



THE UNIVERSITY  
*of* NORTH CAROLINA  
*at* CHAPEL HILL

BOOTCAMP

A photograph of a basketball court under a cloudy sky. Two basketball hoops are visible, one on each side. A large, solid teal 'X' is overlaid across the center of the image.

WE R NOT R

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# OUTLINE



We plan to use the NBA dataset included to analyze real player stats compared and to the NBA 2k20 video game.

Predicting ranking players

**01**

**Python:**

data preprocessing, machine learning  
model

**02**

**Postgres:**

Data Storage

**03**

**HTML:**

building visualizations and a dashboard

# TOOLS AND TECHNIQUES



# GOAL



Design a machine learning model that closely predicts what ranking players will be given in the game during the 2019-20 season, based on the statistics and training provided on the earlier seasons.

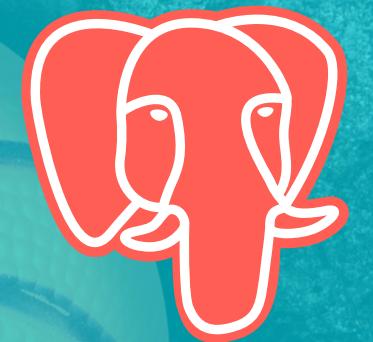
# INTEGRATED RANDOMFOREST MODEL

- Preprocessing
- Feature selection.
- Training and testing datasets
- RandomForestModel outcome.
- Database integration



