

# FOOTBALL ANALYTICS

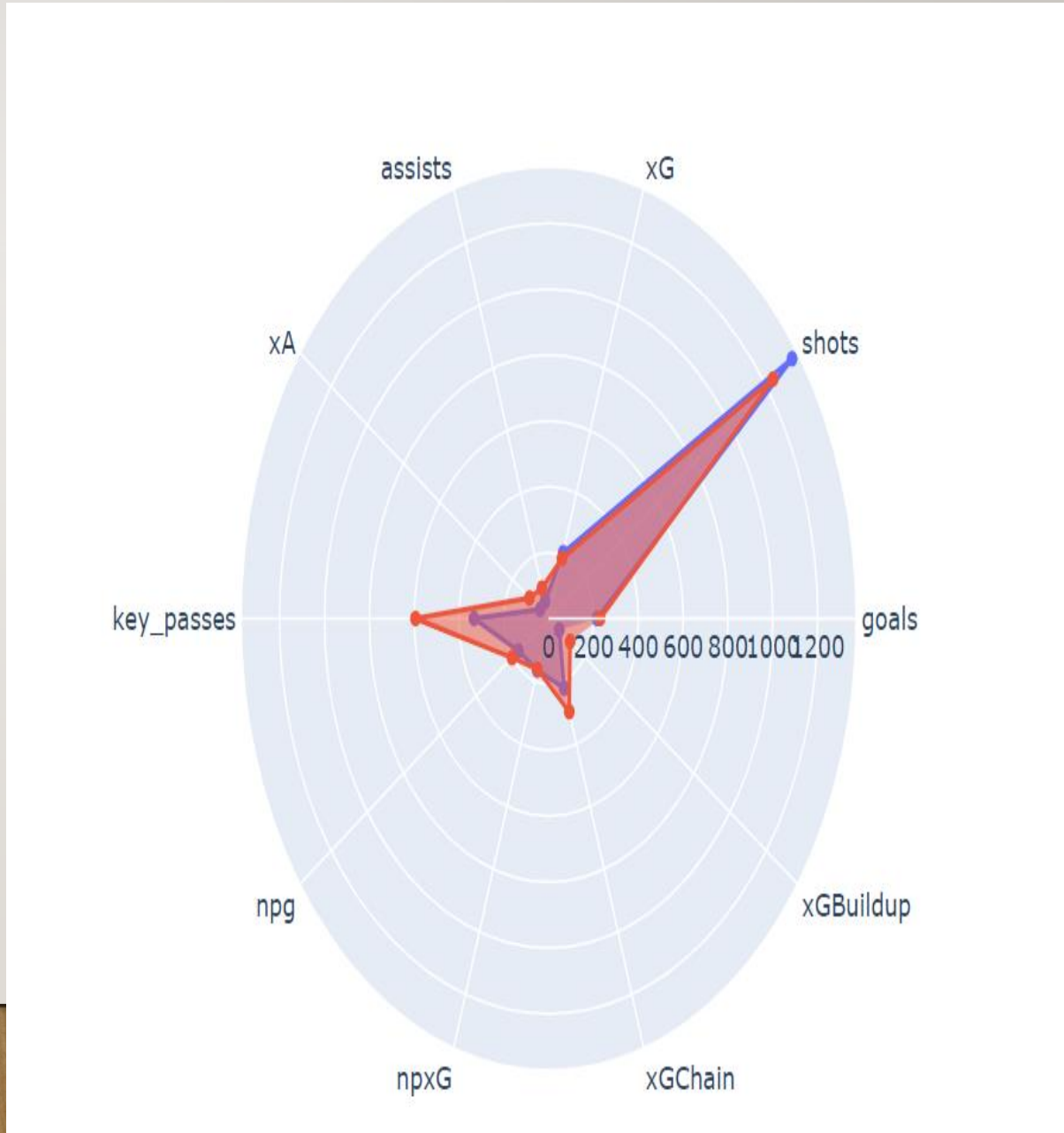
ANALYTICAL COMPARISON BETWEEN RONALDO AND MESSI USING PYTHON

- **SIDDHARTHA SHAH, 25/05/2021**

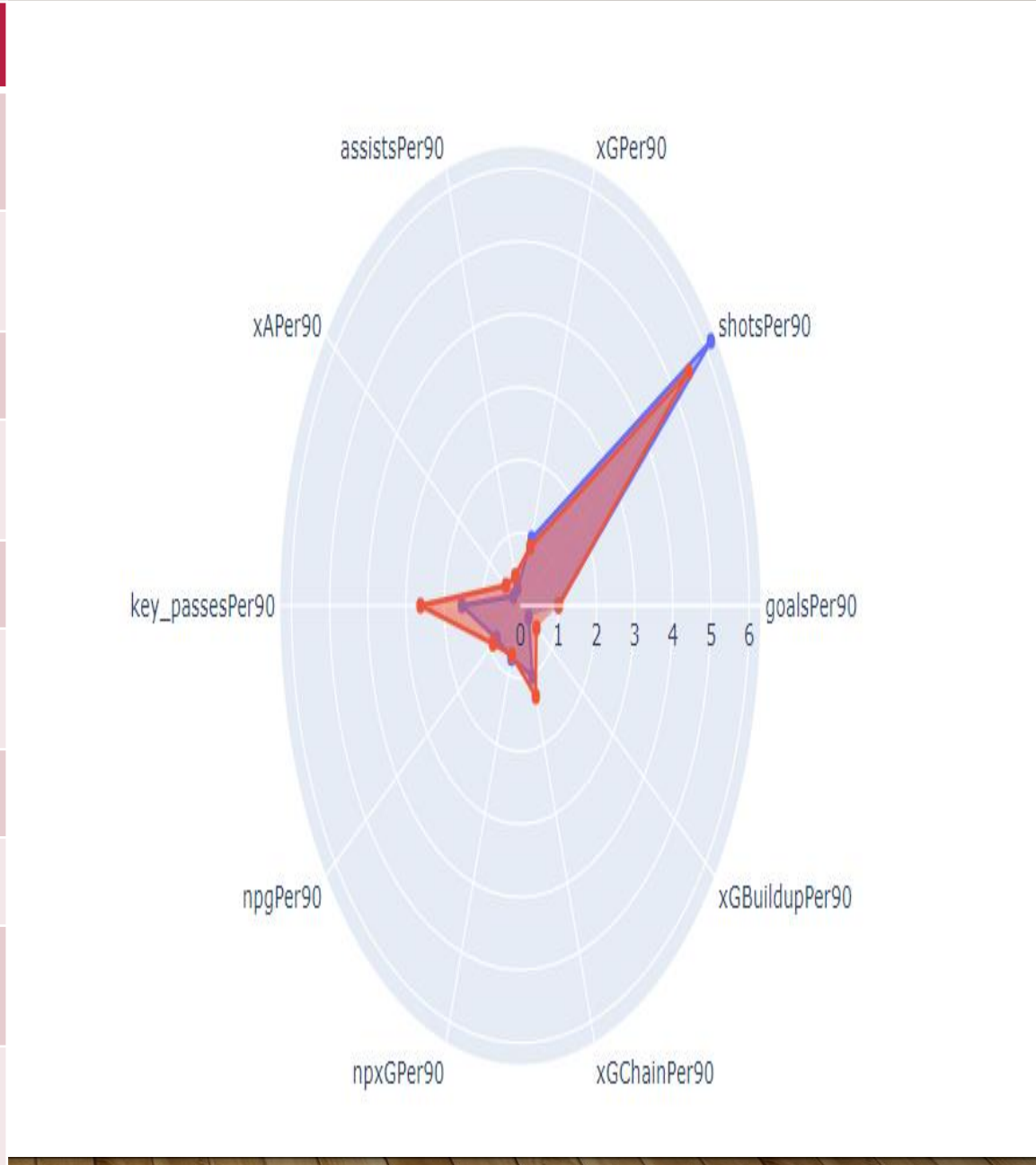


PARAMETER	MESSI	RONALDO
GAMES PLAYED	242	224
GOALS	230	215
SHOTS	1237	1342
xG	191.72	209.90
ASSISTS	97	54
xA	105.70	47.43
Key Passes	594	333
npg	202	167
npG	162.71	164.83
xG Chain	297.43	222.66
Xg Buildup	118.60	58.83
Yellow Card	27	22

Data Source: [understat.com](https://understat.com)



PARAMETER	MESSI	RONALDO
GOALS (per 90 minutes)	<b>1.0130</b>	<b>0.9893</b>
SHOTS (per 90 minutes)	<b>5.448</b>	<b>6.175</b>
xG (per 90 minutes)	<b>0.844</b>	<b>0.965</b>
ASSISTS (per 90 minutes)	<b>0.427</b>	<b>0.248</b>
xA (per 90 minutes)	<b>0.465</b>	<b>0.218</b>
Key Passes(per 90 minutes)	<b>2.616</b>	<b>1.532</b>
Npg (per 90 minutes)	<b>0.889</b>	<b>0.768</b>
np xG(per 90 minutes)	<b>0.716</b>	<b>0.758</b>
xG Chain(per 90 minutes)	<b>1.311</b>	<b>1.024</b>
Xg Buildup(per 90 minutes)	<b>0.522</b>	<b>0.270</b>

