**Assignment 5**

Type in your answer and post your m.file to t-square

1. The stock follows the GBM in the real world with . And, the risk free rate is 3% (annualized continuously compounded yield). S\_0(today’s price) is 100. We consider T=2.
   1. Find the value of the exotic call option which pays out max( maximum price over time interval of [0,2] - 100, 0) at T=2.
   2. Let t denote the first time that the stock price hits 110. Find the value of the derivative which pays the average price over [0,t] at t, the first moment that the stock price hits 110. If the stock price does not hit 110 till T=2, you receive the average price over time interval of [0,2] at T=2.
   3. Find the price of an asset which pays 1 whenever the stock price hits 105 until T=2. Use dt=0.01, 0.001, 0.0001 (You may need to decrease the number of sample paths for small dt.) The answer depends on dt?