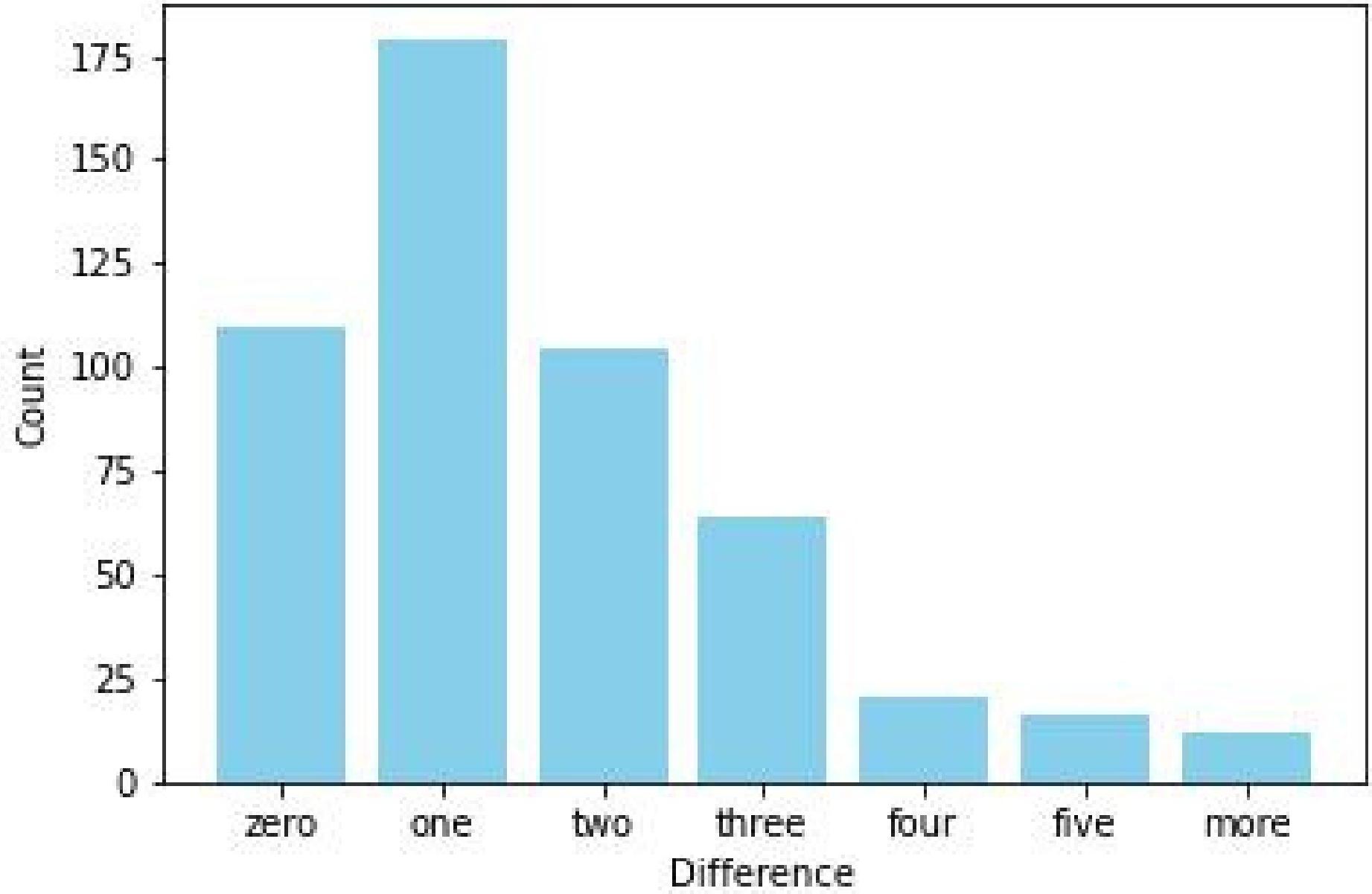
**DATA**

Dataset  
Kaggle



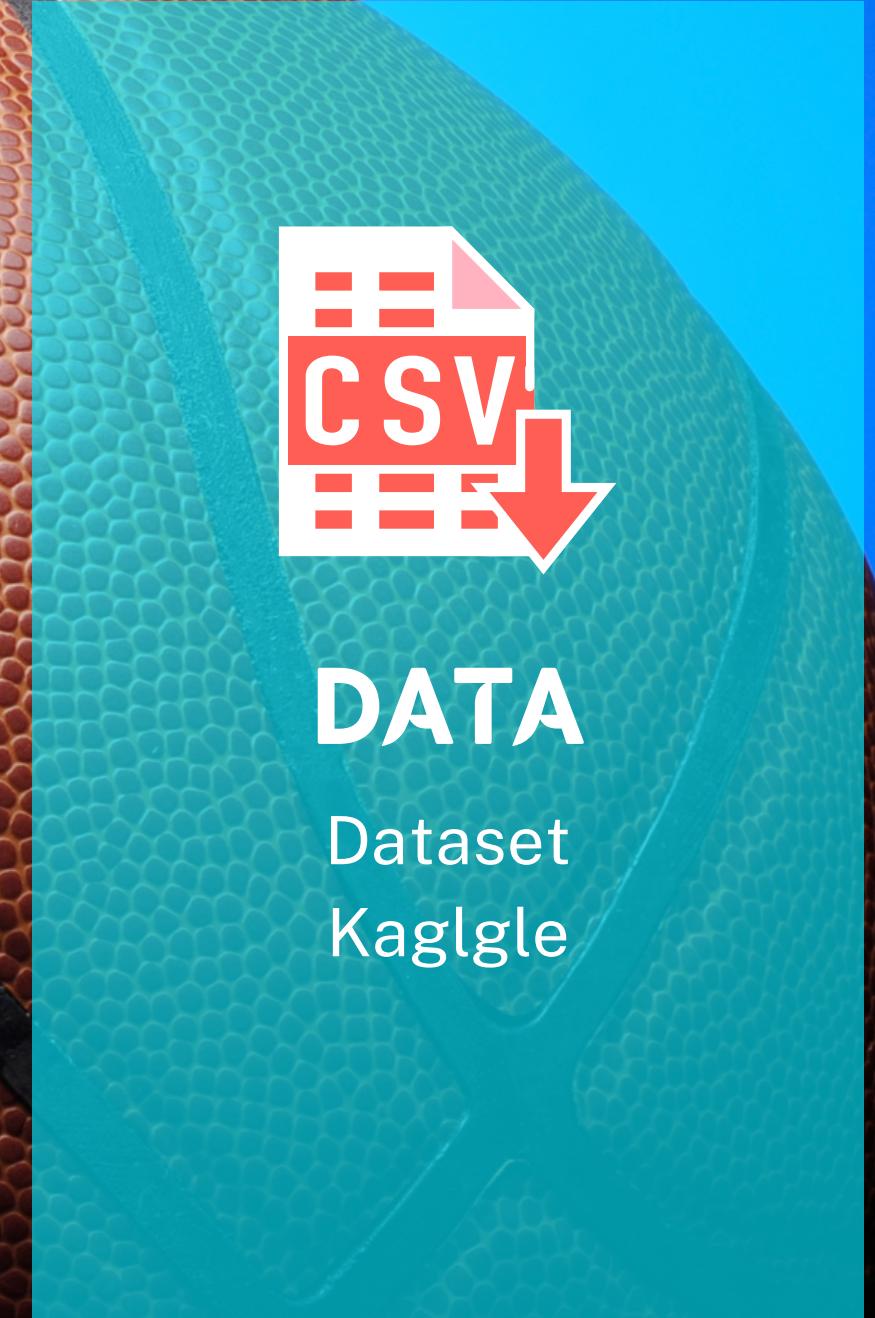
**POSTGRES  
SQL**  
Database

Difference between Predicted and Actual 2020 Rankings



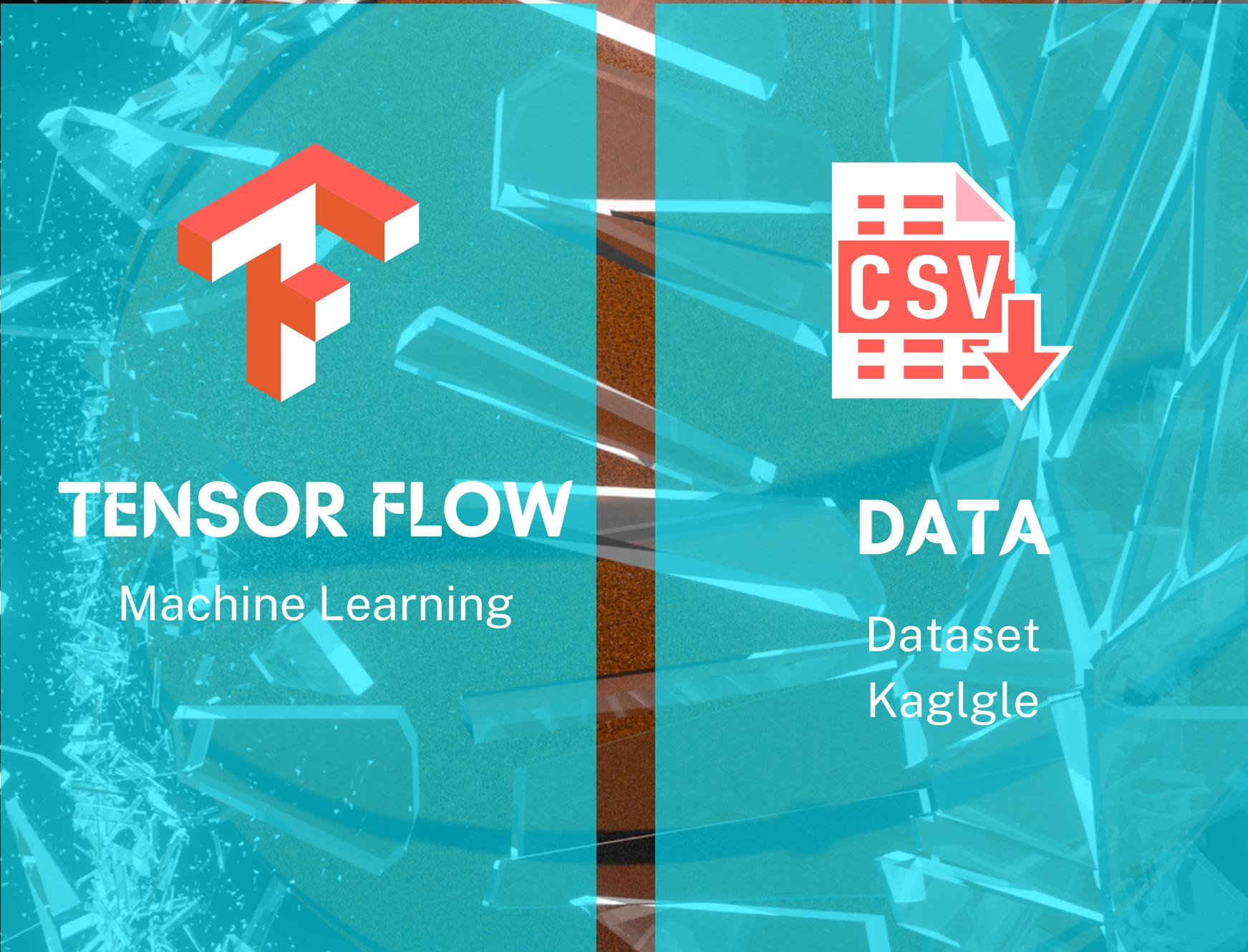
# LINEAR NEURAL NETWORK

- Created a linear neural network model
- Split and test the data set into a training set of all of the data excluding the 2019-2020
- Dropped the un-needed categorical columns and used 80% of the data
- Mean Absolute Error of 1.53.



