Data Wrangling for 2019/20 and 2020/21

```
df_2020 <- read.csv('https://raw.githubusercontent.com/vaastav/Fantasy-Premier-League/master/data/2019-
library(tidyverse)
## -- Attaching packages -----
                                            ----- tidyverse 1.3.0 --
## v ggplot2 3.3.3
                                0.3.4
                      v purrr
                                1.0.5
## v tibble 3.1.0
                      v dplyr
            1.1.3
## v tidyr
                      v stringr 1.4.0
## v readr
            1.4.0
                      v forcats 0.5.1
## -- Conflicts ----- tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()
                    masks stats::lag()
Separating the first column
df 2020 <- df 2020 %>%
  separate(name, into = c("First_Name", "Last_Name", "ID"), sep = "_")
head(df_2020)
##
                 Last_Name ID assists bonus bps clean_sheets creativity element
     First_Name
                 Cresswell 376
## 1
                                               7
         Aaron
                                     0
                                                                     1.5
## 2
          Aaron
                    Lennon 430
                                     0
                                              3
                                                            0
                                                                     0.0
                                                                            430
## 3
         Aaron
                      Mooy 516
                                                                     0.0
                                                                            516
## 4
                 Ramsdale 494
                                          0 11
                                                            0
         Aaron
                                     0
                                                                    0.0
                                                                            494
## 5
         Aaron Wan-Bissaka 122
                                     0
                                              34
                                                            1
                                                                    16.1
                                                                            122
                                          0 7
                                                                    23.1
                                                                            368
## 6 Abdoulaye
                  Doucouré 368
                                     0
     fixture goals_conceded goals_scored ict_index influence
                                                                   kickoff_time
                                                        9.0 2019-08-10T11:30:00Z
## 1
                                      0
                                              1.1
## 2
          3
                         0
                                      0
                                              0.2
                                                        2.0 2019-08-10T14:00:00Z
                                                        0.0 2019-08-10T14:00:00Z
## 3
          7
                         0
                                      0
                                              0.0
## 4
          2
                         1
                                      0
                                              1.0
                                                        9.8 2019-08-10T14:00:00Z
## 5
                         0
                                      0
                                                       30.4 2019-08-11T15:30:00Z
                                              4.9
          7
                         3
## 6
                                      0
                                              3.0
                                                        4.4 2019-08-10T14:00:00Z
     minutes opponent_team own_goals penalties_missed penalties_saved red_cards
## 1
                       11
## 2
          6
                       16
                                                   0
                                                                   0
                                                                            0
## 3
          0
                                                                  0
                                                                            0
                       18
                                  0
                                                   0
## 4
          90
                       15
                                                                   0
## 5
                                                                  0
         90
                        6
                                  0
                                                                            0
## 6
                        4
     round saves selected team_a_score team_h_score threat total_points
                   23399
## 1
                                    5
                                                 0
              0
                    8105
## 2
```

```
## 3
                      16261
                0
                                         3
                                                       0
                                                               0
                                                                              0
## 4
          1
                2
                       3091
                                         1
                                                       1
                                                               0
                                                                              2
## 5
                                         0
                                                               2
                0
                   1879259
                                                       4
                                                                              8
## 6
                0
                                         3
                                                       0
                                                               2
                                                                              0
                     200815
          1
##
     transfers_balance transfers_in transfers_out value was_home yellow_cards GW
## 1
                                     0
                                                     0
                                                           50
                                                                  True
                       0
                                                                                       1
## 2
                       0
                                     0
                                                     0
                                                           50
                                                                  True
                                                                                    0
## 3
                       0
                                     0
                                                                                    0
                                                     0
                                                           50
                                                                 False
                                                                                       1
## 4
                       0
                                     0
                                                     0
                                                           45
                                                                  True
                                                                                       1
## 5
                       0
                                     0
                                                     0
                                                           55
                                                                                    0
                                                                  True
                                                                                       1
## 6
                       0
                                     0
                                                           60
                                                                  True
                                                                                    0
                                                                                       1
```

