Week4Assignment

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In this project, you're given a text file with chess tournament results where the information has some structure. Your job is to create an R Markdown file that generates a .CSV file 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

First of all, we can go to the url website of the original data: https://bbhosted.cuny.edu/bbcswebdav/pid-25842547-dt-content-rid-119781398_1/courses/SPS01_DATA_607_01_1169_1/SPS01_DATA_607_01_1169_1_ImportedContent_20160815114002/SPS01_DATA_607_01_1162_1_Impo (https://bbhosted.cuny.edu/bbcswebdav/pid-25842547-dt-content-rid-119781398_1/courses/SPS01_DATA_607_01_1169_1/SPS01_DATA_607_01_1169_1_ImportedContent_20160815114002/SPS01_DATA_607_01_1162_1_Impo

This website can really give us an idea about how this dataset is structured. It seems to me everything is seperated by an "|". Therefore, the first step I am trying to do is to load the "stringr" package which I am going to use for regular expression. I loaded the raw data from my local machine and set the seperator to be "|".

```
library(stringr)
raw_data <- read.csv("C:/Users/blin261/Downloads/tournamentinfo.txt", header = FALSE, stringsAsFactors = FALSE, sep = "|")
```

The following codes just help me to explore the raw data.

```
head(raw_data)
```

```
##                                                                                                  V1
## 1 -----------------------------------------------------------------------------------------------
## 2                                                                                               Pair
## 3                                                                                               Num
## 4 -----------------------------------------------------------------------------------------------
## 5                                                                                                1
## 6                                                                                               ON
##                                  V2    V3    V4    V5    V6    V7    V8
## 1
## 2  Player Name                     Total Round Round Round Round Round
## 3  USCF ID / Rtg (Pre->Post)        Pts    1     2     3     4     5
## 4
## 5  GARY HUA                        6.0   W  39 W  21 W  18 W  14 W   7
## 6  15445895 / R: 1794   ->1817     N:2   W     B     W     B     W
##      V9   V10 V11
## 1             NA
## 2 Round Round  NA
## 3   6     7    NA
## 4              NA
## 5 D  12 D   4  NA
## 6 B     W      NA
```

```
str(raw_data)
```

```
## 'data.frame':    196 obs. of  11 variables:
##  $ V1 : chr  "-----------------------------------------------------------------------------------------" " Pair " " Num
" "-----------------------------------------------------------------------------------------" ...
