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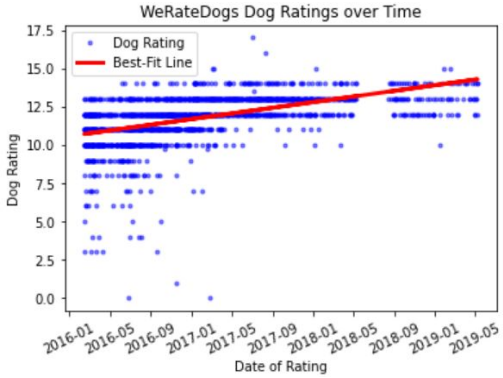
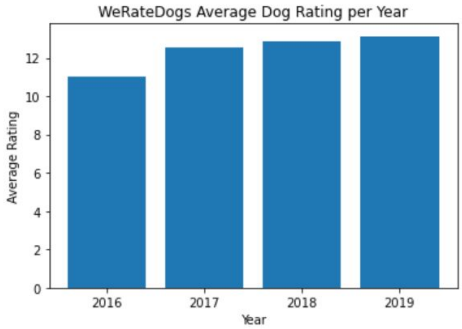
Explaining Pup Inflation

When it comes to rating dogs and pups, it can be hard not to go overboard with your rating. WeRateDogs is a popular twitter account dedicated to rating dogs and puppers that seems to have a particularly hard time keeping their ratings between 0/10 and 10/10. In fact, when looking through the rating history of WeRateDogs, it would seem time has only made it harder for them to keep ratings at 10 and below. So, it became imperative to analyse the ratings given out by WeRateDogs and answer the question: are dog ratings inflating with time? To do this properly, we must have two hypotheses: a null hypothesis and an alternative hypothesis. Our null hypothesis will be that dog ratings have remained the same, and our alternative hypothesis will be that dog ratings have been changing with time.



A scatterplot of WeRateDogs' ratings over time, and a best-fit line plotted over the data



A bar graph of the average dog rating given by WeRateDogs per year

The figures above would seem to answer our question immediately with a resounding YES! The best-fit line plotted over all dog ratings given between January 2016 and May 2019 suggests an upwards trend in dog ratings, and the bar graph of average ratings given per year seems to agree with this observation. However, when it comes to the serious matter of dog ratings, one must be careful before jumping to conclusions without conducting more in-depth analysis. One simple way to be more sure that dog ratings have in fact been changing over time would be to look at the p-value of the best-fit regression line, which tells us the probability that our null hypothesis is true. So, upon looking into the p-value, the probability found for our null hypothesis that ratings have not changed is 1.514×10^{-106}. Thus, our results are significant with $p < 0.05$, and we can accept our alternative hypothesis that ratings have indeed changed with time, and that dogs have either been improving or WeRateDogs' heart has softened with time.