Creating a new first column

```
df_2020 <- df_2020 %>%
  select(-ID) %>%
  unite("player_name", c("First_Name", "Last_Name"), sep = " ")
head(df_2020)
```

```
##
             player_name assists bonus bps clean_sheets creativity element fixture
## 1
                                       0
                                           7
                                                                            376
        Aaron Cresswell
                                0
                                                         0
                                                                    1.5
                                                                                       8
## 2
           Aaron Lennon
                                0
                                       0
                                           3
                                                         0
                                                                    0.0
                                                                            430
                                                                                       3
## 3
                                                                            516
              Aaron Mooy
                                0
                                       0
                                           0
                                                         0
                                                                   0.0
                                                                                       7
                                                                                       2
## 4
         Aaron Ramsdale
                                       0
                                                         0
                                                                   0.0
                                                                            494
                                0
                                          11
      Aaron Wan-Bissaka
                                       2
                                          34
                                                                            122
                                                                                       9
## 5
                                0
                                                         1
                                                                  16.1
                                                                                       7
## 6 Abdoulaye Doucouré
                                0
                                       0
                                           7
                                                                  23.1
                                                                            368
     goals_conceded goals_scored ict_index influence
                                                                  kickoff_time minutes
## 1
                                                     9.0 2019-08-10T11:30:00Z
                   5
                                 0
                                          1.1
                                                                                      90
## 2
                   0
                                 0
                                          0.2
                                                     2.0 2019-08-10T14:00:00Z
                                                                                       6
## 3
                   0
                                 0
                                          0.0
                                                     0.0 2019-08-10T14:00:00Z
                                                                                       0
## 4
                   1
                                 0
                                          1.0
                                                     9.8 2019-08-10T14:00:00Z
                                                                                      90
## 5
                   0
                                 0
                                          4.9
                                                    30.4 2019-08-11T15:30:00Z
                                                                                      90
                   3
                                 0
                                                     4.4 2019-08-10T14:00:00Z
## 6
                                          3.0
                                                                                      90
     opponent_team own_goals penalties_missed penalties_saved red_cards round
## 1
                             0
                                                0
                                                                 0
                                                                            0
                                                                                   1
                 11
## 2
                 16
                             0
                                                0
                                                                 0
                                                                            0
                                                                                   1
## 3
                 18
                             0
                                                0
                                                                 0
                                                                            0
                                                                                   1
## 4
                 15
                             0
                                                0
                                                                 0
                                                                            0
                                                                                   1
## 5
                  6
                             0
                                                0
                                                                 0
                                                                            0
                                                                                   1
                                                0
## 6
                  4
                             1
                                                                            0
                                                                                   1
     saves selected team_a_score team_h_score threat total_points
## 1
         0
               23399
                                 5
                                                0
                                                       0
                                 0
## 2
         0
                8105
                                                3
                                                       0
                                                                      1
                                 3
                                                                      0
## 3
         0
               16261
                                                0
                                                       0
## 4
         2
                                                       0
                                                                      2
                3091
                                 1
                                                1
## 5
            1879259
                                 0
                                                4
                                                       2
                                                                      8
         0
                                                       2
## 6
              200815
                                 3
                                                0
                                                                      0
##
     transfers_balance transfers_in transfers_out value was_home yellow_cards GW
## 1
                      0
                                     0
                                                         50
                                                                 True
                                                                                   0
                                                                                     1
## 2
                      0
                                     0
                                                    0
                                                         50
                                                                 True
                                                                                   0
                                                                                      1
## 3
                      0
                                     0
                                                    0
                                                         50
                                                                False
                                                                                   0
                                                                                      1
## 4
                      0
                                     0
                                                    0
                                                         45
                                                                                   0
                                                                 True
                                                                                      1
## 5
                      0
                                     0
                                                    0
                                                         55
                                                                 True
                                                                                   0
## 6
                       0
                                     0
                                                    0
                                                         60
                                                                                   0
                                                                 True
                                                                                      1
```

2021 dataset

df_2021 <- read.csv('https://raw.githubusercontent.com/vaastav/Fantasy-Premier-League/master/data/2020head(df_2021)</pre>

