Principles of Financial Computing HW#3

Write a least-squares Monte Carlo program to price up-and-in American-style Asian puts. Note that the payoff is the same as the Asian call, and the knock-in barrier is triggered by the average price.

Inputs:
(1) S (spot price)
(2) X (strike price)
(3) H (barrier price)
(4) T (years)
(5) r (risk-free interest rate)
(6) s (volatility)
(7) n (number of periods)
(8) k (number of simulation paths)

Output: (1) put price and (2) stand error.

For example, assume
S = 100, X = 100, H=105, T = 1, r = 0.05, s = 0.3, n = 252, k=100000
then the
put price is 0.6146 and the ***standard error is 0.0111***.

S = 100, X = 100, H=101, T = 1, r = 0.1, s = 0.5, n = 252, k=100000
put price is 4.6478 and the ***standard error is 0.0308***.