



Chess Games' Analysis

-A Visualization using R and Tableau

Original Dataset

Link: <https://www.kaggle.com/datasnaek/chess>

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	id	rated	created_at	last_move_at	turns	victory_status	winner	increment_code	white_id	white_rating	black_id	black_rating	moves	opening_eco	opening_name	opening_ply
2	TZHLJE	FALSE	1.50E+12	1.50E+12	13	outoftime	white	15+2	bourgris	1500	a-00	1191	d4 d5 c4 c5	D10	Slav Defense: E	5
3	l1NXvwaE	TRUE	1.50E+12	1.50E+12	16	resign	black	5+10	a-00	1322	skinnerua	1261	d4 Nc6 e4	B00	Nimzowitsch D	4
4	m1ICvQHh	TRUE	1.50E+12	1.50E+12	61	mate	white	5+10	ischia	1496	a-00	1500	e4 e5 d3 d	C20	King's Pawn Gai	3
5	kWKvrqYL	TRUE	1.50E+12	1.50E+12	61	mate	white	20+0	daniamura	1439	adivanov2	1454	d4 d5 Nf3	D02	Queen's Pawn C	3
6	9tXo1AUZ	TRUE	1.50E+12	1.50E+12	95	mate	white	30+3	nik221107	1523	adivanov2	1469	e4 e5 Nf3	C41	Philidor Defens	5
7	MsoDV9w	FALSE	1.50E+12	1.50E+12	5	draw	draw	10+0	trelynn17	1250	franklin14	1002	e4 c5 Nf3	B27	Sicilian Defense	4
8	qwU9rasv	TRUE	1.50E+12	1.50E+12	33	resign	white	10+0	capa_jr	1520	daniel_like	1423	d4 d5 e4 d	D00	Blackmar-Diem	10
9	RVN0N3Vl	FALSE	1.50E+12	1.50E+12	9	resign	black	15+30	daniel_like	1413	soultego	2108	e4 Nc6 d4	B00	Nimzowitsch D	5
10	dwF3DJHC	TRUE	1.50E+12	1.50E+12	66	resign	black	15+0	ehabfanri	1439	daniel_like	1392	e4 e5 Bc4	C50	Italian Game: S	6
11	afoMwnLg	TRUE	1.50E+12	1.50E+12	119	mate	white	10+0	daniel_like	1381	mirco25	1209	e4 d5 exd5	B01	Scandinavian D	4
12	HgKLWPsZ	FALSE	1.50E+12	1.50E+12	39	mate	white	20+60	daniel_like	1381	anaissac	1272	e3 e6 d4 d	A00	Van't Kruijs Ope	1
13	Vf5fKWzI	FALSE	1.50E+12	1.50E+12	38	resign	black	20+60	daniel_like	1381	subham77	1867	e4 e6 d4 d	C02	French Defense	9
14	Hrti5mKv	FALSE	1.50E+12	1.50E+12	60	resign	black	5+40	daniel_like	1381	roman123	1936	e4 e6 Nf3	C00	French Defense	3
15	2fEjSei6	FALSE	1.50E+12	1.50E+12	31	resign	black	8+0	daniel_like	1381	alkhan	1607	e4 e6 Qh5	C00	French Defense	2
16	u7i6dOaJ	FALSE	1.50E+12	1.50E+12	31	mate	white	15+15	shivangithi	1094	sureka_ak	1141	e4 e5 Nf3	C50	Four Knights Ga	8
17	guanvMR5	FALSE	1.50E+12	1.50E+12	43	resign	black	15+15	sureka_ak	1141	shivangithi	1094	e4 e5 Nf3	C57	Italian Game: T	7
18	PmpkWkm	FALSE	1.50E+12	1.50E+12	52	resign	black	15+15	shivangithi	1094	sureka_ak	1141	e4 e5 Nf3	C50	Four Knights Ga	8
19	EwaK0IsE	FALSE	1.50E+12	1.50E+12	66	mate	black	15+16	sureka_ak	1141	shivangithi	1094	e4 e5 Nf3	C50	Four Knights Ga	8
20	yrSDozT3	FALSE	1.50E+12	1.50E+12	101	resign	black	15+15	shivangithi	1094	slam_men	1300	e4 e5 Nf3	C41	Philidor Defens	5
21	x31mXlvc	FALSE	1.50E+12	1.50E+12	25	resign	white	11+0	g-ios	1500	shivangithi	1094	d4 d5 h3	ND00	Queen's Pawn C	2
22	oQklnWW	FALSE	1.50E+12	1.50E+12	14	resign	black	15+15	shivangithi	1094	lex_v1	1676	e4 e5 Nf3	C55	Italian Game: A	6
23	QFCZwY1f	FALSE	1.50E+12	1.50E+12	3	resign	white	30+60	shivangithi	1094	themannic	1068	d4 e6 Nc3	A40	Horwitz Defens	2
24	5cgBygpl	FALSE	1.50E+12	1.50E+12	17	resign	white	15+5	storm28ru	1500	shivangithi	1094	e4 c5 Bc4	B20	Sicilian Defense	3
25	UhXXBOM	TRUE	1.50E+12	1.50E+12	36	resign	white	10+0	robotsmol	1307	shivangithi	1106	c4 Nc6 Nc	A25	English Opening	4
26	mCij4hBq	TRUE	1.50E+12	1.50E+12	13	resign	black	10+0	shivangithi	1113	ivangonzal	1423	e4 c5 d4 c	B21	Sicilian Defense	3
27	ifUMWtVj	TRUE	1.50E+12	1.50E+12	69	mate	white	10+10	shivangithi	1078	sureka_ak	1219	d4 d5 Nc3	D01	Queen's Pawn C	4
28	Wf0zuLQC	TRUE	1.50E+12	1.50E+12	43	resign	white	10+10	gmcarlsen	1825	shivangithi	1079	e4 e5 Nf3	C45	Scotch Game: F	8
29	srz9Qf5N	TRUE	1.50E+12	1.50E+12	54	mate	black	10+10	mannat1	1328	shivangithi	1038	d4 d5 Nc3	D01	Queen's Pawn C	4

