**Fantasy PL Project 2021-2022**

**Ethan Mitten**

**June 27th 2021**

Today is the start of the Fantasy Premier League Analytics Project. I have found an amazing source for all of the statistics of Premier League data over the last five years. I have created a GitHub repository that credits the repository with all of the data I will use in this analysis. I do not plan to do anything with this, but do it for fun and for my own enjoyment as a project to do on the side as I love watching soccer. I am going to stay consistent with this blog to keep an account of what has been going on with the project. My stopping point today is setting up my GitHub and starting this blog and doing a little rough draft outline in Notes to set myself off on the right foot. I am also after I finish up this blog going to go ahead and make a database in mySQL for all of the data I will be using.

**June 29th 2021**

I have been working on importing all the data into mySQL and have been running into some issues. I have tried doing a lot of data cleaning in Excel and have been running into issues. It only wants to import the first 250ish rows of my data when I have 750 rows. I am going to keep working on troubleshooting this issue, but I do not want to just avoid SQL because importing is causing trouble. SQL will be vital for looking at all this data across all of these tables, so this is a very crucial step that I need to work through. The next approach is to see if I can export my Excel file into a text file and see if SQL likes that better.

I am not happy with Caglar Soyuncu at the moment! I was searching up troubleshooting problems for the last couple days and found that the reason my import was not working correctly is because I did not change over Caglar yet. Part of the cleaning process was going in and altering the accents on player’s names and I thought I got all of the names, so was starting to get frustrated with importing until I started importing another dataset and it did not work again, so I went back through and manually looked through player names and finally found that Soyuncu still had an accent on his name. Problem fixed and all the data for the 2020-2021 season has now been imported into mySQL. That is definitely enough for today.

**June 30th 2021**

Not a lot of time invested into the PL project today. I want to make sure I have everything planned out for when I start analyzing so I am not just blindly making analysis without a story/goal. I need to direct focus towards statistics that will directly affect score. This, as layed out in my notes, could be anything from clean sheets for a keeper to who takes penalties for a team. These are important statistics and picking the starting squad weighs heavily on the future outcome. There is the wildcard to dump the whole team, but we obviously want to get off to a good start.

**July 2nd 2021**

Today I am looking over some general information for the 2020-2021 season and will record them in a separate document. I got through the most common statistics such as goals, assists, saves etc. What I have found is that the teams that did not perform that well relatively had the goalkeepers with the most saves. Furthermore, Harry Kane seemed to be the most involved player for getting goals in the back of the net. The other noteable player for goal contributions was Bruno Fernandes. Next time when going through the general information I would like to look through penalties because that is a big part of scoring goals and getting points. I’ll need to find some data on made penalties because there is not any in the tables that I have. Next time I would also like to go through and start looking at the statistics specific to fantasy points such as most fantasy points and influence.

**July 10th 2021**

Started up the Premier League project again. Started doing more of the general statistics just for a little bit. Fantasy Premier League is about budgeting as much as it is about getting the players who will get the most points and with that I have an idea to do some scraping of my own. I do not have a price column in my dataset so I am going to be researching and getting some price info on all the players.

**July 11th 2021**

I am currently going through updating my database so that I have player prices and can divide a player’s total points by their price to get informative data on who were the best bang for buck players and then bang for buck players at each position. I was stuck on read only mode and was trying to figure out how to get into a mode I could edit my table in mySql. I finally hovered over the info icon next to Read only and realized I needed to set a Primary Key for my table. I also made a delete statement for the players on teams that have been relegated as it obviously does not do anything for me to know information on player’s who I cannot select next year.

**July 12th 2021**

Today was a productive day as the 2020-2021 season general information has been completed. We went through yesterday and added a price to all the players and got to see good budget players and also a bunch of different statistics to determine who were the solid players of the season. Although a lot can happen in terms of transfers, new managers, etc. and that can shape a player’s outlook just as much as the previous year, so when I list some players these are considerations just based on general information from the previous season. It will still have to be weighed out with historical data and some user judgement (although not a lot as using data analytics to select the squad is the most important part of this project). From our general information we definitely had some stand out players. They were:

* Harry Kane
* Bruno Fernandes
* Stuart Dallas
* Patrick Bamford
* Jesse Lingard
* Emiliano Martinez
* John Stones
* Heung-Min Son
* Mohamed Salah

Other Players that were also shocking or intriguing through the general information process were:

* Jack Harrison
* Matt Targett
* Ollie Watkins
* Callum Wilson
* Ben Chilwell
* Illan Meslier
* Aaron Cresswell
* James Ward-Prowse

Today marked the end of a very productive phase of the project which was looking at last season’s general information. From here we are going to look at some historical trends and then we will be about ready to make some candidates for our starter squad.

