Consider an asset which follows a GBM with drift $\mu = 10\%$ and volatiltiy $\sigma = 20\%$. Assume that the risk free rate is $r = 5\%$. The initial asset price at time $t = 0$ is $S(0) = 100$.
Simulate 10 different paths of the asset price making use of the GBM, in both the real and the risk-neutral worlds.
Now compute the price of a six month Asian option with a strike price of 105 (using arithmetic average). Do the pricing for both call and put options, using Monte Carlo simulation, along with 95% confidence interval.
Repeat the above exercise with strike price $K = 110$ and $K = 90$. How do your results compare ?
Now do a sensitivity analysis of the option prices.