# Optimizing the *Wheel of Fortune* Bonus Round

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# Problem Statement

- Analysis of a set of *Wheel of Fortune* Puzzles to find the optimal combination of letters in the Bonus Round.
- In the Bonus Round, one picks 3 consonants and 1 vowel after the puzzle has R, S, T, L, N, E in place.
- We are using string a dataset I scraped from a Wheel fan website and put in a CSV file.

# Vision

- We will create a model to analyze letter frequencies in another dataset, and create a model to test different letter combinations.
- We will use SciKit learn and a regression model to maximize the percentage of each puzzle that is solved.
- As of now, we are using two datasets, one containing *Wheel* bonus round puzzle solutions, and the other containing the most common English words and their frequencies.

# Potential Impact

- By finding the optimal combination of letters by category and in a general case scenario, a skilled contestant who applies these findings is closer to winning tens of thousands of dollars per contestant, thus providing an opportunity for social mobility.
- In addition to a best case scenario of monetary gain, these findings can be used by the showrunners to measure difficulty of these puzzles.

# Quality Concerns

- Some episodes may have the same puzzle. Not many of them do, but I found a few have done so.
- Some words in the words dataset are typos/misspellings of other words. We could use another dataset for this.
- The words used in the words dataset might not reflect the words used in *Wheel* puzzles.

# Next Steps

- Evaluate whether linear or logistic is a better model.
- Build more sophisticated models to analyze the data, making sure that the words themselves are taken into account.
- Make the model maximize the amount of letters revealed for each individual puzzle.