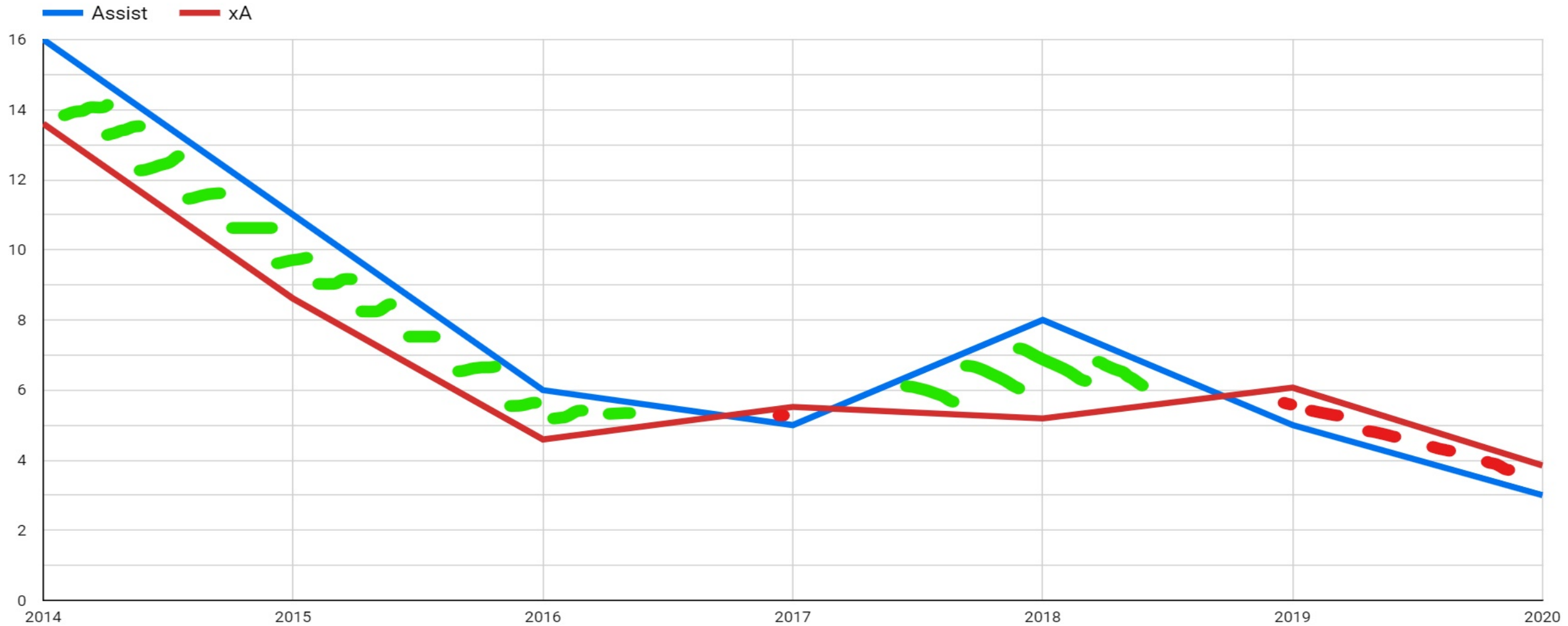


## KEY FINDINGS:

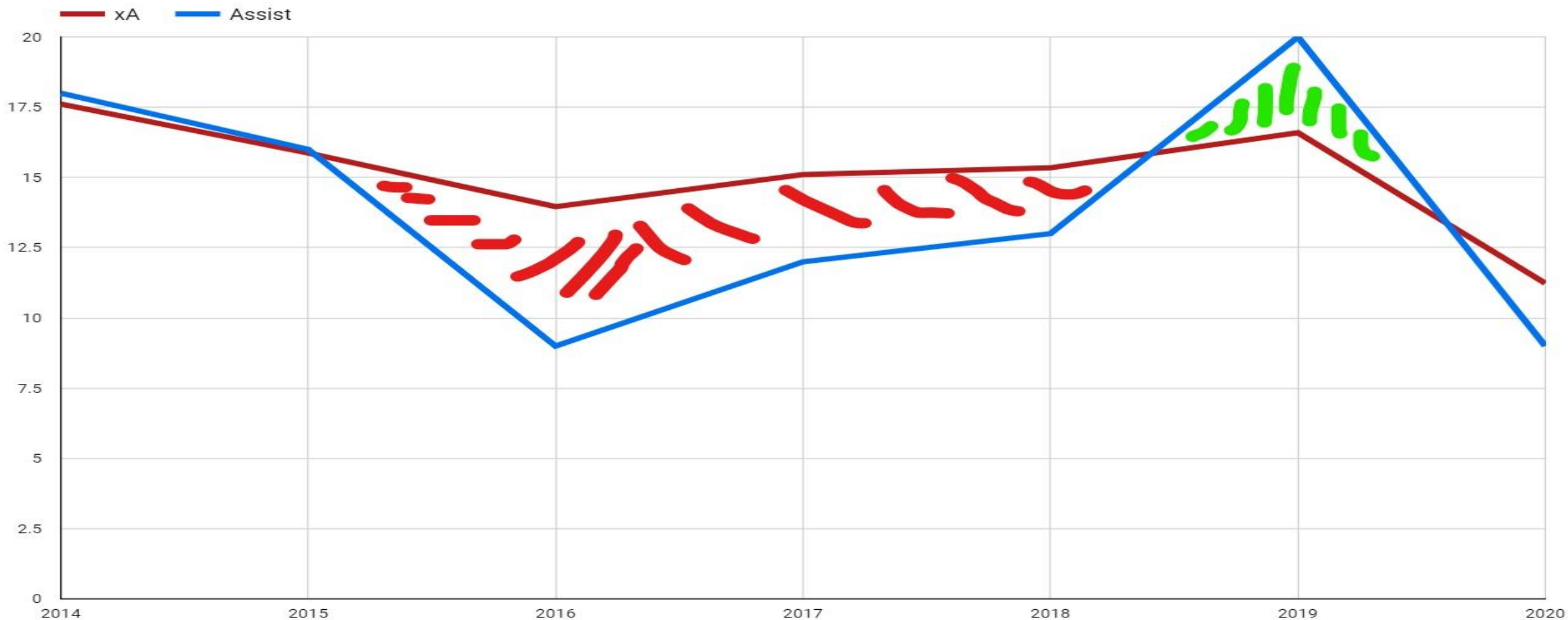
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- Ronaldo's goal scoring accuracy is **16.02%** , whereas Messi's accuracy is **18.60%**
- Messi's key passes and assists are greater than Ronaldo which makes Messi a better **Team Player**

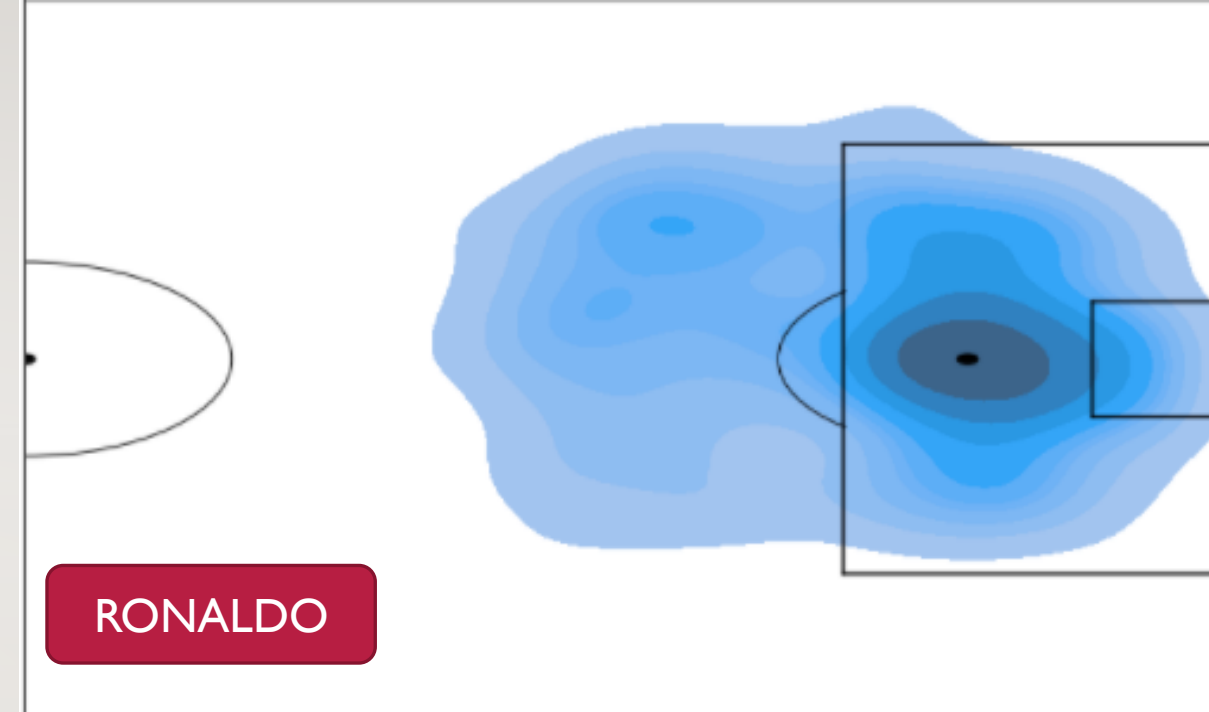
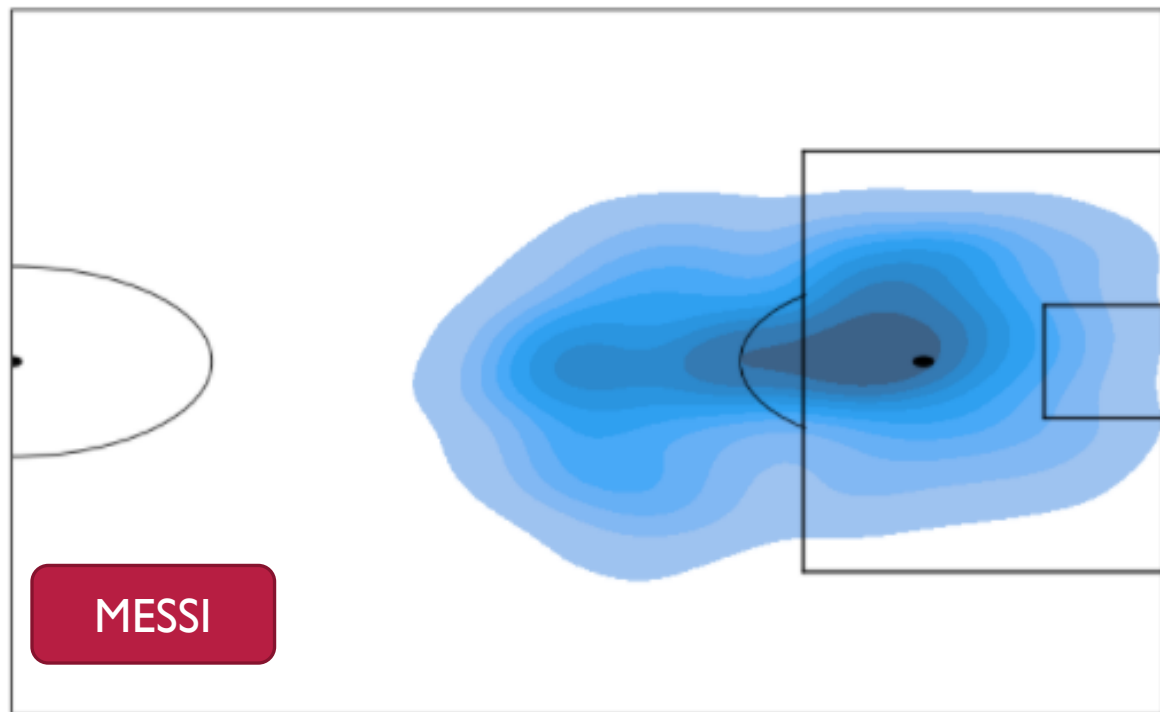




Ronaldo has outperformed between the year 2017 and 2019 and underperformed between the year 2019 and 2020



Messi has outperformed between the year **2018** and **2020** and **underperformed** between the year **2015** and **2018**