##			name p	position		t	ceam	хP	assists	s bonus	bps	clean_sh	eets
##	1	Aaron Conn	olly	FWD		Brigh	nton	0.5	(0	-3		0
##	2	Aaron Cress	well	DEF		West	${\tt Ham}$	2.1	(0	11		0
##	3	Aaron	Mooy	MID		Brigh	nton	0.0	(0	0		0
##	4	Aaron Rams	dale	GK	She	ffield	Utd	2.5	(0	12		0
##	5	Abdoulaye Douc	ouré	MID		Evei	cton	1.3	(0	20		1
##	6	Aboubakar Ka	mara	MID		Fu]	Lham	0.4	(0	-2		0
##		creativity ele	ment i	fixture	goal	s_conce	eded	goal	s_score	ed ict_	index	influer	се
##	1	0.3	78	7			2			0	3.4	1	.2
##	2	11.2	435	6			2			0	2.2	10	.4
##	3	0.0	60	7			0			0	0.0	C	0.0
##	4	0.0	483	8			2			0	1.8	18	3.2
	5	44.6	512	4			0			0	6.9	20	.4
##	6	1.8	190	2			3			0	0.2		0.0
##				e minute		ponent_			_	penalt:	ies_m		
		2020-09-14T19:					5		0			0	
##		2020-09-12T19:					14		0			0	
		2020-09-14T19:			0		5		0			0	
		2020-09-14T17:					20		0			0	
		2020-09-13T15:					17		0			0	
	6	2020-09-12T11:					1	-	0			0	
##	_	penalties_save		_					_	_	team		
##			0	0	1	0		32205		3		1	
##			0	0	1	0	1	70232		2		C	
##			0	0	1	0	10	2010		3 2		1	
##			0	0	1 1	2		32939				C	
##			0	0	1	0	14	13040 6711		1		C	
##	O	threat total_p	•	-		-	+			-	- 011+	_	,
##	1	32	1	transre	18_0	0	UI al	isiei	0	ansier	5_0ut 0		
##		0	1			0			0		0		
##		0	0			0			0		0		
##		0	1			0			0		0		
##	_	4	3			0			0		0		
##		5	2			0			0		0		
##		was_home yello	w card	ds GW									
##	1	True		0 1									
##		True		0 1									
##	3	True		0 1									
##	4	True		0 1									
##	5	False		0 1									
##	6	True		0 1									

Season info for 2019/20

df_2020s <- read.csv('https://raw.githubusercontent.com/ewenme/squads/master/data/2019/premier_league.c
head(df_2020s)</pre>

```
##
                        position date_of_birth age nationality
         player name
                                                                     club name
## 1
                                                25
             Ederson Goalkeeper
                                    1993-08-17
                                                        Brazil Manchester City
                      Goalkeeper
                                    1998-11-07
      Arijanet Muric
                                                20
                                                        Kosovo Manchester City
## 3
      Claudio Bravo
                      Goalkeeper
                                    1983-04-13 36
                                                         Chile Manchester City
       Scott Carson Goalkeeper
                                    1985-09-03 33
                                                       England Manchester City
                                    1994-05-27 25
## 5 Aymeric Laporte Centre-Back
                                                        France Manchester City
                                    1994-05-28 25
                                                       England Manchester City
         John Stones Centre-Back
##
        league_name
                       season year
## 1 Premier League 2019/2020 2019
## 2 Premier League 2019/2020 2019
## 3 Premier League 2019/2020 2019
## 4 Premier League 2019/2020 2019
## 5 Premier League 2019/2020 2019
## 6 Premier League 2019/2020 2019
write.csv(df 2020s, "~/DSI-SRP1/season2020.csv")
```

