Unit 8: Implementing Quantitative Risk Models.

Discuss how QRM can be applied to real world problems:

Monte Carlo Simulation an example of QRM can be applied in the following real world cases such as :

- Large manufacturing companies (like Proctor and Gamble, General Motors, Pfizer) uses the tools for decision-making regarding sale forecast , average risk factor of a new product.
- Pharmaceutical companies use the simulation to determine the optimal plant capacity for each drug .
- International companies use the simulation to model and optimally hedge against any foreign exchange risk.
- Sears uses the simulation to determine how many units of each product line should be ordered from supplier.
- Companies use simulation to value real options project management and expansion plans.
- Companies can use the model to predicate net income which include forecast of purchase cost and sales volume.

Bayes' Theorem application in real world include:

- Medical Diagnosis: it helps in calculation of probability of a disease given certain symptom.
- Spam Filtering :Email spam filters utilizes Bayes' theorem to classify income emails or spam or legitimate.
- It is a useful element in implementation of machine learning (Hayes.A.2023)
- Insurance fraud detection system
- Weather forecasting : to determine the likelihood of certain weather events occurring based on historical data and current condition .
- Search engines : uses the theorem to improve the accuracy of search results. The algorithm calculates the probability that a given webpage is relevant to a user's search query based on the frequency of keyword on the webpage and other factors (Patel.C 2023).
- Stock Market Analysis : investors can use the theorem to analyze stock market trend and make a prediction about the future performance .

Reference :

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