Data Cleaning and Refining in R

Code:

```
#Reading the downloaded dataset
```

```
chess<-read.csv('games.csv')
```

```
#Dividing the time format into separate columns of initial time and increment
```

```
chess$increment_code<-gsub('[+]', 'p', chess$increment_code)
```

```
chess$time_control<-sub('p.*', '', chess$increment_code)
```

```
chess$increment_code<-sub('.*p', '', chess$increment_code)
```

```

#Renaming the original column accordingly
names(chess)[names(chess)=='increment_code']<-'increment'

#Deleting redundant columns that won't be used in the dashboard
chess<-subset(chess,select=-
c(white_id,black_id,created_at,last_move_at))

#Reordering the dataset according to number of turns
library('dplyr')
chess<-arrange(chess,turns)

#Changing the character ID to integers sequence-wise
chess$id<-c(1:nrow(chess))

#Correcting the column rated for better analysability
chess$rated<-gsub('True','TRUE',chess$rated)
chess$rated<-gsub('False','FALSE',chess$rated)

#Converting character data to integer
chess$time_control<-as.integer(chess$time_control)
chess$increment<-as.integer(chess$increment)

#Creating a column that will be helpful in comparison of ratings of both
players
chess$comp_rating<-chess$white_rating-chess$black_rating
for(i in 1:nrow(chess))
{
  if(chess[i,14]<0)
    chess[i,14]==-1
  else if(chess[i,14]>0)
    chess[i,14]=1
}

