First Checkpoint:

What I said I was going to do:

- Have every technology pinned down
- Get all the data needed
- I have all the knowledge I need to make the reports, I just need to get all the data I need
- I also might need to do some more research on getting the first page of the website up
- Get the majority of my analyses and models done
- Again I have everything I need to do this

What I actually did:

- I set up the backbone for my website using django and python
- I have it running in a virtual environment (venv in python)
- I have the home page with a navbar up
- The home page is not complete, and the functionality for the homepage is still not there yet
- I have all of my data cleaned (I removed missing entries, cleaned it so I can make queries, removed players who appeared twice, also removed players who hardly play)
- I did a number of queries to find who are the most efficient players, best role players, mvp type of players, etc..
- There is still a lot more analysis to be done
- And there are no graphs or actual models yet

What I will have done by next deadline:

- I will make the home page fully functional and look styled and nice
- I will have about 30 different queries done
- I will have 3-5 graphs done that track various things (age vs efficiency, winningness vs versatility, etc.)
- All of my analytics will be up on my home page or on another page just called analytics page
- I will also set up a database for all of the analytics because they don't ever change
- With all of this done I can move on to the second part of the project which involves heavy object oriented programming (using factory pattern design) where users can make their own teams and the website will generate reports based on the team created. Also users will be able to compete with each other for best scores in regards to their team

Screenshots:

Data Modeling:

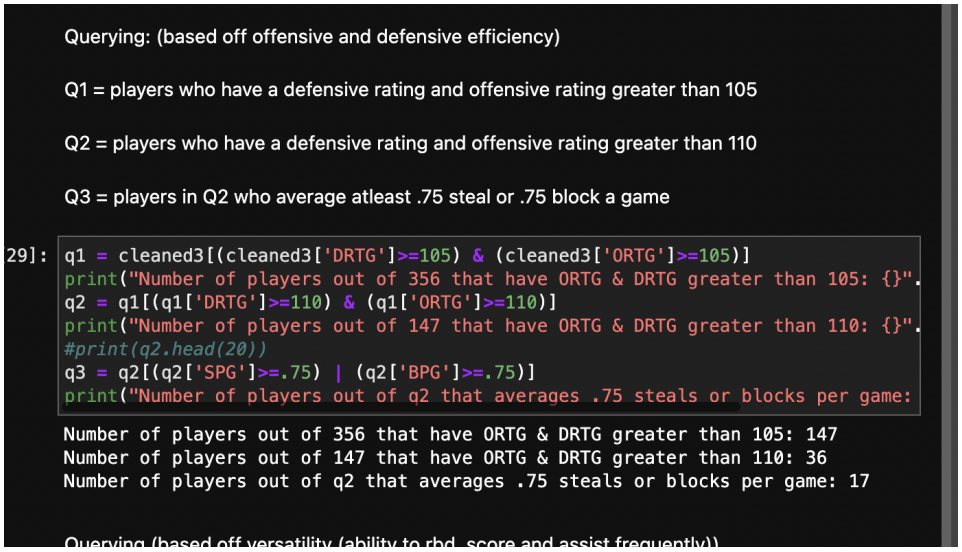
- After cleaning the csv file I am using, this is what the data looks like. It's very extensive which is great and I have access to tons of meaningful stats which will allow me to make really cool analytical reports

```
print(cleaned5.head(20))
```

	FULL NAME	TEAM	POS	AGE	GP	MPG	MIN%	USG%	TO%	\
0	Precious Achiuwa	Tor	F	22.48	58	23.0	47.8	18.1	11.3	
1	Steven Adams	Mem	C	28.65	65	26.5	55.2	12.3	19.8	
2	Bam Adebayo	Mia	C-F	24.66	44	33.2	69.1	25.2	14.7	
4	LaMarcus Aldridge	Bro	C-F	36.65	45	22.8	47.6	22.7	7.8	
5	Nickeil Alexander-Walker	Nor	G	23.53	50	26.3	54.9	24.8	11.2	
7	Grayson Allen	Mil	G	26.43	56	27.8	57.8	15.6	5.5	
8	Jarrett Allen	Cle	C	23.90	56	32.3	67.3	18.1	12.7	
10	Justin Anderson	Cle	F-G	28.32	3	15.5	32.4	11.1	17.0	
12	Kyle Anderson	Mem	F-G	28.48	56	21.4	44.6	16.1	11.7	
13	Giannis Antetokounmpo	Mil	F	27.27	57	32.8	68.4	34.8	12.1	
15	Carmelo Anthony	Lal	F	37.79	59	26.5	55.3	20.2	7.3	
16	Cole Anthony	Orl	G	21.83	55	32.8	68.3	25.5	14.2	
17	OG Anunoby	Tor	F	24.66	42	36.7	76.4	21.0	9.8	
19	Trevor Ariza	Lal	F	36.70	22	18.9	39.3	10.2	10.1	
22	Deni Avdija	Was	F	21.19	66	23.1	48.2	15.0	11.9	
24	Deandre Ayton	Pho	C	23.64	47	29.5	61.5	20.9	11.0	
26	Marvin Bagley III	Sac	F	23.00	30	21.9	45.6	18.7	7.3	
28	LaMelo Ball	Cha	G	20.56	61	32.1	66.9	28.2	15.0	
29	Lonzo Ball	Chi	G	24.38	35	34.6	72.2	17.3	17.2	
30	Mo Bamba	Orl	C	23.84	58	26.1	54.4	16.8	10.9	