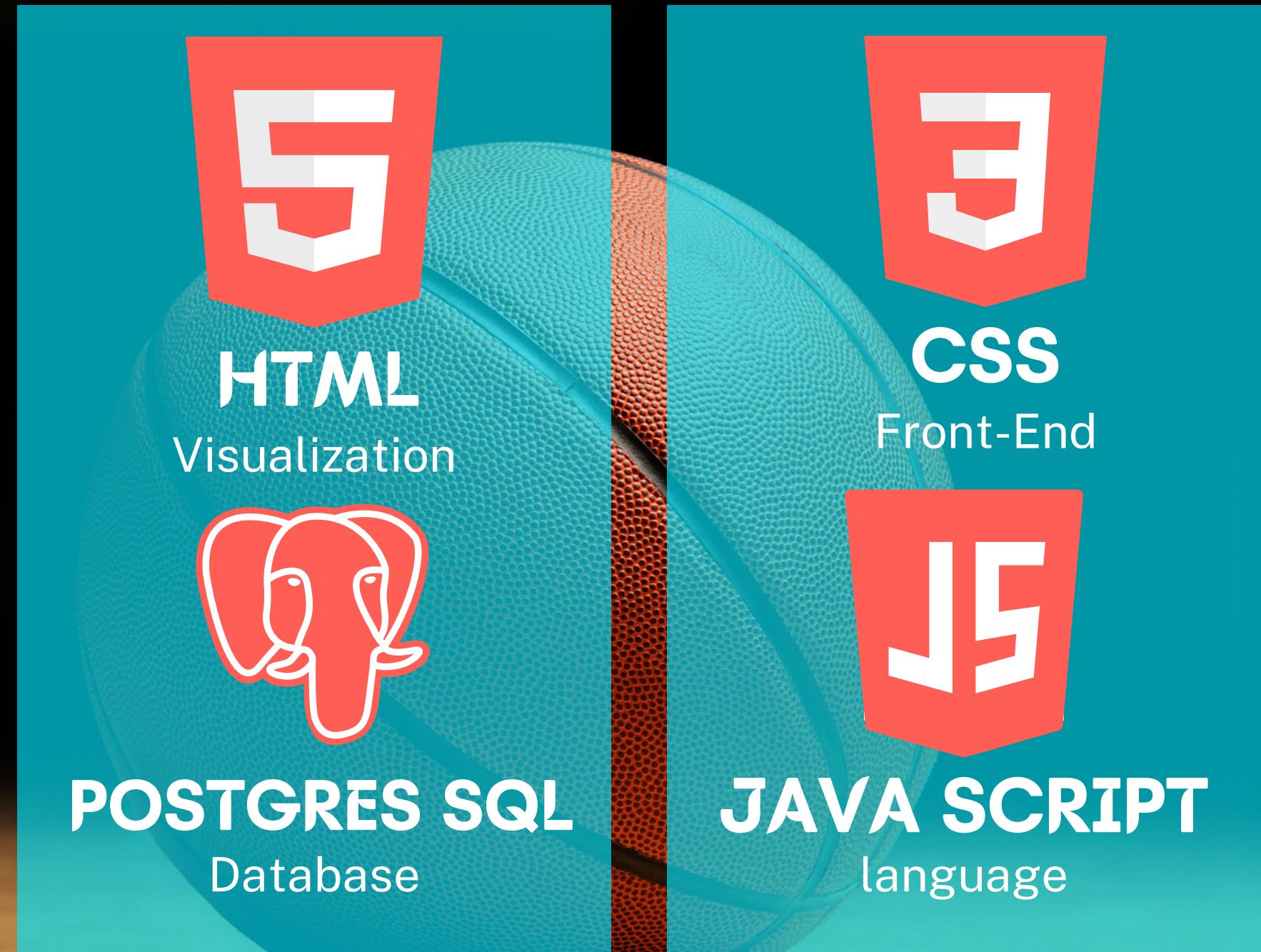
# DEEP NEURAL NETWORK

- Split the 2019-20 season
- trained the data on all other seasons.
- Use train\_test\_split on data from past seasons.
- Apply trained RandomForestModel to the 2019-20 dataset to predict the rankings.
- Two Hidden layers
  - Layer 1 - 64 Neurons, relu activation
