HCAHPS (Hospital Consumer Assessment of Healthcare Providers and Systems) factors most closely correlated with readmission rates

The goal is to determine which factors or combination of factors correlate most closely to the readmission and mortality rates for hospitals.

This analysis can guide hospital administration in focusing efforts to reduce the readmission rate for patients. Readmission and mortality rates are key indicators when assessing healthcare outcomes. If a patient isn't readmitted to the hospital and doesn't expire within 30 days of discharge then it can be objectively said the outcome was good. While many of the HCAHPS factors are related to comfort during the stay (noise levels, cleanliness, etc.) there is a communication and education component as well. It's reasonable to assume these are more closely related to patient outcomes, but the timing of the education (during stay vs. discharge) is something that can provide more insight.

Source:
https://data.medicare.gov/data/hospital-compare

University of South Florida football attendance prediction

The goal is to devise a metric that correlates to the actual attendance of University of South Florida football games based on multiple factors such as day of week, time of day, opponent, temperature, precipitation, etc.

This analysis can serve as a baseline when assessing the effectiveness of marketing by comparing events like for like. Teams, across all sports and levels of competition, are generally very loose with their attendance accounting due to the optics. Because USF plays its games in a public stadium they are subject to FOIA requests, providing a rare opportunity to look at actual stub counts rather than the more common measure of tickets distribution used for attendance figures.

Sources:
Game data
http://www.gousfbulls.com/ViewArticle.dbml?ATCLID=1425766
Weather data
https://www.wunderground.com/history/airport/KTPA
Attendance data
available via FOIA request

Correlation between marijuana laws and opioid-related morbidity

The goal is to determine the correlation, if any, between the application of marijuana laws and the mortality rate due to opioid overdoses.

Opponents of marijuana legalization argue marijuana serves as a "gateway drug" leading to opioid use, while proponents argue that the availability of marijuana mitigates the spread of opioids. Rather than simply looking at whether or not marijuana is legal in a particular state and

comparing it to the mortality rate for opioid overdoses, perhaps it is better to look at marijuana legality as a spectrum rather than a legal or illegal binary and assessing the correlation across different populations. It should also be considered that perhaps there is no correlation and opioids and marijuana should be addressed independently or at least using correlational factors outside of legality.

Sources:

Opioid-related morbidity statistics
https://wonder.cdc.gov/mcd.html
State marijuana policy
http://www.ncsl.org/research/health/state-medical-marijuana-laws.aspx
https://www.mpp.org/states/