```

```
#Making Sheet1
```

```
library('writexl')
```

```
sheet1<-
```

```
data.frame(chess$id, chess$rated, chess$winner, chess$victrory_status)
```

```
colnames(sheet1)<-c('ID', 'Rated?', 'Winner', 'Victory Status')
```

```
write_xlsx(sheet1, 'C:\\Users\\coolh\\Downloads\\Sheet1.xlsx')
```

```
#Making Sheet2
```

```
sheet2<-data.frame(chess$id, chess$comp_rating, chess$victrory_status)
```

```
colnames(sheet2)<-c('ID', 'Rating Comparison', 'Victory Status')
```

```
write_xlsx(sheet2, 'C:\\Users\\coolh\\Downloads\\Sheet2.xlsx')
```

```
#Making Sheet3
```

```
sheet3<-data.frame(chess$white_rating, chess$black_rating)
```

```
colnames(sheet3)<-c('White Rating', 'Black Rating')
```

```
write_xlsx(sheet3, 'C:\\Users\\coolh\\Downloads\\Sheet3.xlsx')
```

```
#Making Sheet4
```

```
sheet4<-data.frame(chess$victrory_status, chess$turns)
```

```
colnames(sheet4)<-c('Victory Status', 'Number of Turns')
```

```
write_xlsx(sheet4, 'C:\\Users\\coolh\\Downloads\\Sheet4.xlsx')
```

```
#Making Sheet5
```

```
sheet5<-
```

```
data.frame(chess$victrory_status, chess$time_control, chess$increment)
```

```
colnames(sheet5)<-c('Victory Status', 'Initial Time', 'Increment/Move')
```

```
write_xlsx(sheet5, 'C:\\Users\\coolh\\Downloads\\Sheet5.xlsx')
```

```
#Making Sheet6
```

```
sheet6<-
```

```
data.frame(chess$opening_ply, chess$opening_eco, chess$opening_name)
```

```
colnames(sheet6)<-c('Number of Moves/Opening', 'Opening Code', 'Opening Name')
```

```
write_xlsx(sheet6, 'C:\\Users\\coolh\\Downloads\\Sheet6.xlsx')
```

```
#Making Sheet7
```

```
sheet7<-data.frame(chess$id,chess$moves)
```

```
colnames(sheet7)<-c('ID','List of Moves')
```

```
write_xlsx(sheet7,'C:\\Users\\coolh\\Downloads\\Sheet7.xlsx')
```

```
#Final data
```

```
write_xlsx(chess,'C:\\Users\\coolh\\Downloads\\Chess.xlsx')
```

Split Data:

Link:

https://docs.google.com/spreadsheets/d/1X7nTEAMeDrD2IhJVRYN6n4jprcLjWEOv/edit?usp=share_link&ouid=109308958778946381742&rtpof=true&sd=true

	A	B	C	D
1	ID	Rated?	Winner	Victory Status
2	1	TRUE	black	resign
3	2	FALSE	white	outoftime
4	3	FALSE	white	outoftime
5	4	FALSE	white	outoftime
6	5	TRUE	white	resign
7	6	FALSE	white	outoftime
8	7	TRUE	white	resign
9	8	FALSE	white	outoftime
10	9	TRUE	white	resign
11	10	FALSE	white	resign
12	11	FALSE	white	outoftime
13	12	FALSE	white	outoftime
14	13	FALSE	white	outoftime
15	14	FALSE	white	outoftime
16	15	TRUE	black	resign
17	16	FALSE	white	outoftime
18	17	FALSE	white	outoftime
19	18	TRUE	white	resign
20	19	TRUE	black	resign
21	20	TRUE	draw	draw
22	21	TRUE	black	outoftime
23	22	FALSE	black	outoftime
24	23	TRUE	black	outoftime
25	24	TRUE	black	outoftime
26	25	TRUE	black	resign
27	26	FALSE	black	resign
28	27	FALSE	white	resign
29	28	FALSE	black	resign

