

### ActiveViam London Professional Services Interview Question

Value at Risk or VaR is a statistical measure of how much a Trade or Portfolio might lose over a given period of time, given a set of historical or simulated Profit & Loss numbers.

Eg Given a set of Profit & Loss values, if the 95% worst P&L was a £5m loss, there is a (1-0.95) 5% chance that our portfolio could lose £5m on a given day. 95% is known as the confidence level. Other common ones are 95, 97.5 and 99.

There are several ways of calculating VaR, for this exercise please focus on calculating VaR from historical values (not variance-covariance or other methods).

- 1)** Write a small application which will calculate VaR for a single trade. The confidence level should be a configurable parameter, and the input data should contain a series of historical values (you do not need to retrieve, compute or calculate these, only provide them as an input to your application)
- 2)** Extend the calculation to calculate the VaR for a portfolio (ie a group of trades). Your input should contain historical values for multiple trades, however when called the function should return VaR at the portfolio level - a single value. What do you notice about the calculations?

For all parts you should focus on writing clear, concise code with unit tests where appropriate. Also, think about how your application would be used by a potential client. Make sure that your final solution contains or lists everything needed to run ie packages, dependencies etc.