FPL data for 2019/20

```
write.csv(df_2020, "FPL_data_2019_20.csv")
```

Combine 2019/20 datasets

```
df_2020combined <- inner_join(df_2020, df_2020s, by = 'player_name')
head(df_2020combined)</pre>
```

```
##
             player_name assists bonus bps clean_sheets creativity element fixture
## 1
        Aaron Cresswell
                                 0
                                       0
                                           7
                                                          0
                                                                    1.5
                                                                             376
                                                                                        8
## 2
            Aaron Lennon
                                 0
                                       0
                                            3
                                                          0
                                                                    0.0
                                                                             430
                                                                                        3
## 3
              Aaron Mooy
                                 0
                                       0
                                           0
                                                          0
                                                                    0.0
                                                                             516
                                                                                        7
## 4
         Aaron Ramsdale
                                       0
                                          11
                                                                    0.0
                                                                             494
                                                                                        2
      Aaron Wan-Bissaka
                                 0
                                       2
                                          34
                                                          1
                                                                   16.1
                                                                             122
                                                                                        9
                                                                                        7
## 6 Abdoulaye Doucouré
                                           7
                                 0
                                       0
                                                                   23.1
                                                                             368
     goals_conceded goals_scored ict_index influence
##
                                                                   kickoff time minutes
## 1
                   5
                                  0
                                          1.1
                                                     9.0 2019-08-10T11:30:00Z
## 2
                   0
                                  0
                                          0.2
                                                      2.0 2019-08-10T14:00:00Z
                                                                                        6
## 3
                   0
                                  0
                                          0.0
                                                      0.0 2019-08-10T14:00:00Z
                                                                                        0
## 4
                                  0
                                                                                       90
                   1
                                           1.0
                                                      9.8 2019-08-10T14:00:00Z
## 5
                   0
                                  0
                                           4.9
                                                     30.4 2019-08-11T15:30:00Z
                                                                                       90
## 6
                   3
                                  0
                                           3.0
                                                      4.4 2019-08-10T14:00:00Z
                                                                                       90
     opponent_team own_goals penalties_missed penalties_saved red_cards round
##
                                                                             0
## 1
                 11
                             0
                                                0
                                                                  0
                                                                                   1
## 2
                             0
                                                0
                                                                  0
                                                                             0
                                                                                   1
                 16
                                                                             0
## 3
                 18
                             0
                                                0
                                                                  0
                                                                                   1
                 15
                                                                             0
                                                                                   1
## 4
                             0
                                                0
                                                                  0
## 5
                  6
                             0
                                                                  0
                                                                             0
                                                                                   1
                  4
                             1
                                                0
                                                                                   1
##
     saves selected team_a_score team_h_score threat total_points
## 1
         0
               23399
                                  5
                                                0
                                                        0
                                                                      0
## 2
         0
                                  0
                                                3
                                                        0
                8105
                                                                      1
## 3
         0
               16261
                                  3
                                                0
                                                        0
                                                                      0
                                                                      2
## 4
                3091
                                                1
```

```
## 5
            1879259
                                 0
## 6
         0
             200815
                                 3
                                                      2
                                                                    0
     transfers balance transfers in transfers out value was home yellow cards GW
## 1
                      0
                                    0
                                                   0
                                                        50
                                                               True
## 2
                      0
                                    0
                                                   0
                                                        50
                                                                True
## 3
                      0
                                    0
                                                   0
                                                        50
                                                                                 0
                                                                                    1
                                                              False
## 4
                      0
                                    0
                                                   0
                                                        45
                                                               True
                                    0
                                                   0
## 5
                      0
                                                        55
                                                               True
                                                                                 0
                                                                                    1
## 6
                      0
                                    0
                                                   0
                                                               True
##
             position date_of_birth age nationality
                                                                     club_name
## 1
            Left-Back
                          1989-12-15
                                       29
                                              England
                                                              West Ham United
## 2
                          1987-04-16
                                       32
                                                                    Burnley FC
         Right Winger
                                              England
## 3 Central Midfield
                          1990-09-15
                                       28
                                            Australia Brighton & Hove Albion
           Goalkeeper
                                              England
## 4
                          1998-05-14
                                       21
                                                              AFC Bournemouth
## 5
                          1997-11-26
                                       21
                                                            Manchester United
           Right-Back
                                              England
## 6 Central Midfield
                          1993-01-01
                                       26
                                               France
                                                                    Watford FC
##
        league_name
                        season year
## 1 Premier League 2019/2020 2019
## 2 Premier League 2019/2020 2019
## 3 Premier League 2019/2020 2019
## 4 Premier League 2019/2020 2019
## 5 Premier League 2019/2020 2019
## 6 Premier League 2019/2020 2019
```

