Project One

October 2, 2020

1 Requirements

1. Each group is required to submit a final report together with source code for your project, stating in details the derivation of pricing method (if not discussed in class), the choice of numerical algorithm, test results and analysis of results.

2. **Deadline:** November 8, 2020

2 Pricing American Option

In this project, you will

1. implement either Least Square Monte Carlo (LSMC) method or Barone-Adesi and Whaley (BAW) approximation to price American put options,

2. implement either BBS or BBSR as a benchmark model,

3. compare the results from two pricing methods you have implemented for different choices of time to maturities, strikes and spots levels etc,

4. discuss how the choices of numerical parameters such as number of Monte Carlo sample paths in LSMC affect the results of LSMC or BAW methods.

3 References

A useful reference for BAW approximation is the book *The Complete Guide to Option Pricing Formulas* by Espen Gaarder Haug.

For LSMC method, the original paper from Longstaff and Schwartz (given in the lecture notes) can also be helpful.