

Lab 07

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Q1:

Spot price: \$100, Strike Price: \$120,

Risk-free Interest rate: 5%, Volatility: 20%,

Maturity Time: 1yr, Current Time: 6 Months

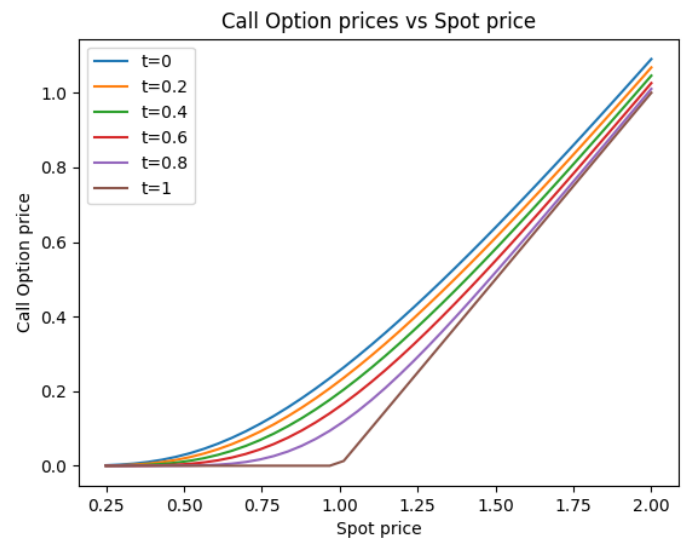
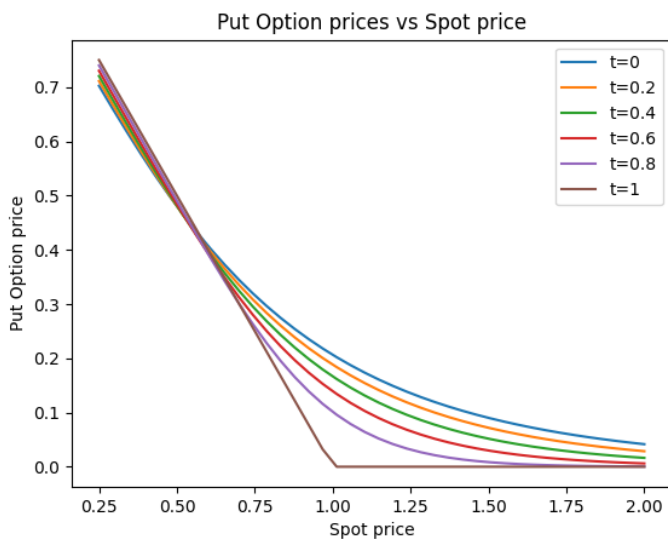
Call option price: 1.0226152225558796

Put option price: 18.05980466595578

Q2:

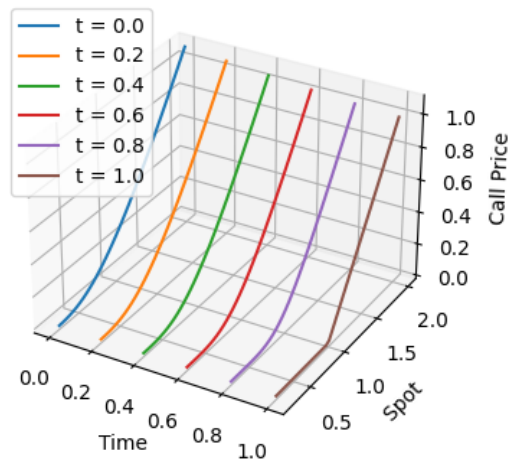
$T = 1, K = 1, r = 0.05, \sigma = 0.6$

Put and Call option prices for $t = 0, 0.2, 0.4, 0.6, 0.8, 1$ and varying strike.

