# MA471:Stochastic Analysis of Financial Data

# Lab Assignment – 2

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## Question a:

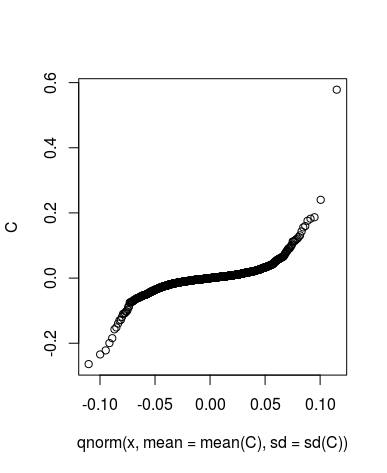
Kurtosis for the dataset is obtained as follows :

Kurtosis for C-return is 75.04089

Kurtosis for SP\_return is 13.235

Observation: Distribution of both C\_return and SP-return are heavy tailed with respect to Normal distribution whose Kurtosis is 3. C\_return is heavy tailed with respect to the distribution of SP\_return

Question b:



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## Question c:

The random samples for Weibull distribution are generated and There is a unique maximum for the Likelihood function as the Hessian matrix for the likelihood with respect to shape and scale parameters is negative definite.

## Question d:

From the 2 dimensional surface plot, I chose the initial value of parameters as shape = 2.2 and scale = 1.0 and after the Newton Raphson method, the value of the parameters converged to

Shape = 2.7175871

Scale= 0.9810205