##  $ V2 : chr  "" " Player Name                    " " USCF ID / Rtg (Pre->Post)       " "" ...
##  $ V3 : chr  "" "Total" " Pts " "" ...
##  $ V4 : chr  "" "Round" "  1  " "" ...
##  $ V5 : chr  "" "Round" "  2  " "" ...
##  $ V6 : chr  "" "Round" "  3  " "" ...
##  $ V7 : chr  "" "Round" "  4  " "" ...
##  $ V8 : chr  "" "Round" "  5  " "" ...
##  $ V9 : chr  "" "Round" "  6  " "" ...
##  $ V10: chr  "" "Round" "  7  " "" ...
##  $ V11: logi  NA NA NA NA NA NA ...
```

```
class(raw_data)
```

```
## [1] "data.frame"
```

```
rownames(raw_data)
```

```
##   [1] "1"   "2"   "3"   "4"   "5"   "6"   "7"   "8"   "9"   "10"  "11"
##  [12] "12"  "13"  "14"  "15"  "16"  "17"  "18"  "19"  "20"  "21"  "22"
##  [23] "23"  "24"  "25"  "26"  "27"  "28"  "29"  "30"  "31"  "32"  "33"
##  [34] "34"  "35"  "36"  "37"  "38"  "39"  "40"  "41"  "42"  "43"  "44"
##  [45] "45"  "46"  "47"  "48"  "49"  "50"  "51"  "52"  "53"  "54"  "55"
##  [56] "56"  "57"  "58"  "59"  "60"  "61"  "62"  "63"  "64"  "65"  "66"
##  [67] "67"  "68"  "69"  "70"  "71"  "72"  "73"  "74"  "75"  "76"  "77"
##  [78] "78"  "79"  "80"  "81"  "82"  "83"  "84"  "85"  "86"  "87"  "88"
##  [89] "89"  "90"  "91"  "92"  "93"  "94"  "95"  "96"  "97"  "98"  "99"
## [100] "100" "101" "102" "103" "104" "105" "106" "107" "108" "109" "110"
## [111] "111" "112" "113" "114" "115" "116" "117" "118" "119" "120" "121"
## [122] "122" "123" "124" "125" "126" "127" "128" "129" "130" "131" "132"
## [133] "133" "134" "135" "136" "137" "138" "139" "140" "141" "142" "143"
## [144] "144" "145" "146" "147" "148" "149" "150" "151" "152" "153" "154"
## [155] "155" "156" "157" "158" "159" "160" "161" "162" "163" "164" "165"
## [166] "166" "167" "168" "169" "170" "171" "172" "173" "174" "175" "176"
## [177] "177" "178" "179" "180" "181" "182" "183" "184" "185" "186" "187"
## [188] "188" "189" "190" "191" "192" "193" "194" "195" "196"
```

```
colnames(raw_data)
```

```
##  [1] "V1"  "V2"  "V3"  "V4"  "V5"  "V6"  "V7"  "V8"  "V9"  "V10" "V11"
```

This code really helps me visualize the raw data, because the raw data contains lots of "——", which really causes a lot of confusion. More importantly, this subset tells me which variables are located at which specific rows.

```
raw_data[-seq(1,196,3), 1:10]
```

```
##         V1                                V2    V3    V4    V5    V6    V7
## 2    Pair   Player Name                    Total Round Round Round Round
## 3    Num    USCF ID / Rtg (Pre->Post)       Pts    1     2     3     4
## 5       1   GARY HUA                       6.0   W  39 W  21 W  18 W  14
## 6      ON   15445895 / R: 1794   ->1817    N:2   W     B     W     B
## 8       2   DAKSHESH DARURI                6.0   W  63 W  58 L   4 W  17
## 9      MI   14598900 / R: 1553   ->1663    N:2   B     W     B     W
## 11      3   ADITYA BAJAJ                   6.0   L   8 W  61 W  25 W  21
## 12     MI   14959604 / R: 1384   ->1640    N:2   W     B     W     B
## 14      4   PATRICK H SCHILLING            5.5   W  23 D  28 W   2 W  26
## 15     MI   12616049 / R: 1716   ->1744    N:2   W     B     W     B
## 17      5   HANSHI ZUO                     5.5   W  45 W  37 D  12 D  13
## 18     MI   14601533 / R: 1655   ->1690    N:2   B     W     B     W
## 20      6   HANSEN SONG                    5.0   W  34 D  29 L  11 W  35
## 21     OH   15055204 / R: 1686   ->1687    N:3   W     B     W     B
## 23      7   GARY DEE SWATHELL              5.0   W  57 W  46 W  13 W  11
## 24     MI   11146376 / R: 1649   ->1673    N:3   W     B     W     B
## 26      8   EZEKIEL HOUGHTON               5.0   W   3 W  32 L  14 L   9
## 27     MI   15142253 / R: 1641P17->1657P24  N:3   B     W     B     W
## 29      9   STEFANO LEE                    5.0   W  25 L  18 W  59 W   8
## 30     ON   14954524 / R: 1411   ->1564    N:2   W     B     W     B
## 32     10   ANVIT RAO                      5.0   D  16 L  19 W  55 W  31
## 33     MI   14150362 / R: 1365   ->1544    N:3   W     W     B     B
## 35     11   CAMERON WILLIAM MC LEMAN       4.5   D  38 W  56 W   6 L   7
## 36     MI   12581589 / R: 1712   ->1696    N:3   B     W     B     W
## 38     12   KENNETH J TACK                 4.5   W  42 W  33 D   5 W  38
## 39     MI   12681257 / R: 1663   ->1670    N:3   W     B     W     B
## 41     13   TORRANCE HENRY JR              4.5   W  36 W  27 L   7 D   5
## 42     MI   15082995 / R: 1666   ->1662    N:3   B     W     B     B
## 44     14   BRADLEY SHAW                   4.5   W  54 W  44 W   8 L   1
## 45     MI   10131499 / R: 1610   ->1618    N:3   W     B     W     W
## 47     15   ZACHARY JAMES HOUGHTON         4.5   D  19 L  16 W  30 L  22
## 48     MI   15619130 / R: 1220P13->1416P20  N:3   B     B     W     W
## 50     16   MIKE NIKITIN                   4.0   D  10 W  15 H     W  39
## 51     MI   10295068 / R: 1604   ->1613    N:3   B     W           B
## 53     17   RONALD GRZEGORCZYK             4.0   W  48 W  41 L  26 L   2
## 54     MI   10297702 / R: 1629   ->1610    N:3   W     B     W     B
## 56     18   DAVID SUNDEEN                  4.0   W  47 W   9 L   1 W  32
## 57     MI   11342094 / R: 1600   ->1600    N:3   B     W     B     W
## 59     19   DIPANKAR ROY                   4.0   D  15 W  10 W  52 D  28
## 60     MI   14862333 / R: 1564   ->1570    N:3   W     B     W     B
## 62     20   JASON ZHENG                    4.0   L  40 W  49 W  23 W  41
## 63     MI   14529060 / R: 1595   ->1569    N:4   W     B     W     B
## 65     21   DINH DANG BUI                  4.0   W  43 L   1 W  47 L   3
## 66     ON   15495066 / R: 1563P22->1562    N:3   B     W     B     W
## 68     22   EUGENE L MCCLURE               4.0   W  64 D  52 L  28 W  15
## 69     MI   12405534 / R: 1555   ->1529    N:4   W     B     W     B
## 71     23   ALAN BUI                       4.0   L   4 W  43 L  20 W  58
## 72     ON   15030142 / R: 1363   ->1371          B     W     B     W
## 74     24   MICHAEL R ALDRICH              4.0   L  28 L  47 W  43 L  25
## 75     MI   13469010 / R: 1229   ->1300    N:4   B     W     B     B
## 77     25   LOREN SCHWIEBERT               3.5   L   9 W  53 L   3 W  24
## 78     MI   12486656 / R: 1745   ->1681    N:4   B     W     B     W
## 80     26   MAX ZHU                        3.5   W  49 W  40 W  17 L   4
## 81     ON   15131520 / R: 1579   ->1564    N:4   B     W     B     W
## 83     27   GAURAV GIDWANI                 3.5   W  51 L  13 W  46 W  37
## 84     MI   14476567 / R: 1552   ->1539    N:4   W     B     W     B
## 86     28   SOFIA ADINA STANESCU-BELLU      3.5   W  24 D   4 W  22 D  19
## 87     MI   14882954 / R: 1507   ->1513    N:3   W     W     B     W
## 89     29   CHIEDOZIE OKORIE               3.5   W  50 D   6 L  38 L  34
## 90     MI   15323285 / R: 1602P6 ->1508P12  N:4   B     W     B     W
## 92     30   GEORGE AVERY JONES             3.5   L  52 D  64 L  15 W  55
## 93     ON   12577178 / R: 1522   ->1444          W     B     B     W
## 95     31   RISHI SHETTY                   3.5   L  58 D  55 W  64 L  10
## 96     MI   15131618 / R: 1494   ->1444          B     W     B     W
## 98     32   JOSHUA PHILIP MATHEWS          3.5   W  61 L   8 W  44 L  18
## 99     ON   14073750 / R: 1441   ->1433    N:4   W     B     W     B
## 101    33   JADE GE                        3.5   W  60 L  12 W  50 D  36
## 102    MI   14691842 / R: 1449   ->1421          B     W     B     W
## 104    34   MICHAEL JEFFERY THOMAS         3.5   L   6 W  60 L  37 W  29
## 105    MI   15051807 / R: 