**July 13th 2021**

Today’s work was spent on preparing and outlining the next step of our process. The next step we will want to cover is the relationship between players and the teams they were on. Does being on a better team lead to higher total points? Does having better teammates lead to higher points? These are the kind of questions that are being aimed at answering. Tomorrow we will go ahead and start that process in SQL. Once we get the code down for one of our queries it will be relatively easy for the rest of them. A lot of GROUP BY will be involved.

**July 14th 2021**

I went and started work on the player’s relation to team query. For that I needed to modify my spreadsheet for the teams. I went ahead and updated the wins, losses, draws and placement of all the teams before running queries. In SQL I ran some queries for total fantasy points by team and then by position. Some interesting results out of this were that total points seems to be fairly related to how a team finishes. Burnley who finished 17th had the highest total points for attackers. The midfield seemed really related to the performance of the team as 8 out of the 10 top finishing teams had midfields in the top 10 for total points and the teams that finished in the top 3 aligned respectively for midfield points (Man City first, Man Utd second…). Chelsea’s defense acquired them a lot of points this year which was a little surprising. It was also just surprising that Chelsea finished 2nd in a lot of these rankings, but finished 4th in the league whereas Manchester City finished first in a lot and won the league. This might lead to some important decisions about how the structure of my fantasy team will be picked. It looks as if I should be picking my midfield based on teams I believe will perform the best and not necessarily completely off individual performance.

**July 16th 2021**

Today’s session was not as informative as I was hoping for. However, if I had not done the process I did I may not have understood that statistically I have not found a lot there. Today’s look was at the top 10 players and how much teammates contributed to their success. This was done by looking at teammates goals, assists and total points to get a small understanding of their contribution to the team. I was not able to find a lot of trends and these stats varied from player to player. For example, Kane and Son were the only big contributers at Tottenham and both had a lot of points, but at Manchester United there were multiple contributers alongside Bruno Fernandes. In conclusion, today was informative in the respect that these statistics are not super helpful in deciding whether teammates make a difference for a player.

**July 17th 2021**

I like the direction things are going for this research now. We have done the preliminary statistics research and seeing how players are doing and now are going to start analyze trends in Tableau. This piece is going to be very informative on putting the rest of my side together. We were able to determine that ICT index is actually a pretty important measurement for determining total points and with that one player that has stood out in a team that stood out is Ollie Watkins. I now feel confident about three of my selections. As I get a little further into this I will need to be careful about salary. For now the current salary we have given out is:

Bruno Fernandes -> 12.0 (100-12 = 88)

Ollie Watkins -> 7.5 (88-7.5 = 80.5)

Emiliano Martinez -> 5.5 (80.5 -5.5 = 75)

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**July 24th 2021**

At this stage something of great importance is not comparing different positions to each other, but finding trends within specific positions. We know that midfielders are the ones that are collecting the most total points and we want to select midfielders from the higher placed teams. We need more information crucially on what defenders I need to pick and what are distinguishing defenders in terms of points. John Stones from the data is a stand out and has been a stand out in some of the other analytics we have run so John Stones will be added to our side as well. For the rest of the players we will need to make a shortlist of good candidates and then watch how the transfer window pans out. We are selecting our team August 10th to give teams enough time to set up with who they want, but we need to see from the data a list of the best choices.

Influence seems to be something that is crucial for finding a good defender as the trend line is positive almost to a one slope surprisingly. Even after some really quality graphs looking at different trends of total points for defenders nothing really stands out too much to me which is a little disappointing. We will need to keep working on finding patterns within our data and see if we can make a break through. The fun part of this analytical work, detective work. I am going to go back on my earlier statement and I do not want to select John Stones just yet because as I was doing all of these graphs on trends for total points I was not seeing John Stones very involved in the top except for points per game which tells me that if he plays more this year he would be solid. We might have to see how Manchester City’s back line is looking before we decide anything. For now our selections stay the same. One thing that worries me about our picks however is the news of Grealish transferring away from Aston Villa. From our statistics Grealish had tremendous influence on the game and it is interesting to see how much that would affect Watkins and Martinez. Bruno is still an untouchable, but feeling a little more hesistant than before with the news of Grealish to Manchester City.

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**July 25th 2021**

Today is kind of a data to step away from the data side and work with what salary allows me to do. I am going to go through a couple mock teams and build some combinations.

