Boston Celtics Championship Run (Proposal)

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Questions We'll Investigate

- Can we accurately predict how many points the Celtics scored each game during the regular season using box score team stats (except points, field goals made, and shooting percentages)?
- Can we accurately predict how many points the Celtics opponents scored in a game using the same statistics?
- How accurately can we predict how many games the Celtics won in the 2023-2024 regular season?
- Which statistics have the greatest impact on winning NBA games?
- How accurate are our predictions compared to the actual outcome?

Dataset Selection and Description

Dataset:
[Boston Celtics' box scores](#) for the
2023 - 2024 regular season

Goal:
Predict number of points scored in a game

We will use the following stats at the **team-level**:

- Field goal attempts, 3-point attempts, free throw attempts
- Offensive rebounds, defensive rebounds, total rebounds
- Assists, steals, blocks, turnovers, personal fouls

Categorical variable: win or loss
Numerical variable: points scored

Basic Box Score Stats																				
Starters	MP	FG	FGA	FG%	3P	3PA	3P%	FT	FTA	FT%	ORB	DRB	TRB	AST	STL	BLK	TOV	PF	PTS	GmSc	+/-
Jayson Tatum	38:39	13	22	.591	3	8	.375	5	6	.833	0	11	11	4	2	1	4	3	34	27.0	0
Jaylen Brown	38:08	4	11	.364	0	4	.000	3	4	.750	0	6	6	5	1	0	2	5	11	6.8	+8
Kristaps Porziņģis	37:54	8	15	.533	5	9	.556	9	10	.900	1	7	8	0	0	4	1	4	30	25.3	+13
Jrue Holiday	34:47	4	10	.400	1	5	.200	0	0		2	2	4	2	0	3	2	3	9	5.9	+3
Derrick White	31:56	4	6	.667	1	3	.333	3	4	.750	0	6	6	2	1	1	1	3	12	12.7	+7
Reserves	MP	FG	FGA	FG%	3P	3PA	3P%	FT	FTA	FT%	ORB	DRB	TRB	AST	STL	BLK	TOV	PF	PTS	GmSc	+/-
Al Horford	25:47	3	4	.750	2	3	.667	0	0		3	4	7	2	0	0	3	2	8	7.3	-7
Sam Hauser	13:47	0	4	.000	0	4	.000	0	0		0	2	2	1	1	0	0	1	0	-0.9	+5
Payton Pritchard	11:02	1	4	.250	0	3	.000	2	2	1.000	0	1	1	0	0	0	0	1	4	2.2	-8
Luke Kornet	8:00	0	1	.000	0	0		0	0		1	0	1	0	0	1	0	0	0	2.1	-1
Dalano Banton									Did Not Play												
Oshae Brissett									Did Not Play												
Svi Mykhailiuk									Did Not Play												
Neemias Queta									Did Not Play												
Lamar Stevens									Did Not Play												
Jordan Walsh									Did Not Play												
Team Totals	240	37	77	.481	12	39	.308	22	26	.846	7	39	46	18	6	11	13	22	108		

Techniques We'll Apply

We will apply the Random Forest Regressor technique on the Boston Celtics' 2023-2024 regular season statistics. This will help predict how many points the Celtics scored, as well as their opponents. From there, we can determine the number of games won.

- Data evaluation
  - Cross validation with the actual results to measure accuracy for both points scored and wins
  - Feature importance to determine which statistics have the greatest impact on winning
- Data visualization
  - Scatter plots to show the correlation between each statistic and points scored
  - Histogram to compare predicted points and actual points (overlaid)