Apollo Hospital Food Assignment

SUBMISSION

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Abstract

Natural gas is one of the primary fuels for various industries, along with diesel, furnace oil and coal. But the demand for natural gas by industrial consumers is fluctuating due to various external factors like the price of the natural gas/diesel/furnace oil, or due to seasonality variations, or due to reduced demand of downstream products.

The objective of this report is to develop a regression model to understand the importance of above mentioned factors in determining the demand for natural gas.

Problem Objective

Apollo Hospitals F&B department wants to forecast the breakfast occupancy and food items with 1 or 2 days in advance

Results

Forecasted Values $\longrightarrow$

Food Items	SES	Holt DES	Holt Winter TES	Decomposition Linear	STL	Ensembled	Rounded
Breakfast Occupancy	254.5	254.4	254.2	226.8	254	249.3	249
Idly	63.67	63.70	63.70	57.03	63.13	62.36	62
Dosa	20.51	20.20	13.38	33.22	15.97	20.44	20
Chutney	135.1	135.2	131.3	136.7	137.3	135.1	135
Sambar	134.9	135.0	130.0	137.3	136.5	134.7	135

Note: Ensembled forecast is calculated as weighted mean of forecast from other methods, with weights calculated as inverse of Mean Square of Errors of the applied methods

Problem Solving Methodology- CRISP DM Framework

Business Objective : Explained Above Slide

Data : Present in Excel Format, Information about all companies and details about Investment in them and mapping of primary sectors to their main sectors

Data Preparation : Cleaning of the data available by replacing the NA values with meaningful values wherever necessary.

Modelling: Applying a Model following the constraints above and sorting the results step by step coming to a conclusion for completing the objective.

Evaluation: Evaluating the results in different tools, reviewing the process and summarizing the results keeping the business success constraints in mind(Above Slide)

Tools Used : R, Excel

Analysis Results

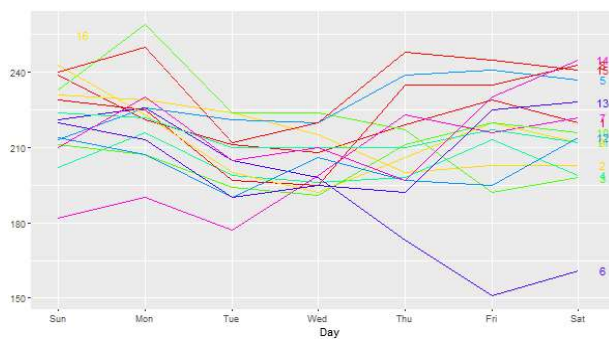## Breakfast Occupancy - Data shows no trend and no seasonality
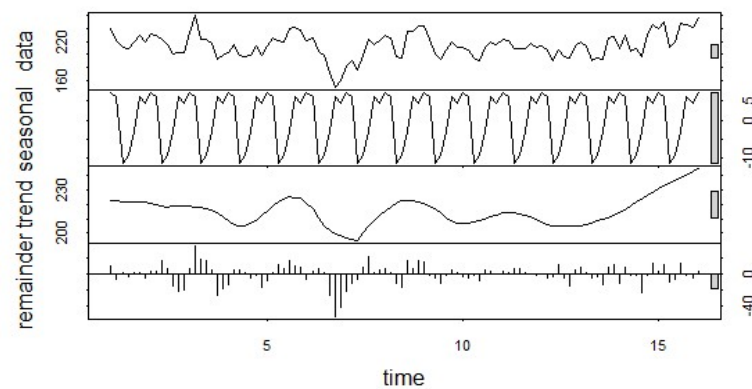