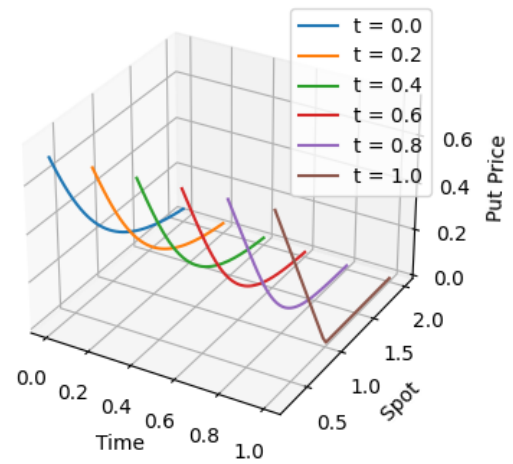


3D plot for discrete time.

Call price vs spot and time (discrete).

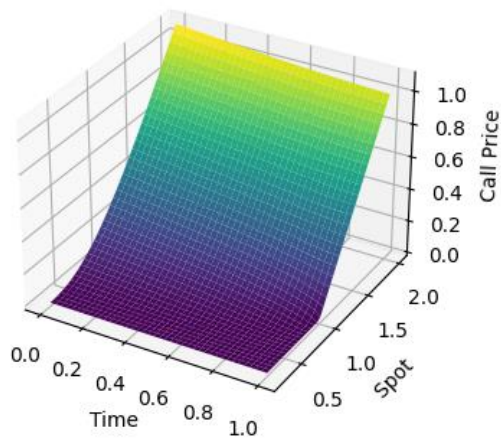


Put price vs spot and time (discrete).

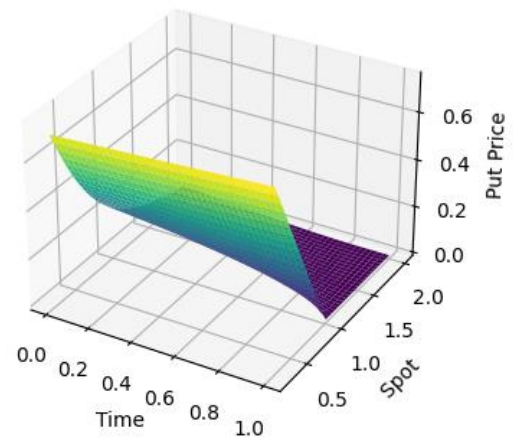


Q3: 3D plot for continuous time.

Call price vs spot and time (continuous).



Put price vs spot and time (continuous).



Q4: Sensitivity Analysis.