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Here we have kind of a massive amount of star players with a decent side around them. We were able to get Watkins, Fernades and Martinez like we want and also were able to add Salah and Kane as well. If Kane goes to Manchester City he is a must have with the creative side that Manchester City have. We are still able to get quality, but lacking a little bit with Origi as our third striker and none of our defenders are real point machines.

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In this edition the deletion of Salah led to a spread in the wealth with the addition of Calvert-Lewin, Mount and Chilwell who all statistically have indications they will continue to contribute.

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With the next team above we brought in one cheap player for each group, so we could have just a little bit more money to spend on a midfielder. Although Gundogan was the one that was picked the increase of funds to just 7.5 makes the options tough as the difference in statistics between the 7.5 and below players are hard to distinguish which dampens the thought of going with something like this. It is interesting to see where salary allows me and I really would like the idea of working Salah, Fernandes and if he goes to Manchester City, Kane into the side because that is consistent almost statistically guaranteed great point return.

**July 28th 2021**

Yesterday was a good day for this project as I went in a great direction in terms of the analyzing what I needed. I decided to break up my player data by positions in separate spreadsheets. So I duplicated a modified spreadsheet and made a goalkeeper spreadsheet etc. From there I took my spreadsheets into Spyder and then created a correlation matrix to see what was correlating the most to total points for each position. Today I will go ahead and analyze the results and do a little write up here about what the results mean.

For the goalkeepers correlation matrix… For total points we see that some parts are very highly correlated to total points which is an encouraging lead to follow. Surprisingly the most correlated is the bps. Bps is simply a measurement of the amount of bonus points that a player obtains. It is interesting that bps seems to be more impactful than saves and clean sheets. Another important factor is minutes. Overall, we should do one final analysis for goalkeepers based on who played the most minutes and who had the highest bps. Also we will want to check out influence as is it high on the list as well. (**BPS, Minutes, Influence)**

For the defenders correlation matrix… There are two spots of high correlation. Again surprisingly we see that BPS is highly correlated to Total Points. The other highly correlated statistic is influence. Other factors include clean sheets and minutes. (**BPS, Influence, Minutes)**

For the midfielder correlation matrix… we have two standout features. The first being influence and the second being the ict index statistic. Interestingly we do not see as many highly correlated attributes in this matrix as the other ones. One other that is pretty high as well is BPS again. (**Influence, ICT\_Index, BPS)**

For the forward correlation matrix… we have a lot of attributes that are fairly highly correlated to total points. We will try to weed out the most relevant ones though. The first being BPS. Besides that the other two standout statistics are influence and ict\_index. (**BPS, Influence, ICT\_Index)**

What an interesting find. When a started this analysis a month ago I would have stated that having the most goals and assists is going to be the biggest source of points for players and although that may be true for like the top 5 players it is interesting to see the trend on what is considered important. We will need to go in depth and look at BPS, ICT\_Index and Influence for each position as they are considered very correlated to total points.

**July 29th 2021**

Today I went through and produced SQL queries for the attributes we were looking at yesterday and found some standout players from each position. We will continue this further in the coming days to see how a team could be put together to best put in as many of these players as. I can. The main standouts were Emiliano Martinez, Luke Ayling, Bruno Fernades and Harry Kane. Ayling is a very suprising one and he is quite cheap as well.

**July 30th 2021**

Today is my first draft of my team based on the data that I have collected. I will go through and list the players I am selecting and the reasoning behind each signing. In total we have 2 GKs, 5 DEFs, 5 MIDs, and 3 FWDs to sign with only 100 euros to spend. The interesting part of this season is that this is all data driven, but there is always the emergence of some players that were not there last season and some that were at the top and fall. We will continue to monitor this throughout the season, but for now all we have is the information at hand. We will monitor this team as signings and transfers might happen over the next couple of weeks.

Emiliano Martinez (5.5) -- GK

The obvious choice for keeper as seen by essentially every statistic is Emiliano Martinez. Not too much needs to be said about Emiliano as the team has not changed too much and Martinez was just so far ahead of the competition in the statistics we were looking at.

Runar Runarsson (4.0) -- GK

Runar was selected solely for the fact that he is 4.0 and it works for our budget the best that way. Martinez played in every minute last year and I see him doing that again this year.

Matt Targett (5.0) -- DEF

Another addition to the squad from Aston Villa is Matt Targett. Although Aston Villa placed 11th in the Premier League last year it was seen that they were doing numbers that should have put them in at least 7th or 8th place in the league. One big help was Matt Targett. Matt Targett was first noticed with having 16 clean sheets throughout the year. He also had the 8th most fantasy points last year, and with our budget formula we did for total points/price Matt Targett was 5th out of all players in the Premier League last year. When we get down to the statistics that were the most impactful for defenders it was seen that BPS and Minutes were two of the three that were big. Matt Targett was second in minutes last year and also was 5th in the BPS rankings for defenders. Statistically he was solid in 2020 and we will hope for the same this season.