Position Indexer function for 2019/20.

```
position_indexer <- function(df) {
    df %>%
        mutate(position_index = if_else(position %in% c("Goalkeeper"),
1,if_else(position %in% c("Centre-Back", "Left-Back", "Right-Back"),
2,if_else(position %in% c("Defensive Midfield", "Central Midfield", "Left Midfield",
"Right Midfield", "Midfielder"),
3,if_else(position %in% c("Left Winger", "Right Winger", "Attacking Midfield"),
4,if_else(position %in% c("Forward", "Second Striker", "Centre-Forward"),5,0))))))
}
df_2020c <- position_indexer(df_2020combined)
head(df_2020c)</pre>
```

```
##
            player name assists bonus bps clean sheets creativity element fixture
## 1
        Aaron Cresswell
                                0
                                       0
                                           7
                                                         0
                                                                   1.5
                                                                            376
## 2
                                                                            430
                                                                                      3
           Aaron Lennon
                                0
                                       0
                                           3
                                                         0
                                                                   0.0
## 3
              Aaron Mooy
                                0
                                       0
                                           0
                                                         0
                                                                   0.0
                                                                            516
                                                                                      7
                                       0
                                                                                      2
## 4
         Aaron Ramsdale
                                0
                                          11
                                                         0
                                                                   0.0
                                                                            494
      Aaron Wan-Bissaka
                                       2
                                                                  16.1
                                                                            122
                                                                                      9
## 5
                                0
                                          34
                                                         1
                                                                                      7
## 6 Abdoulave Doucouré
                                0
                                      0
                                           7
                                                         0
                                                                  23.1
                                                                            368
##
     goals_conceded goals_scored ict_index influence
                                                                 kickoff_time minutes
## 1
                   5
                                 0
                                          1.1
                                                     9.0 2019-08-10T11:30:00Z
                                                                                     90
## 2
                   0
                                 0
                                          0.2
                                                     2.0 2019-08-10T14:00:00Z
                                                                                      6
## 3
                   0
                                 0
                                          0.0
                                                     0.0 2019-08-10T14:00:00Z
                                                                                      0
## 4
                   1
                                 0
                                                     9.8 2019-08-10T14:00:00Z
                                                                                     90
                                          1.0
## 5
                   0
                                          4.9
                                                    30.4 2019-08-11T15:30:00Z
                                                                                     90
## 6
                   3
                                                     4.4 2019-08-10T14:00:00Z
                                 0
                                          3.0
                                                                                     90
     opponent_team own_goals penalties_missed penalties_saved red_cards round
```

```
## 1
                 11
                            0
## 2
                 16
                            0
                                               0
                                                                0
                                                                           0
                                                                                 1
## 3
                 18
                            0
                                               0
                                                                0
                                                                           0
                                                                                 1
## 4
                 15
                            0
                                               0
                                                                0
                                                                           0
                                                                                 1
## 5
                  6
                            0
                                               0
                                                                0
                                                                           0
                                                                                 1
## 6
                  4
                            1
                                               0
                                                                0
                                                                           Λ
                                                                                 1
     saves selected team_a_score team_h_score threat total_points
## 1
               23399
                                 5
                                               0
                                                      0
## 2
         0
                8105
                                 0
                                               3
                                                      0
                                                                    1
## 3
         0
                                 3
                                               0
                                                      0
                                                                    0
               16261
         2
                3091
                                 1
                                               1
                                                      0
                                                                    2
                                 0
                                                      2
                                                                    8
## 5
         0
            1879259
                                               4
                                                      2
                                                                    0
## 6
         0
             200815
                                 3
     transfers_balance transfers_in transfers_out value was_home yellow_cards GW
## 1
                      0
                                    0
                                                   0
                                                        50
                                                                True
## 2
                      0
                                    0
                                                   0
                                                        50
                                                                True
                                                                                 0
                                                                                    1
## 3
                      0
                                    0
                                                   0
                                                        50
                                                               False
                                                                                 0
                                                                                    1
                                    0
## 4
                      0
                                                   0
                                                         45
                                                                True
## 5
                      0
                                    0
                                                   0
                                                        55
                                                                True
                                                                                 0
                                                                                    1
## 6
                      0
                                    0
                                                   0
                                                        60
                                                                True
                                                                                 0
                                                                                    1
##
             position date_of_birth age nationality
                                                                      club_name
## 1
            Left-Back
                          1989-12-15
                                      29
                                               England
                                                               West Ham United
## 2
         Right Winger
                          1987-04-16
                                       32
                                                                    Burnley FC
                                               England
## 3 Central Midfield
                          1990-09-15
                                       28
                                             Australia Brighton & Hove Albion
## 4
           Goalkeeper
                          1998-05-14
                                       21
                                               England
                                                               AFC Bournemouth
           Right-Back
                          1997-11-26
                                       21
                                               England
                                                             Manchester United
## 6 Central Midfield
                          1993-01-01
                                                France
                                                                    Watford FC
        league_name
                        season year position_index
## 1 Premier League 2019/2020 2019
## 2 Premier League 2019/2020 2019
                                                   4
## 3 Premier League 2019/2020 2019
                                                   3
## 4 Premier League 2019/2020 2019
                                                   1
                                                   2
## 5 Premier League 2019/2020 2019
## 6 Premier League 2019/2020 2019
                                                   3
```

