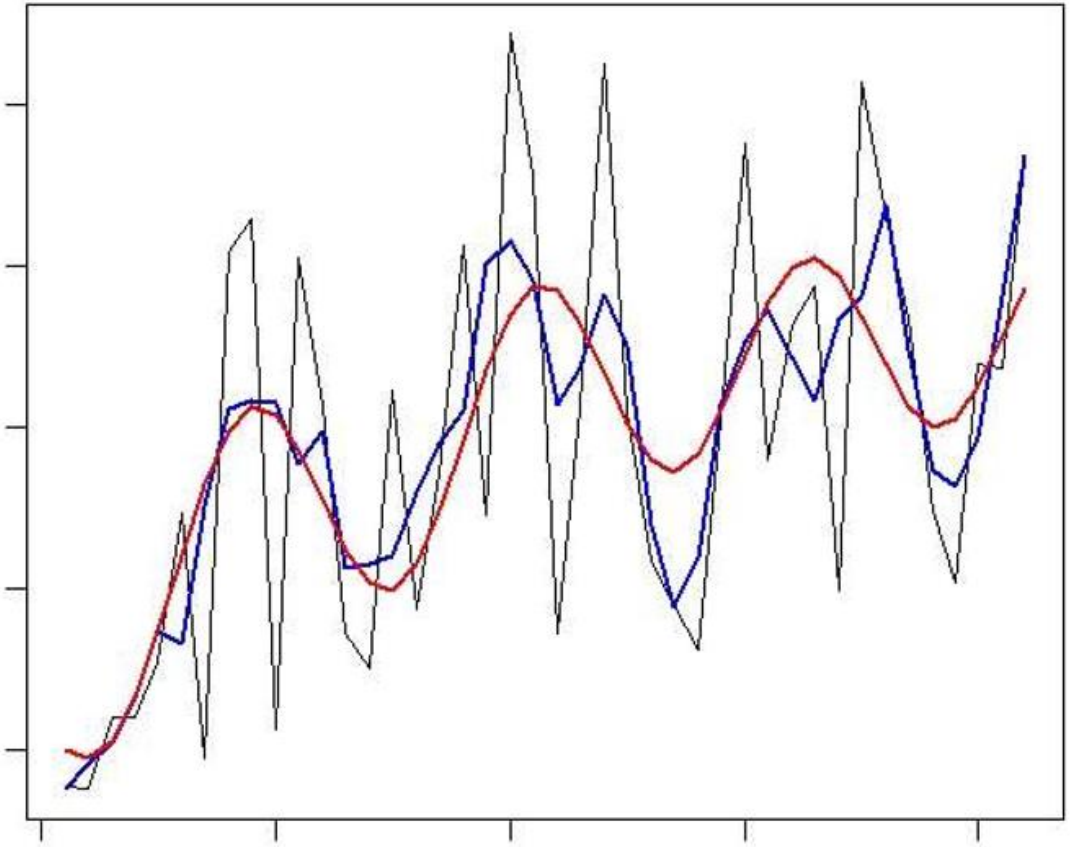


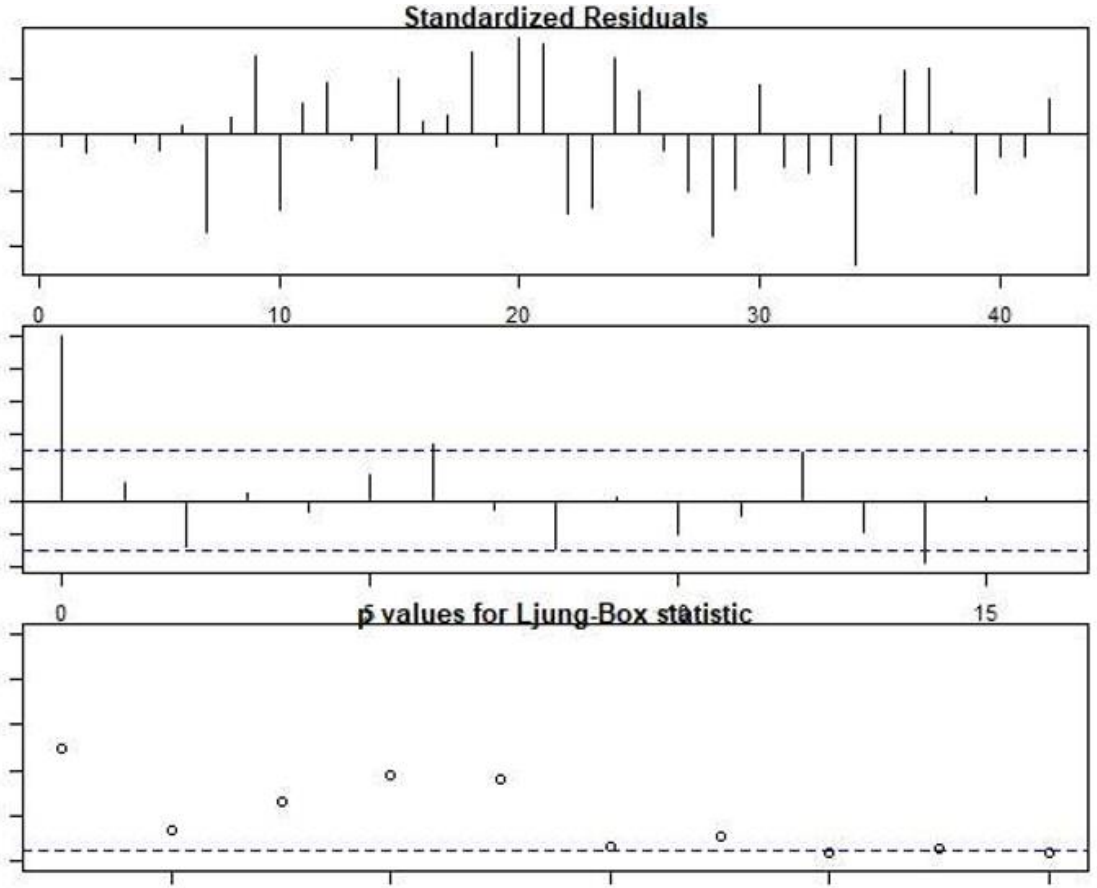


EU Consumer - Sales



EU Consumer Sales – Curve fitting & Residue Analysis





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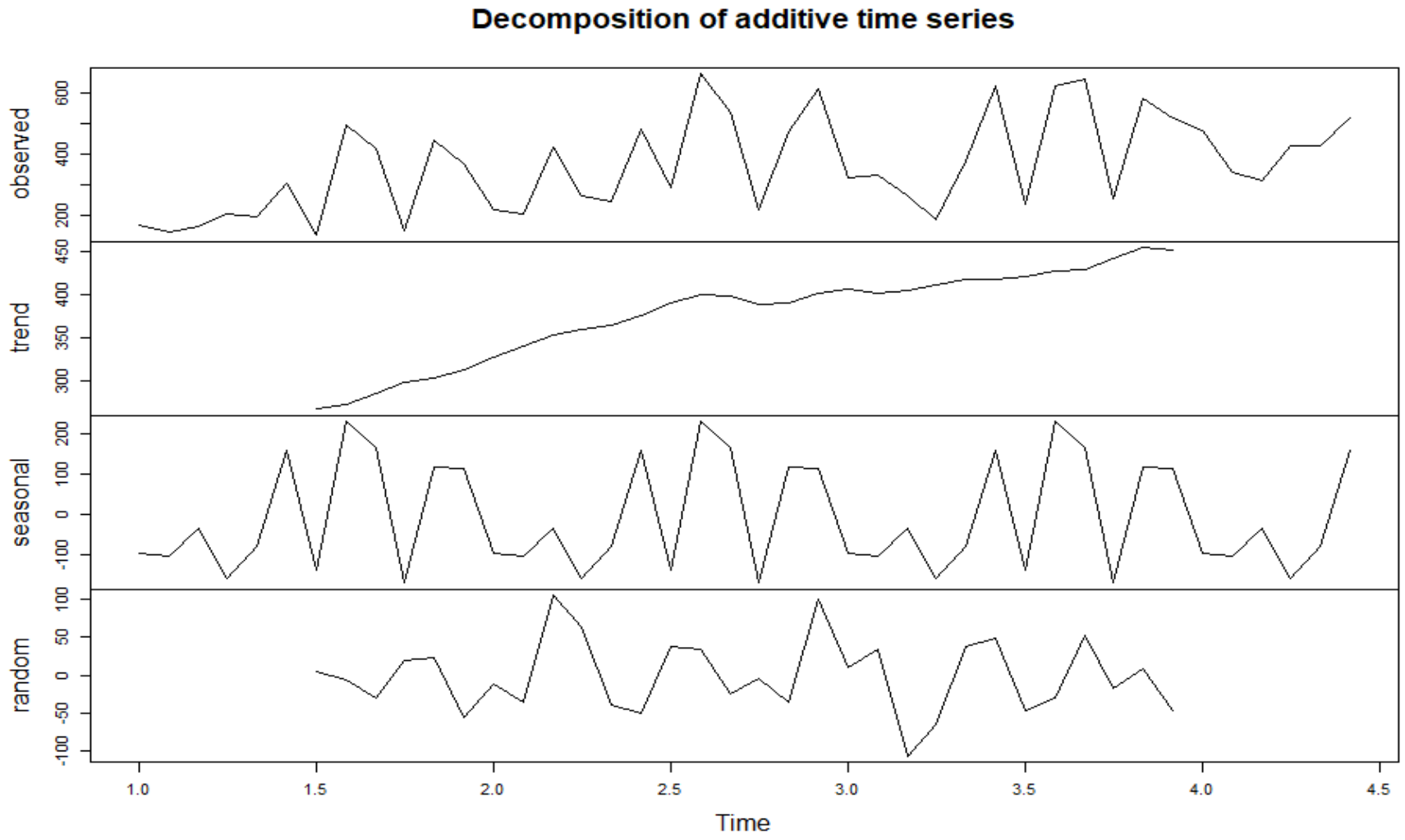
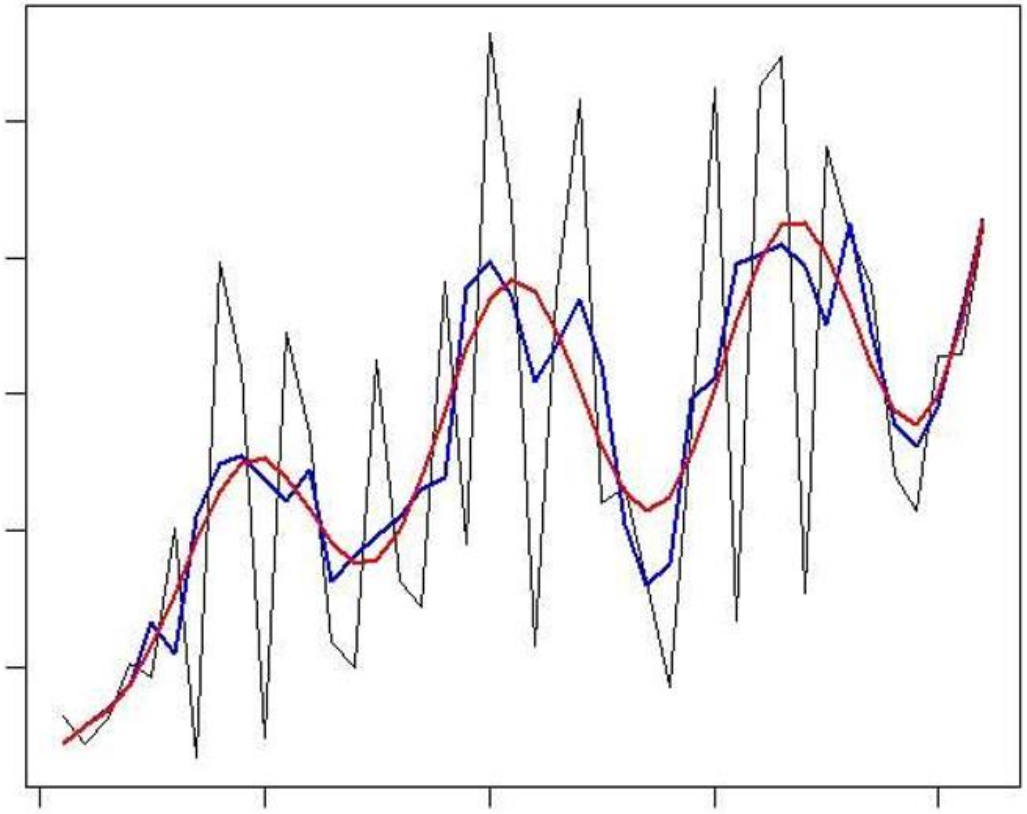
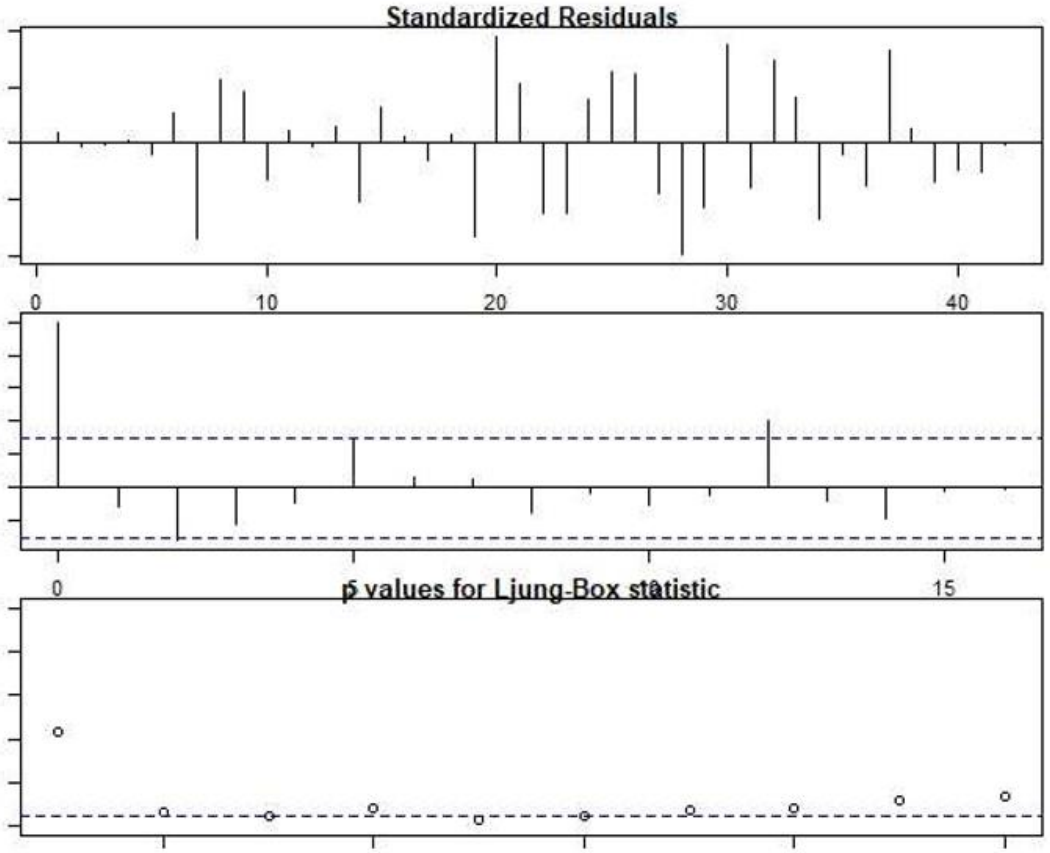


EU Consumer Quantity – Curve fitting & Residue Analysis





Model Evaluation

		APAC							EU					
	Months	1	2	3	4	5	6		1	2	3	4	5	6
Auto Arima	Sales	44898.7	44898.7	44898.7	44898.7	44898.7	44898.7		40288.07	39651.62	40168.29	40181.05	39920.18	40065.12
	Quantity	721	721	721	721	721	721		466.2458	463.7401	472.952	467.6464	466.135	470.3663
Classical Decomposition	Sales	48894.5	55229.36	59321.81	57988.42	49177.89	33068.78		27689.42	28163.78	30673.46	34541.37	38603.65	41525.89
	Quantity	453.902	419.2789	460.969	576.0502	735.617	891.3185		2481.944	2557.735	2664.475	2945.801	3542.559	4537.297

- The Two most profitable and consistent Market-Segments are
  - APAC Consumer
  - EU Consumer
- Across the profitable segments the models built for Sales and Quantity I,e,. Using Auto Arima and Classical Decomposition, the MAPE values are low for Auto Arima.
- Lower the MAPE values better the model.
- So we have chosen Auto Arima model and forecasted the Sales and Quantity for next six months.

Thank you