Aaron Wan-Bissaka (5.5) -- DEF

First looking at transfers Manchester United is shaping up to have one of the best back lines in the Premier League with Maguire, Shaw, Varane and Wan-Bissaka. This will help clean sheets. Wan-Bissaka looks to be a great pick when looking at the most important attributes for defenders. Wan-Bissaka was 4th highest in BPS for defenders. He also was 5th in influence. Last season he had the 5th most fantasy points for defenders and came in at number four for best budget players. I think statistically he has shown that he is constantly in the top 5 for a lot of statistics and with a 5.5 price he will make a good addition to the side.

Michael Keane (5.0) -- DEF

This is one of the more interesting picks to be made in this selection. Keane does not show up a tremendous amount and if I had it my way I would replace him with Aaron Cresswell. However, Cresswell is 5.5 and the other players I have in this team are who I want and so Keane looks like the best 5.0 selection. Keane ranked 8th in our best budget defenders. What caught my eye with Keane is that he showed up in the most important attribute for defenders which is BPS. He showed up 9th and for being 5.0 I think it is a good shout to start with and see how the season progresses.

Javier Manquillo (4.0) -- DEF

Like Runar, Manquillo is another player that was picked solely because of price. Manquillo did have 28 points so there is always potential for him to really make a name for himself this year, but until that is proven he will be riding the bench for me.

Luke Ayling (4.5) -- DEF

The most impressive defender and one of the most impressive players for me has to be Luke Ayling. Especially at the price tag of 4.5. Ayling statistically is doing everything right and I am looking at Ayling to have an impressive season. I could rave about different statistics, but what is so impressive to me is that he is featured in all of the attributes that are the most essential for defenders; BPS, Influence and Minutes. Ayling came in 7th in the BPS rankings, 1st in influence and 3rd in minutes. He only had 100 points last year, but with similar statistics to this I would expect his total points to rise this year.

Bruno Fernandes (12.0) -- MID

I really do not need to say much about the next two picks. Fernandes is just a proven goal scorer, assister and topped every attribute that was most correlated to total points for midfielders. He is statistically the guy to make it happen for this squad this year.

Mohamed Salah (12.5) -- MID

It is interesting to have Salah cost more than Fernandes, but Salah is just so consistent it is hard to bet against him. He was right behind Fernandes on Influence and ICT Index last year and was 4th in the BPS for midfielders. Not much to be said about Mo Salah other than it is hard not to have him in the team. Starting with him always leaves me with good cash to have if he does not start out so hot as well.

Stuart Dallas (5.5) -- MID

Listed as a defender last year, Dallas had incredible stats. Along with getting 171 total points, he was 5th in BPS for defenders and would have come in 4th ahead of Mo Salah for midfielders had he been listed as such. He also had the 7th best influence for defenders which would have equated to 11th for midfielders. He was 7th highest in minutes played among all players in the Premier League. He was the number two best budget player for all positions. It will be interested to see how he does this season as him and Leeds United came in as dark horses for fantasy points.

Heung-Min Son (10.0) -- MID

This pick involved probably the most thinking. I had some fiddling around to do with this team and a player in this price range seemed the most fit. Son has shown what he can do throughout his career at Tottenham and 2020 was no different. Son just had such a production he seemed like a very just pick for this position. He was 5th in goals, 10th in assists, 6th in total goal contributions. He made the most dream team appearances, 4th most fantasy points for all positions and was 5th for points per game. Even with his fairly high price he was considered 4th for budget midfielders. For the more influential attributes Son was 3rd in Influence, 4th in ICT Index, and 2nd in BPS leaders.

Billy Gilmour (4.5) -- MID

Although this pick was for salary sake it could turn to be a profitable transaction. Gilmour shined in his appearances for Chelsea and being a youngster he could see plenty of the field for Norwich this season. Really cannot go wrong with this pick.

Ollie Watkins (7.5) -- FWD

One of the more exciting picks for this team is Ollie Watkins. Watkins is a young talent who proved himself over the course of last season. At 7.5 he is not incredibly expensive especially considering his stats. For the attributes most correlated to forwards Watkins was 5th in BPS, 4th in influence and 2nd in ICT Index for forwards. He was the number two best budget striker last year behind Bamford and had the 4th most fantasy points for forwards. I think he has potential to do big things for Aston Villa this year.

