Exercise:

Wordle is a guessing game for 5 letter words where you are given 6 attempts to guess the target word. After each guess, you are told which letters from your guessed word matches with the target word and whether or not those letters from your guessed word are in the exact same spot as the target word. Suppose you join the Wordle team and your assigned task is to increase the difficulty level of the game by coming up with target words that are difficult to guess. Wordle team has shared with you data which contain information about the performance of all the users who played the daily game (that is for every word, how many users correctly guessed the word and those who did, how many attempts it took them). Can you make use of neural network for your task? (Hint: It need not be a classification task, it can be regression as well but you can probably design it as either though one can be argued to be better than the other.) Explain your solution thoroughly, while making sure to include the following details:

1. Is it a classification or regression task? If classification, what are the classes? If regression, what does the output denote?
2. What would your training data look like in terms of (Input, Ouput) pairs?
3. How do you vectorize your input? It is fine to use simple solutions without any methods we learned in the class.
4. Specify the number of nodes in the input and output layer.
5. Specify the cost function.
6. How will you use the trained network to come up with new difficult target words to guess?