Determine the price a non-dividend paying European (both call and put) option using explicit, implicit and Crank-Nicolson implicit method with the following data:

$$S(0) = 50, K = 50, T = 1, r = 8\%, \sigma = 30\%.$$

Now determine the price using the closed form solutions of European options. Tabulate the values of the European options at $t = 0, 0.25, 0.50.0.75, 0.95$ for all the three methods, along with the closed form solution. What are your observations ?

Submission Deadline: 28th August 2022, 11:59 PM