**Graphical user interface, application

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**Date**: 12th January 2021

**Subject**: Monte Carlo Simulations.

**Aim**: Understand what a Monte Carlo Simulation (MCS) represents in its entirety and at a low-level. Show a methodology to developing an MCS. Demonstrate a MCS non-relative to stock data and then stock data. Analyses both case studies and further develop the stock data MCS.

Stage One.

**Current Papers/Research on the Topic**:

What? A Monte Carlo Simulation is a simulation of events evolving randomly.

How?

Why?

**Case Study**: *Lifeguard Problem*:

The lifeguard problem represents an optimization problem. That is, where is the optimum position for the lifeguard to enter the water as (s)he is quicker running than swimming.

Posing the question and solving analytically: *a lifeguard swims at a rate of 3ft/s but can run at a rate of 15ft/s. (s)He spots a drowning child 200m down the shore and 50m out to sea. How far down the shore should the lifeguard run before swimming*? ([REF](https://ltcconline.net/greenl/courses/115/applications/opt.htm))

FIGURE.

Solving the above results that the lifeguard should enter the water 182.3 feet down the beach and then proceed to swim to the drowning child. In doing so the lifeguard will reach the swimmer in 22.762s.

*How does it relate to Monte Carlo and how is Monte Carlo used*?

**Case Study**: *Stock Data*:

Stage Two.

**Method**:

**Data/Information Required**:

**Universe Definition**:

**Review and Summarise in 200 Words**:

Stage Three.

**Pseudocode**:

**Objective Function**:

**Constraints**:

**Review and Summarise in 50 Words**:

Stage Four.

**Review, Summarise and Teach Warren**:

**Future** **Work**:

Stage Five.

**Completed Code**:

**Analysis Results**:

**Latex Report**: