

# DATA607\_Project1

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Introduction: In this project, we were given a text file with chess tournament results where the information has some structure. My job is to create an R Markdown file that generates a .CSV file (that could for example be imported into a SQL database) with the following information for all of the players:

Player's Name, Player's State, Total Number of Points, Player's Pre-Rating, and Average Pre Chess Rating of Opponents

I created a .CSV file including information of all the players that mentioned above.

```
library(tidyverse)
library(stringr)
library(dplyr)
```

## Read the Data text file

This tournamnet .CSV file is saved in my Github account. The separator function,"`"`", is applied.

```
tournamentData_info <- read.csv("https://raw.githubusercontent.com/PMCformosa/Project_1/main/tournamentData_info.csv")
tournamentData_info
```

##	V1												
## 1	-----												
## 2	Pair	Player Name		Total	Round	Round	Round	Round	Round	Round	Round		
## 3	Num	USCF ID / Rtg (Pre->Post)		Pts	1	2	3	4	5	6	7		
## 4	-----												
## 5	1	GARY HUA		6.0	W 39	W 21	W 18	W 14	W 7	D 12	D 4		
## 6	ON	15445895 / R: 1794 ->1817		N:2	W	B	W	B	W	B	W		
## 7	-----												
## 8	2	DAKSHESH DARURI		6.0	W 63	W 58	L 4	W 17	W 16	W 20	W 7		
## 9	MI	14598900 / R: 1553 ->1663		N:2	B	W	B	W	B	W	B		
## 10	-----												
## 11	3	ADITYA BAJAJ		6.0	L 8	W 61	W 25	W 21	W 11	W 13	W 12		
## 12	MI	14959604 / R: 1384 ->1640		N:2	W	B	W	B	W	B	W		
## 13	-----												
## 14	4	PATRICK H SCHILLING		5.5	W 23	D 28	W 2	W 26	D 5	W 19	D 1		
## 15	MI	12616049 / R: 1716 ->1744		N:2	W	B	W	B	W	B	B		
## 16	-----												
## 17	5	HANSHI ZUO		5.5	W 45	W 37	D 12	D 13	D 4	W 14	W 17		
## 18	MI	14601533 / R: 1655 ->1690		N:2	B	W	B	W	B	W	B		
## 19	-----												
## 20	6	HANSEN SONG		5.0	W 34	D 29	L 11	W 35	D 10	W 27	W 21		

## 21	OH   15055204 / R: 1686	->1687	N:3	W	B	W	B	B	W	B	
## 22	-----										
## 23	7   GARY DEE SWATHELL		5.0	W	57 W	46 W	13 W	11 L	1 W	9 L	2
## 24	MI   11146376 / R: 1649	->1673	N:3	W	B	W	B	B	W	W	
## 25	-----										
## 26	8   EZEKIEL HOUGHTON		5.0	W	3 W	32 L	14 L	9 W	47 W	28 W	19
## 27	MI   15142253 / R: 1641P17->1657P24		N:3	B	W	B	W	B	W	W	
## 28	-----										
## 29	9   STEFANO LEE		5.0	W	25 L	18 W	59 W	8 W	26 L	7 W	20
## 30	ON   14954524 / R: 1411	->1564	N:2	W	B	W	B	W	B	B	
## 31	-----										
## 32	10   ANVIT RAO		5.0	D	16 L	19 W	55 W	31 D	6 W	25 W	18
## 33	MI   14150362 / R: 1365	->1544	N:3	W	W	B	B	W	B	W	
## 34	-----										
## 35	11   CAMERON WILLIAM MC LEMAN		4.5	D	38 W	56 W	6 L	7 L	3 W	34 W	26
## 36	MI   12581589 / R: 1712	->1696	N:3	B	W	B	W	B	W	B	
## 37	-----										
## 38	12   KENNETH J TACK		4.5	W	42 W	33 D	5 W	38 H	D	1 L	3
## 39	MI   12681257 / R: 1663	->1670	N:3	W	B	W	B		W	B	
## 40	-----										
## 41	13   TORRANCE HENRY JR		4.5	W	36 W	27 L	7 D	5 W	33 L	3 W	32
## 42	MI   15082995 / R: 1666	->1662	N:3	B	W	B	B	W	W	B	
## 43	-----										
## 44	14   BRADLEY SHAW		4.5	W	54 W	44 W	8 L	1 D	27 L	5 W	31
## 45	MI   10131499 / R: 1610	->1618	N:3	W	B	W	W	B	B	W	
## 46	-----										
## 47	15   ZACHARY JAMES HOUGHTON		4.5	D	19 L	16 W	30 L	22 W	54 W	33 W	38
## 48	MI   15619130 / R: 1220P13->1416P20		N:3	B	B	W	W	B	B	W	
## 49	-----										
## 50	16   MIKE NIKITIN		4.0	D	10 W	15 H	W	39 L	2 W	36 U	
## 51	MI   10295068 / R: 1604	->1613	N:3	B	W		B	W	B		
## 52	-----										
## 53	17   RONALD GRZEGORCZYK		4.0	W	48 W	41 L	26 L	2 W	23 W	22 L	5
## 54	MI   10297702 / R: 1629	->1610	N:3	W	B	W	B	W	B	W	
## 55	-----										
## 56	18   DAVID SUNDEEN		4.0	W	47 W	9 L	1 W	32 L	19 W	38 L	10
## 57	MI   11342094 / R: 1600	->1600	N:3	B	W	B	W	B	W	B	
## 58	-----										
## 59	19   DIPANKAR ROY		4.0	D	15 W	10 W	52 D	28 W	18 L	4 L	8
## 60	MI   14862333 / R: 1564	->1570	N:3	W	B	W	B	W	W	B	
## 61	-----										
## 62	20   JASON ZHENG		4.0	L	40 W	49 W	23 W	41 W	28 L	2 L	9
## 63	MI   14529060 / R: 1595	->1569	N:4	W	B	W	B	W	B	W	
## 64	-----										
## 65	21   DINH DANG BUI		4.0	W	43 L	1 W	47 L	3 W	40 W	39 L	6
## 66	ON   15495066 / R: 1563P22->1562		N:3	B	W	B	W	W	B	W	
## 67	-----										
## 68	22   EUGENE L MCCLURE		4.0	W	64 D	52 L	28 W	15 H	L	17 W	40
## 69	MI   12405534 / R: 1555	->1529	N:4	W	B	W	B		W	B	
## 70	-----										
## 71	23   ALAN BUI		4.0	L	4 W	43 L	20 W	58 L	17 W	37 W	46
## 72	ON   15030142 / R: 1363	->1371		B	W	B	W	B	W	B	
## 73	-----										
## 74	24   MICHAEL R ALDRICH		4.0	L	28 L	47 W	43 L	25 W	60 W	44 W	39