  - Layer 2 - 64 Neurons, relu activation
- Output Layer
  - Mean Absolute Error of 1.81

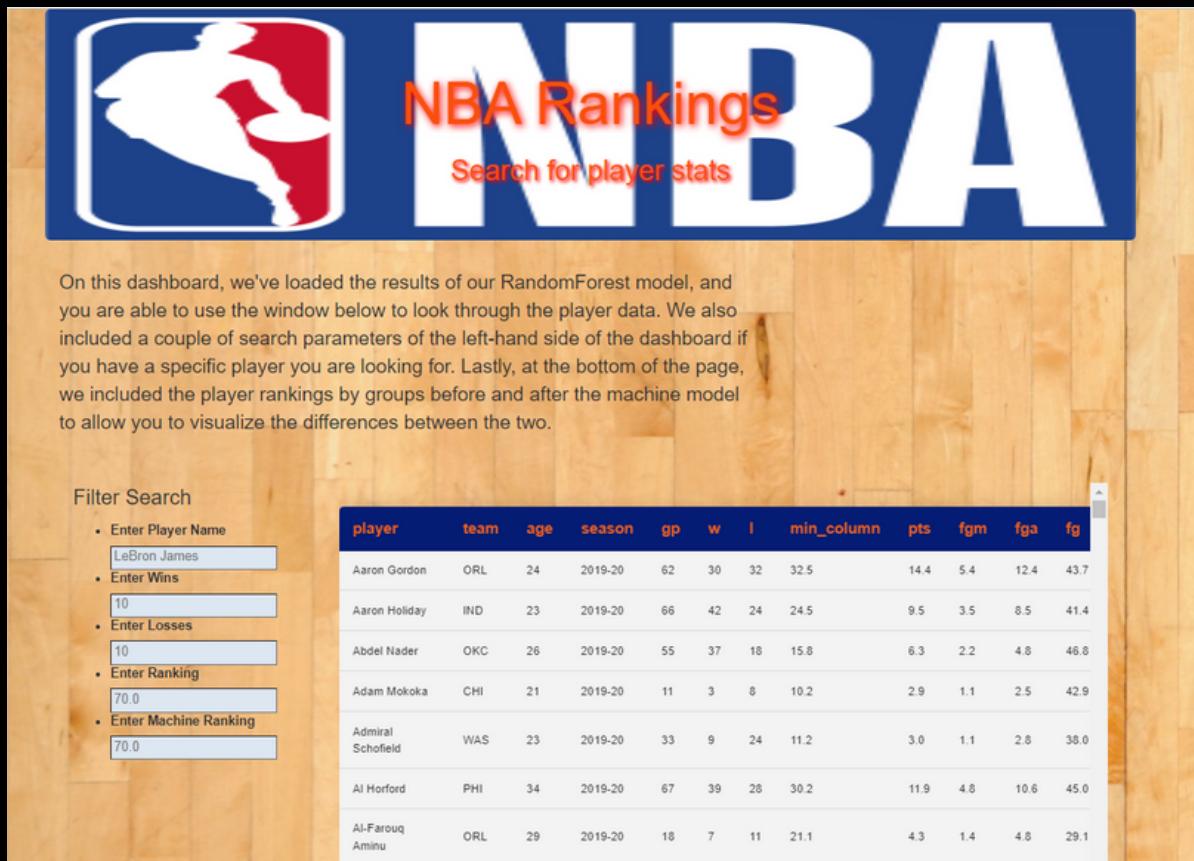


# DASHBOARD

- Html for the dashboard
- Search option
- Graph.
- Connected the transformed dataset back to our local database with the `.to_sql` method in order to create a new table.