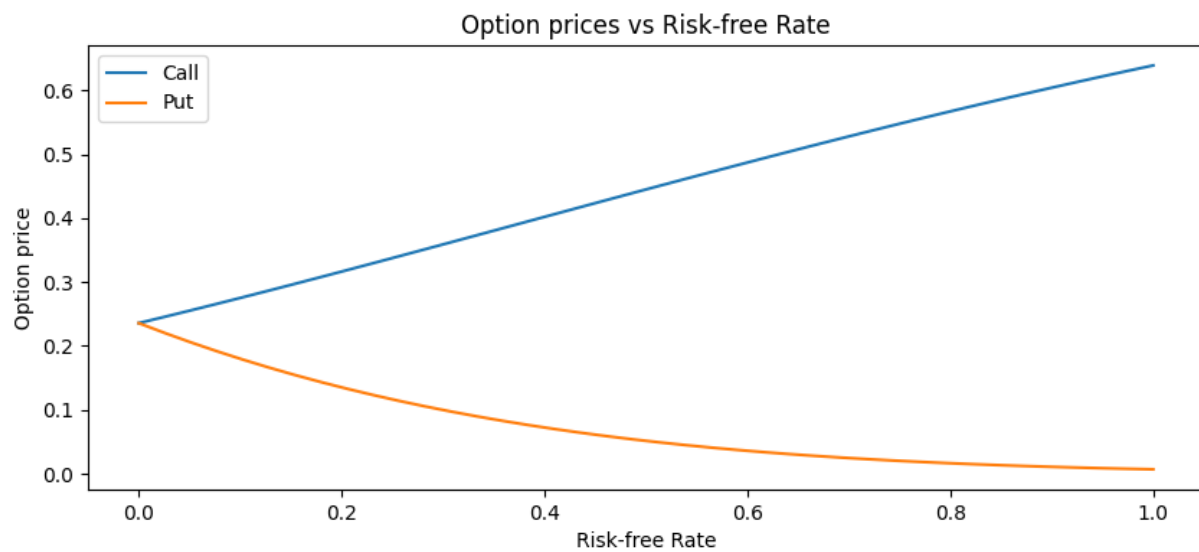
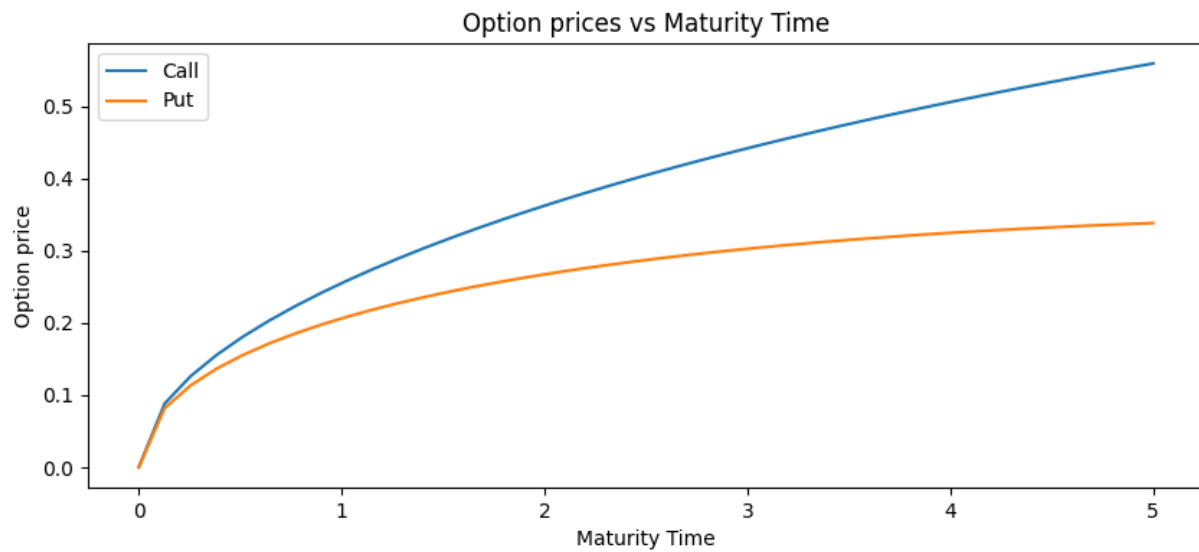
The following parameters are used by default unless specified in the plots.