1399   ->1400          B     W     B     B
## 107    35   JOSHUA DAVID LEE               3.5   L  46 L  38 W  56 L   6
## 108    MI   14601397 / R: 1438   ->1392          W     W     B     W
## 110    36   SIDDHARTH JHA                  3.5   L  13 W  57 W  51 D  33
## 111    MI   14773163 / R: 1355   ->1367    N:4   W     B     W     B
## 113    37   AMIYATOSH PWNANANDAM           3.5   B     L   5 W  34 L  27
## 114    MI   15489571 / R:  980P12->1077P17        B     W     W
## 116    38   BRIAN LIU                      3.0   D  11 W  35 W  29 L  12
## 117    MI   15108523 / R: 1423   ->1439    N:4   W     B     W     W
## 119    39   JOEL R HENDON                  3.0   L   1 W  54 W  40 L  16
## 120    MI   12923035 / R: 1436P23->1413    N:4   B     W     B     W
```

```
## 122    40   FOREST ZHANG                    3.0   W  20 L  26 L  39 W  59
## 123    MI   14892710 / R: 1348   ->1346           B     B     W     W
## 125    41   KYLE WILLIAM MURPHY             3.0   W  59 L  17 W  58 L  20
## 126    MI   15761443 / R: 1403P5 ->1341P9         B     W     B     W
## 128    42   JARED GE                        3.0   L  12 L  50 L  57 D  60
## 129    MI   14462326 / R: 1332   ->1256           B     W     B     B
## 131    43   ROBERT GLEN VASEY               3.0   L  21 L  23 L  24 W  63
## 132    MI   14101068 / R: 1283   ->1244           W     B     W     W
## 134    44   JUSTIN D SCHILLING              3.0   B     L  14 L  32 W  53
## 135    MI   15323504 / R: 1199   ->1199                W     B     B
## 137    45   DEREK YAN                       3.0   L   5 L  51 D  60 L  56
## 138    MI   15372807 / R: 1242   ->1191           W     B     W     B
## 140    46   JACOB ALEXANDER LAVALLEY        3.0   W  35 L   7 L  27 L  50
## 141    MI   15490981 / R:  377P3 ->1076P10        B     W     B     W
## 143    47   ERIC WRIGHT                     2.5   L  18 W  24 L  21 W  61
## 144    MI   12533115 / R: 1362   ->1341           W     B     W     B
## 146    48   DANIEL KHAIN                    2.5   L  17 W  63 H     D  52
## 147    MI   14369165 / R: 1382   ->1335           B     W           B
## 149    49   MICHAEL J MARTIN                2.5   L  26 L  20 D  63 D  64
## 150    MI   12531685 / R: 1291P12->1259P17        W     W     B     W
## 152    50   SHIVAM JHA                      2.5   L  29 W  42 L  33 W  46
## 153    MI   14773178 / R: 1056   ->1111           W     B     W     B
## 155    51   TEJAS AYYAGARI                  2.5   L  27 W  45 L  36 W  57
## 156    MI   15205474 / R: 1011   ->1097           B     W     B     W
## 158    52   ETHAN GUO                       2.5   W  30 D  22 L  19 D  48
## 159    MI   14918803 / R:  935   ->1092     N:4   B     W     B     W
## 161    53   JOSE C YBARRA                   2.0   H     L  25 H     L  44
## 162    MI   12578849 / R: 1393   ->1359           B           W
## 164    54   LARRY HODGE                     2.0   L  14 L  39 L  61 B
## 165    MI   12836773 / R: 1270   ->1200           B     B     W
## 167    55   ALEX KONG                       2.0   L  62 D  31 L  10 L  30
## 168    MI   15412571 / R: 1186   ->1163           W     B     W     B
## 170    56   MARISA RICCI                    2.0   H     L  11 L  35 W  45
## 171    MI   14679887 / R: 1153   ->1140           B     W     W
## 173    57   MICHAEL LU                      2.0   L   7 L  36 W  42 L  51
## 174    MI   15113330 / R: 1092   ->1079           B     W     W     B
## 176    58   VIRAJ MOHILE                    2.0   W  31 L   2 L  41 L  23
## 177    MI   14700365 / R:  917   -> 941           W     B     W     B
## 179    59   SEAN M MC CORMICK               2.0   L  41 B     L   9 L  40
## 180    MI   12841036 / R:  853   -> 878           