# PROJECT WE R NOT R



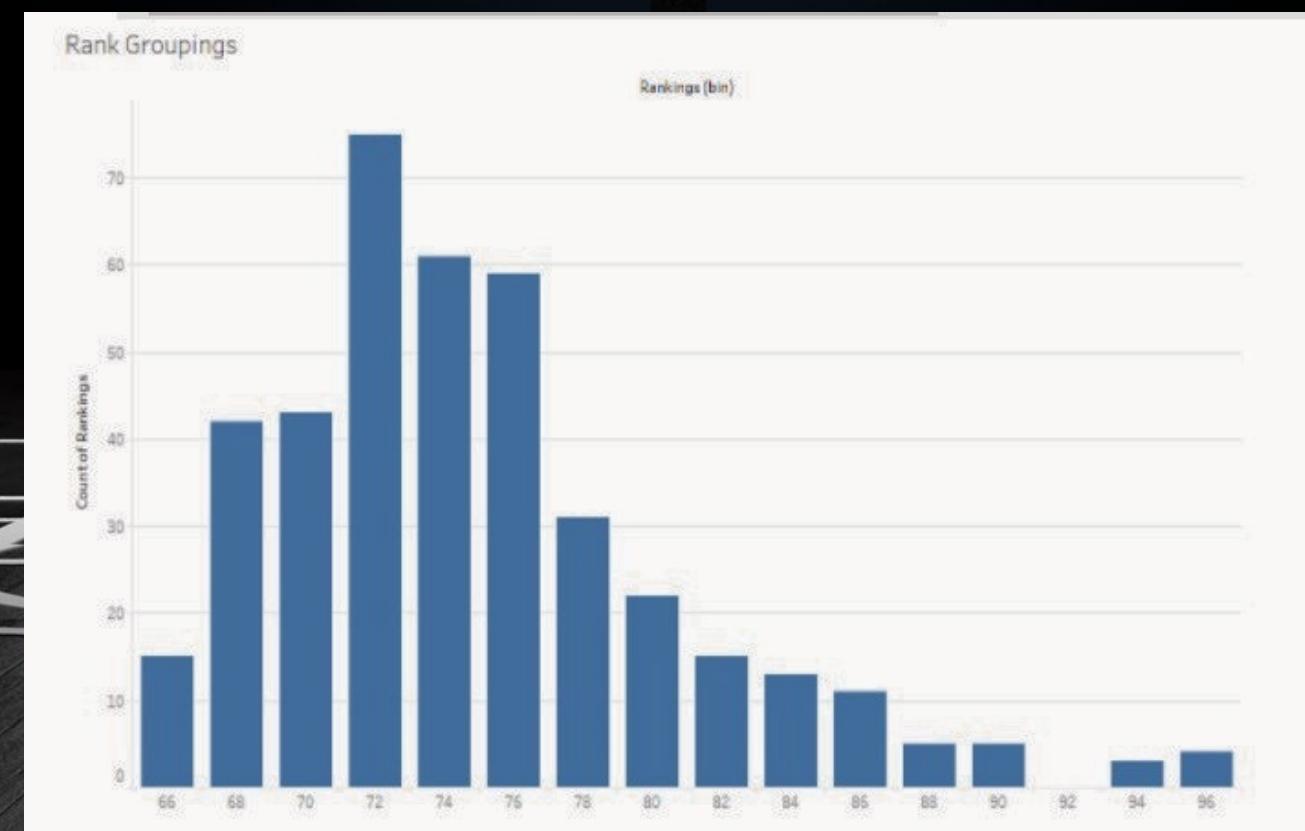
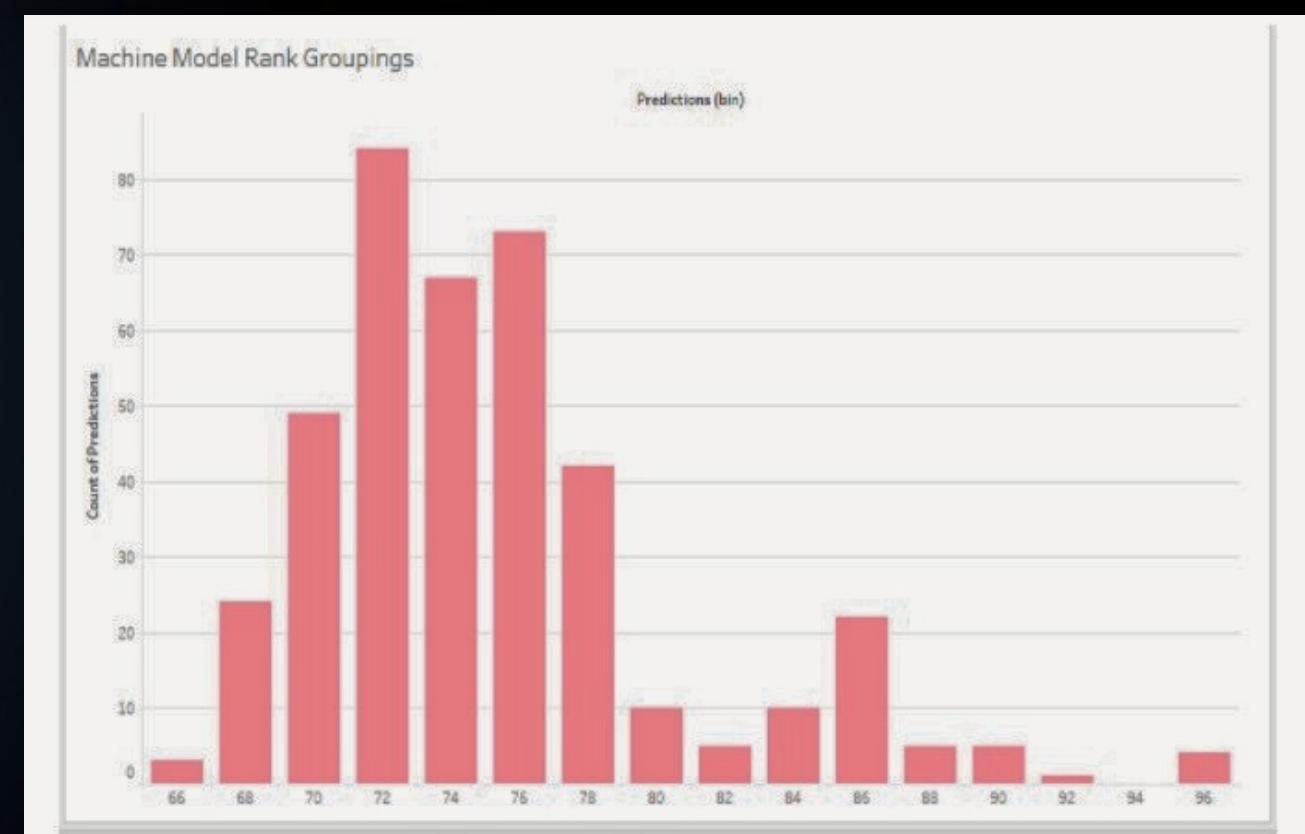
The NBA Rankings dashboard features the NBA logo and title. It includes a search bar for player stats and a detailed table of player statistics from the 2019-20 season.