## 75	MI	13469010 / R: 1229	->1300	N:4	B	W	B	B	W	W	B	
## 76	-----											
## 77	25	LOREN SCHWIEBERT		3.5	L	9 W	53 L	3 W	24 D	34 L	10 W	47
## 78	MI	12486656 / R: 1745	->1681	N:4	B	W	B	W	B	W	B	
## 79	-----											
## 80	26	MAX ZHU		3.5	W	49 W	40 W	17 L	4 L	9 D	32 L	11
## 81	ON	15131520 / R: 1579	->1564	N:4	B	W	B	W	B	W	W	
## 82	-----											
## 83	27	GAURAV GIDWANI		3.5	W	51 L	13 W	46 W	37 D	14 L	6 U	
## 84	MI	14476567 / R: 1552	->1539	N:4	W	B	W	B	W	B		
## 85	-----											
## 86	28	SOFIA ADINA STANESCU-BELLU		3.5	W	24 D	4 W	22 D	19 L	20 L	8 D	36
## 87	MI	14882954 / R: 1507	->1513	N:3	W	W	B	W	B	B	W	
## 88	-----											
## 89	29	CHIEDOZIE OKORIE		3.5	W	50 D	6 L	38 L	34 W	52 W	48 U	
## 90	MI	15323285 / R: 1602P6	->1508P12	N:4	B	W	B	W	W	B		
## 91	-----											
## 92	30	GEORGE AVERY JONES		3.5	L	52 D	64 L	15 W	55 L	31 W	61 W	50
## 93	ON	12577178 / R: 1522	->1444		W	B	B	W	W	B	B	
## 94	-----											
## 95	31	RISHI SHETTY		3.5	L	58 D	55 W	64 L	10 W	30 W	50 L	14
## 96	MI	15131618 / R: 1494	->1444		B	W	B	W	B	W	B	
## 97	-----											
## 98	32	JOSHUA PHILIP MATHEWS		3.5	W	61 L	8 W	44 L	18 W	51 D	26 L	13
## 99	ON	14073750 / R: 1441	->1433	N:4	W	B	W	B	W	B	W	
## 100	-----											
## 101	33	JADE GE		3.5	W	60 L	12 W	50 D	36 L	13 L	15 W	51
## 102	MI	14691842 / R: 1449	->1421		B	W	B	W	B	W	B	
## 103	-----											
## 104	34	MICHAEL JEFFERY THOMAS		3.5	L	6 W	60 L	37 W	29 D	25 L	11 W	52
## 105	MI	15051807 / R: 1399	->1400		B	W	B	B	W	B	W	
## 106	-----											
## 107	35	JOSHUA DAVID LEE		3.5	L	46 L	38 W	56 L	6 W	57 D	52 W	48
## 108	MI	14601397 / R: 1438	->1392		W	W	B	W	B	B	W	
## 109	-----											
## 110	36	SIDDHARTH JHA		3.5	L	13 W	57 W	51 D	33 H	L	16 D	28
## 111	MI	14773163 / R: 1355	->1367	N:4	W	B	W	B		W	B	
## 112	-----											
## 113	37	AMIYATOSH PWNANANDAM		3.5	B	L	5 W	34 L	27 H	L	23 W	61
## 114	MI	15489571 / R: 980P12->1077P17				B	W	W		B	W	
## 115	-----											
## 116	38	BRIAN LIU		3.0	D	11 W	35 W	29 L	12 H	L	18 L	15
## 117	MI	15108523 / R: 1423	->1439	N:4	W	B	W	W		B	B	
## 118	-----											
## 119	39	JOEL R HENDON		3.0	L	1 W	54 W	40 L	16 W	44 L	21 L	24
## 120	MI	12923035 / R: 1436P23->1413		N:4	B	W	B	W	B	W	W	
## 121	-----											
## 122	40	FOREST ZHANG		3.0	W	20 L	26 L	39 W	59 L	21 W	56 L	22
## 123	MI	14892710 / R: 1348	->1346		B	B	W	W	B	W	W	
## 124	-----											
## 125	41	KYLE WILLIAM MURPHY		3.0	W	59 L	17 W	58 L	20 X	U	U	
## 126	MI	15761443 / R: 1403P5	->1341P9		B	W	B	W				
## 127	-----											
## 128	42	JARED GE		3.0	L	12 L	50 L	57 D	60 D	61 W	64 W	56

## 129	MI	14462326 / R: 1332	->1256		B	W	B	B	W	W	B	
## 130	-----											
## 131	43	ROBERT GLEN VASEY		3.0	L	21 L	23 L	24 W	63 W	59 L	46 W	55
## 132	MI	14101068 / R: 1283	->1244		W	B	W	W	B	B	W	
## 133	-----											
## 134	44	JUSTIN D SCHILLING		3.0	B	L	14 L	32 W	53 L	39 L	24 W	59
## 135	MI	15323504 / R: 1199	->1199			W	B	B	W	B	W	
## 136	-----											
## 137	45	DEREK YAN		3.0	L	5 L	51 D	60 L	56 W	63 D	55 W	58
## 138	MI	15372807 / R: 1242	->1191		W	B	W	B	W	B	W	
## 139	-----											
## 140	46	JACOB ALEXANDER LAVALLEY		3.0	W	35 L	7 L	27 L	50 W	64 W	43 L	23
## 141	MI	15490981 / R: 377P3	->1076P10		B	W	B	W	B	W	W	
## 142	-----											
## 143	47	ERIC WRIGHT		2.5	L	18 W	24 L	21 W	61 L	8 D	51 L	25
## 144	MI	12533115 / R: 1362	->1341		W	B	W	B	W	B	W	
## 145	-----											
## 146	48	DANIEL KHAIN		2.5	L	17 W	63 H	D	52 H	L	29 L	35
## 147	MI	14369165 / R: 1382	->1335		B	W		B		W	B	
## 148	-----											
## 149	49	MICHAEL J MARTIN		2.5	L	26 L	20 D	63 D	64 W	58 H	U	
## 150	MI	12531685 / R: 1291P12->1259P17			W	W	B	W	B			
## 151	-----											
## 152	50	SHIVAM JHA		2.5	L	29 W	42 L	33 W	46 H	L	31 L	30
## 153	MI	14773178 / R: 1056	->1111		W	B	W	B		B	W	
## 154	-----											
## 155	51	TEJAS AYYAGARI		2.5	L	27 W	45 L	36 W	57 L	32 D	47 L	33
## 156	MI	15205474 / R: 1011	->1097		B	W	B	W	B	W	W	
## 157	-----											
## 158	52	ETHAN GUO		2.5	W	30 D	22 L	19 D	48 L	29 D	35 L	34
## 159	MI	14918803 / R: 935	->1092	N:4	B	W	B	W	B	W	B	
## 160	-----											
## 161	53	JOSE C YBARRA		2.0	H	L	25 H	L	44 U	W	57 U	
## 162	MI	12578849 / R: 1393	->1359			B		W		W		
## 163	-----											
## 164	54	LARRY HODGE		2.0	L	14 L	39 L	61 B	L	15 L	59 W	64
## 165	MI	12836773 / R: 1270	->1200		B	B	W		W	B	W	
## 166	-----											
## 167	55	ALEX KONG		2.0	L	62 D	31 L	10 L	30 B	D	45 L	43
## 168	MI	15412571 / R: 1186	->1163		W	B	W	B		W	B	
## 169	-----											
## 170	56	MARISA RICCI		2.0	H	L	11 L	35 W	45 H	L	40 L	42
## 171	MI	14679887 / R: 1153	->1140			B	W	W		B	W	
## 172	-----											
## 173	57	MICHAEL LU		2.0	L	7 L	36 W	42 L	51 L	35 L	53 B	
## 174	MI	15113330 / R: 1092	->1079		B	W	W	B	W	B		
## 175	-----											
## 176	58	VIRAJ MOHILE		2.0	W	31 L	2 L	41 L	23 L	49 B	L	45
## 177	MI	14700365 / R: 917	-> 941		W	B	W	B	W		B	
## 178	-----											
## 179	59	SEAN M MC CORMICK		2.0	L	41 B	L	9 L	40 L	43 W	54 L	44
## 180	MI	12841036 / R: 853	-> 878		W		B	B	W	W	B	
## 181	-----											
## 182	60	JULIA SHEN		1.5	L	33 L	34 D	45 D	42 L	24 H	U	

```

## 183      MI | 14579262 / R:  967   -> 984      |      |W      |B      |B      |W      |B      |      |      |
## 184 -----
## 185      61 | JEZZEL FARKAS                      |1.5  |L  32|L  3|W  54|L  47|D  42|L  30|L  37|
## 186      ON | 15771592 / R:  955P11-> 979P18 |      |B      |W      |B      |W      |B      |W      |B      |
## 187 -----
## 188      62 | ASHWIN BALAJI                      |1.0  |W  55|U      |U      |U      |U      |U      |U      |
## 189      MI | 15219542 / R: 1530   ->1535      |      |B      |      |      |      |      |      |      |
## 190 -----
## 191      63 | THOMAS JOSEPH HOSMER                |1.0  |L   2|L  48|D  49|L  43|L  45|H      |U      |
## 192      MI | 15057092 / R: 1175   ->1125      |      |W      |B      |W      |B      |B      |      |      |
## 193 -----
## 194      64 | BEN LI                          |1.0  |L  22|D  30|L  31|D  49|L  46|L  42|L  54|
## 195      MI | 15006561 / R: 1163   ->1112      |      |B      |W      |W      |B      |W      |B      |B      |
## 196 -----

```

## Cleaning up the Data

Remove the headers

```

headingsoff_Data <- tournamentData_info [-c(1:3),]
headingsoff_Data