W           B     B
## 182    60   JULIA SHEN                      1.5   L  33 L  34 D  45 D  42
## 183    MI   14579262 / R:  967   -> 984           W     B     B     W
## 185    61   JEZZEL FARKAS                   1.5   L  32 L   3 W  54 L  47
## 186    ON   15771592 / R:  955P11-> 979P18        B     W     B     W
## 188    62   ASHWIN BALAJI                   1.0   W  55 U     U     U
## 189    MI   15219542 / R: 1530   ->1535           B
## 191    63   THOMAS JOSEPH HOSMER            1.0   L   2 L  48 D  49 L  43
## 192    MI   15057092 / R: 1175   ->1125           W     B     W     B
## 194    64   BEN LI                          1.0   L  22 D  30 L  31 D  49
## 195    MI   15006561 / R: 1163   ->1112           B     W     W     B
##        V8    V9   V10
## 2   Round Round Round
## 3     5     6     7
## 5   W   7 D  12 D   4
## 6   W     B     W
## 8   W  16 W  20 W   7
## 9   B     W     B
## 11  W  11 W  13 W  12
## 12  W     B     W
## 14  D   5 W  19 D   1
## 15  W     B     B
## 17  D   4 W  14 W  17
## 18  B     W     B
## 20  D  10 W  27 W  21
## 21  B     W     B
## 23  L   1 W   9 L   2
## 24  B     W     W
## 26  W  47 W  28 W  19
## 27  B     W     W
## 29  W  26 L   7 W  20
## 30  W     B     B
## 32  D   6 W  25 W  18
## 33  W     B     W
## 35  L   3 W  34 W  26
## 36  B     W     B
## 38  H     D   1 L   3
## 39        W     B
## 41  W  33 L   3 W  32
## 42  W     W     B
## 44  D  27 L   5 W  31
## 45  B     B     W
```

```
## 47  W  54 W  33 W  38
## 48  B     B     W
## 50  L   2 W  36 U
## 51  W     B
## 53  W  23 W  22 L   5
## 54  W     B     W
## 56  L  19 W  38 L  10
## 57  B     W     B
## 59  W  18 L   4 L   8
## 60  W     W     B
## 62  W  28 L   2 L   9
## 63  W     B     W
## 65  W  40 W  39 L   6
## 66  W     B     W
## 68  H     L  17 W  40
## 69        W     B
## 71  L  17 W  37 W  46
## 72  B     W     B
## 74  W  60 W  44 W  39
## 75  W     W     B
## 77  D  34 L  10 W  47
## 78  B     W     B
## 80  L   9 D  32 L  11
## 81  B     W     W
## 83  D  14 L   6 U
## 84  W     B
## 86  L  20 L   8 D  36
## 87  B     B     W
## 89  W  52 W  48 U
## 90  W     B
## 92  L  31 W  61 W  50
## 93  W     B     B
## 95  W  30 W  50 L  14
## 96  B     W     B
## 98  W  51 D  26 L  13
## 99  W     B     W
## 101 L  13 L  15 W  51
## 102 B     W     B
## 104 D  25 L  11 W  52
## 105 W     B     W
## 107 W  57 D  52 W  48
## 108 B     B     W
## 110 H     L  16 D  28
## 111       W     B
## 113 H     L  23 W  61
## 114       B     W
## 116 H     L  18 L  15
## 117       B     B
## 119 W  44 L  21 L  24
## 120 B     W     W
## 122 L  21 W  56 L  22
## 123 B     W     W
## 125 X     U     U
## 126
## 128 D  61 W  64 W  56
## 129 W     W     B
## 131 W  59 L  46 W  55
## 132 B     B     W
## 134 L  39 L  24 W  59
## 135 W     B     W
## 137 W  63 D  55 W  58
## 138 W     B     W
## 140 W  64 W  43 L  23
## 141 B     W     W
## 143 L   8 D  51 L  25
## 144 W     B     W
## 146 H     L  29 L  35
## 147       W     B
## 149 W  58 H     U
## 150 B
## 152 H     L  31 L  30
## 153       B     W
## 155 L  32 D  47 L  33
## 156 B     W     W
## 158 L  29 D  35 L  34
## 159 B     W     B
## 161 U     W  57 U
## 162       W
## 164 L  15 L  59 W  64
## 165 W     B     W
## 167 B     D  45 L  43
```

```
## 168       W     B
## 170 H     L  40 L  42
## 171       B     W
## 173 L  35 L  53 B
## 174 W     B
## 176 L  49 B     L  45
## 177 W           B
## 179 L  43 W  54 L  44
## 180 W     W     B
## 182 L  24 H     U
## 183 B
## 185 D  42 L  30 L  37
## 186 B     W     B
## 188 U     U     U
## 189
## 191 L  45 H     U
## 192 B
## 194 L  46 L  42 L  54
## 195 W     B     B
```

Then I am going to extract the information I need and create vectors with appropriate data types.

