1. **Simulation:**

Simulation is a way to model random events, such that simulated outcomes closely match real-world outcomes. It is a valuable tool that has its place in many real-world applications. The purpose of a simulation is to predict how a system will behave when given a collection of parameters without utilizing the particular resources needed to run the system. In other words, it’s the mimicking of the operation of a real system, like the day-to-day operation of a bank, or the value of a stock over some time, or the running of a production line in a factory.

The steps required to yield a useful simulation are presented below.

* Problem Formulation
* Data Collection and Analysis
* Simulation Model Development
* Validation
* Verification
* Calibration
* Input & Output Analysis
* Performance Evaluation
* What-If Analysis
* Estimation
* Optimization
* Report Generation

It gives more reliability, flexibility, and convenience. And it is also very much similar to probability in one aspect that both the techniques predict future outcomes based on experimentation or randomization. Both of them will get the correct prediction if and only if the data is flawless and massive.

**Examples**:

* The medical field uses simulations to coach practitioners in a multitude of skills and environments
* Many Pilots use flight simulators to get trained first to experience it and also cost-effective
* Soldiers are immersed in both simulated and real environments within the Military training

1. **Challenging Aspects of Probability Theory:**

The parts or aspects of the probability theory that I’ve got found to be particularly challenging is its ambiguity and unreasonable nature. For instance, calculating the win probability of a team based on who won the toss or who scored the first point. To rectify such problems, we must always have a better understanding of how the data or information should be interpreted and analyzed. I still find some concepts tricky. I have learned it in my schooling, higher education, and now but always I see the probability as challenging.

**References:s**

* Transform decision-making, no matter your business goals, <https://www.simul8.com/applications/>
* David Spiegel halter (Published November 2010, December 2010, February 2011) Why Do People Find Probability Unintuitive and Difficult? <https://nrich.maths.org/7326>