K-Means: Clustering Sleep Quality

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Sleep, most people could never get enough or get more than enough but always questioned why they still feel so tired even after getting more than 8 hours of sleep. I personally have always questioned this as well, to me there was always an amount of sleep where I do not wake up feeling too tired but if I overslept, I feel more tired than I would have if I just slept a little less. By being able to determine the quality of sleep we receive per hours slept, we can try to adjust how many hours we truly need to feel rejuvenated rather than feeling sleepy. To track this, possibly with a timeline of a month, I believe we would need to track the hours of sleep, the time we slept, the time we woke up, and the quality of the sleep (scaling 1-10). After tracking each category, K-Means clustering can help group the date into distinct groups that are similar to each other (Bento 2018).

By following the steps on the article, we start with pair-plotting to determine correlation between each category, then determining the K value to see the data into clustered groups. After following those steps, we can begin the analysis process and determine how many hours of sleep we need to receive the best quality of sleep. However, I believe there are many variables that playout in determining the quality of sleep we receive. For example, what our day consist of before sleeping that night or even what our week consist of throughout the week. To mitigate this, we also track the time we slept, doing so we can try to estimate the outcome of what the sleep quality would be based on the time we slept, meaning longer nights vs shorter nights to where we can choose to sleep earlier. Overall, by tracking this and using K-Means clustering we are able to determine the quality of sleep we receive and no longer have that lingering thought throughout the day that we did not have enough sleep or that we slept too much.

**References**

Carolina Bento (2018). K-Means in Real Life: Clustering Workout Sessions. *Towards Data Science*. Retrieved from https://towardsdatascience.com/k-means-in-real-life-clustering-workout-sessions-119946f9e8dd