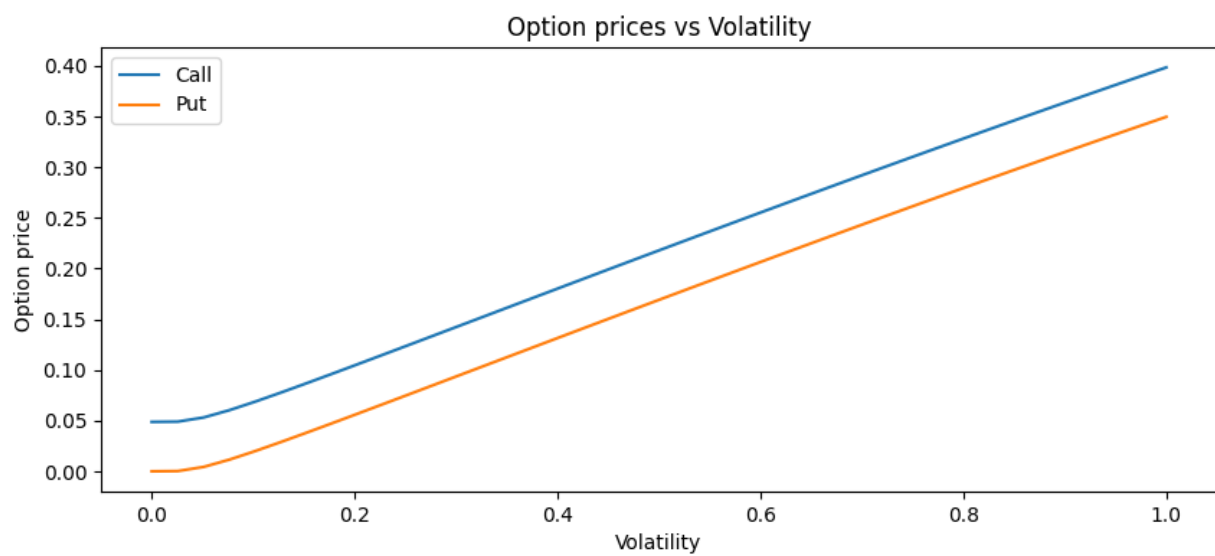
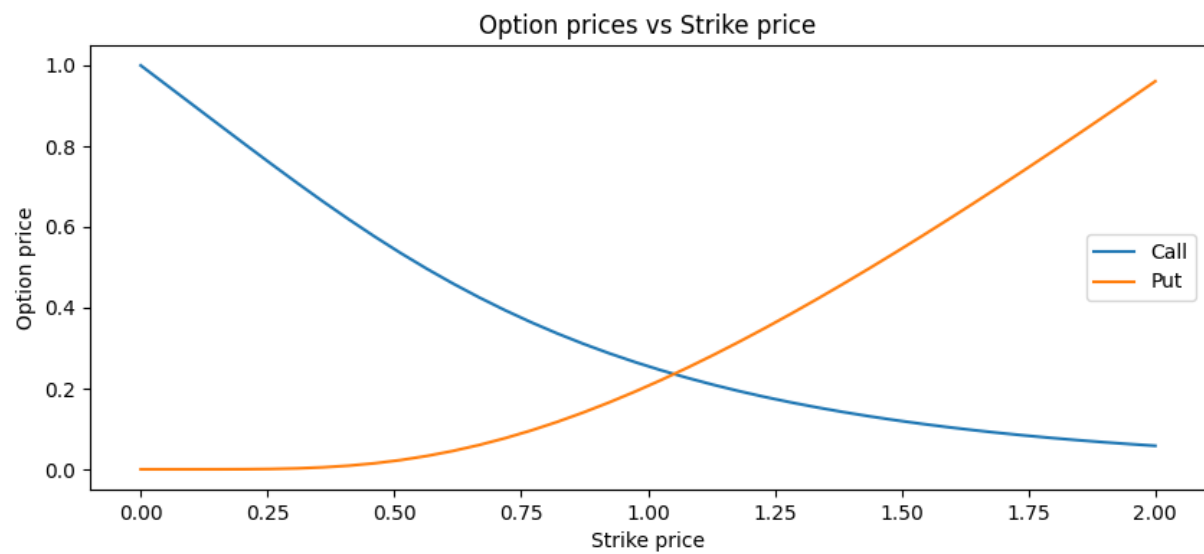
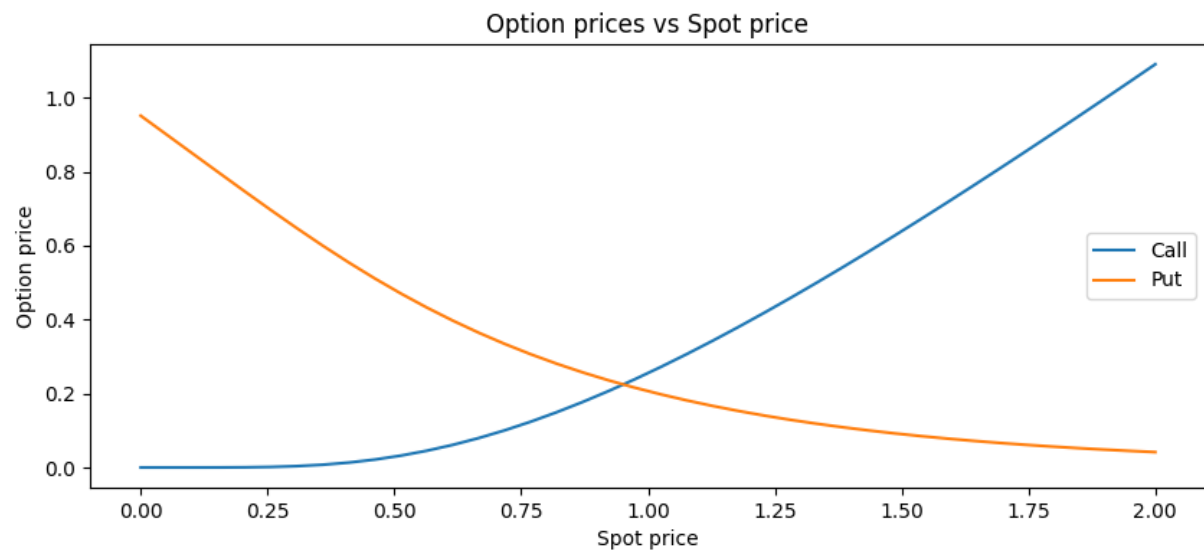
Spot price: \$1, Strike Price: \$1,

