Hw6-Pseudocode

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Procedure Arasian($S_0, K, \sigma, r, n, T, N$)

For $i = 1, \cdots, N$:

$\hat{W}_0 = 0$, $h = \frac{T}{n}$, $\hat{W} = [\hat{W}_0, \hat{W}_1, \cdots, \hat{W}_n]$

For $j = 0, 1, \cdots, n-1$

$\hat{W}_{j+1} = \hat{W}_j + \sqrt{h} \cdot Z$, $Z \sim N(0,1)$

$t = [0, \frac{1}{n} \cdot T, \frac{2}{n} \cdot T, \cdots, T]$

$S_k = S_0 \cdot \exp\{(r - \frac{1}{2}\sigma^2) t_k + \sigma \hat{W}_{t_k}\}$

$A(T) = \frac{1}{n} \sum_{k=1}^{n} S_k$

$Call\_Price = e^{-rT} \cdot (A(T) - K)^+$

return Σ Call_Price

$E[e^{-rT}(A(T)-K)^+]$

\# S_0: stock price
K: strike
σ: volatility
r: rate
n: nstep
T: maturity
N: # of trials