	A	B	C
1	ID	Rating Comparison	Victory Status
2	1	1	resign
3	2	1	outoftime
4	3	1	outoftime
5	4	-1	outoftime
6	5	1	resign
7	6	1	outoftime
8	7	1	resign
9	8	1	outoftime
10	9	-1	resign
11	10	1	resign
12	11	1	outoftime
13	12	1	outoftime
14	13	1	outoftime
15	14	1	outoftime
16	15	1	resign
17	16	1	outoftime
18	17	1	outoftime
19	18	1	resign
20	19	1	resign
21	20	1	draw
22	21	-1	outoftime
23	22	-1	outoftime
24	23	-1	outoftime
25	24	-1	outoftime
26	25	-1	resign
27	26	-1	resign
28	27	-1	resign
29	28	-1	resign

	A	B	C
1	ID	White Rating	Black Rating
2	1	1464	1355
3	2	2032	1223
4	3	2404	1616
5	4	1500	2723
6	5	1670	1175
7	6	2100	1404
8	7	1778	1349
9	8	2617	1500
10	9	1484	2113
11	10	2621	1614
12	11	2403	1746
13	12	2621	1384
14	13	2438	1666
15	14	2438	1885
16	15	1878	1860
17	16	2621	1324
18	17	2403	1746
19	18	1431	1367
20	19	1443	1204
21	20	1641	1502
22	21	1646	1795
23	22	1038	1331
24	23	1336	1516
25	24	1039	1161
26	25	1055	1280
27	26	1091	1529
28	27	1091	1701
29	28	1091	1500

	A	B	C
1	ID	Victory Status	Number of Turns
2	1	resign	1
3	2	outoftime	1
4	3	outoftime	1
5	4	outoftime	1
6	5	resign	1
7	6	outoftime	1
8	7	resign	1
9	8	outoftime	1
10	9	resign	1
11	10	resign	1
12	11	outoftime	1
13	12	outoftime	1
14	13	outoftime	1
15	14	outoftime	1
16	15	resign	1
17	16	outoftime	1
18	17	outoftime	1
19	18	resign	1
20	19	resign	2
21	20	draw	2
22	21	outoftime	2
23	22	outoftime	2
24	23	outoftime	2
25	24	outoftime	2
26	25	resign	2
27	26	resign	2
28	27	resign	2
29	28	resign	2

Sheet1
Sheet2
Sheet3
Sheet4
Sheet5

	A	B	C	D
1	ID	Victory Status	Initial Time	Increment/Move
2	1	resign	10	0
3	2	outoftime	10	60
4	3	outoftime	5	15
5	4	outoftime	5	5
6	5	resign	10	0
7	6	outoftime	5	15
8	7	resign	10	0
9	8	outoftime	60	60
10	9	resign	10	0
11	10	resign	10	25
12	11	outoftime	15	30
13	12	outoftime	5	60
14	13	outoftime	20	10
15	14	outoftime	20	10
16	15	resign	10	0
17	16	outoftime	10	20
18	17	outoftime	15	30
19	18	resign	10	0
20	19	resign	15	15
21	20	draw	10	0
22	21	outoftime	5	5
23	22	outoftime	15	0
24	23	outoftime	10	0
25	24	outoftime	150	180
26	25	resign	150	180
27	26	resign	180	180
28	27	resign	180	180
29	28	resign	30	0