Risk-free Interest rate: 5%, Volatility: 60%,

Maturity Time: 1yr, Current Time: 0 yrs

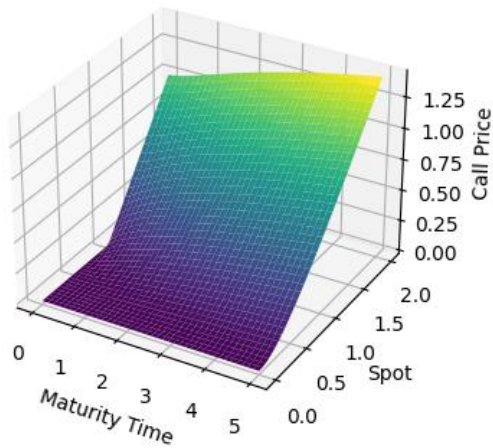
2D plots.



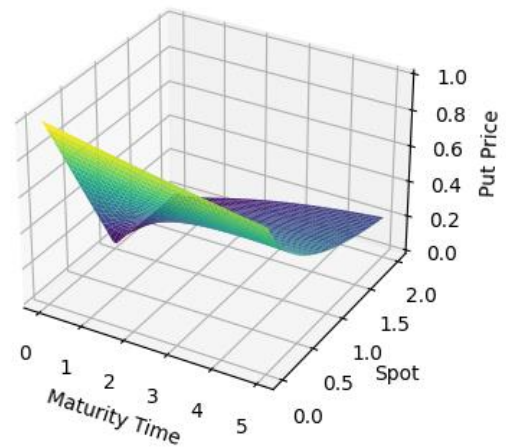


3D plots

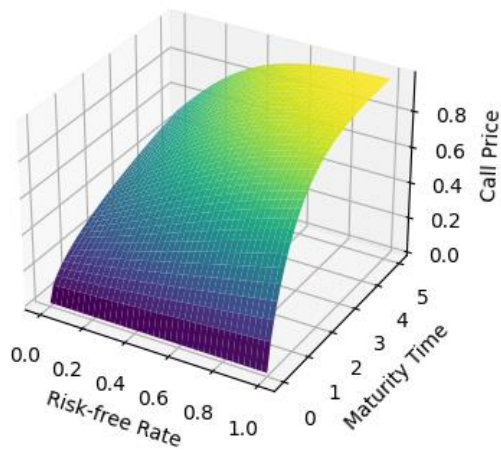
Call price vs Maturity Time and Spot prices.



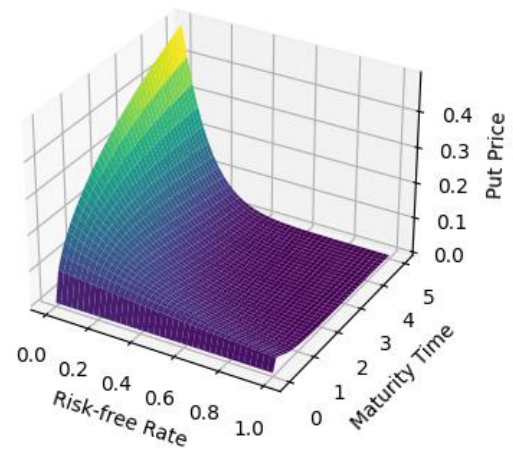
Put price vs Maturity Time and Spot prices.