	FTA	...	RPG	TRB%	APG	AST%	SPG	BPG	TOPG	VIV	ORTG	DRTG
0	105	...	6.8	16.0	1.1	6.9	0.52	0.53	1.10	6.9	103.8	103.2
1	177	...	9.8	19.3	3.3	15.7	0.83	0.75	1.57	9.3	123.5	104.7
2	259	...	10.4	17.6	3.5	17.9	1.55	0.82	2.77	10.7	114.1	96.8
4	102	...	5.6	13.3	0.9	6.5	0.31	1.02	0.93	7.2	120.0	108.7
5	97	...	3.3	6.8	2.8	16.3	0.82	0.38	1.70	7.5	96.5	109.8
7	63	...	3.4	6.4	1.6	8.0	0.79	0.27	0.55	5.7	119.9	109.6
8	233	...	10.7	18.2	1.6	8.2	0.77	1.34	1.68	8.1	132.7	102.8
10	4	...	2.0	7.1	2.0	17.5	0.33	0.00	0.67	6.7	126.3	102.5
12	85	...	5.4	13.1	2.6	16.3	1.14	0.63	0.98	8.7	107.8	103.1
13	659	...	11.5	18.4	5.9	32.9	1.05	1.39	3.23	15.4	124.2	99.2
15	142	...	4.2	8.4	1.0	5.6	0.73	0.83	0.92	5.8	115.2	107.0
16	220	...	5.6	9.1	5.7	28.2	0.78	0.27	2.73	10.0	103.0	107.0
17	107	...	5.5	8.1	2.6	10.9	1.55	0.57	1.76	6.9	109.9	106.4
19	15	...	3.2	9.1	1.0	7.1	0.50	0.18	0.45	4.9	98.8	110.9
22	98	...	5.0	12.0	1.7	10.1	0.76	0.56	0.92	6.9	106.2	104.6
24	111	...	10.0	18.1	1.4	7.5	0.74	0.74	1.57	8.4	124.9	99.4
26	47	...	7.2	17.7	0.6	3.9	0.30	0.37	0.70	6.3	111.0	109.1
28	214	...	6.9	11.2	7.3	34.9	1.51	0.43	3.21	12.4	109.3	104.8
29	28	...	5.4	8.8	5.1	19.8	1.83	0.89	2.34	8.2	110.0	106.9
30	58	...	8.0	16.2	1.1	6.8	0.59	1.74	1.10	6.9	112.8	103.0

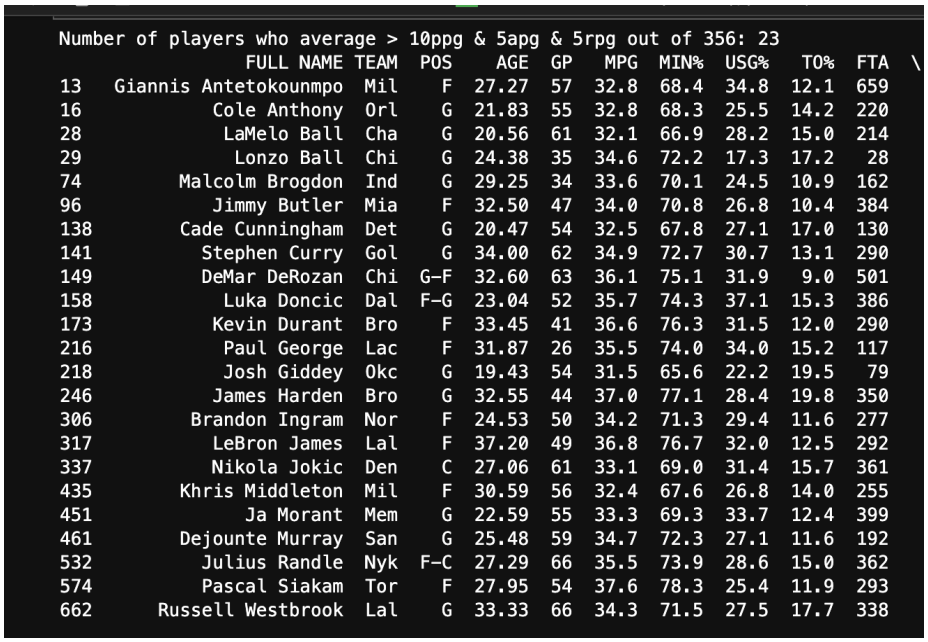
Examples of the queries I am doing:



```
Querying: (based off offensive and defensive efficiency)

Q1 = players who have a defensive rating and offensive rating greater than 105

Q2 = players who have a defensive rating and offensive rating greater than 110

Q3 = players in Q2 who average atleast .75 steal or .75 block a game

29]: q1 = cleaned3[(cleaned3['DRTG']>=105) & (cleaned3['ORTG']>=105)]
     print("Number of players out of 356 that have ORTG & DRTG greater than 105: {}".
     q2 = q1[(q1['DRTG']>=110) & (q1['ORTG']>=110)]
     print("Number of players out of 147 that have ORTG & DRTG greater than 110: {}".
     #print(q2.head(20))
     q3 = q2[(q2['SPG']>=.75) | (q2['BPG']>=.75)]
     print("Number of players out of q2 that averages .75 steals or blocks per game:

     Number of players out of 356 that have ORTG & DRTG greater than 105: 147
     Number of players out of 147 that have ORTG & DRTG greater than 110: 36
     Number of players out of q2 that averages .75 steals or blocks per game: 17


     Querying (based off versatility (ability to rbd, score and assist frequently))
```

I extensively reviewed my queries to make sure that the players I was getting from them seemed to be right. Which they are

Here's an example of a query that measures players based on scoring, rebounding, assisting. It returns about 20 players, who are all the top 20 players if ask people who know basketball:



Number of players who average > 10ppg & 5apg & 5rpg out of 356: 23

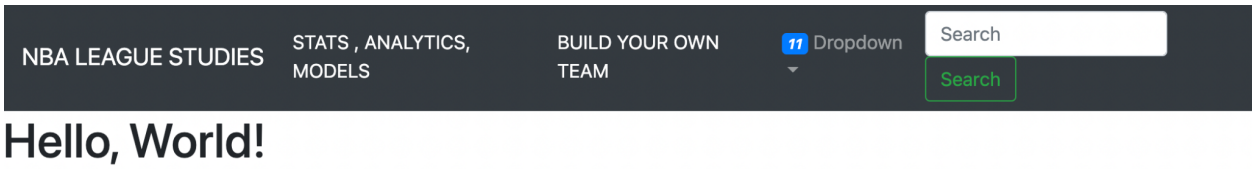
	FULL NAME	TEAM	POS	AGE	GP	MPG	MIN%	USG%	TO%	FTA	\
13	Giannis Antetokounmpo	Mil	F	27.27	57	32.8	68.4	34.8	12.1	659	
16	Cole Anthony	Orl	G	21.83	55	32.8	68.3	25.5	14.2	220	
28	LaMelo Ball	Cha	G	20.56	61	32.1	66.9	28.2	15.0	214	
29	Lonzo Ball	Chi	G	24.38	35	34.6	72.2	17.3	17.2	28	
74	Malcolm Brogdon	Ind	G	29.25	34	33.6	70.1	24.5	10.9	162	
96	Jimmy Butler	Mia	F	32.50	47	34.0	70.8	26.8	10.4	384	
138	Cade Cunningham	Det	G	20.47	54	32.5	67.8	27.1	17.0	130	
141	Stephen Curry	Gol	G	34.00	62	34.9	72.7	30.7	13.1	290	
149	DeMar DeRozan	Chi	G-F	32.60	63	36.1	75.1	31.9	9.0	501	
158	Luka Doncic	Dal	F-G	23.04	52	35.7	74.3	37.1	15.3	386	
173	Kevin Durant	Bro	F	33.45	41	36.6	76.3	31.5	12.0	290	
216	Paul George	Lac	F	31.87	26	35.5	74.0	34.0	15.2	117	
218	Josh Giddey	Okc	G	19.43	54	31.5	65.6	22.2	19.5	79	
246	James Harden	Bro	G	32.55	44	37.0	77.1	28.4	19.8	350	
306	Brandon Ingram	Nor	F	24.53	50	34.2	71.3	29.4	11.6	277	
317	LeBron James	Lal	F	37.20	49	36.8	76.7	32.0	12.5	292	
337	Nikola Jokic	Den	C	27.06	61	33.1	69.0	31.4	15.7	361	
435	Khris Middleton	Mil	F	30.59	56	32.4	67.6	26.8	14.0	255	
451	Ja Morant	Mem	G	22.59	55	33.3	69.3	33.7	12.4	399	
461	Dejounte Murray	San	G	25.48	59	34.7	72.3	27.1	11.6	192	
532	Julius Randle	Nyk	F-C	27.29	66	35.5	73.9	28.6	15.0	362	
574	Pascal Siakam	Tor	F	27.95	54	37.6	78.3	25.4	11.9	293	
662	Russell Westbrook	Lal	G	33.33	66	34.3	71.5	27.5	17.7	338	

Backbone of my website:

By running the following after the percent sign you can run the website in a virtual environment: NBA_analytics_website % source venv/bin/activate . to leave the venv, just enter “deactivate”

Following this, assuming you are in the /NBA_analytics_website directory, you run the following command : python manage.py runserver

Then open localhost:8000, which will look like the following:



Hello, World!

Again this is very not nice looking. I just wanted to get the environment set up. I followed this tutorial: https://realpython.com/get-started-with-django-1/