```

```

## [1] "-----"
## [2] "      1 | GARY HUA                      |6.0  |W  39|W  21|W  18|W  14|W   7|D  12|D   4|"
## [3] "      ON | 15445895 / R: 1794   ->1817      |N:2  |W      |B      |W      |B      |W      |B      |W      |"
## [4] "-----"
## [5] "      2 | DAKSHESH DARURI                    |6.0  |W  63|W  58|L   4|W  17|W  16|W  20|W   7|"
## [6] "      MI | 14598900 / R: 1553   ->1663      |N:2  |B      |W      |B      |W      |B      |W      |B      |"
## [7] "-----"
## [8] "      3 | ADITYA BAJAJ                      |6.0  |L   8|W  61|W  25|W  21|W  11|W  13|W  12|"
## [9] "      MI | 14959604 / R: 1384   ->1640      |N:2  |W      |B      |W      |B      |W      |B      |W      |"
## [10] "-----"
## [11] "      4 | PATRICK H SCHILLING                |5.5  |W  23|D  28|W   2|W  26|D   5|W  19|D   1|"
## [12] "      MI | 12616049 / R: 1716   ->1744      |N:2  |W      |B      |W      |B      |W      |B      |B      |"
## [13] "-----"
## [14] "      5 | HANSHI ZUO                        |5.5  |W  45|W  37|D  12|D  13|D   4|W  14|W  17|"
## [15] "      MI | 14601533 / R: 1655   ->1690      |N:2  |B      |W      |B      |W      |B      |W      |B      |"
## [16] "-----"
## [17] "      6 | HANSEN SONG                          |5.0  |W  34|D  29|L  11|W  35|D  10|W  27|W  21|"
## [18] "      OH | 15055204 / R: 1686   ->1687      |N:3  |W      |B      |W      |B      |B      |W      |B      |"
## [19] "-----"
## [20] "      7 | GARY DEE SWATHELL                  |5.0  |W  57|W  46|W  13|W  11|L   1|W   9|L   2|"
## [21] "      MI | 11146376 / R: 1649   ->1673      |N:3  |W      |B      |W      |B      |B      |W      |W      |"
## [22] "-----"
## [23] "      8 | EZEKIEL HOUGHTON                    |5.0  |W   3|W  32|L  14|L   9|W  47|W  28|W  19|"
## [24] "      MI | 15142253 / R: 1641P17->1657P24 |N:3  |B      |W      |B      |W      |B      |W      |W      |"
## [25] "-----"
## [26] "      9 | STEFANO LEE                          |5.0  |W  25|L  18|W  59|W   8|W  26|L   7|W  20|"
## [27] "      ON | 14954524 / R: 1411   ->1564      |N:2  |W      |B      |W      |B      |W      |B      |B      |"
## [28] "-----"
## [29] "     10 | ANVIT RAO                          |5.0  |D  16|L  19|W  55|W  31|D   6|W  25|W  18|"
## [30] "      MI | 14150362 / R: 1365   ->1544      |N:3  |W      |W      |B      |B      |W      |B      |W      |"
## [31] "-----"

```

##	[32]	"	11		CAMERON WILLIAM MC LEMAN		4.5	D	38 W	56 W	6 L	7 L	3 W	34 W	26 "
##	[33]	"	MI		12581589 / R: 1712	->1696	N:3	B	W	B	W	B	W	B	"
##	[34]	"	-----"												
##	[35]	"	12		KENNETH J TACK		4.5	W	42 W	33 D	5 W	38 H	D	1 L	3 "
##	[36]	"	MI		12681257 / R: 1663	->1670	N:3	W	B	W	B		W	B	"
##	[37]	"	-----"												
##	[38]	"	13		TORRANCE HENRY JR		4.5	W	36 W	27 L	7 D	5 W	33 L	3 W	32 "
##	[39]	"	MI		15082995 / R: 1666	->1662	N:3	B	W	B	B	W	W	B	"
##	[40]	"	-----"												
##	[41]	"	14		BRADLEY SHAW		4.5	W	54 W	44 W	8 L	1 D	27 L	5 W	31 "
##	[42]	"	MI		10131499 / R: 1610	->1618	N:3	W	B	W	W	B	B	W	"
##	[43]	"	-----"												
##	[44]	"	15		ZACHARY JAMES HOUGHTON		4.5	D	19 L	16 W	30 L	22 W	54 W	33 W	38 "
##	[45]	"	MI		15619130 / R: 1220P13->1416P20		N:3	B	B	W	W	B	B	W	"
##	[46]	"	-----"												
##	[47]	"	16		MIKE NIKITIN		4.0	D	10 W	15 H	W	39 L	2 W	36 U	"
##	[48]	"	MI		10295068 / R: 1604	->1613	N:3	B	W		B	W	B		"
##	[49]	"	-----"												
##	[50]	"	17		RONALD GRZEGORCZYK		4.0	W	48 W	41 L	26 L	2 W	23 W	22 L	5 "
##	[51]	"	MI		10297702 / R: 1629	->1610	N:3	W	B	W	B	W	B	W	"
##	[52]	"	-----"												
##	[53]	"	18		DAVID SUNDEEN		4.0	W	47 W	9 L	1 W	32 L	19 W	38 L	10 "
##	[54]	"	MI		11342094 / R: 1600	->1600	N:3	B	W	B	W	B	W	B	"
##	[55]	"	-----"												
##	[56]	"	19		DIPANKAR ROY		4.0	D	15 W	10 W	52 D	28 W	18 L	4 L	8 "
##	[57]	"	MI		14862333 / R: 1564	->1570	N:3	W	B	W	B	W	W	B	"
##	[58]	"	-----"												
##	[59]	"	20		JASON ZHENG		4.0	L	40 W	49 W	23 W	41 W	28 L	2 L	9 "
##	[60]	"	MI		14529060 / R: 1595	->1569	N:4	W	B	W	B	W	B	W	"
##	[61]	"	-----"												
##	[62]	"	21		DINH DANG BUI		4.0	W	43 L	1 W	47 L	3 W	40 W	39 L	6 "
##	[63]	"	ON		15495066 / R: 1563P22->1562		N:3	B	W	B	W	W	B	W	"
##	[64]	"	-----"												
##	[65]	"	22		EUGENE L MCCLURE		4.0	W	64 D	52 L	28 W	15 H	L	17 W	40 "
##	[66]	"	MI		12405534 / R: 1555	->1529	N:4	W	B	W	B		W	B	"
##	[67]	"	-----"												
##	[68]	"	23		ALAN BUI		4.0	L	4 W	43 L	20 W	58 L	17 W	37 W	46 "
##	[69]	"	ON		15030142 / R: 1363	->1371		B	W	B	W	B	W	B	"
##	[70]	"	-----"												
##	[71]	"	24		MICHAEL R ALDRICH		4.0	L	28 L	47 W	43 L	25 W	60 W	44 W	39 "
##	[72]	"	MI		13469010 / R: 1229	->1300	N:4	B	W	B	B	W	W	B	"
##	[73]	"	-----"												
##	[74]	"	25		LOREN SCHWIEBERT		3.5	L	9 W	53 L	3 W	24 D	34 L	10 W	47 "
##	[75]	"	MI		12486656 / R: 1745	->1681	N:4	B	W	B	W	B	W	B	"
##	[76]	"	-----"												
##	[77]	"	26		MAX ZHU		3.5	W	49 W	40 W	17 L	4 L	9 D	32 L	11 "
##	[78]	"	ON		15131520 / R: 1579	->1564	N:4	B	W	B	W	B	W	W	"
##	[79]	"	-----"												
##	[80]	"	27		GAURAV GIDWANI		3.5	W	51 L	13 W	46 W	37 D	14 L	6 U	"
##	[81]	"	MI		14476567 / R: 1552	->1539	N:4	W	B	W	B	W	B		"
##	[82]	"	-----"												
##	[83]	"	28		SOFIA ADINA STANESCU-BELLU		3.5	W	24 D	4 W	22 D	19 L	20 L	8 D	36 "
##	[84]	"	MI		14882954 / R: 1507	->1513	N:3	W	W	B	W	B	B	W	"
##	[85]	"	-----"												

```

## [86] " 29 | CHIEDOZIE OKORIE |3.5 |W 50|D 6|L 38|L 34|W 52|W 48|U |"
## [87] " MI | 15323285 / R: 1602P6 ->1508P12 |N:4 |B |W |B |W |W |B | |"
## [88] "-----"
## [89] " 30 | GEORGE AVERY JONES |3.5 |L 52|D 64|L 15|W 55|L 31|W 61|W 50|"
## [90] " ON | 12577178 / R: 1522 ->1444 | |W |B |B |W |W |B |B |"
## [91] "-----"
## [92] " 31 | RISHI SHETTY |3.5 |L 58|D 55|W 64|L 10|W 30|W 50|L 14|"
## [93] " MI | 15131618 / R: 1494 ->1444 | |B |W |B |W |B |W |B |"
## [94] "-----"
## [95] " 32 | JOSHUA PHILIP MATHEWS |3.5 |W 61|L 8|W 44|L 18|W 51|D 26|L 13|"
## [96] " ON | 14073750 / R: 1441 ->1433 |N:4 |W |B |W |B |W |B |W |"
## [97] "-----"
## [98] " 33 | JADE GE |3.5 |W 60|L 12|W 50|D 36|L 13|L 15|W 51|"
## [99] " MI | 14691842 / R: 1449 ->1421 | |B |W |B |W |B |W |B |"
## [100] "-----"
## [101] " 34 | MICHAEL JEFFERY THOMAS |3.5 |L 6|W 60|L 37|W 29|D 25|L 11|W 52|"
## [102] " MI | 15051807 / R: 1399 ->1400 | |B |W |B |B |W |B |W |"
## [103] "-----"
## [104] " 35 | JOSHUA DAVID LEE |3.5 |L 46|L 38|W 56|L 6|W 57|D 52|W 48|"
## [105] " MI | 14601397 / R: 1438 ->1392 | |W |W |B |W |B |B |W |"
## [106] "-----"
## [107] " 36 | SIDDHARTH JHA |3.5 |L 13|W 57|W 51|D 33|H |L 16|D 28|"
## [108] " MI | 14773163 / R: 1355 ->1367 |N:4 |W |B |W |B | |W |B |"
## [109] "-----"
## [110] " 37 | AMIYATOSH PWNANANDAM |3.5 |B |L 5|W 34|L 27|H |L 23|W 61|"
## [111] " MI | 15489571 / R: 980P12->1077P17 | | |B |W |W | |B |W |"
## [112] "-----"
## [113] " 38 | BRIAN LIU |3.0 |D 11|W 35|W 29|L 12|H |L 18|L 15|"
## [114] " MI | 15108523 / R: 1423 ->1439 |N:4 |W |B |W |W | |B |B |"
## [115] "-----"
## [116] " 39 | JOEL R HENDON |3.0 |L 1|W 54|W 40|L 16|W 44|L 21|L 24|"
## [117] " MI | 12923035 / R: 1436P23->1413 |N:4 |B |W |B |W |B |W |W |"
## [118] "-----"
## [119] " 40 | FOREST ZHANG |3.0 |W 20|L 26|L 39|W 59|L 21|W 56|L 22|"
## [120] " MI | 14892710 / R: 1348 ->1346 | |B |B |W |W |B |W |W |"
## [121] "-----"
## [122] " 41 | KYLE WILLIAM MURPHY |3.0 |W 59|L 17|W 58|L 20|X |U |U |"
## [123] " MI | 15761443 / R: 1403P5 ->1341P9 | |B |W |B |W | | | |"
## [124] "-----"
## [125] " 42 | JARED GE |3.0 |L 12|L 50|L 57|D 60|D 61|W 64|W 56|"
## [126] " MI | 14462326 / R: 1332 ->1256 | |B |W |B |B |W |W |B |"
## [127] "-----"
## [128] " 43 | ROBERT GLEN VASEY |3.0 |L 21|L 23|L 24|W 63|W 59|L 46|W 55|"
## [129] " MI | 14101068 / R: 1283 ->1244 | |W |B |W |W |B |B |W |"
## [130] "-----"
## [131] " 44 | JUSTIN D SCHILLING |3.0 |B |L 14|L 32|W 53|L 39|L 24|W 59|"
## [132] " MI | 15323504 / R: 1199 ->1199 | | |W |B |B |W |B |W |"
## [133] "-----"
## [134] " 45 | DEREK YAN |3.0 |L 5|L 51|D 60|L 56|W 63|D 55|W 58|"
## [135] " MI | 15372807 / R: 1242 ->1191 | |W |B |W |B |W |B |W |"
## [136] "-----"
## [137] " 46 | JACOB ALEXANDER LAVALLEY |3.0 |W 35|L 7|L 27|L 50|W 64|W 43|L 23|"
## [138] " MI | 15490981 / R: 377P3 ->1076P10 | |B |W |B |W |B |W |W |"
## [139] "-----"

