INTRODUCTION TO TIME SERIES

WHAT MAKES TIME SERIES DIFFERENT?

Time series: collection of data points collected at **constant time intervals**

Examples???

Time series data are analysed to determine the long term trend so as to forecast the future or perform some other form of analysis

TIME SERIES VS REGULAR REGRESSION

1. It is **time dependent**. So the basic assumption of a linear regression model that the observations are independent doesn't hold in this case.

2. Along with an increasing or decreasing trend, most TS have some form of **seasonality trends**, i.e. variations specific to a particular time frame. For example, if you see the sales of a woolen jacket over time, you will invariably find higher sales in winter seasons.

WHAT IS TIME SERIES ANALYSIS?

- Statistical modeling of time ordered data observations
- Two main goals:
  - Identifying the underlying mechanisms represented by the sequence of observations
  - Forecasting: predicting the future values of a variable described in the time series
- Examining multiple time series to model dynamic relationships

DEMO:

datetime

DATE RANGES AND FREQUENCIES

take a few minutes to read about the

- `asfreq`
- `resample`

methods

DEMO

timeseries