Data Trend
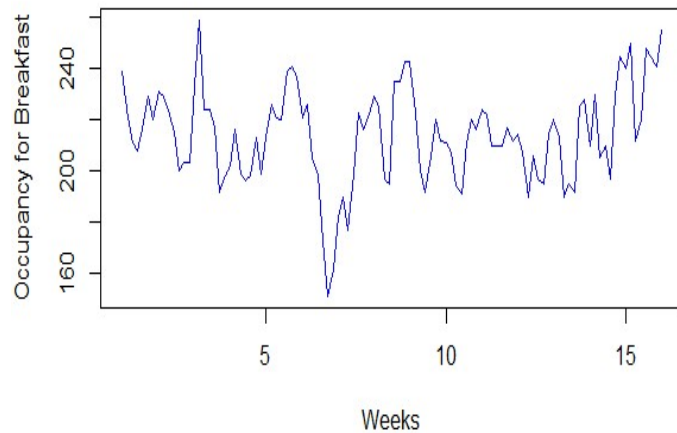
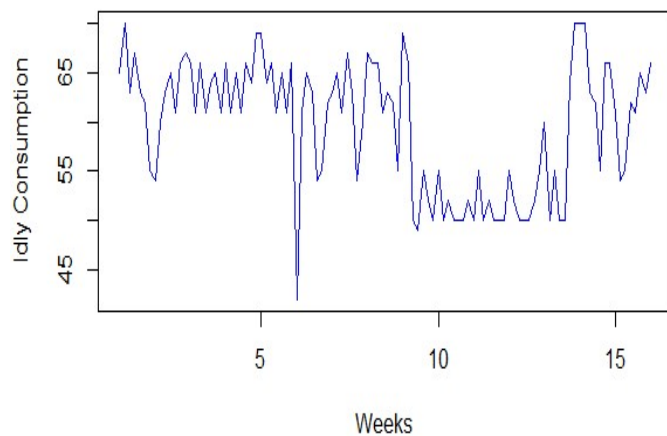*Smoothened Trend (SMA7)*
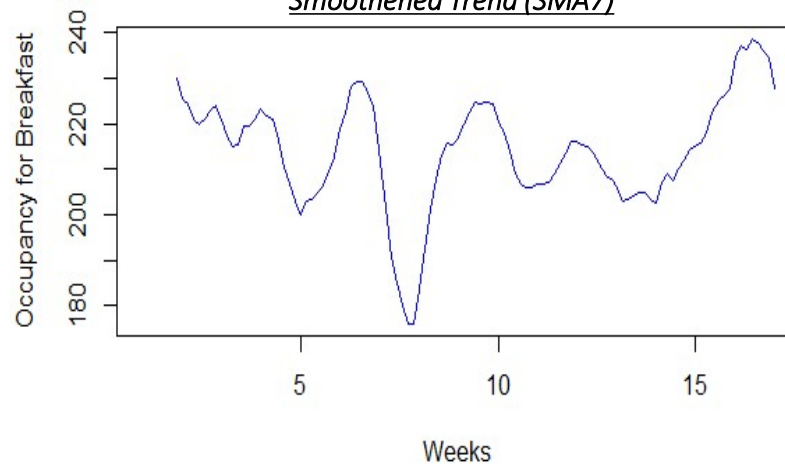
Seasonal Plot

STL Decomposition

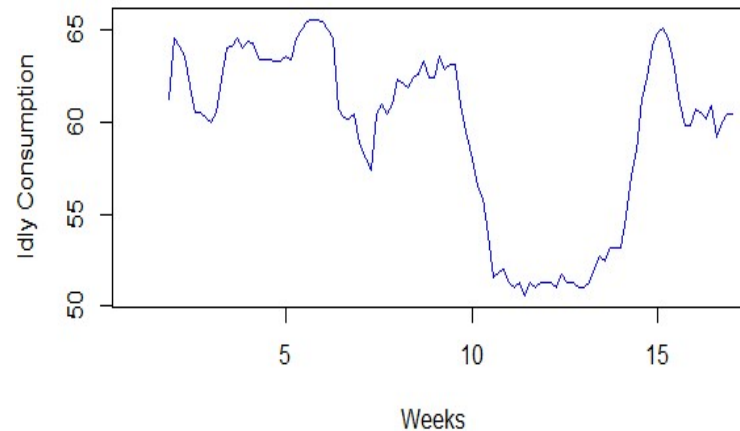*Shows seasonality but of very slight nature*