```

```

## [140] " 47 | ERIC WRIGHT |2.5 |L 18|W 24|L 21|W 61|L 8|D 51|L 25|"
## [141] " MI | 12533115 / R: 1362 ->1341 | |W |B |W |B |W |B |W |"
## [142] "-----"
## [143] " 48 | DANIEL KHAIN |2.5 |L 17|W 63|H |D 52|H |L 29|L 35|"
## [144] " MI | 14369165 / R: 1382 ->1335 | |B |W | |B | |W |B |"
## [145] "-----"
## [146] " 49 | MICHAEL J MARTIN |2.5 |L 26|L 20|D 63|D 64|W 58|H |U |"
## [147] " MI | 12531685 / R: 1291P12->1259P17 | |W |W |B |W |B | | |"
## [148] "-----"
## [149] " 50 | SHIVAM JHA |2.5 |L 29|W 42|L 33|W 46|H |L 31|L 30|"
## [150] " MI | 14773178 / R: 1056 ->1111 | |W |B |W |B | |B |W |"
## [151] "-----"
## [152] " 51 | TEJAS AYYAGARI |2.5 |L 27|W 45|L 36|W 57|L 32|D 47|L 33|"
## [153] " MI | 15205474 / R: 1011 ->1097 | |B |W |B |W |B |W |W |"
## [154] "-----"
## [155] " 52 | ETHAN GUO |2.5 |W 30|D 22|L 19|D 48|L 29|D 35|L 34|"
## [156] " MI | 14918803 / R: 935 ->1092 |N:4 |B |W |B |W |B |W |B |"
## [157] "-----"
## [158] " 53 | JOSE C YBARRA |2.0 |H |L 25|H |L 44|U |W 57|U |"
## [159] " MI | 12578849 / R: 1393 ->1359 | | |B | |W | |W | |"
## [160] "-----"
## [161] " 54 | LARRY HODGE |2.0 |L 14|L 39|L 61|B |L 15|L 59|W 64|"
## [162] " MI | 12836773 / R: 1270 ->1200 | |B |B |W | |W |B |W |"
## [163] "-----"
## [164] " 55 | ALEX KONG |2.0 |L 62|D 31|L 10|L 30|B |D 45|L 43|"
## [165] " MI | 15412571 / R: 1186 ->1163 | |W |B |W |B | |W |B |"
## [166] "-----"
## [167] " 56 | MARISA RICCI |2.0 |H |L 11|L 35|W 45|H |L 40|L 42|"
## [168] " MI | 14679887 / R: 1153 ->1140 | | |B |W |W | |B |W |"
## [169] "-----"
## [170] " 57 | MICHAEL LU |2.0 |L 7|L 36|W 42|L 51|L 35|L 53|B |"
## [171] " MI | 15113330 / R: 1092 ->1079 | |B |W |W |B |W |B | |"
## [172] "-----"
## [173] " 58 | VIRAJ MOHILE |2.0 |W 31|L 2|L 41|L 23|L 49|B |L 45|"
## [174] " MI | 14700365 / R: 917 -> 941 | |W |B |W |B |W | |B |"
## [175] "-----"
## [176] " 59 | SEAN M MC CORMICK |2.0 |L 41|B |L 9|L 40|L 43|W 54|L 44|"
## [177] " MI | 12841036 / R: 853 -> 878 | |W | |B |B |W |W |B |"
## [178] "-----"
## [179] " 60 | JULIA SHEN |1.5 |L 33|L 34|D 45|D 42|L 24|H |U |"
## [180] " MI | 14579262 / R: 967 -> 984 | |W |B |B |W |B | | |"
## [181] "-----"
## [182] " 61 | JEZZEL FARKAS |1.5 |L 32|L 3|W 54|L 47|D 42|L 30|L 37|"
## [183] " ON | 15771592 / R: 955P11-> 979P18 | |B |W |B |W |B |W |B |"
## [184] "-----"
## [185] " 62 | ASHWIN BALAJI |1.0 |W 55|U |U |U |U |U |U |"
## [186] " MI | 15219542 / R: 1530 ->1535 | |B | | | | | | |"
## [187] "-----"
## [188] " 63 | THOMAS JOSEPH HOSMER |1.0 |L 2|L 48|D 49|L 43|L 45|H |U |"
## [189] " MI | 15057092 / R: 1175 ->1125 | |W |B |W |B |B | | |"
## [190] "-----"
## [191] " 64 | BEN LI |1.0 |L 22|D 30|L 31|D 49|L 46|L 42|L 54|"
## [192] " MI | 15006561 / R: 1163 ->1112 | |B |W |W |B |W |B |B |"
## [193] "-----"

