**Week 9 Seminar Questions**

The following operation can be implemented in the Python Jupyter Notebook or Spyder. Please sign up for a Github account and submit your codes to your own Github repo.

Set the range of Stock price () from $50 to $150 (50 intervals) and the time to expiry (T) from 0.5 to 2 years (50 intervals), for the contract of European Call with strike price is $105 and volatility is 30%, find the following 3D-surface. We also assume the risk-free rate is 4%.

1. The surface of Delta. If and , what is the value of Delta? What’s the meaning?

2. The surface of Gamma.

3. The surface of Theta.

4. The surface of Rho.

5. The surface of Vega. If and , what is the value of Vega? What’s the meaning?