Analysis Results

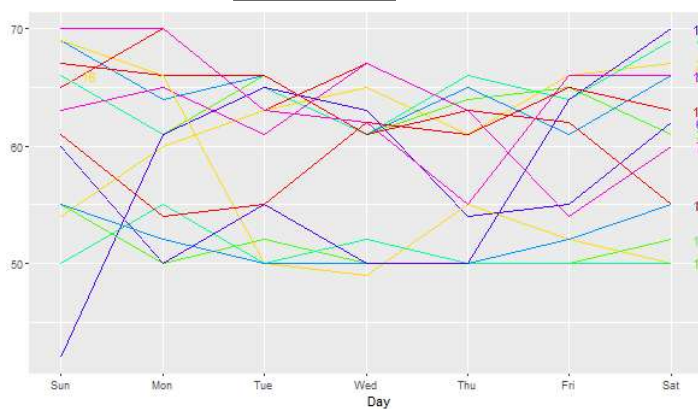**Idly** - Data shows no trend and no seasonality but level of series go down for few weeks
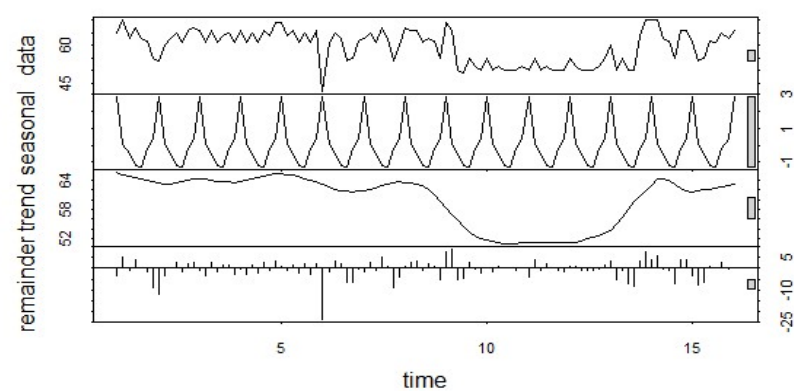
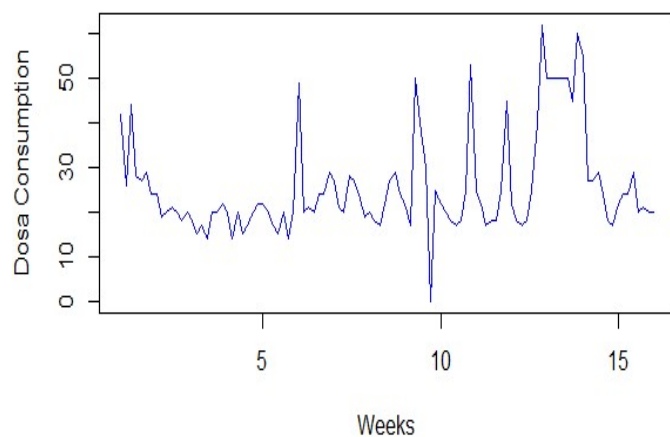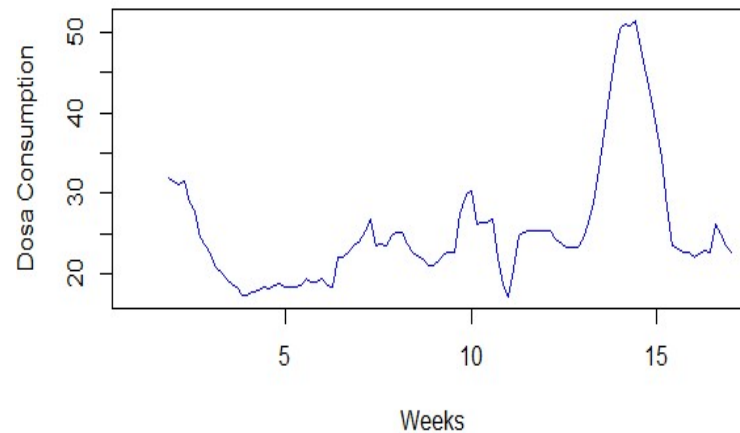*Data Trend*

Smoothened Trend (SMA7)

