

Sensitivity Analysis: is the study of how the uncertainty in the output of a mathematical model or system (numerical or otherwise) can be apportioned to different sources of uncertainty in its inputs. Basically it is a technique used to determine how different values of an independent variable impact a particular dependent variable under a given set of assumptions. It is also referred to as what-if or simulation analysis, is a way to predict the outcome of a decision given a certain range of variables. By creating a given set of variables, the analyst can determine how changes in one variable impact the outcome.

Reference: <http://www.investopedia.com/terms/s/sensitivityanalysis.asp>

Curse of Dimensionality: The curse of dimensionality refers to various phenomena that arise when analyzing the organizing data in high-dimensional spaces (often with hundreds or thousands of dimensions) that do not occur in low-dimensional settings such as the 3-d space. For example when we start with a graph to show a rise or fall of some data we might need to add another dimension to show the depth of that data. However, if you need to add another feature to show more data then you have to modify the way the graph is created. This becomes problematic because it still has to represent the data but you now starting to get limited by what you can do. If you had infinite dimension then it wouldn't be a problem.

Reference: <http://www.visiondummy.com/2014/04/curse-dimensionality-affect-classification/>

Stochastic Monte Carlo: The Monte Carlo technique consists of generating many different joint outcomes of random processes and then observing the behavior of response values that are functions of these outcomes. Such behavior can be characterized by probability density function or the response variables. It is similar to a what if scenario but you should be able to predict the outcome of the variable before you run the test so that you know what the outcome was close or not. It is good for simulating phenomena that you would be uncertain about in applications.