Sheet1
Sheet2
Sheet3
Sheet4
Sheet5

	A	B	C	D
1	ID	Number of Moves/Opening	Opening Code	Opening Name
2	1	1	A00	Hungarian Opening
3	2	1	B00	King's Pawn
4	3	1	B00	King's Pawn
5	4	1	B00	King's Pawn
6	5	1	B00	King's Pawn
7	6	1	B00	King's Pawn
8	7	1	B00	King's Pawn
9	8	1	A04	Reti Opening
10	9	1	B00	King's Pawn
11	10	1	A40	Queen's Pawn
12	11	1	B00	King's Pawn
13	12	1	A40	Queen's Pawn
14	13	1	B00	King's Pawn
15	14	1	B00	King's Pawn
16	15	1	A00	Mieses Opening
17	16	1	A40	Queen's Pawn
18	17	1	B00	King's Pawn
19	18	1	B00	King's Pawn
20	19	2	B02	Alekhine Defense
21	20	2	B01	Scandinavian Defense
22	21	2	D00	Queen's Pawn Game
23	22	2	B01	Scandinavian Defense
24	23	2	B01	Scandinavian Defense
25	24	2	C20	King's Pawn Game
26	25	1	A00	Van't Kruijs Opening
27	26	1	A00	Van't Kruijs Opening
28	27	1	A00	Van't Kruijs Opening
29	28	1	A00	Van't Kruijs Opening

Sheet1
Sheet2
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Sheet7

	A	B
1	ID	List of Moves
2	1	g3
3	2	e4
4	3	e4
5	4	e4
6	5	e4
7	6	e4
8	7	e4
9	8	Nf3
10	9	e4
11	10	d4
12	11	e4
13	12	d4
14	13	e4
15	14	e4
16	15	d3
17	16	d4
18	17	e4
19	18	e4
20	19	e4 Nf6
21	20	e4 d5
22	21	d4 d5
23	22	e4 d5
24	23	e4 d5
25	24	e4 e5
26	25	e3 e5
27	26	e3 e5
28	27	e3 e6
29	28	e3 e5

Sheet1
Sheet2

Final Data (only for reference)

