

## Jaguars Technical Assessment

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### Methodology

Using the data given, I created a hustle metric called Football Work Rate. The equation for work rate was  $\text{rate} * \text{time} * 100$  (to get a 1-10 number). Time in this case was a tenth of a second, representing each frame of the data. For calculating the rate, I used the distance I calculated from part 1 on the project and divided it by the 100 yards that are between the two endzones of the football field. Moreover, the distance was calculated using the distance formula of  $((x_2 - x_1)^2 + (y_2 - y_1)^2)^{1/2}$ . Additionally, there is a scale of 1-10. A score of 1-3 represents low effort given for that play, 4-7 represents the average effort a player gives, and 8-10 represents an extremely high effort for a play.

### Insights

I wanted to look into the work rate of a player for a given play because I was curious if all players were giving the same amount of effort to each play. Does an offensive lineman work harder than a quarterback, wide receiver, defensive safety, etc.? Questions like these drove me to my hustle metric. Additionally, I used distance as a determining factor because I thought that it would be extremely interesting to quantify the distance covered, in relation to a football field, along with the change in time.

### Results

The results of my hustle metric were extremely interesting. The top five players who had the highest work rate were Julio Jones, Devontae Freeman, Corey Graham, Ronald Darby, and Mohammed Sanu. Players who covered the most distance in a play were destined to have a higher work rate for that given play.

### Next Steps

In the future, I am looking forward to researching more into this area and seeing if I can implement speed into my equation. I would also like to run a correlation test to see which teams have the most players with a high work rate. I would be extremely interested to see if there was any relationship between these two variables. Also, I hope to calculate the work rate for a player's career and see if this can be used to predict how long of a career a player can have. Lastly, I need to take into account the confounding variables in the future. These variables might include how good a defense/offense is or the strengths and weaknesses of them. For instance, if an offense is generally a running offense, wide receivers might have lower than normal work rates. I am looking forward to looking into these ideas in the future!