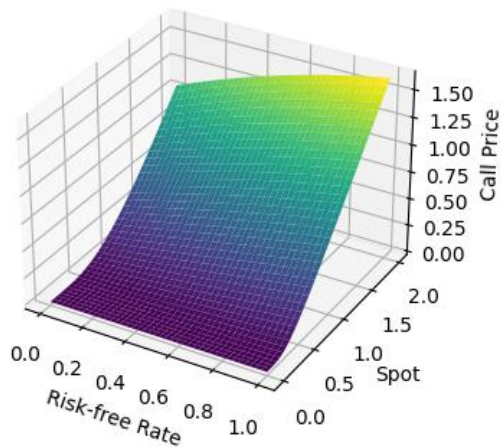
Call price vs Risk-free Rate and Maturity Time.



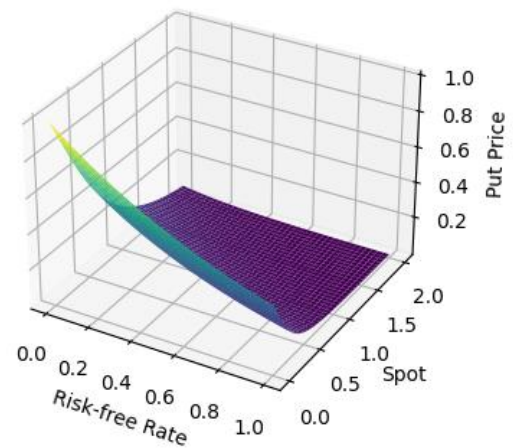
Put price vs Risk-free Rate and Maturity Time.



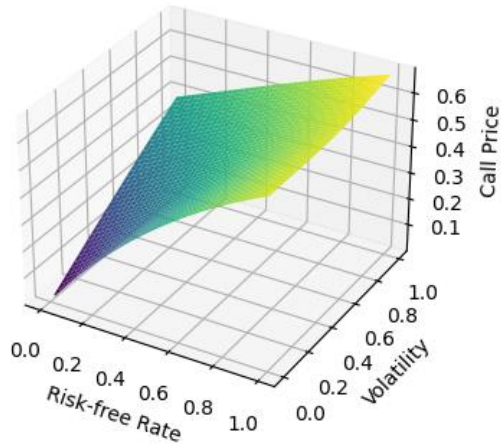
Call price vs Risk-free Rate and Spot prices.



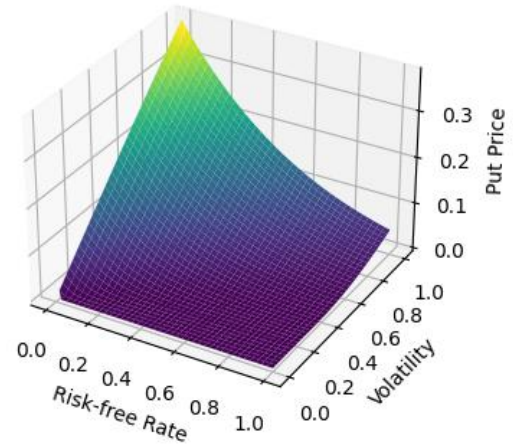
Put price vs Risk-free Rate and Spot prices.



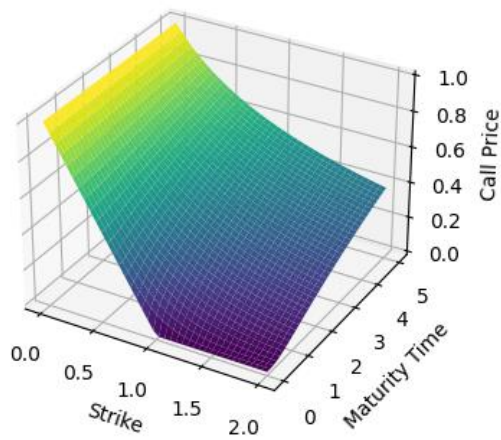
Call price vs Risk-free Rate and Volatility.