```



Select only the names of players from the original data

```
player_name <- unlist(str_extract_all(headingsoff_Data,"\\| [[:upper:]]+ [[:upper:]]+ [[:upper:]] -)+\\|")
player_name
```

```
## [1] "| GARY HUA" | " | DAKSHESH DARURI" | "
## [3] "| ADITYA BAJAJ" | " | PATRICK H SCHILLING" | "
## [5] "| HANSHI ZUO" | " | HANSEN SONG" | "
## [7] "| GARY DEE SWATHELL" | " | EZEKIEL HOUGHTON" | "
## [9] "| STEFANO LEE" | " | ANVIT RAO" | "
## [11] "| CAMERON WILLIAM MC LEMAN" | " | KENNETH J TACK" | "
## [13] "| TORRANCE HENRY JR" | " | BRADLEY SHAW" | "
## [15] "| ZACHARY JAMES HOUGHTON" | " | MIKE NIKITIN" | "
## [17] "| RONALD GRZEGORCZYK" | " | DAVID SUNDEEN" | "
## [19] "| DIPANKAR ROY" | " | JASON ZHENG" | "
## [21] "| DINH DANG BUI" | " | EUGENE L MCCLURE" | "
## [23] "| ALAN BUI" | " | MICHAEL R ALDRICH" | "
## [25] "| LOREN SCHWIEBERT" | " | MAX ZHU" | "
## [27] "| GAURAV GIDWANI" | " | SOFIA ADINA STANESCU-BELLU" | "
## [29] "| CHIEDOZIE OKORIE" | " | GEORGE AVERY JONES" | "
## [31] "| RISHI SHETTY" | " | JOSHUA PHILIP MATHEWS" | "
## [33] "| JADE GE" | " | MICHAEL JEFFERY THOMAS" | "
## [35] "| JOSHUA DAVID LEE" | " | SIDDHARTH JHA" | "
## [37] "| AMIYATOSH PWNANANDAM" | " | BRIAN LIU" | "
## [39] "| JOEL R HENDON" | " | FOREST ZHANG" | "
## [41] "| KYLE WILLIAM MURPHY" | " | JARED GE" | "
## [43] "| ROBERT GLEN VASEY" | " | JUSTIN D SCHILLING" | "
## [45] "| DEREK YAN" | " | JACOB ALEXANDER LAVALLEY" | "
## [47] "| ERIC WRIGHT" | " | DANIEL KHAIN" | "
## [49] "| MICHAEL J MARTIN" | " | SHIVAM JHA" | "
## [51] "| TEJAS AYYAGARI" | " | ETHAN GUO" | "
## [53] "| JOSE C YBARRA" | " | LARRY HODGE" | "
## [55] "| ALEX KONG" | " | MARISA RICCI" | "
## [57] "| MICHAEL LU" | " | VIRAJ MOHILE" | "
## [59] "| SEAN M MC CORMICK" | " | JULIA SHEN" | "
## [61] "| JEZZEL FARKAS" | " | ASHWIN BALAJI" | "
## [63] "| THOMAS JOSEPH HOSMER" | " | BEN LI" | "
```

Clean up the names of players

```
player_name <- str_replace_all(player_name, pattern = "\\| ", replacement = "")
name_only <- str_replace_all(player_name, pattern = " +\\|", replacement = "")
name_only
```

```
## [1] "GARY HUA" "DAKSHESH DARURI"
## [3] "ADITYA BAJAJ" "PATRICK H SCHILLING"
## [5] "HANSHI ZUO" "HANSEN SONG"
## [7] "GARY DEE SWATHELL" "EZEKIEL HOUGHTON"
## [9] "STEFANO LEE" "ANVIT RAO"
## [11] "CAMERON WILLIAM MC LEMAN" "KENNETH J TACK"
## [13] "TORRANCE HENRY JR" "BRADLEY SHAW"
## [15] "ZACHARY JAMES HOUGHTON" "MIKE NIKITIN"
## [17] "RONALD GRZEGORCZYK" "DAVID SUNDEEN"
```

```
## [19] "DIPANKAR ROY"           "JASON ZHENG"
## [21] "DINH DANG BUI"          "EUGENE L MCCLURE"
## [23] "ALAN BUI"               "MICHAEL R ALDRICH"
## [25] "LOREN SCHWIEBERT"       "MAX ZHU"
## [27] "GAURAV GIDWANI"         "SOFIA ADINA STANESCU-BELLU"
## [29] "CHIEDOZIE OKORIE"       "GEORGE AVERY JONES"
## [31] "RISHI SHETTY"           "JOSHUA PHILIP MATHEWS"
## [33] "JADE GE"                "MICHAEL JEFFERY THOMAS"
## [35] "JOSHUA DAVID LEE"        "SIDDHARTH JHA"
## [37] "AMIYATOSH PWNANANDAM"   "BRIAN LIU"
## [39] "JOEL R HENDON"          "FOREST ZHANG"
## [41] "KYLE WILLIAM MURPHY"     "JARED GE"
## [43] "ROBERT GLEN VASEY"       "JUSTIN D SCHILLING"
## [45] "DEREK YAN"              "JACOB ALEXANDER LAVALLEY"
## [47] "ERIC WRIGHT"            "DANIEL KHAIN"
## [49] "MICHAEL J MARTIN"        "SHIVAM JHA"
## [51] "TEJAS AYYAGARI"         "ETHAN GUO"
## [53] "JOSE C YBARRA"          "LARRY HODGE"
## [55] "ALEX KONG"              "MARISA RICCI"
## [57] "MICHAEL LU"             "VIRAJ MOHILE"
## [59] "SEAN M MC CORMICK"       "JULIA SHEN"
## [61] "JEZZEL FARKAS"          "ASHWIN BALAJI"
## [63] "THOMAS JOSEPH HOSMER"    "BEN LI"
```

Select only the states of players from the original data

```
State_name <- unlist(str_extract_all(headingsoff_Data," [[:upper:]] [[:upper:]] \\|"))
State_name
```

```
## [1] " ON | " " MI | " " MI | " " MI | " " MI | " " OH | " " MI | " " MI | " " ON | "
## [10] " MI | " " MI | " " MI | " " MI | " " MI | " " MI | " " MI | " " MI | " " MI | "
## [19] " MI | " " MI | " " ON | " " MI | " " ON | " " MI | " " MI | " " ON | " " MI | "
## [28] " MI | " " MI | " " ON | " " MI | " " ON | " " MI | " " MI | " " MI | " " MI | "
## [37] " MI | " " MI | " " MI | " " MI | " " MI | " " MI | " " MI | " " MI | " " MI | "
## [46] " MI | " " MI | " " MI | " " MI | " " MI | " " MI | " " MI | " " MI | " " MI | "
## [55] " MI | " " MI | " " MI | " " MI | " " MI | " " MI | " " ON | " " MI | " " MI | "
## [64] " MI | "
```

```
#View(State_name)
```

Clean up the states of players

```
State_name <- str_replace_all(State_name, pattern = " \\|", replacement = "")
State_name <- str_replace_all(State_name, pattern = " ", replacement = "")
State_name
```

```
## [1] "ON" "MI" "MI" "MI" "MI" "OH" "MI" "MI" "ON" "MI" "MI" "MI" "MI" "MI" "MI"
## [16] "MI" "MI" "MI" "MI" "MI" "ON" "MI" "ON" "MI" "MI" "ON" "MI" "MI" "MI" "ON"
## [31] "MI" "ON" "MI" "MI" "MI" "MI" "MI" "MI" "MI" "MI" "MI" "MI" "MI" "MI" "MI"
## [46] "MI" "MI" "MI" "MI" "MI" "MI" "MI" "MI" "MI" "MI" "MI" "MI" "MI" "MI" "MI"
## [61] "ON" "MI" "MI" "MI"
```

Select the total points of each player

```
Total_Points_1 <- unlist(str_extract_all(headingsoff_Data,"\\|[:digit:][:digit:]"))  
  
Total_Points <- str_replace_all(Total_Points_1, pattern = "\\|", replacement = "")  
Total_Points
```

```
## [1] "6.0" "6.0" "6.0" "5.5" "5.5" "5.0" "5.0" "5.0" "5.0" "5.0" "4.5" "4.5"  
## [13] "4.5" "4.5" "4.5" "4.0" "4.0" "4.0" "4.0" "4.0" "4.0" "4.0" "4.0" "4.0"  
## [25] "3.5" "3.5" "3.5" "3.5" "3.5" "3.5" "3.5" "3.5" "3.5" "3.5" "3.5" "3.5"  
## [37] "3.5" "3.0" "3.0" "3.0" "3.0" "3.0" "3.0" "3.0" "3.0" "3.0" "2.5" "2.5"  
## [49] "2.5" "2.5" "2.5" "2.5" "2.0" "2.0" "2.0" "2.0" "2.0" "2.0" "2.0" "1.5"  
## [61] "1.5" "1.0" "1.0" "1.0"
```

### Obtain Players' Pre-Rating

```
Player_preRating <- unlist(str_extract_all(headingsoff_Data,": +[:digit:]{3,}"))  
  
Player_preRating <- str_replace_all(Player_preRating, pattern = ": +", replacement = "")  
Player_preRating
```

```
## [1] "1794" "1553" "1384" "1716" "1655" "1686" "1649" "1641" "1411" "1365"  
## [11] "1712" "1663" "1666" "1610" "1220" "1604" "1629" "1600" "1564" "1595"  
## [21] "1563" "1555" "1363" "1229" "1745" "1579" "1552" "1507" "1602" "1522"  
## [31] "1494" "1441" "1449" "1399" "1438" "1355" "980" "1423" "1436" "1348"  
## [41] "1403" "1332" "1283" "1199" "1242" "377" "1362" "1382" "1291" "1056"  
## [51] "1011" "935" "1393" "1270" "1186" "1153" "1092" "917" "853" "967"  
## [61] "955" "1530" "1175" "1163"
```

