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## Background:

I enjoyed last terms modules on quant finance and Python programming. In addition to studying stochastic calculus and the Black-Scholes framework, we looked at two numerical techniques

* Finite Difference methods
* Monte Carlo techniques

## Motivation

I am interested in applying maths and coding to study problems in finance

In particular pricing of derivatives, i.e. options contracts

Given the importance of simulations, my focus will be on the Monte Carlo method.

I also appreciate the importance of relying on numerical schemes when doing mathematical modelling of problems in finance

## Plan 1

* Start by reviewing Monte Carlo from last term
* Extend to the underlying theory
* Consider more advanced methods of Monte Carlo to simulate asset classes

## Plan 2

* Compare Euler Maruyama with Milstein
* Consider the pricing of European options for more complex scenarios

## References

* Wilmott on Quantitative Finance
* Mark Broadie – Monte Carlo Methods for Financial Engineering