Maximizing Disney Guest Experience

Two important components to maximizing guest experience at Walt Disney resort are effective labor planning and the FastPass system. The labor planning system help allocate staff so that stations are properly staffed to host guests. To achieve this result, analytical models are needed to analyze and predict park attendance and estimate different stations staffing need.

Given that Disney World attendance are likely to have seasonality trends and cyclic effects such as families are more likely to visit during Summer months, holidays, and school vacations. The total attendance of the resort per day and time of visit should be collected for modeling and visualization of trends. Time-Series model like AutoRegressive Integrated Moving Average (ARIMA) can be used to include these trends and cyclic effects to forecast expected attendance based on past attendance records. The model's autocorrelation, partial autocorrelation, and differencing value will depend on the analysis done on the data collected, for example if trend is noticed in the data visualization then differencing may be needed and vice versa. The attendance data can be collected for each station/attraction to predict attendance expected for a particular station.

To further help plan labor allocation effectively, optimization model can then be used to schedule employees to attend stations to minimize the transaction time per guest. The average turnover time and number of guests for a stations are input for the optimization model and would need to be collected as part of the process.

The FastPass system permits guests to virtually wait in line for attractions, freeing them to explore other areas of the resort and return during a specific time frame and skip the regular

stand by line. The FastPass for an attraction can be modeled as a queuing system with each FastPass guess entering into a queue. To schedule the time frame for the guest to return, the average time needed to complete an attraction will be added in for each guest entered in the queue before the newly arrived guest. However, because there will also be a physical standby line in addition to the virtual queue, the attraction would have to take in guest of the standby line as well. To schedule a more accurate return time window, the Poison arrival distribution model can be used to estimate the standby line guests ahead and add in the average time for them in addition to the guests in the virtual queue to estimate the timeframe for the FastPass guest.