### Average Pre Chess Rating of Opponents

Select opponents of each player

```
opponents <- unlist(str_extract_all(headingsoff_Data,"\\|[:digit:][:digit:] +\\|[:upper:] +[:di]"))  
  
opponents
```

```
## [1] "|6.0 |W 39|W 21|W 18|W 14|W 7|D 12|D 4|"  
## [2] "|6.0 |W 63|W 58|L 4|W 17|W 16|W 20|W 7|"  
## [3] "|6.0 |L 8|W 61|W 25|W 21|W 11|W 13|W 12|"  
## [4] "|5.5 |W 23|D 28|W 2|W 26|D 5|W 19|D 1|"  
## [5] "|5.5 |W 45|W 37|D 12|D 13|D 4|W 14|W 17|"  
## [6] "|5.0 |W 34|D 29|L 11|W 35|D 10|W 27|W 21|"  
## [7] "|5.0 |W 57|W 46|W 13|W 11|L 1|W 9|L 2|"  
## [8] "|5.0 |W 3|W 32|L 14|L 9|W 47|W 28|W 19|"  
## [9] "|5.0 |W 25|L 18|W 59|W 8|W 26|L 7|W 20|"  
## [10] "|5.0 |D 16|L 19|W 55|W 31|D 6|W 25|W 18|"  
## [11] "|4.5 |D 38|W 56|W 6|L 7|L 3|W 34|W 26|"  
## [12] "|4.5 |W 42|W 33|D 5|W 38|H |D 1|L 3|"  
## [13] "|4.5 |W 36|W 27|L 7|D 5|W 33|L 3|W 32|"
```

```

## [14] "|4.5 |W 54|W 44|W 8|L 1|D 27|L 5|W 31|"
## [15] "|4.5 |D 19|L 16|W 30|L 22|W 54|W 33|W 38|"
## [16] "|4.0 |D 10|W 15|H |W 39|L 2|W 36|U |"
## [17] "|4.0 |W 48|W 41|L 26|L 2|W 23|W 22|L 5|"
## [18] "|4.0 |W 47|W 9|L 1|W 32|L 19|W 38|L 10|"
## [19] "|4.0 |D 15|W 10|W 52|D 28|W 18|L 4|L 8|"
## [20] "|4.0 |L 40|W 49|W 23|W 41|W 28|L 2|L 9|"
## [21] "|4.0 |W 43|L 1|W 47|L 3|W 40|W 39|L 6|"
## [22] "|4.0 |W 64|D 52|L 28|W 15|H |L 17|W 40|"
## [23] "|4.0 |L 4|W 43|L 20|W 58|L 17|W 37|W 46|"
## [24] "|4.0 |L 28|L 47|W 43|L 25|W 60|W 44|W 39|"
## [25] "|3.5 |L 9|W 53|L 3|W 24|D 34|L 10|W 47|"
## [26] "|3.5 |W 49|W 40|W 17|L 4|L 9|D 32|L 11|"
## [27] "|3.5 |W 51|L 13|W 46|W 37|D 14|L 6|U |"
## [28] "|3.5 |W 24|D 4|W 22|D 19|L 20|L 8|D 36|"
## [29] "|3.5 |W 50|D 6|L 38|L 34|W 52|W 48|U |"
## [30] "|3.5 |L 52|D 64|L 15|W 55|L 31|W 61|W 50|"
## [31] "|3.5 |L 58|D 55|W 64|L 10|W 30|W 50|L 14|"
## [32] "|3.5 |W 61|L 8|W 44|L 18|W 51|D 26|L 13|"
## [33] "|3.5 |W 60|L 12|W 50|D 36|L 13|L 15|W 51|"
## [34] "|3.5 |L 6|W 60|L 37|W 29|D 25|L 11|W 52|"
## [35] "|3.5 |L 46|L 38|W 56|L 6|W 57|D 52|W 48|"
## [36] "|3.5 |L 13|W 57|W 51|D 33|H |L 16|D 28|"
## [37] "|3.5 |B |L 5|W 34|L 27|H |L 23|W 61|"
## [38] "|3.0 |D 11|W 35|W 29|L 12|H |L 18|L 15|"
## [39] "|3.0 |L 1|W 54|W 40|L 16|W 44|L 21|L 24|"
## [40] "|3.0 |W 20|L 26|L 39|W 59|L 21|W 56|L 22|"
## [41] "|3.0 |W 59|L 17|W 58|L 20|X |U |U |"
## [42] "|3.0 |L 12|L 50|L 57|D 60|D 61|W 64|W 56|"
## [43] "|3.0 |L 21|L 23|L 24|W 63|W 59|L 46|W 55|"
## [44] "|3.0 |B |L 14|L 32|W 53|L 39|L 24|W 59|"
## [45] "|3.0 |L 5|L 51|D 60|L 56|W 63|D 55|W 58|"
## [46] "|3.0 |W 35|L 7|L 27|L 50|W 64|W 43|L 23|"
## [47] "|2.5 |L 18|W 24|L 21|W 61|L 8|D 51|L 25|"
## [48] "|2.5 |L 17|W 63|H |D 52|H |L 29|L 35|"
## [49] "|2.5 |L 26|L 20|D 63|D 64|W 58|H |U |"
## [50] "|2.5 |L 29|W 42|L 33|W 46|H |L 31|L 30|"
## [51] "|2.5 |L 27|W 45|L 36|W 57|L 32|D 47|L 33|"
## [52] "|2.5 |W 30|D 22|L 19|D 48|L 29|D 35|L 34|"
## [53] "|2.0 |H |L 25|H |L 44|U |W 57|U |"
## [54] "|2.0 |L 14|L 39|L 61|B |L 15|L 59|W 64|"
## [55] "|2.0 |L 62|D 31|L 10|L 30|B |D 45|L 43|"
## [56] "|2.0 |H |L 11|L 35|W 45|H |L 40|L 42|"
## [57] "|2.0 |L 7|L 36|W 42|L 51|L 35|L 53|B |"
## [58] "|2.0 |W 31|L 2|L 41|L 23|L 49|B |L 45|"
## [59] "|2.0 |L 41|B |L 9|L 40|L 43|W 54|L 44|"
## [60] "|1.5 |L 33|L 34|D 45|D 42|L 24|H |U |"
## [61] "|1.5 |L 32|L 3|W 54|L 47|D 42|L 30|L 37|"
## [62] "|1.0 |W 55|U |U |U |U |U |U |"
## [63] "|1.0 |L 2|L 48|D 49|L 43|L 45|H |U |"
## [64] "|1.0 |L 22|D 30|L 31|D 49|L 46|L 42|L 54|"

