FYP topics (2024-2025)

Pricing an exotic option

Path dependent options (no-closed form)

American Asian options, American digital option, European lookback options, Rainbow Asian Options, Compound options, Barrier options

Method:

(i) Monte Carlo Simulation

Stratified sampling, antithetic variate method, control variate method, Boyle modification

(ii) Binomial tree model

Cox-Ross-Rubinstein tree, forward tree, lognormal tree

(iii) trinomial tree

(iv) Finite difference method

Implicit finite difference method, Explicit finite difference method,

Task: Choose a path dependent option. Search or write a program code. Run a program by Matlab, Python, R, …… Compare all methods. Determine which one is the most efficient and the most accurate.