**MESSI IS RISK AVERSE COMPARED TO RONALDO WHO ATTEMPTS MORE SHOTS FURTHER AWAY FROM THE 6 YARD BOX**

**RONALDO'S SHOT TAKING PATTERN IS RADIAL IN NATURE AND IS CONSTRICTED WITHIN THE 18 YARD PENALTY BOX.**

**MESSI'S SHOT TAKING PATTERN IS TAPERING OUTSIDE THE 18 YARD PENALTY BOX**

# APPENDIX:

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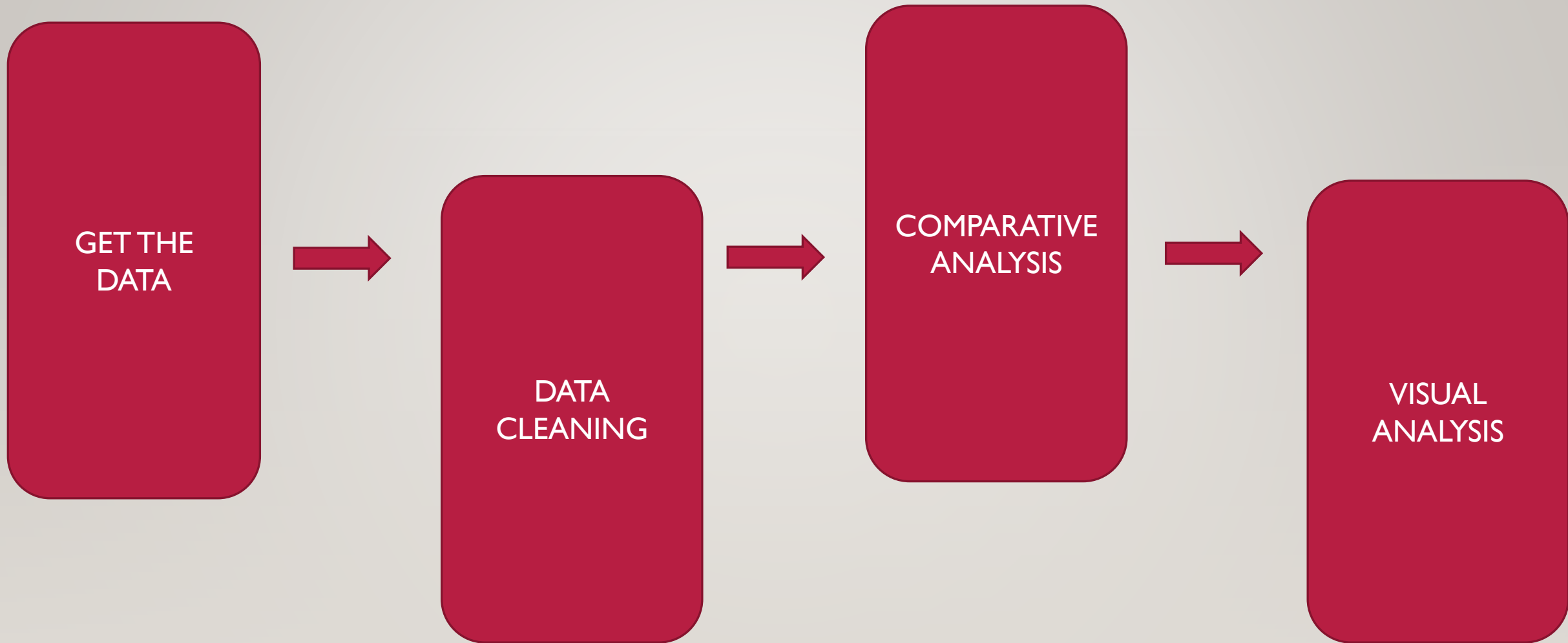


# AIM:TO CARRY OUT AN ANALYSIS BETWEEN THE TWO FOOTBALL LEGENDS USING PYTHON

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## PARAMETERS COMPARED:

- GOALS SCORED
- YELLOW AND RED CARDS
- ASSISTS , KEY PASSES , XG , XA , NPG , XGBUILDUP , NPXG , XGCHAIN.



# GETTING THE DATA FROM UNDERSTATS

## RONALDO

The screenshot shows the Understat player page for Cristiano Ronaldo (ID 2371). The browser's developer tools are open, displaying the DOM tree on the left and the CSS styles for the table wrapper on the right. The table lists Ronaldo's performance across seven seasons from 2014/2015 to 2020/2021, including metrics like Apps, Goals, Assists, and various xG and xA values. The CSS styles for the table wrapper are visible in the right pane.

Season	Position	Situation	Shot zones	Shot types										
Nº	Season	Team	Apps	Min	G	A	Sh90	KP90	xG	xA	xG90	xA90		
1	2020/2021	Juventus	33	2807	29	3	5.35	1.15	29.84	-0.84	3.85	-0.89	0.96	0.12
2	2019/2020	Juventus	33	2920	31	5	6.41	1.57	29.43	-0.57	6.07	-1.07	0.91	0.18
3	2018/2019	Juventus	31	2692	21	8	5.85	1.60	23.32	-0.32	5.19	-0.81	0.78	0.17
4	2017/2018	Real Madrid	27	2304	26	5	6.95	1.56	27.00	-0.00	5.52	-0.52	1.05	0.22
5	2016/2017	Real Madrid	29	2546	25	6	5.73	1.10	25.41	-0.41	4.59	-0.41	0.90	0.16
6	2015/2016	Real Madrid	36	3186	35	11	6.41	1.44	35.59	-0.59	8.61	-0.39	1.01	0.24
7	2014/2015	Real Madrid	35	3103	48	16	6.53	2.20	39.31	-0.89	13.60	-0.40	1.14	0.39
			224	19558	215	54	6.18	1.53	209.90	-0.10	47.44	-0.59	0.97	0.22

## MESSI

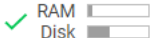
The screenshot shows the Understat player page for Lionel Messi (ID 2097). The browser's developer tools are open, displaying the DOM tree on the left and the CSS styles for the table wrapper on the right. The table lists Messi's performance across seven seasons from 2014/2015 to 2020/2021, including metrics like Apps, Goals, Assists, and various xG and xA values. The CSS styles for the table wrapper are visible in the right pane.