```
player_number <- as.numeric(raw_data[seq(5,195,3), "V1"])
head(player_number)
```

```
## [1] 1 2 3 4 5 6
```

```
player_name <- raw_data[seq(5,195,3),"V2"]
player_name <- str_trim(player_name)
head(player_name)
```

```
## [1] "GARY HUA"            "DAKSHESH DARURI"     "ADITYA BAJAJ"
## [4] "PATRICK H SCHILLING" "HANSHI ZUO"          "HANSEN SONG"
```

```
player_state <- raw_data[seq(6,195,3), "V1"]
player_state <- str_trim(player_state)
head(player_state)
```

```
## [1] "ON" "MI" "MI" "MI" "MI" "OH"
```

```
total_number_of_points <- as.numeric(raw_data[seq(5,195,3), "V3"])
head(total_number_of_points)
```

```
## [1] 6.0 6.0 6.0 5.5 5.5 5.0
```

I used two steps of regular expression techniques to draw the pre-rating data from the raw data

```
pre_rating <- raw_data[seq(6,195,3), "V2"]
head(pre_rating)
```

```
## [1] " 15445895 / R: 1794   ->1817     " " 14598900 / R: 1553   ->1663     "
## [3] " 14959604 / R: 1384   ->1640     " " 12616049 / R: 1716   ->1744     "
## [5] " 14601533 / R: 1655   ->1690     " " 15055204 / R: 1686   ->1687     "
```

```
for (i in 1:length(pre_rating))
{
  #I want any string that starts with "R" followed by a space and followed by more than 1 digits.
  pre_rating[i] <- str_extract(pre_rating[i], "R:[:space:]+[:digit:]+")

  #After I got the string containing pre-rating, I get rid of the "R" and space, then convert these digits from string     i
nto numeric values.
  pre_rating[i] <- str_extract(pre_rating[i], "[[:digit:]]+")
}

head(pre_rating)
```

```
## [1] "1794" "1553" "1384" "1716" "1655" "1686"
```

The last variable I want is the average of opponents' rating for each individual players. The first step invloves getting those opponents' player numbers, which can be found on columns 4 to 10. I only need to extract strings that refer to numeric values from these columns. After I got those strings, I convert them into numeric values and store them into a variable called opponent_number. Then I found their corresponding pre-rating values, use the mean function to get the average of these opponents' pre-rating values.

```
average_opponent_point <- vector()

for (i in seq(5,195,3))
{
    {
      opponent_number<- as.numeric(unlist(str_extract_all(raw_data[i, 4:10], "[[:digit:]]+")))
      average_opponent_point[(i-2)/3] <- mean(as.numeric(pre_rating[opponent_number]), na.rm = TRUE)
    }
}
average_opponent_point
```

```
##  [1] 1605.286 1469.286 1563.571 1573.571 1500.857 1518.714 1372.143
##  [8] 1468.429 1523.143 1554.143 1467.571 1506.167 1497.857 1515.000
## [15] 1483.857 1385.800 1498.571 1480.000 1426.286 1410.857 1470.429
## [22] 1300.333 1213.857 1357.000 1363.286 1506.857 1221.667 1522.143
## [29] 1313.500 1144.143 1259.857 1378.714 1276.857 1375.286 1149.714
## [36] 1388.167 1384.800 1539.167 1429.571 1390.571 1248.500 1149.857
## [43] 1106.571 1327.000 1152.000 1357.714 1392.000 1355.800 1285.800
## [50] 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
## [64] 1263.000
```

Then I put all the vectors together and create a data frame called chess_tournament.

```
chess_tournament <- data.frame(player_number, player_name, player_state, total_number_of_points, pre_rating, average_opponen
t_point)
head(chess_tournament)
```

```
##   player_number         player_name player_state total_number_of_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
##   pre_rating average_opponent_point
## 1       1794               1605.286
## 2       1553               1469.286
## 3       1384               1563.571
## 4       1716               1573.571
## 5       1655               1500.857
## 6       1686               1518.714
```

In the end, I export the output into a csv file in my working directory.

```
write.csv(chess_tournament, file = "chess_tournament_result", row.names=FALSE)
```