Seasonal Plot

STL Decomposition

Analysis Results

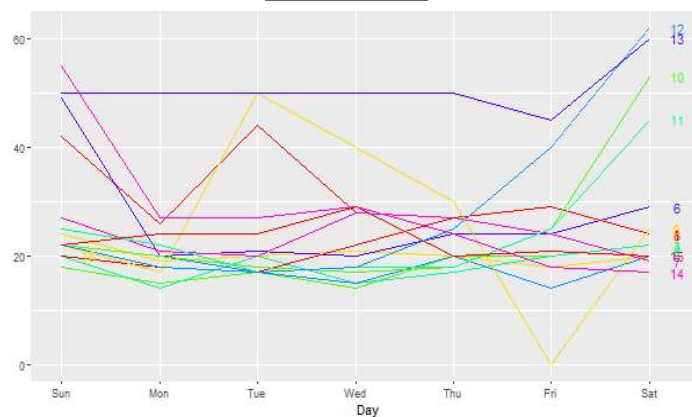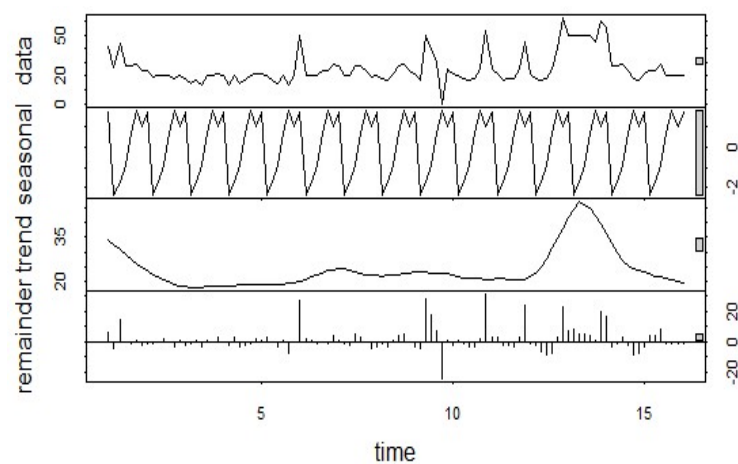**Dosa** - Data shows no trend and no seasonality but there seems to be outliers in week 14

Data Trend

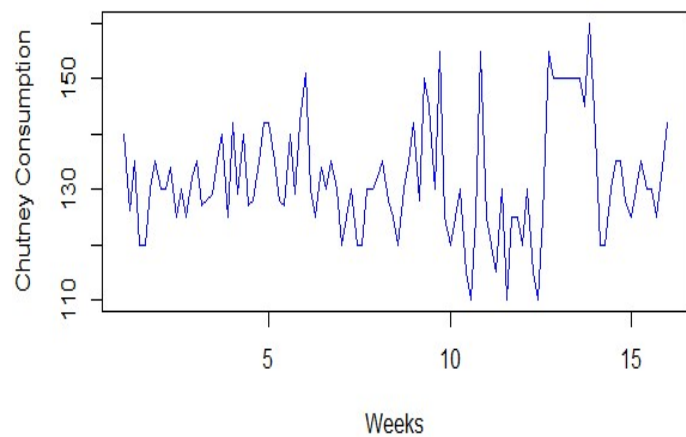
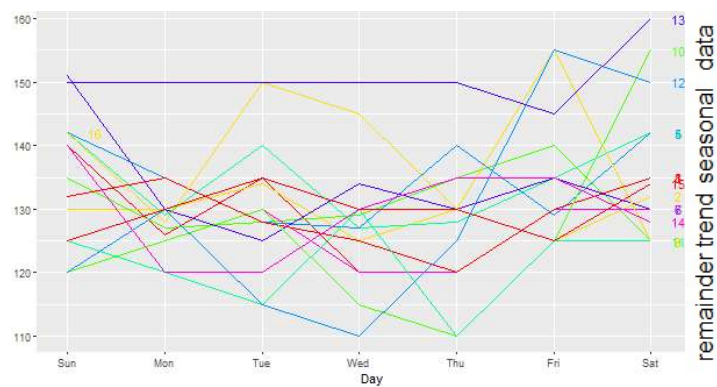*Smoothened Trend (SMA7)*

Seasonal Plot

STL Decomposition

Analysis Results

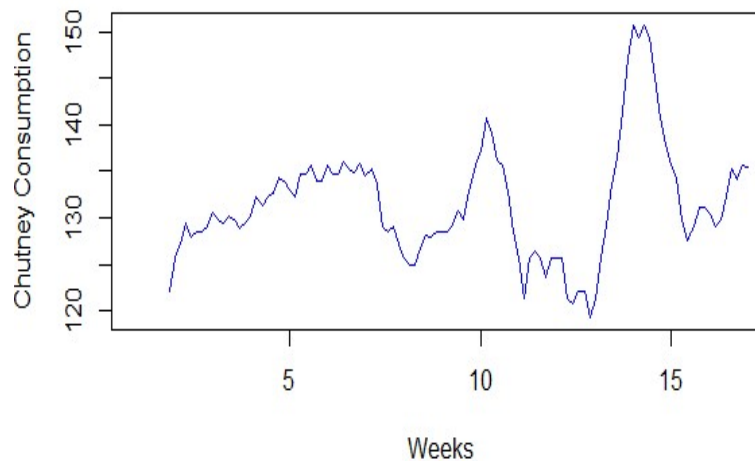**Chutney** - Data shows no trend and no seasonality but level of series increases in week 14
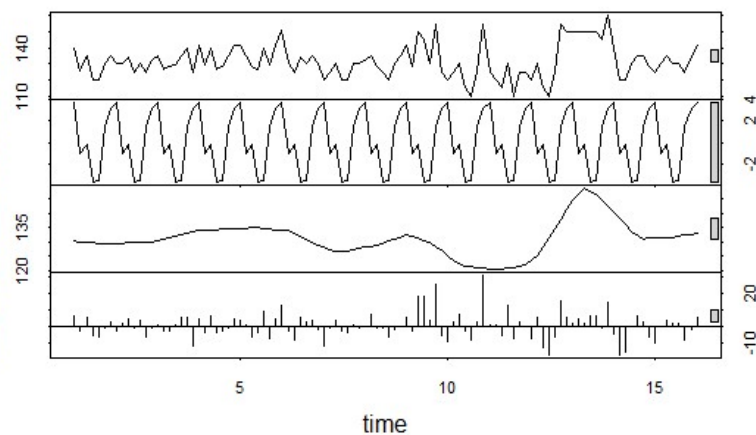
Data Trend