Season	Position	Situation	Shot zones	Shot types										
Nº	Season	Team	Apps	Min	G	A	Sh90	KP90	xG	xA	xG90	xA90		
1	2020/2021	Barcelona	34	2927	29	9	5.78	2.31	28.04	-0.06	11.23	-0.23	0.80	0.35
2	2019/2020	Barcelona	33	2876	26	20	4.98	2.75	20.85	-0.15	16.59	-0.41	0.85	0.52
3	2018/2019	Barcelona	34	2704	36	13	5.66	3.10	26.00	-0.00	15.34	-0.34	0.87	0.51
4	2017/2018	Barcelona	36	2995	34	12	5.89	2.61	28.95	-0.05	15.10	-0.10	0.87	0.46
5	2016/2017	Barcelona	34	2832	37	9	5.69	2.51	26.89	-0.01	13.98	-0.06	0.85	0.44
6	2015/2016	Barcelona	33	2726	26	16	5.22	2.54	27.10	-0.10	15.87	-0.13	0.89	0.52
7	2014/2015	Barcelona	38	3374	43	18	4.99	2.53	35.89	-0.19	17.81	-0.19	0.96	0.47
			242	20434	230	97	5.45	2.62	191.71	-0.29	105.70	-0.70	0.84	0.47

# DATA CLEANING



+ Code + Text



Editing



	games	goals	shots	time	xG	assists	xA	key_passes	season	yellow	red	npg	npvG	xGChain	xGBuildup
count	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
mean	33.3	31.8	184.2	2856.6	28.7	10.8	10.9	66.2	2017.0	3.5	0.1	26.4	23.4	37.1	12.7
std	2.8	7.5	22.7	268.6	5.1	5.3	5.1	22.4	2.1	1.2	0.3	7.1	4.4	9.0	5.2
min	27.0	21.0	158.0	2304.0	20.8	3.0	3.8	31.0	2014.0	1.0	0.0	16.0	17.1	21.8	7.2
25%	33.0	26.0	167.8	2709.5	26.0	6.5	5.7	48.8	2015.2	3.0	0.0	20.8	20.1	30.1	8.7
50%	33.5	30.0	178.5	2854.0	27.0	10.0	12.4	75.5	2017.0	3.0	0.0	24.5	22.3	37.5	10.3
75%	34.8	35.8	194.0	2978.0	29.7	15.2	15.3	85.0	2018.8	4.0	0.0	31.8	25.5	42.4	17.4
max	38.0	48.0	227.0	3374.0	39.3	20.0	17.6	95.0	2020.0	6.0	1.0	38.0	31.4	54.8	21.6

```
[22] season_wise_meta_df.groupby(["Player"]).describe().round(1)
```

Player	games								goals								shots								time							
	count	mean	std	min	25%	50%	75%	max	count	mean	std	min	25%	50%	75%	max	count	mean	std	min	25%	50%	75%	max	count	mean	std	min	25%	50%	75%	max
Cristiano	7.0	32.0	3.2	27.0	30.0	33.0	34.0	36.0	7.0	30.7	8.8	21.0	25.5	29.0	33.0	48.0	7.0	191.7	27.6	162.0	171.0	178.0	216.5	227.0	7.0	2794.0	310.2	2304.0	2619.0	2807.0	3011.5	3186
Messi	7.0	34.6	1.8	33.0	33.5	34.0	35.0	38.0	7.0	32.9	6.5	25.0	27.5	34.0	36.5	43.0	7.0	176.7	14.8	158.0	164.5	179.0	187.5	196.0	7.0	2919.1	225.7	2704.0	2779.0	2876.0	2961.0	3374

2 rows × 120 columns

```
[23] season_wise_meta_df.groupby(["Player", "team"])["goals"].sum()
```

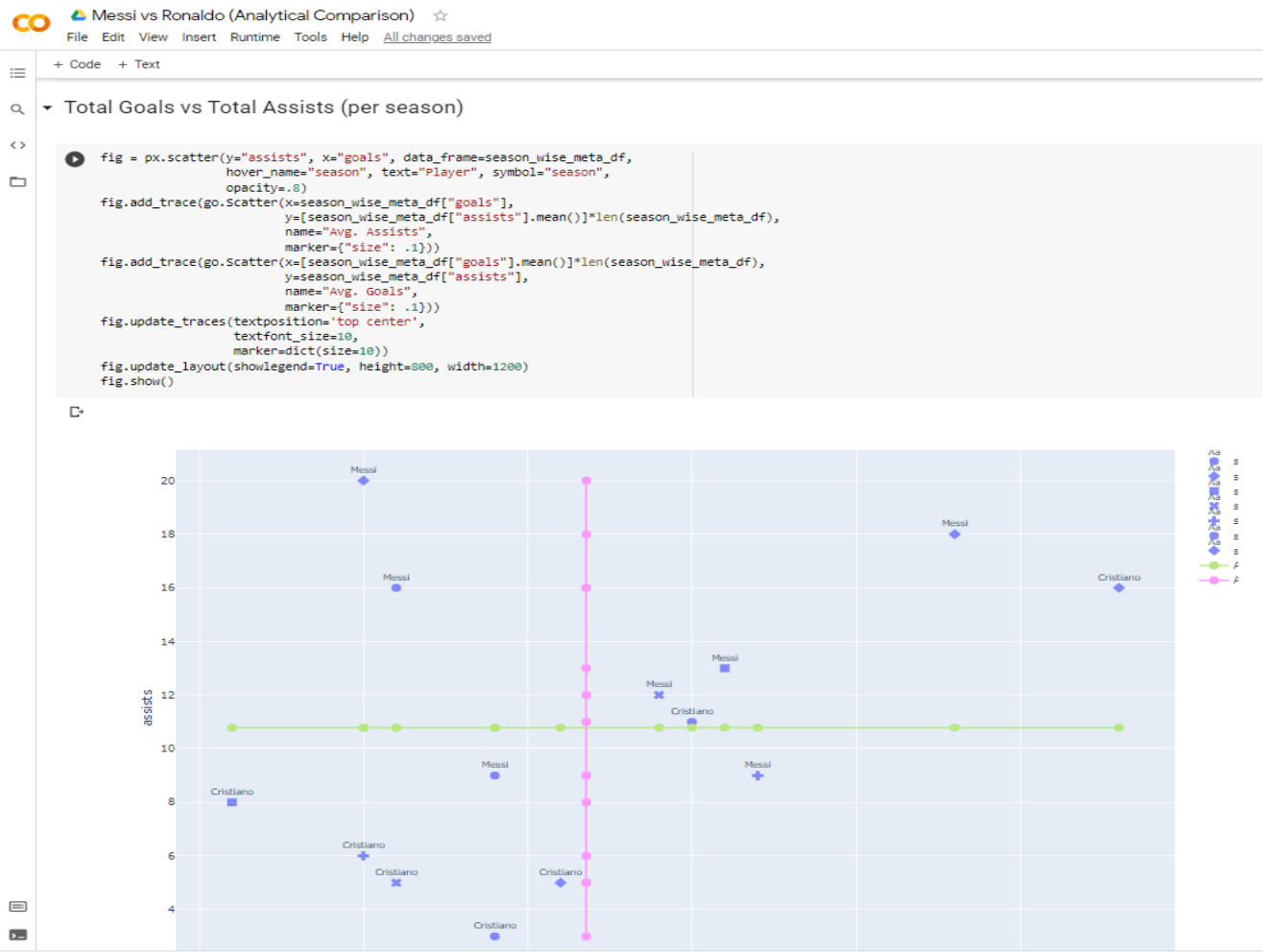
```
Player    team
Cristiano Juventus      81
          Real Madrid   134
Messi     Barcelona   230
Name: goals, dtype: int64
```



