### Chapter 1 : Introduction to Sequential data

### Introduction to Sequential data

### Introduction to Time Series :

1. Components of Time series
2. Functional Relationship :
3. Classification of Time Series :
4. Autocorrelation function (ACF) Test :
5. Partial autocorrelation function (PACF) –
6. Differences between ACF and PACF
7. ETS Decomposition
8. Mathematical Model of Time Series :
9. Utility of Time Series :
10. Requirement for using Time Series Analysis

## Working With Date-Time Data

### Chapter -2 : Exponential Smoothing Model

1.Introduction to Exponential Smoothing?

2. Types of Exponential Smoothing :

## 3. Exponential Smoothing algorithm theory

4. Exponential Smoothing implementation

5. Forecast evaluation and conclusion

6. Double Exponential Smoothing

7. Implement\_Exponential\_smooting

i) Simple Exponential Smoothing

ii) Holt's Method

iii)Seasonally adjusted data

iv) Holt's Winters Seasonal

### Chapter : 3Arima Model

1)Introduction to ARIMA Model

2) AR(p)model / MA(q) Model /ARMA(p,q)model

3) STATIONARITY & DIFFERENCING :

4)STAGE PROCESS :

5) IDENTIFICATION

6) Implements of ARIMA Model for Time Series Forecasting

Chapter 4 : LSTMs - Long short-term memory

1. Introduction of LSTMs

### Structure Of LSTM:

1. Applications of LSTM
2. Working of an LSTM recurrent unit
3. How does LSTM solve the problem of vanishing and exploding gradients