Smoothened Trend (SMA7)

Seasonal Plot
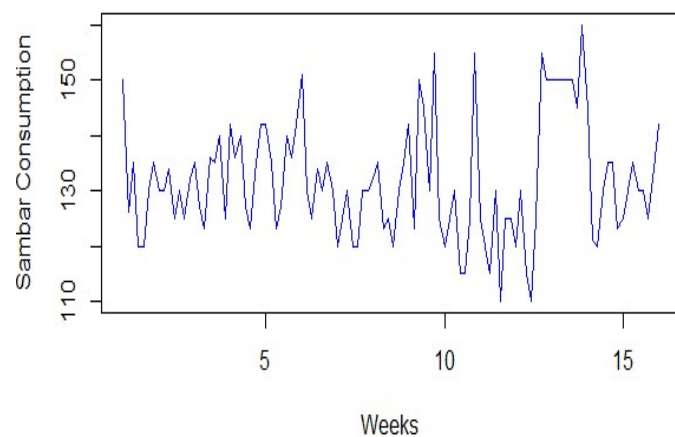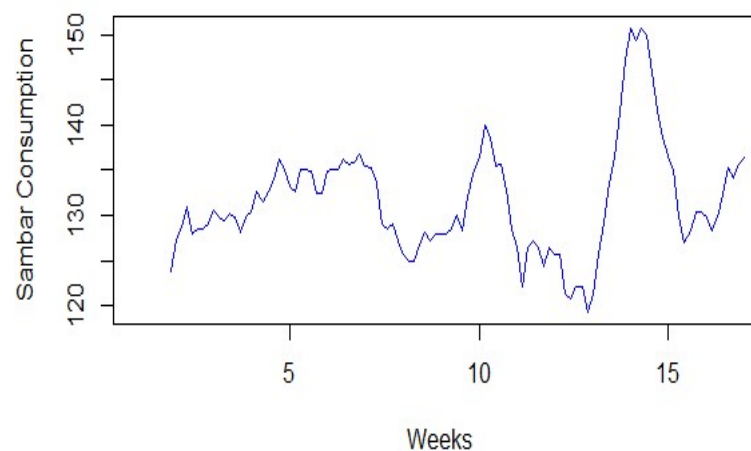

STL Decomposition

Analysis Results

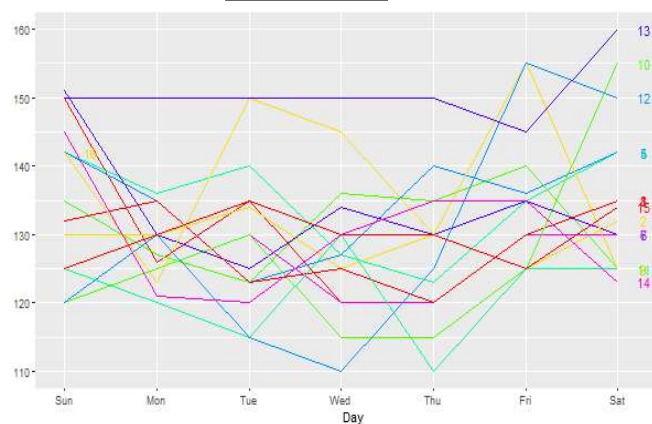**Sambar -** Data shows no trend and no seasonality but level of series increases in week 14

Data Trend

Smoothened Trend (SMA7)

Seasonal Plot

STL Decomposition