# CLEANED DATA

	Player	position	games	goals	shots	time	xG	assists	xA	key_passes	season	team	yellow	red	npg	npnG	xGChain	xGBuildup
0	Cristiano	FW	33	29	167	2807	29.84	3	3.85	36	2020	Juventus	3	0	23	23.75	28.64	8.92
1	Cristiano	FWL	33	31	208	2920	29.43	5	6.07	51	2019	Juventus	3	0	19	19.53	26.55	7.22
2	Cristiano	FW	31	21	175	2692	23.32	8	5.19	48	2018	Juventus	3	0	16	18.76	21.85	7.18
3	Cristiano	FW	27	26	178	2304	27.00	5	5.52	40	2017	Real Madrid	1	0	23	24.03	31.62	9.47
4	Cristiano	FWL	29	25	162	2546	25.41	6	4.59	31	2016	Real Madrid	4	0	19	19.47	29.57	8.66
5	Cristiano	AML	36	35	227	3186	35.59	11	8.61	51	2015	Real Madrid	3	0	29	28.90	40.82	9.86
6	Cristiano	FWL	35	48	225	3103	39.31	16	13.60	76	2014	Real Madrid	5	1	38	30.39	43.61	7.52
0	Messi	FW	34	29	188	2927	26.04	9	11.23	75	2020	Barcelona	4	0	26	22.32	36.59	19.64
1	Messi	Sub	33	25	159	2876	20.85	20	16.59	88	2019	Barcelona	4	0	20	17.13	34.92	13.54
2	Messi	FW	34	36	170	2704	26.00	13	15.34	93	2018	Barcelona	3	0	32	22.28	38.46	10.70
3	Messi	FW	36	34	196	2995	28.95	12	15.10	87	2017	Barcelona	3	0	32	25.97	48.18	21.63
4	Messi	FWR	34	37	179	2832	26.89	9	13.96	79	2016	Barcelona	6	0	31	21.68	42.53	18.13
5	Messi	FWR	33	26	158	2726	27.10	16	15.87	77	2015	Barcelona	3	0	23	21.90	42.00	15.20
6	Messi	FW	38	43	187	3374	35.89	18	17.61	95	2014	Barcelona	4	0	38	31.43	54.75	19.76

# COMPARATIVE ANALYSIS



# PITCH MAP PLOT OF: SHOTS TAKEN

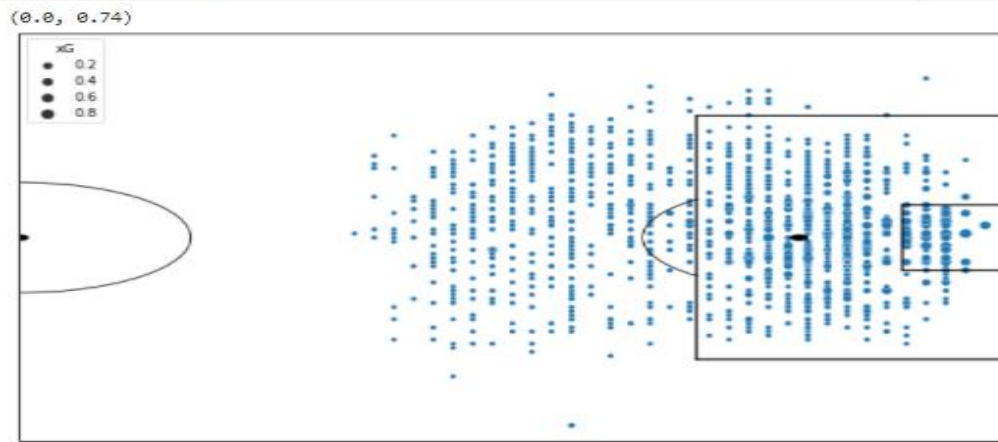
## RONALDO

```
[ ] shots_df["X"] = shots_df["X"].multiply(x_lims[1])
shots_df["Y"] = shots_df["Y"].multiply(y_lims[1])

[ ] ax1 = create_full_pitch(x_lims, y_lims)

sns.scatterplot(x="X", y="Y", data=shots_df[shots_df["Player"] == "Cristiano"], size="xG", ax=ax1)

ax1.set_xlim([x_mid, x_lims[1]])
ax1.set_ylim(y_lims)
```

