**College Football: The Decline of Defense**

**Is college football defense going the way of the dinosaur?**

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**Description:**

The NCAA is interested in how college football games are changing over time to determine if changes are needed to increase its popularity. The NCAA wants to start by determining the direction of defense in college football and its effect on the game. We have been contracted to analyze the last 17 years of college football data to determine if the value of defense is diminishing.

**Research Questions to Answer:**

* Has defense become less important to the game?
  + Have average points per game increased over time?
  + Have the number of turnovers per game decreased over time?
  + Have the total yards per game increased over time?
  + Has 3rd down efficiency per game increased over time?
  + Has the margin of victory changed over time?
  + Are there more explosive plays?
  + Are there less punts per game?

**Hypothesis:**

Defensive value may be decreasing as the years progress and may be less important to the success of a team.

**Dataset to be Used:**

College Football Data API

**Task Breakdown:**

* Initial data research
* From 2004 to 2020, calculate
  + Average points scored per game
  + Average total yards per game
  + Average turnovers per game
  + Average third down efficiency per game
  + Average margin of victory per game
  + Average number of punts per game
  + Average number of loss of yard plays per game
  + Average number of standard gain plays per game
  + Average number of explosive plays per game
* Graph all sets of data by year
  + Create linear regression
  + State r-value
  + Hypothesis testing between
    - first and last year
    - first and middle year
    - middle and last year
* Graph points allowed for Clemson, Florida, and Florida State from 2004 to 2020
* Discuss data limitations
* Create PowerPoint