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### Relationship Between Industries, Traffic on Indeed, and Layoffs

We started by looking through the data using summary statistics in R. After we saw that there was not much need to clean up the data, we moved on to studying the data with Tableau. We explored the data in Tableau by using statistical models such as line graphs, bar plots, and geographical maps to try to find some abnormalities in the data. We originally wanted to compare the relationship between clicks and job applications. After conferring with the Google Document, we realized that this was not a viable option and continued to explore the data. We were looking at the average number of job applications for each respective industry per month. During this, we observed an anomaly within the automotive industry. The average number of applications in July skyrocketed compared to other months and we did not see this anomaly within other industries such as education, chemical engineering, or civil engineering. Overall, automotive applications averaged to 6.317 applications, but the average of automotive applications in July was 19.50. We began to try to pinpoint what happened in July to cause this spike in job applications. After some research, we came across a *New York Times* article which was published on July 4, 2017 and Ford June 2017 Sales Report about the plummet in sales in the automotive industry. To see if there was data to back up these claims, we began to look through government agencies to find some data about the job market in the automotive industry. After some probing, we found the Bureau of Labor Statistics website which displayed a line graph regarding the number of employees in the automotive industry ([https://data.bls.gov/timeseries/CES3133600101?data\\_tool=XGtable](https://data.bls.gov/timeseries/CES3133600101?data_tool=XGtable)). Interestingly enough, there was a dramatic decrease in employment in July of 2017. The line graph figure on the Bureau of Labor Statistics was an inverse of the graph that we produced in Tableau. This was fascinating to our group, so we decided to pursue this on a deeper level and think about the implications of discovering this phenomenon.

By comparing these graphs, we were able to notice inverse trends and correlations between layoffs and increased applications to careers where the layoffs occurred. For Indeed, this is an opportunity to not only increase revenue thanks to the pay-per-click business model, the company can also do a public service. Predictive technologies and machine learning can determine future layoffs, and the company can plan accordingly for the incoming web traffic. A push for sponsored posts for jobs in the ailing industries can help users who fall victim to the layoffs. Users can get more economic opportunities, and Indeed's business clients can find more

potential employees. Hopefully with this data, Indeed can adjust its business practices to be more efficient for users and also be more profitable as a whole.