Position indexer for 2020/21

```
position_indexer <- function(df) {
    df %>%
        mutate(position_index = if_else(position %in% c("GK"),
1,if_else(position %in% c("DEF"),
2,if_else(position %in% c("MID"),
3,if_else(position %in% c("FWD"),
4,0)))))
}
df_2021c <- position_indexer(df_2021)
head(df_2021c)</pre>
```

```
##
                   name position
                                           team xP assists bonus bps clean_sheets
## 1
         Aaron Connolly
                             FWD
                                       Brighton 0.5
                                                          0
                                                                 0 - 3
                                                                                  0
## 2
        Aaron Cresswell
                             DEF
                                       West Ham 2.1
                                                          0
                                                                 0 11
                                                                                  0
                                       Brighton 0.0
                                                                  0
## 3
             Aaron Mooy
                             MID
                                                          0
                                                                 0
                                                                                  0
## 4
         Aaron Ramsdale
                              GK Sheffield Utd 2.5
                                                          0
                                                                 0 12
```

```
## 5 Abdoulaye Doucouré
                               MID
                                          Everton 1.3
                                                              0
                                                                     0 20
       Aboubakar Kamara
                               MTD
                                           Fullham 0.4
                                                              0
                                                                       -2
                                                                     0
     creativity element fixture goals conceded goals scored ict index influence
## 1
             0.3
                      78
                                7
                                                 2
                                                               0
                                                                        3.4
## 2
            11.2
                      435
                                6
                                                 2
                                                               0
                                                                        2.2
                                                                                  10.4
## 3
             0.0
                      60
                                7
                                                 0
                                                               0
                                                                        0.0
                                                                                   0.0
## 4
             0.0
                     483
                                                 2
                                                               0
                                                                        1.8
                                                                                  18.2
## 5
            44.6
                                                 0
                                                                        6.9
                                                                                  20.4
                     512
                                4
                                                               0
## 6
             1.8
                      190
                                2
                                                 3
                                                               0
                                                                        0.2
                                                                                   0.0
##
             kickoff_time minutes opponent_team own_goals penalties_missed
## 1 2020-09-14T19:15:00Z
                                 45
                                                  5
## 2 2020-09-12T19:00:00Z
                                                                                0
                                  90
                                                 14
                                                             0
## 3 2020-09-14T19:15:00Z
                                                                                0
                                  0
                                                  5
                                                             0
## 4 2020-09-14T17:00:00Z
                                  90
                                                 20
                                                             0
                                                                                0
## 5 2020-09-13T15:30:00Z
                                  90
                                                 17
                                                                                0
## 6 2020-09-12T11:30:00Z
                                  62
                                                  1
                                                                                0
     penalties_saved red_cards round saves selected team_a_score team_h_score
##
## 1
                    0
                               0
                                      1
                                                  32205
                                                                     3
## 2
                    0
                               0
                                      1
                                                  70232
                                                                     2
                                                                                   0
                                            0
## 3
                                                                     3
                    0
                               0
                                      1
                                            0
                                                   2010
                                                                                   1
## 4
                    0
                               0
                                      1
                                            2
                                                 462939
                                                                     2
                                                                                   0
## 5
                    0
                               0
                                      1
                                                 143040
                                                                                   0
                    0
                               0
## 6
                                            0
                                                   6711
                                                                     3
                                                                                   0
                                      1
     threat total points transfers balance transfers in transfers out value
##
## 1
         32
                         1
                                            0
                                                           0
## 2
           0
                         1
                                            0
                                                           0
                                                                          0
                                                                                50
## 3
           0
                         0
                                            0
                                                           0
                                                                          0
                                                                                50
## 4
                                            0
                                                           0
                                                                          0
                                                                                50
           0
                         1
## 5
                         3
                                            0
                                                           0
                                                                          0
           4
                                                                                55
                         2
## 6
                                                           0
                                                                          0
                                                                                50
##
     was_home yellow_cards GW position_index
## 1
         True
                           0
                              1
## 2
                                               2
         True
                           0
                             1
## 3
         True
                           0
                             1
                                               3
## 4
         True
                           0
                             1
                                               1
## 5
        False
                           0
                             1
                                               3
## 6
         True
                           0
                             1
                                               3
```