Ivan Toney (6.5) -- FWD

This is one of the biggest picks I have made for someone based off of really not too many statistics. I know last year in the EFL Championship he netted an incredible 32 in 48 while providing 11 assists which is an unreal stat line. He is my cross my fingers and hope it works out pick. I did not like a lot of the options for the 6.5 price and under for forwards and he is a guy I hope can make some big things happen.

Dominic Calvert-Lewin (8.0) -- FWD

Last, but not least is the youngster Calvert-Lewin. Lewin had a great season last year and as I see it he is only going to improve from here. Dominic came in 6th for total goals last year and 8th for goal contributions. He was 5th in total fantasy points for forwards and was the 3rd best budget player for forwards last year. For the attributes that have more influence Dominic was 6th in BPS, 5th in Influence and 5th in ICT Index. He is a young star and I believe he could be a very bright spot to this squad.

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This is the squad and here is, as of now, how it will lineup. Exciting to get the squad done on paper and have a squad that it 99% backed by statistics!

**August 10th 2021**

Looking at the news and how things have progressed there are a couple of things to at least think about. I understand that going in, just because statistics from last season show how good a player did last season that might not have any correlation with this season. However, when our first goal is to just select a team the only information we have going in is the past performances of players and teams and then the day to day news before a season. After that the point of the project is to assess the statistics from the week in question and start developing projections and predictions from that point.

It has been seen that Aston Villa are making a lot of moves. Watkins was a player I have thought highly of from the statistics last season however there have been some changes that might effect Watkins in a negative way. The first is that Danny Ings, who was seen doing well in our statistics, has been signed by Aston Villa. This might benefit Watkins if they play off of each other or it might hurt him as Ings takes gametime away from him. The other big transaction is that Jack Grealish moved to Manchester City. From the statistics it was seen that Grealish was heavily influential in Aston Villa’s play in the attacking third and the loss of Grealish could mean a lower production for Watkins. On top of that Watkins limped off in a pre-season game. With this Ings seems like a sure starter for Aston Villa this weekend and being at 8.0 salary he could move into the starting lineup depending on the update on Watkins later in the week.

The other player that is in question at the moment is Dominic Calvert-Lewin simply for the reason of injury. He had a slight knock in pre-season as well. For now everything seems okay with him and we will continue to keep both in the squad, but monitor their injuries.

**August 11th 2021**

It looks like both Ollie Watkins and Dominic Calvert-Lewin are going to play this weekend which locks in my lineup for GW1.

**August 14th 2021**

Annoying is that Ollie Watkins is not in the squad at all for Aston Villa today so that is a 0 for him. So far as of this moment Brentford beat Arsenal 2-0, but Toney was not involved in any of those goals. As a spectator he did not seem to have a huge role in Brentford’s play, but they have a good run of game against opponents, so we will look at the statistics and probably keep him in the side as well. For the other game that has been played Manchester United beat Leeds United 5-1. Our poster boy, Bruno Fernandes, got a hat trick today. Wan-Bissaka got only two points because of Leeds goal and no goal involvements. We will have to keep monitoring Wan-Bissaka, but nothing to be concerned about yet. For Leeds both the players we have in our squad, Stuart Dallas and Luke Ayling were involved in Leeds goal with Ayling scoring the goal. Dallas started for me and Ayling did not. From here Calvert-Lewin is starting, Keane is starting, Martinez is starting in net for Aston Villa and Matt Targett is also starting. We have 26 points at the moment with these five players going and then Son and Salah triple captain finish out my week, so we are hoping for some Everton and Aston Villa clean sheets and some solid play from Calvert-Lewin.

**August 15th 2021**

What a week for FPL. My statistics backed squad has started off the season in first place! However, I have used up my triple captain for the entire season and if I had not used it I would be in 11th place which shows I made a good decision in triple captaining Salah, but there is work to be done.

Graphical user interface

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Some notable parts of this squad that were seen this week. I am very happy with the squad having Fernandes, Salah and Son. They are my star players and from GW1 they look like they are here to do some damage this year. Especially the way that Nuno is lining up Tottenham. It can also be seen that Dallas got an assist and Ayling scored which was positive in my picks for them. Michael Keane looked shaky in his appearance for Everton and might be one that I explore options to transfer out. Targett was said to have had a terrible game for Aston Villa and it will be interesting to see how that impacts his play time for them. The unfortunate part is that Watkins did not play. I have faith that when he does he can produce for me, so I will be keeping him along with Ivan Toney. I do not want to be too dependent on the outcomes of GW1 to determine how players are going to play this season, but there are definitely some positive trends. I would say if I make a transfer at all this week I would be looking to transfer out either Keane or Targett. Leaning more towards Keane as well with there matchup against Leeds United.