Options Trading Strategies in Python: Advanced

quantra

Course Outline

Section 1: Mathematical Models for Options Trading

- Introduction
- Binomial Trees
- Quiz: Option pricing using Binary Tree
- Quiz: Steps in Binary Tree
- Derivation of BSM using Binomial Tree
- Wiener Process and Ito's Lemma
- Quiz: BSM derivation
- Quiz: Ito's process
- Black Scholes Merton Model
- Quiz: BSM assumptions
- Quiz: Derivation of BSM formula

Section 2: Dispersion Trading

- Primer For Dispersion trading
- Dispersion Trading
- Quiz: Dispersion Trading
- Quiz: Implied Correlation
- Jupyter Notebook Document: Dispersion Trading
- Interactive Exercise: Implied dirty correlation
- Interactive Exercise: Long Entry and Exit
- Interactive Exercise: Compute the positions
- Interactive Exercise: Bank Nifty PnL
- Interactive Exercise: Strategy PnL

Section 3: Machine Learning

- Machine Learning: Classification
- Quiz: Decision Tree Classifier
- Quiz: Decision Tree Navigation
- Jupyter Notebook Document: Predicting Options Price
- Interactive Exercise: ML Predictors
- Interactive Exercise: Compute the Signal
- Interactive Exercise: Fit the Training Data
- Interactive Exercise: Predicting trading signal
- Interactive Exercise: Plotting Cumulative Returns

Section 4: Exotic Options

- Exotic Options Part A
- Valuation of Exotic Options Part A
- Quiz: Exotic Options 1
- Quiz: Exotic Options 2
- Exotic Options Part B
- Valuation of Exotic Options Part B
- Quiz: Shout and Chooser Option
- Quiz: Gap, Shout and Chooser Option
- Compound Options
- Valuation of Compound Options
- Quiz: Compound Options 1
- Quiz: Compound Options 2
- VaR and ES
- Jupyter Notebook Document: VaR (Historical Method)
- Interactive Exercise: Calculate and sort the returns
- Interactive Exercise: Calculate VaR
- Jupyter Notebook Document: VaR (Variance-Covariance Method)
- Jupyter Notebook Document: VaR (Monte Carlo Simulation)
- Quiz: VaR 1
- Quiz: VaR 2
- Recap

Section 5: Risk Management

- Delta Neutral Portfolio
- Quiz: Delta Neutrality
- Quiz: Profit and Loss
- Quiz: Delta Neutral Portfolio
- Jupyter Notebook Document: Delta Hedging
- Gamma Scalping
- Quiz: Delta of Straddle
- Quiz: Delta of two portfolios
- Jupyter Notebook Document: Gamma Scalping
- Interactive Exercise: Determine ATM Strike Price
- Interactive Exercise: Straddle PnL
- Interactive Exercise: Futures Pnl
- Interactive Exercise: Strategy PnL
- Vega Hedging
- Quiz: Vega of a portfolio
- Quiz: Value of a portfolio
- Quiz: Vega Neutral Portfolio
- Recap

Section 6: Scenario Analysis

- Scenario Analysis
- Quiz: Scenario analysis 1
- Quiz: Scenario Analysis 2
- Quantifying Scenario Analysis
- Quiz: Quantifying Scenario Analysis 1
- Quiz: Quantifying Scenario Analysis 2
- Recap

Section 7: Summary

- Summary
- Downloadable Resources