```

Clean up the selected data

```
opponents <- str_sub(opponents, 7,-1)
```

```
opponents
```

```
## [1] "|W 39|W 21|W 18|W 14|W 7|D 12|D 4|"
## [2] "|W 63|W 58|L 4|W 17|W 16|W 20|W 7|"
## [3] "|L 8|W 61|W 25|W 21|W 11|W 13|W 12|"
## [4] "|W 23|D 28|W 2|W 26|D 5|W 19|D 1|"
## [5] "|W 45|W 37|D 12|D 13|D 4|W 14|W 17|"
## [6] "|W 34|D 29|L 11|W 35|D 10|W 27|W 21|"
## [7] "|W 57|W 46|W 13|W 11|L 1|W 9|L 2|"
## [8] "|W 3|W 32|L 14|L 9|W 47|W 28|W 19|"
## [9] "|W 25|L 18|W 59|W 8|W 26|L 7|W 20|"
## [10] "|D 16|L 19|W 55|W 31|D 6|W 25|W 18|"
## [11] "|D 38|W 56|W 6|L 7|L 3|W 34|W 26|"
## [12] "|W 42|W 33|D 5|W 38|H |D 1|L 3|"
## [13] "|W 36|W 27|L 7|D 5|W 33|L 3|W 32|"
## [14] "|W 54|W 44|W 8|L 1|D 27|L 5|W 31|"
## [15] "|D 19|L 16|W 30|L 22|W 54|W 33|W 38|"
## [16] "|D 10|W 15|H |W 39|L 2|W 36|U |"
## [17] "|W 48|W 41|L 26|L 2|W 23|W 22|L 5|"
## [18] "|W 47|W 9|L 1|W 32|L 19|W 38|L 10|"
## [19] "|D 15|W 10|W 52|D 28|W 18|L 4|L 8|"
## [20] "|L 40|W 49|W 23|W 41|W 28|L 2|L 9|"
## [21] "|W 43|L 1|W 47|L 3|W 40|W 39|L 6|"
## [22] "|W 64|D 52|L 28|W 15|H |L 17|W 40|"
## [23] "|L 4|W 43|L 20|W 58|L 17|W 37|W 46|"
## [24] "|L 28|L 47|W 43|L 25|W 60|W 44|W 39|"
## [25] "|L 9|W 53|L 3|W 24|D 34|L 10|W 47|"
## [26] "|W 49|W 40|W 17|L 4|L 9|D 32|L 11|"
## [27] "|W 51|L 13|W 46|W 37|D 14|L 6|U |"
## [28] "|W 24|D 4|W 22|D 19|L 20|L 8|D 36|"
## [29] "|W 50|D 6|L 38|L 34|W 52|W 48|U |"
## [30] "|L 52|D 64|L 15|W 55|L 31|W 61|W 50|"
## [31] "|L 58|D 55|W 64|L 10|W 30|W 50|L 14|"
## [32] "|W 61|L 8|W 44|L 18|W 51|D 26|L 13|"
## [33] "|W 60|L 12|W 50|D 36|L 13|L 15|W 51|"
## [34] "|L 6|W 60|L 37|W 29|D 25|L 11|W 52|"
## [35] "|L 46|L 38|W 56|L 6|W 57|D 52|W 48|"
## [36] "|L 13|W 57|W 51|D 33|H |L 16|D 28|"
## [37] "|B |L 5|W 34|L 27|H |L 23|W 61|"
## [38] "|D 11|W 35|W 29|L 12|H |L 18|L 15|"
## [39] "|L 1|W 54|W 40|L 16|W 44|L 21|L 24|"
## [40] "|W 20|L 26|L 39|W 59|L 21|W 56|L 22|"
## [41] "|W 59|L 17|W 58|L 20|X |U |U |"
## [42] "|L 12|L 50|L 57|D 60|D 61|W 64|W 56|"
## [43] "|L 21|L 23|L 24|W 63|W 59|L 46|W 55|"
## [44] "|B |L 14|L 32|W 53|L 39|L 24|W 59|"
## [45] "|L 5|L 51|D 60|L 56|W 63|D 55|W 58|"
## [46] "|W 35|L 7|L 27|L 50|W 64|W 43|L 23|"
## [47] "|L 18|W 24|L 21|W 61|L 8|D 51|L 25|"
## [48] "|L 17|W 63|H |D 52|H |L 29|L 35|"
## [49] "|L 26|L 20|D 63|D 64|W 58|H |U |"
```

```
## [50] "|L 29|W 42|L 33|W 46|H |L 31|L 30|"
## [51] "|L 27|W 45|L 36|W 57|L 32|D 47|L 33|"
## [52] "|W 30|D 22|L 19|D 48|L 29|D 35|L 34|"
## [53] "|H |L 25|H |L 44|U |W 57|U |"
## [54] "|L 14|L 39|L 61|B |L 15|L 59|W 64|"
## [55] "|L 62|D 31|L 10|L 30|B |D 45|L 43|"
## [56] "|H |L 11|L 35|W 45|H |L 40|L 42|"
## [57] "|L 7|L 36|W 42|L 51|L 35|L 53|B |"
## [58] "|W 31|L 2|L 41|L 23|L 49|B |L 45|"
## [59] "|L 41|B |L 9|L 40|L 43|W 54|L 44|"
## [60] "|L 33|L 34|D 45|D 42|L 24|H |U |"
## [61] "|L 32|L 3|W 54|L 47|D 42|L 30|L 37|"
## [62] "|W 55|U |U |U |U |U |"
## [63] "|L 2|L 48|D 49|L 43|L 45|H |U |"
## [64] "|L 22|D 30|L 31|D 49|L 46|L 42|L 54|"
```

Clean up the selected data further and make it a list

```
opponents_list <- str_extract_all(opponents,"(\\d+)")
opponents_list
```

```
## [[1]]
## [1] "39" "21" "18" "14" "7" "12" "4"
##
## [[2]]
## [1] "63" "58" "4" "17" "16" "20" "7"
##
## [[3]]
## [1] "8" "61" "25" "21" "11" "13" "12"
##
## [[4]]
## [1] "23" "28" "2" "26" "5" "19" "1"
##
## [[5]]
## [1] "45" "37" "12" "13" "4" "14" "17"
##
## [[6]]
## [1] "34" "29" "11" "35" "10" "27" "21"
##
## [[7]]
## [1] "57" "46" "13" "11" "1" "9" "2"
##
## [[8]]
## [1] "3" "32" "14" "9" "47" "28" "19"
##
## [[9]]
## [1] "25" "18" "59" "8" "26" "7" "20"
##
## [[10]]
## [1] "16" "19" "55" "31" "6" "25" "18"
##
## [[11]]
## [1] "38" "56" "6" "7" "3" "34" "26"
```

```

##
## [[12]]
## [1] "42" "33" "5" "38" "1" "3"
##
## [[13]]
## [1] "36" "27" "7" "5" "33" "3" "32"
##
## [[14]]
## [1] "54" "44" "8" "1" "27" "5" "31"
##
## [[15]]
## [1] "19" "16" "30" "22" "54" "33" "38"
##
## [[16]]
## [1] "10" "15" "39" "2" "36"
##
## [[17]]
## [1] "48" "41" "26" "2" "23" "22" "5"
##
## [[18]]
## [1] "47" "9" "1" "32" "19" "38" "10"
##
## [[19]]
## [1] "15" "10" "52" "28" "18" "4" "8"
##
## [[20]]
## [1] "40" "49" "23" "41" "28" "2" "9"
##
## [[21]]
## [1] "43" "1" "47" "3" "40" "39" "6"
##
## [[22]]
## [1] "64" "52" "28" "15" "17" "40"
##
## [[23]]
## [1] "4" "43" "20" "58" "17" "37" "46"
##
## [[24]]
## [1] "28" "47" "43" "25" "60" "44" "39"
##
## [[25]]
## [1] "9" "53" "3" "24" "34" "10" "47"
##
## [[26]]
## [1] "49" "40" "17" "4" "9" "32" "11"
##
## [[27]]
## [1] "51" "13" "46" "37" "14" "6"
##
## [[28]]
## [1] "24" "4" "22" "19" "20" "8" "36"
##
## [[29]]
## [1] "50" "6" "38" "34" "52" "48"

```

```

##
## [[30]]
## [1] "52" "64" "15" "55" "31" "61" "50"
##
## [[31]]
## [1] "58" "55" "64" "10" "30" "50" "14"
##
## [[32]]
## [1] "61" "8" "44" "18" "51" "26" "13"
##
## [[33]]
## [1] "60" "12" "50" "36" "13" "15" "51"
##
## [[34]]
## [1] "6" "60" "37" "29" "25" "11" "52"
##
## [[35]]
## [1] "46" "38" "56" "6" "57" "52" "48"
##
## [[36]]
## [1] "13" "57" "51" "33" "16" "28"
##
## [[37]]
## [1] "5" "34" "27" "23" "61"
##
## [[38]]
## [1] "11" "35" "29" "12" "18" "15"
##
## [[39]]
## [1] "1" "54" "40" "16" "44" "21" "24"
##
## [[40]]
## [1] "20" "26" "39" "59" "21" "56" "22"
##
## [[41]]
## [1] "59" "17" "58" "20"
##
## [[42]]
## [1] "12" "50" "57" "60" "61" "64" "56"
##
## [[43]]
## [1] "21" "23" "24" "63" "59" "46" "55"
##
## [[44]]
## [1] "14" "32" "53" "39" "24" "59"
##
## [[45]]
## [1] "5" "51" "60" "56" "63" "55" "58"
##
## [[46]]
## [1] "35" "7" "27" "50" "64" "43" "23"
##
## [[47]]
## [1] "18" "24" "21" "61" "8" "51" "25"

```



```

##
## [[48]]
## [1] "17" "63" "52" "29" "35"
##
## [[49]]
## [1] "26" "20" "63" "64" "58"
##
## [[50]]
## [1] "29" "42" "33" "46" "31" "30"
##
## [[51]]
## [1] "27" "45" "36" "57" "32" "47" "33"
##
## [[52]]
## [1] "30" "22" "19" "48" "29" "35" "34"
##
## [[53]]
## [1] "25" "44" "57"
##
## [[54]]
## [1] "14" "39" "61" "15" "59" "64"
##
## [[55]]
## [1] "62" "31" "10" "30" "45" "43"
##
## [[56]]
## [1] "11" "35" "45" "40" "42"
##
## [[57]]
## [1] "7" "36" "42" "51" "35" "53"
##
## [[58]]
## [1] "31" "2" "41" "23" "49" "45"
##
## [[59]]
## [1] "41" "9" "40" "43" "54" "44"
##
## [[60]]
## [1] "33" "34" "45" "42" "24"
##
## [[61]]
## [1] "32" "3" "54" "47" "42" "30" "37"
##
## [[62]]
## [1] "55"
##
## [[63]]
## [1] "2" "48" "49" "43" "45"
##
## [[64]]
## [1] "22" "30" "31" "49" "46" "42" "54"