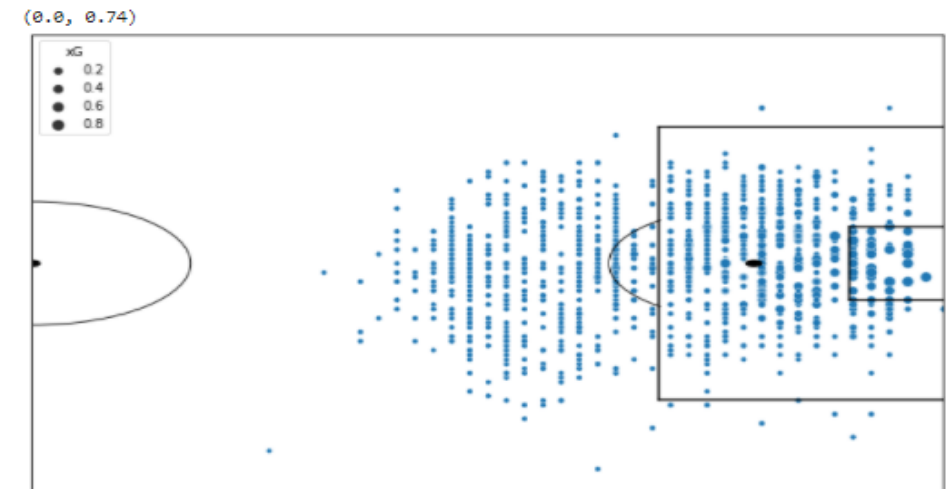


## MESSI

```
[ ] ax2 = create_full_pitch(x_lims, y_lims)

sns.scatterplot(x="X", y="Y", data=shots_df[shots_df["Player"] == "Messi"], size="xG", ax=ax2)

ax2.set_xlim([x_mid, x_lims[1]])
ax2.set_ylim(y_lims)
```

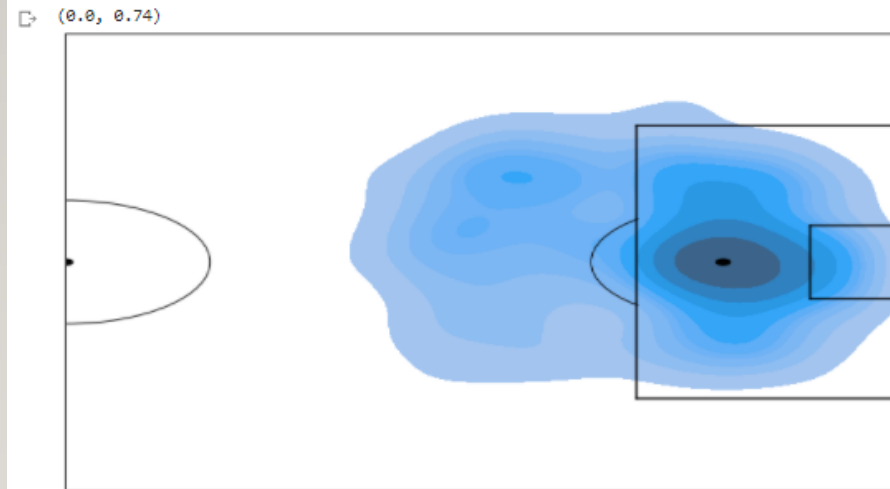


# HEATMAPS OF SHOTS TAKEN:

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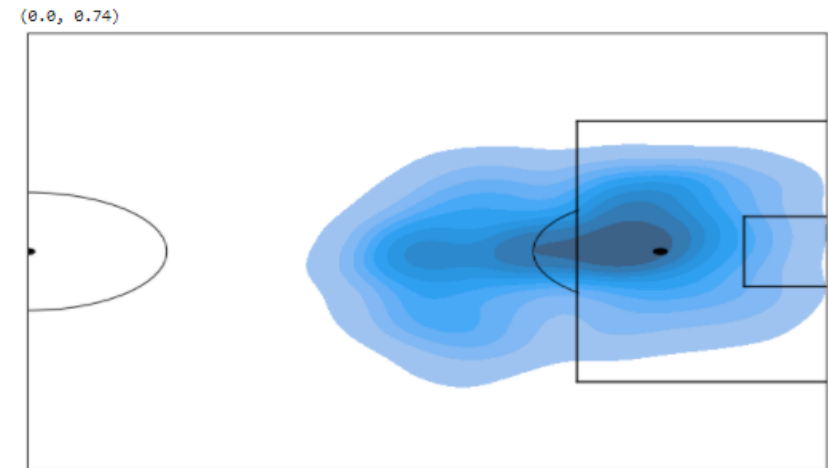
## RONALDO

```
ax1 = create_full_pitch(x_lims, y_lims)
sns.kdeplot(x="X", y="Y", data=shots_df[shots_df["Player"] == "Cristiano"], shade=True, n_levels=10, ax=ax1)
ax1.set_xlim([x_mid, x_lims[1]])
ax1.set_ylim(y_lims)
```



## MESSI

```
[ ] ax1 = create_full_pitch(x_lims, y_lims)
sns.kdeplot(x="X", y="Y", data=shots_df[shots_df["Player"] == "Messi"], shade=True, n_levels=10, ax=ax1)
ax1.set_xlim([x_mid, x_lims[1]])
ax1.set_ylim(y_lims)
```





# RADAR PLOTS

MESSI

RONALDO