Cumulative function

```
accumulated <- function(df) {
    df %>%
        mutate(n = 1) %>%
        group_by(player_name,club_name) %>%
        mutate(goals_scored =cumsum(goals_scored) - goals_scored,
            assists =cumsum(assists) - assists,
        ict_index =cumsum(ict_index) - ict_index ,
            goals_conceded =cumsum(goals_conceded) - goals_conceded,
            minutes =cumsum(minutes) - minutes,
            own_goals =cumsum(own_goals) - own_goals,
            total_points =cumsum(total_points), bps =cumsum(bps)-bps,
            clean_sheets =cumsum(clean_sheets)-clean_sheets,
            bonus = cumsum(bonus) - bonus) %>%
            select(player_name, club_name, position, position_index, goals_scored,
```

```
assists, ict_index, goals_conceded, minutes, own_goals,
           total_points, bps, bonus, clean_sheets, GW, season, kickoff_time) %>%
   filter(ict index > 0)
}
df 2020f <- accumulated(df 2020c)</pre>
head(df_2020f)
## # A tibble: 6 x 17
## # Groups: player_name, club_name [6]
    player_name club_name position position_index goals_scored assists ict_index
    <chr>
                  <fct>
                             <fct>
                                               <dbl>
                                                           <int>
                                                                     <int>
                                                                               <dbl>
                                                                                1.1
## 1 Aaron Cress~ West Ham ~ Left-Ba~
                                                                        0
                                                   2
## 2 Aaron Lennon Burnley FC Right W~
                                                                         0
                                                                                0.2
                                                                 0
## 3 Aaron Ramsd~ AFC Bourn~ Goalkee~
                                                   1
                                                                 0
                                                                         0
                                                                                1
## 4 Aaron Wan-B~ Mancheste~ Right-B~
                                                                                4.9
                                                   2
                                                                 0
                                                                         0
## 5 Abdoulage D~ Watford FC Central~
                                                   3
                                                                         0
                                                                                3.00
                                                   2
## 6 Adam Smith AFC Bourn~ Right-B~
                                                                 0
                                                                                1.40
                                                                         0
## # ... with 10 more variables: goals_conceded <int>, minutes <int>,
## # own_goals <int>, total_points <int>, bps <int>, bonus <int>,
## # clean_sheets <int>, GW <int>, season <fct>, kickoff_time <fct>
Cumulative for 2019/20
accumulated2 <- function(df) {</pre>
  df %>%
   mutate(n = 1) \%
    group_by(name,team) %>%
   mutate(goals_scored =cumsum(goals_scored) - goals_scored,
           assists =cumsum(assists) - assists,
           ict_index =cumsum(ict_index) - ict_index ,
           goals_conceded =cumsum(goals_conceded) - goals_conceded,
           minutes =cumsum(minutes) - minutes,
           own_goals =cumsum(own_goals) - own_goals,
           total_points =cumsum(total_points), bps =cumsum(bps)-bps,
           clean_sheets =cumsum(clean_sheets)-clean_sheets,
           bonus = cumsum(bonus) - bonus) %>%
    select(name, team, position, position index, goals scored,
           assists, ict_index, goals_conceded, minutes, own_goals,
           total_points, bps, bonus, clean_sheets, GW, kickoff_time) %>%
   filter(ict_index > 0)
df_2021f <- accumulated2(df_2021c)</pre>
head(df_2021f)
## # A tibble: 6 x 16
## # Groups: name, team [6]
##
                             position position_index goals_scored assists ict_index
    name
                   team
     <fct>
                   <fct>
                             <fct>
                                               <dbl>
                                                            <int>
                                                                     <int>
                                                                               <dbl>
## 1 Aaron Connol~ Brighton FWD
                                                                               3.4
                                                                 Ω
                                                                         Ω
                                                    4
                                                   2
## 2 Aaron Cressw~ West Ham DEF
                                                                 0
                                                                         0
                                                                               2.2
## 3 Aaron Ramsda~ Sheffiel~ GK
                                                                 0
                                                                         0
                                                                               1.8
                                                   1
```

3

0

0

6.9

4 Abdoulage Do~ Everton MID

```
## 5 Aboubakar Ka~ Fulham MID 3 0 0 0.200
## 6 Adama Traoré Wolves MID 3 0 0 3.2
## # ... with 9 more variables: goals_conceded <int>, minutes <int>,
## # own_goals <int>, total_points <int>, bps <int>, bonus <int>,
## # clean_sheets <int>, GW <int>, kickoff_time <fct>
```

Write datasets to csv files

```
write.csv(df_2020c, "~/DSI-SRP1/FPL_2019_20.csv")
write.csv(df_2021c, "~/DSI-SRP1/FPL_2020_21.csv")
```