```

## Obtain the Average of Opponents' Pre Chess Rating of each player

```
rating <- unlist(lapply(Player_preRating,strttoi))
all_avg_rate = c()
for (x in opponents_list) {
  each_player_opponent <- unlist(lapply(x,strttoi))
  each_player_opponent_rate <- c()
  for (y in each_player_opponent) {
    each_player_opponent_rate <- append(each_player_opponent_rate,rating[y])
  }
  avg_rate <- mean(each_player_opponent_rate)
  #print(avg_rate)
  all_avg_rate <- append(all_avg_rate,avg_rate)
  #print(all_avg_rate)
}

all_avg_rate
```

```
## [1] 1605.286 1469.286 1563.571 1573.571 1500.857 1518.714 1372.143 1468.429
## [9] 1523.143 1554.143 1467.571 1506.167 1497.857 1515.000 1483.857 1385.800
## [17] 1498.571 1480.000 1426.286 1410.857 1470.429 1300.333 1213.857 1357.000
## [25] 1363.286 1506.857 1221.667 1522.143 1313.500 1144.143 1259.857 1378.714
## [33] 1276.857 1375.286 1149.714 1388.167 1384.800 1539.167 1429.571 1390.571
## [41] 1248.500 1149.857 1106.571 1327.000 1152.000 1357.714 1392.000 1355.800
## [49] 1285.800 1296.000 1356.143 1494.571 1345.333 1206.167 1406.000 1414.400
## [57] 1363.000 1391.000 1319.000 1330.200 1327.286 1186.000 1350.200 1263.000
```

Rearrange all the cleaned up data into a table

```
player_number <- unlist(str_extract_all(tournamentData_info, "\\d{1,2}\\s\\|"))
```

```
## Warning in stri_extract_all_regex(string, pattern, simplify = simplify, :
## argument is not an atomic vector; coercing
```

```
player_number <- str_replace_all(player_number, pattern = "(\\s\\|)", replacement = "")
player_number <- as.numeric(player_number)
player_number
```

```
## [1] 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
## [26] 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50
## [51] 51 52 53 54 55 56 57 58 59 60 61 62 63 64
```

```
tableA <- data.frame(player_number = player_number, name_only = name_only, State_name = State_name, Total_Points = Total_Points)
tableA
```

```
##   player_number      name_only State_name Total_Points
## 1             1      GARY HUA         ON           6.0
## 2             2  DAKSHESH DARURI         MI           6.0
## 3             3    ADITYA BAJAJ         MI           6.0
## 4             4  PATRICK H SCHILLING        MI           5.5
```

## 5	5	HANSHI ZUO	MI	5.5
## 6	6	HANSEN SONG	OH	5.0
## 7	7	GARY DEE SWATHELL	MI	5.0
## 8	8	EZEKIEL HOUGHTON	MI	5.0
## 9	9	STEFANO LEE	ON	5.0
## 10	10	ANVIT RAO	MI	5.0
## 11	11	CAMERON WILLIAM MC LEMAN	MI	4.5
## 12	12	KENNETH J TACK	MI	4.5
## 13	13	TORRANCE HENRY JR	MI	4.5
## 14	14	BRADLEY SHAW	MI	4.5
## 15	15	ZACHARY JAMES HOUGHTON	MI	4.5
## 16	16	MIKE NIKITIN	MI	4.0
## 17	17	RONALD GRZEGORCZYK	MI	4.0
## 18	18	DAVID SUNDEEN	MI	4.0
## 19	19	DIPANKAR ROY	MI	4.0
## 20	20	JASON ZHENG	MI	4.0
## 21	21	DINH DANG BUI	ON	4.0
## 22	22	EUGENE L MCCLURE	MI	4.0
## 23	23	ALAN BUI	ON	4.0
## 24	24	MICHAEL R ALDRICH	MI	4.0
## 25	25	LOREN SCHWIEBERT	MI	3.5
## 26	26	MAX ZHU	ON	3.5
## 27	27	GAURAV GIDWANI	MI	3.5
## 28	28	SOFIA ADINA STANESCU-BELLU	MI	3.5
## 29	29	CHIEDOZIE OKORIE	MI	3.5
## 30	30	GEORGE AVERY JONES	ON	3.5
## 31	31	RISHI SHETTY	MI	3.5
## 32	32	JOSHUA PHILIP MATHEWS	ON	3.5
## 33	33	JADE GE	MI	3.5
## 34	34	MICHAEL JEFFERY THOMAS	MI	3.5
## 35	35	JOSHUA DAVID LEE	MI	3.5
## 36	36	SIDDHARTH JHA	MI	3.5
## 37	37	AMIYATOSH PWNANANDAM	MI	3.5
## 38	38	BRIAN LIU	MI	3.0
## 39	39	JOEL R HENDON	MI	3.0
## 40	40	FOREST ZHANG	MI	3.0
## 41	41	KYLE WILLIAM MURPHY	MI	3.0
## 42	42	JARED GE	MI	3.0
## 43	43	ROBERT GLEN VASEY	MI	3.0
## 44	44	JUSTIN D SCHILLING	MI	3.0
## 45	45	DEREK YAN	MI	3.0
## 46	46	JACOB ALEXANDER LAVALLEY	MI	3.0
## 47	47	ERIC WRIGHT	MI	2.5
## 48	48	DANIEL KHAIN	MI	2.5
## 49	49	MICHAEL J MARTIN	MI	2.5
## 50	50	SHIVAM JHA	MI	2.5
## 51	51	TEJAS AYYAGARI	MI	2.5
## 52	52	ETHAN GUO	MI	2.5
## 53	53	JOSE C YBARRA	MI	2.0
## 54	54	LARRY HODGE	MI	2.0
## 55	55	ALEX KONG	MI	2.0
## 56	56	MARISA RICCI	MI	2.0
## 57	57	MICHAEL LU	MI	2.0
## 58	58	VIRAJ MOHILE	MI	2.0

## 59	59	SEAN M MC CORMICK	MI	2.0
## 60	60	JULIA SHEN	MI	1.5
## 61	61	JEZZEL FARKAS	ON	1.5
## 62	62	ASHWIN BALAJI	MI	1.0
## 63	63	THOMAS JOSEPH HOSMER	MI	1.0
## 64	64	BEN LI	MI	1.0
##	Player_preRating	Opponent_average_rating_list		
## 1	1794	1605.286		
## 2	1553	1469.286		
## 3	1384	1563.571		
## 4	1716	1573.571		
## 5	1655	1500.857		
## 6	1686	1518.714		
## 7	1649	1372.143		
## 8	1641	1468.429		
## 9	1411	1523.143		
## 10	1365	1554.143		
## 11	1712	1467.571		
## 12	1663	1506.167		
## 13	1666	1497.857		
## 14	1610	1515.000		
## 15	1220	1483.857		
## 16	1604	1385.800		
## 17	1629	1498.571		
## 18	1600	1480.000		
## 19	1564	1426.286		
## 20	1595	1410.857		
## 21	1563	1470.429		
## 22	1555	1300.333		
## 23	1363	1213.857		
## 24	1229	1357.000		
## 25	1745	1363.286		
## 26	1579	1506.857		
## 27	1552	1221.667		
## 28	1507	1522.143		
## 29	1602	1313.500		
## 30	1522	1144.143		
## 31	1494	1259.857		
## 32	1441	1378.714		
## 33	1449	1276.857		
## 34	1399	1375.286		
## 35	1438	1149.714		
## 36	1355	1388.167		
## 37	980	1384.800		
## 38	1423	1539.167		
## 39	1436	1429.571		
## 40	1348	1390.571		
## 41	1403	1248.500		
## 42	1332	1149.857		
## 43	1283	1106.571		
## 44	1199	1327.000		
## 45	1242	1152.000		
## 46	377	1357.714		
## 47	1362	1392.000		

## 48	1382	1355.800
## 49	1291	1285.800
## 50	1056	1296.000
## 51	1011	1356.143
## 52	935	1494.571
## 53	1393	1345.333
## 54	1270	1206.167
## 55	1186	1406.000
## 56	1153	1414.400
## 57	1092	1363.000
## 58	917	1391.000
## 59	853	1319.000
## 60	967	1330.200
## 61	955	1327.286
## 62	1530	1186.000
## 63	1175	1350.200
## 64	1163	1263.000

```
view(tableA)
```

Save the data table into a .CSV file and upload it on my github account

```
write.csv(tableA, "tableA.csv", row.names=TRUE)
```