Basic Time-Series

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The below notes are written to accompany the book *Forecasting: Principles and Practice* by **Rob J Hyndman and George Athanasopoulo**, one should be familiar with the basics of statistical concepts. One should also be familiar with Regression. The language of choice is **R** and the IDE is RStudio and we shall be using the *ggplot2* package of the *tidyverse* to plot, analyze and draw conclusions from the data we have.

1. Mains goals of forecasting

2. Types of forecasting models

    (a) Explanatory models (Prediction using features)
    (b) Forecasting models (Prediction using Lag values)
    (c) Mixed models (Combination of the above two models)

3. Basic Steps in a forecasting task

4. Time-Series Graphics

    (a) Time-plots
    (b) Seasonal Plots & Polar Seasonal Plots
    (c) Seasonal Sub-series Plots
    (d) Scatter Plots
    (e) Lag Plots
    (f) ACF/Correlogram Plots

5. Components of a Time-series

    (a) Trend
    (b) Seasonal
    (c) Cyclic
    (d) Error

6. White noise (ACF Plot to confirm)

7. Simple Forecasting Techniques

    (a) Average method
    (b) Naive method
    (c) Seasonal Naive method
    (d) Drift method