Are NFL Players getting faster and stronger over time?

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Description:
We have seen the growth of analytics in the National Football League throughout the past decade. Given this and the use of a dataset, we want to see if NFL players have gotten faster and stronger since 2000. To do this we will conduct statistical analysis on NFL player measurement data over the years.

Research Question:

•Are NFL players getting faster and stronger now compared to the year 2,000?

Data:
•The Data I will be using for this analysis is a Dataset from Kaggle which contains values for NFL players entering the NFL draft. The Data was collected at the scouting combine from 2000 to 2018. The Data contains observations such as height,weight, speed, etc.

Methods:
•I first plan on analyzing the dataset and observing any trends.
•Finally, I plan on using Colab notebook and python to create data visualizations and conduct statistical analysis.

Process:

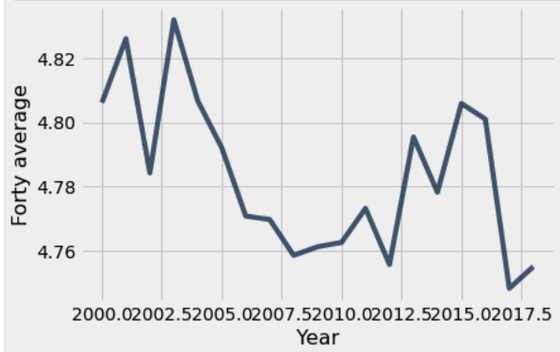
Download Dataset to Google drive!

Import Dataset into Colab notebook and begin analysis!

Analyze data using visualizations and Data science methods!

Conclude and tell story!

Visualization One: Average 40 times



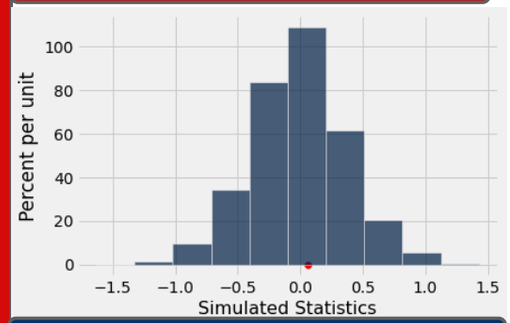
Description of Visualization:

Every year, college players entering the NFL draft run a 40 yard dash, in which they run 40 yards, timed. Faster players run the 40 yard dash in shorter amounts of time with the record being 4.22 seconds. As seen in the plot, the average 40 time across all players that ran the 40 seems to have decreased with time. This could be an indication that players are getting faster over the years and therefore more athletic.

Results from statistical analysis:

-Hypothesis Tests:
In order to test if NFL players are getting more athletic overtime, I conducted a hypothesis test on the difference between the average 40 yard dash times from 2000 and 2017. My null hypothesis was that the average from both years is similar and any differences can be explained by chance. My alternative hypothesis is that the difference between the two years can not be expained by chance and that players now are faster, which is an important attribute of athleticism, in a statistically significant manner! After conducting the hypothesis test, the final P-Value for the difference in 40 yard dash times between 2000 and 2017 was 42%, which is evidence for the null!

Histogram for Hypothesis Test #1:



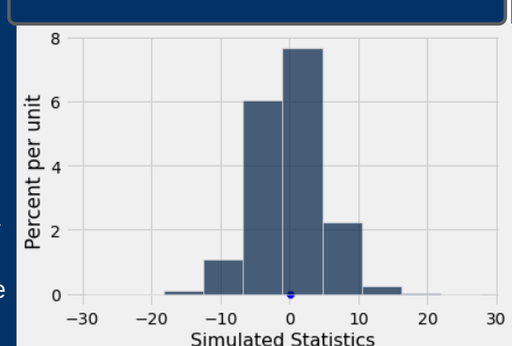
Visualization Two:Average bench press reps

Description of Visualization Two:

Also during the combine, NFL players do bench press reps. This visualization shows the average number of bench press reps per year. This average surprisingly seems to be decreasing as well which means, on average, players are not completing as many bench press reps during their workout.

Hypothesis Test: Bench Press Reps!
For the second hypothesis test, I compared average bench press reps from 2000 and 2017 and used the difference between the averages as a test statistic. My null hypothesis was that the average from both years is similar and any differences can be explained by chance. My alternative hypothesis is that the difference between the two years can not be expained by chance and that players now are faster, which is an important attribute of athleticism, in a statistically significant manner! The final P-value for the hypothesis test for bench press reps was 32%, which is also evidence for the null!

Histogram for Hypothesis Test #2:



Conclusion: Given that I am a very big NFL fan, I decided for my digital humanities project that I would use a dataset from the NFL. Given the fact that data science and analytics in general are so widely used in the NFL, it was easy to find a dataset. One of my favorite parts of the NFL is the NFL draft in which college players are drafted to NFL teams that select them. In preperation for the NFL draft, teams and players attend a 4 day event called the NFL combine where players engage in different training activities for teams to gague each players athleticism. Given this, for this project, I decided to use a dataset on the NFL combine. The dataset had measurement data for almost all players. Given this dataset, I wanted to see if NFL players have gotten faster and stronger over time. I decided to use the bench press rep and 40 yard dash time data to test my hypothesis. In conclusion, NFL players have not gotten faster or stronger in a statistically significant manner, however, there are some anomalies where recently records have gotten broken in terms of metrics!

References:
•Link-to-data
•Source for 40 yd dash
•Source Bench press
•DigHum class notes
•Data 8