As a retail analyst, the Monte-Carlo simulations would be an invaluable technique to master. Being able to model out a wide array of potential outcomes from decisions from real-estate, product lines, pricing, or even branding would provide highly valuable insights to an organization. Additionally, the forecasting more formally with regression models of time series, such as the project in module 3, would be a common task to predict future sales volumes or operating costs through seasonal changes. Finally, the decision modeling from module 4 would be ideal, not only for inventory purchasing decisions as demonstrated it the project for that week but also for optimizing staffing levels in store or minimizing costs between suppliers and vendors. The transportation and transshipment techniques taught in module 6 would also have immediate applications for retail analysts as tools for minimizing shipping costs and optimizing the supply chain from vendors to distribution centers and finally on to either retail locations it the case of brink and mortar operations or directly to customers for online retailers.

Applied to marketing, non-linear programming methods could be applied to many different tasks. First, in media mix optimization be exploring the diminishing returns of certain marketing channels. For example, social media marketing may have a favorable return on investment in the initial stages, but does that reach and return begin to plateau over or even decrease over time. Non-linear programming could also be applied to revenue management in dealing with fluctuations in both prices and demand. These techniques could help determine an optimized pricing structure that can respond to those fluctuations while incorporating other business strategies and constraints. Decision modeling methods could also be applied to campaign selection but incorporating several different factors, such as response rates, market conditions, and the competitive landscape for the product or service being marketed. Utilizing these analytical tools allows an organization to simulate different scenarios before making costly investments and can be continuously refined beyond the initial decision as real world data becomes available from those initial decisions.

In both of theses scenarios, the techniques taught in the class are only as useful to an analyst as the availability and quality of the data and the domain knowledge to properly clean, sort, prepare, and apply that data to the chosen technique. The methods taught in this course are not overwhelmingly technical or complex but they are dependent on good data that has been properly prepared to answer questions that have been posed in formats to properly fit the analysis to come.