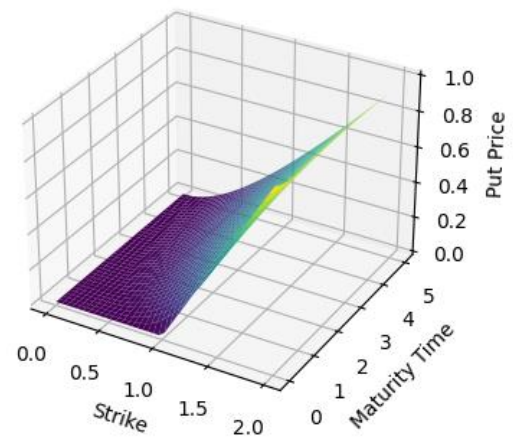
Put price vs Risk-free Rate and Volatility.



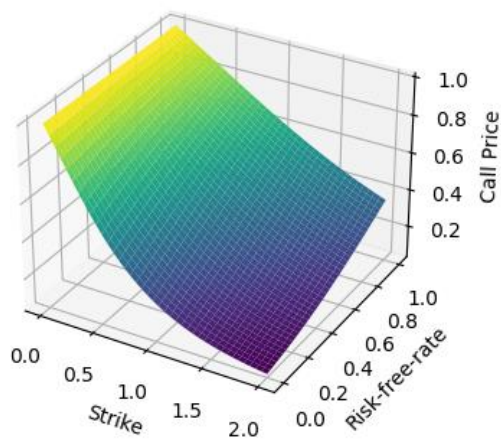
Call price vs strike and Maturity Time.



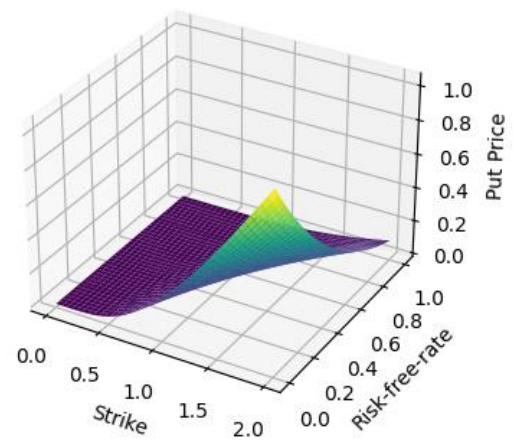
Put price vs strike and Maturity Time.



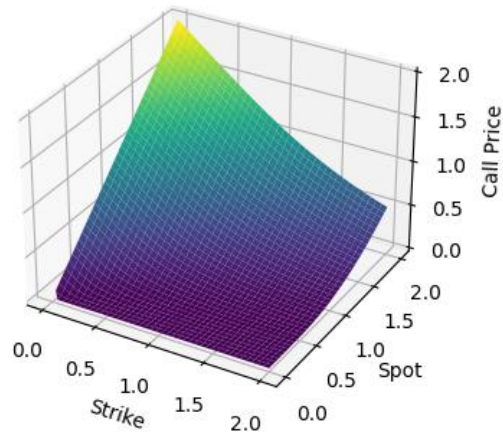
Call price vs strike and Risk-free-rate.



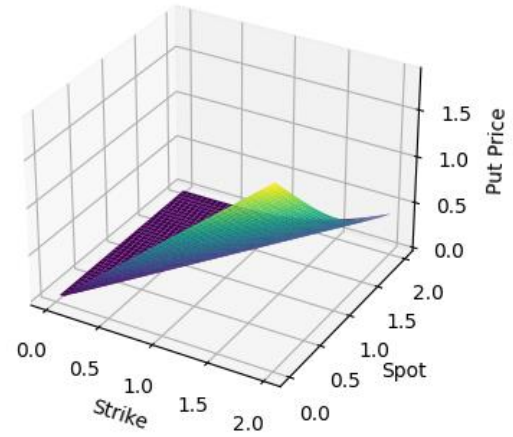
Put price vs strike and Risk-free-rate.



