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Github Repository: [Project2_Brown_Eagle_Cabral_Lakka_Psaltos_Ramirez](#).

Dataset to analyze: We intend to analyze the [NFL Big Data Bowl 2021](#) data set, specifically the games and plays .csv files. We will join these datasets using the game id. The games data consists of the game id, game dates, and the teams playing during those games. The plays data makes up of all the plays that happened for a given game id, including measures related to the offensive and defensive formations and personnel, as well as the outcome of the play.

Columns to explore:

- Defenders in the box
- Number of Pass Rushers
- Offensive Play Result
- Personnel D
- Personnel O
- Offensive Formation
- EPA (Expected Points Added)

Initial plots, figures, and / or tables:

- **Defenders in the box Distribution**
 - Overall
 - By defense/offensive opponent
- **Number of pass rushers Distribution**
 - Overall
 - By defense/offensive opponent
- **Offensive Play Result Distribution**
 - Overall
 - By defense/offensive opponent

- By Number of Defenders in box/number of pass rushers
- Average yards per pass play per team/distribution
- Histogram of EPA
- Defenders in the box by Offensive Outcome of the Play by EPA
- Outcome by Down, Distance, Time-left in game
 - Goal to remove “garbage time” and focus on representative plays
- Defenders in the box by outcome by QB Experience

Final report coverage and organization:

We are particularly interested in the impact of defenders in the box and the number of pass rushers used by the defense on offensive success in a given passing situation. With this in mind, the defenders in the box, number of pass rushers, and offensive play result fields are most relevant to us. We also want to control for environmental factors like QB experience, in-game situations, and offensive strength.

We will organize our final report into sections, divided by outcome/finding, and incorporate visualizations for each section to demonstrate our findings. We will ensure that each section follows a concise narrative structured to answer our questions regarding the impact of pass rushers/defenders on offensive passing.