Level 9 HW: Part F

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Part F: Finite Difference Methods (Introduction)

Question F.a

> *Compile and run the project as in and make sure that you get Excel output.*

See `FDM.xlsx`.

Question F.b

> *In this exercise, we test the FD scheme. We run the programs using the data from Batches 1 to 4. Compare your answers with those from the previous exercises. That's all.*

Batch #	FDM Abs. Error
1	4.2117e-03
2	2.3591e-03
3	1.9755e-03
4	2.03357e-01

The finite-difference method outperformed Monte Carlo (MC) on Batches 1 & 2 by an order of magnitude. While I did not attempt Monte Carlo on Batch 4, the explicit Euler method struggled and required many time points to get stability but suffered from a significant approximation error. For an option with such a long time to

expiry, I would suggest moving to a more stable method such as the Implicit Euler Method or Crank-Nicholson.