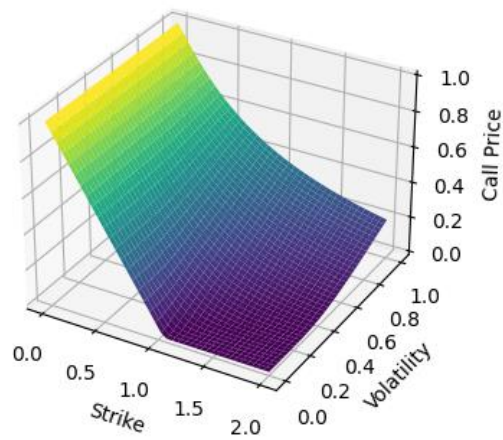
Call price vs Strike and Spot prices.



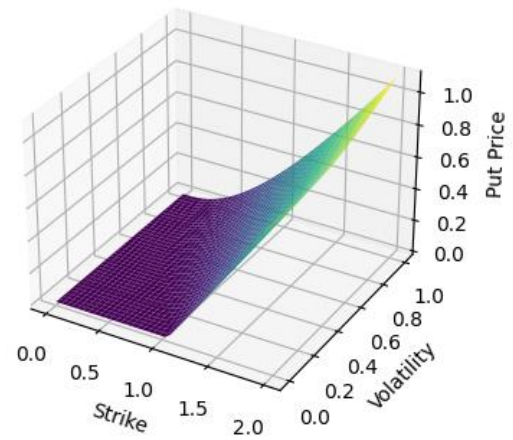
Put price vs Strike and Spot prices.



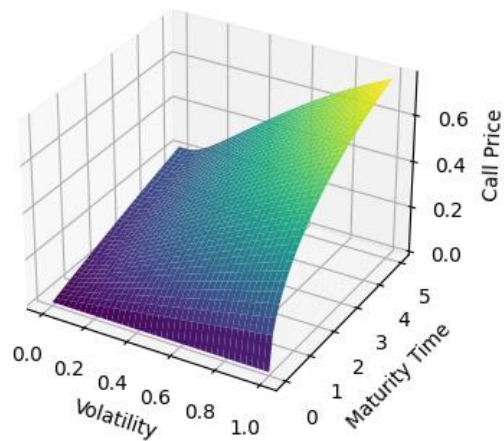
Call price vs strike and Volatility.



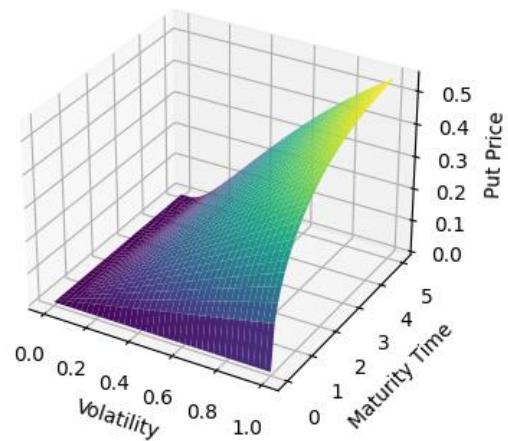
Put price vs strike and Volatility.



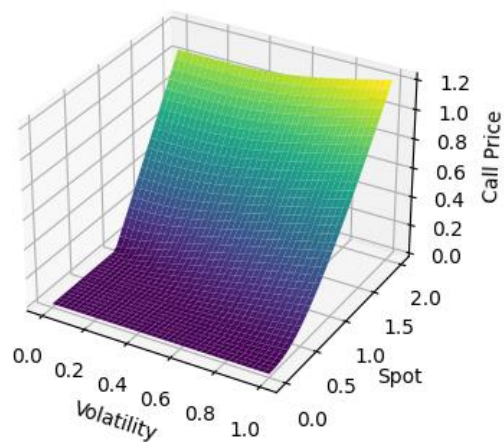
Call price vs Volatility and Maturity Time.



Put price vs Volatility and Maturity Time.



Call price vs Volatility and Spot prices.



Put price vs Volatility and Spot prices.

