Personal reflection\_XIAO Chao

In this project, I was responsible to implement function getBlackCall and getStrikeFromDelta, corresponding test and call-put parity test. Actually the biggest challenge for me is that I am not familiar with Matlab before this project and so this have been a good opportunity to master a new coding language. Also I have encountered some issue when implementing and improving these functions. Firstly, for the root search algorithm employed in getStrikeFromDelta function. I firstly tried both bisection and secant function mentioned in class, but soon I found the former is not fast enough while it is difficult to set initial range for the second function. In order to combine the reliability of bisection with the convergence speed of secant and IQI, I decided to use Brent algorithms and realized the code by searching and referring paper material on my own. As a result, the robustness and speed of the function has been improved. Secondly, I also learnt to plot 3D figure using Matlab and realize vectorization as much as possible. Thirdly, I used profile function to track execution time for the whole project and based on the analysis result, gave some advice to improve the whole project performance. For example, for getEuropean function, at first I found its speed was slow and by trying Matlab built-in integral function, I suggested my teammate to use this to improve execution efficiency. Last but not least, besides the two function in my charge, I also actively discussed with my teammates to solve problems together and gave advice for them and by doing them I got a comprehensive understanding of the whole project.