On this dashboard, we've loaded the results of our RandomForest model, and you are able to use the window below to look through the player data. We also included a couple of search parameters of the left-hand side of the dashboard if you have a specific player you are looking for. Lastly, at the bottom of the page, we included the player rankings by groups before and after the machine model to allow you to visualize the differences between the two.

**Filter Search**

- Enter Player Name
- Enter Wins
- Enter Losses
- Enter Ranking
- Enter Machine Ranking

player	team	age	season	gp	w	l	min_column	pts	fgm	fga	fg
Aaron Gordon	ORL	24	2019-20	62	30	32	32.5	14.4	5.4	12.4	43.7
Aaron Holiday	IND	23	2019-20	66	42	24	24.5	9.5	3.5	8.5	41.4
Abdel Nader	OKC	26	2019-20	55	37	18	15.8	6.3	2.2	4.8	46.8
Adam Mokoka	CHI	21	2019-20	11	3	8	10.2	2.9	1.1	2.5	42.9
Admiral Schofield	WAS	23	2019-20	33	9	24	11.2	3.0	1.1	2.8	38.0
Al Horford	PHI	34	2019-20	67	39	28	30.2	11.9	4.8	10.6	45.0
Al-Farouq Aminu	ORL	29	2019-20	18	7	11	21.1	4.3	1.4	4.8	29.1



# THANKS

To All of my awesome team mates!