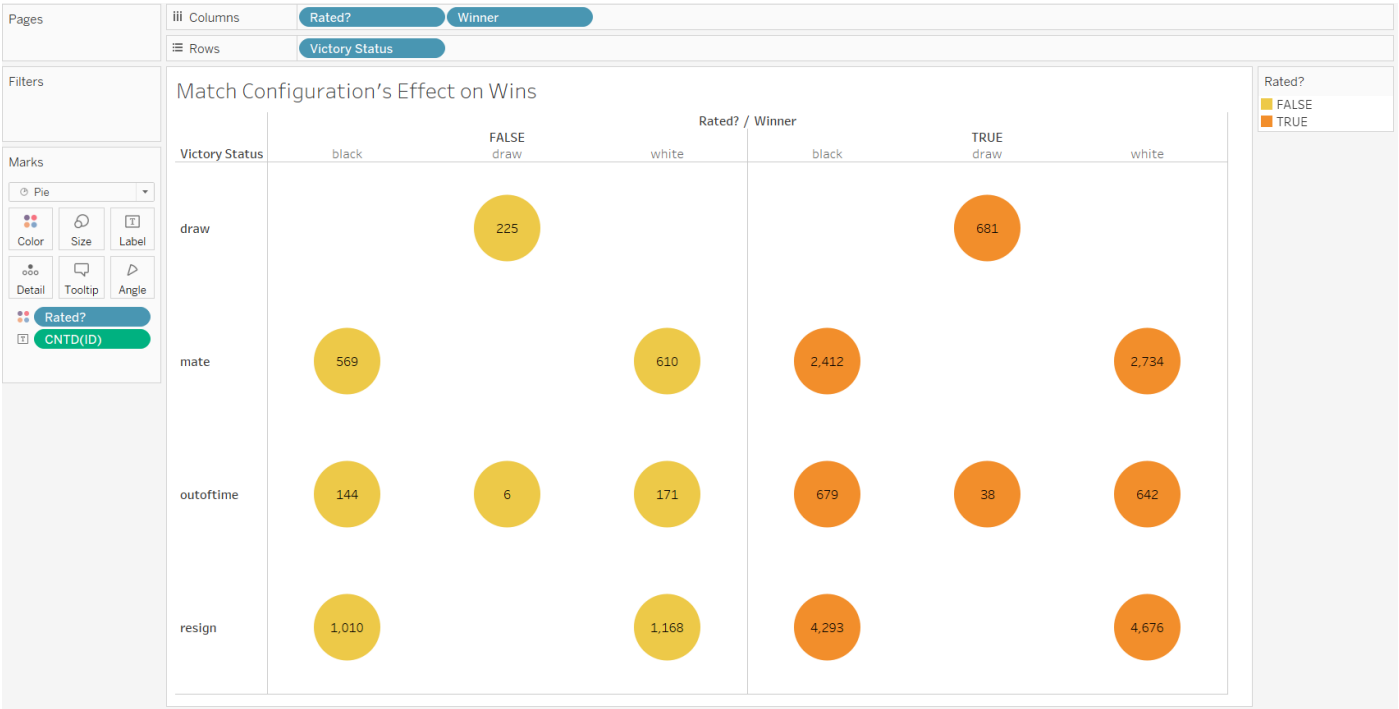
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	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	id	rated	turns	victory_status	winner	increment	white_rating	black_rating	moves	opening_eco	opening_name	opening_ply	time_control	comp_rating
2	1	TRUE	1	resign	black	0	1464	1355	g3	A00	Hungarian Opening	1	10	1
3	2	FALSE	1	outoftime	white	60	2032	1223	e4	B00	King's Pawn	1	10	1
4	3	FALSE	1	outoftime	white	15	2404	1616	e4	B00	King's Pawn	1	5	1
5	4	FALSE	1	outoftime	white	5	1500	2723	e4	B00	King's Pawn	1	5	-1
6	5	TRUE	1	resign	white	0	1670	1175	e4	B00	King's Pawn	1	10	1
7	6	FALSE	1	outoftime	white	15	2100	1404	e4	B00	King's Pawn	1	5	1
8	7	TRUE	1	resign	white	0	1778	1349	e4	B00	King's Pawn	1	10	1
9	8	FALSE	1	outoftime	white	60	2617	1500	Nf3	A04	Reti Opening	1	60	1
10	9	TRUE	1	resign	white	0	1484	2113	e4	B00	King's Pawn	1	10	-1
11	10	FALSE	1	resign	white	25	2621	1614	d4	A40	Queen's Pawn	1	10	1
12	11	FALSE	1	outoftime	white	30	2403	1746	e4	B00	King's Pawn	1	15	1
13	12	FALSE	1	outoftime	white	60	2621	1384	d4	A40	Queen's Pawn	1	5	1
14	13	FALSE	1	outoftime	white	10	2438	1666	e4	B00	King's Pawn	1	20	1
15	14	FALSE	1	outoftime	white	10	2438	1885	e4	B00	King's Pawn	1	20	1
16	15	TRUE	1	resign	black	0	1878	1860	d3	A00	Mieses Opening	1	10	1
17	16	FALSE	1	outoftime	white	20	2621	1324	d4	A40	Queen's Pawn	1	10	1
18	17	FALSE	1	outoftime	white	30	2403	1746	e4	B00	King's Pawn	1	15	1
19	18	TRUE	1	resign	white	0	1431	1367	e4	B00	King's Pawn	1	10	1
20	19	TRUE	2	resign	black	15	1443	1204	e4 Nf6	B02	Alekhine Defense	2	15	1
21	20	TRUE	2	draw	draw	0	1641	1502	e4 d5	B01	Scandinavian Defense	2	10	1
22	21	TRUE	2	outoftime	black	5	1646	1795	d4 d5	D00	Queen's Pawn Game	2	5	-1
23	22	FALSE	2	outoftime	black	0	1038	1331	e4 d5	B01	Scandinavian Defense	2	15	-1
24	23	TRUE	2	outoftime	black	0	1336	1516	e4 d5	B01	Scandinavian Defense	2	10	-1
25	24	TRUE	2	outoftime	black	180	1039	1161	e4 e5	C20	King's Pawn Game	2	150	-1
26	25	TRUE	2	resign	black	180	1055	1280	e3 e5	A00	Van't Kruijs Opening	1	150	-1
27	26	FALSE	2	resign	black	180	1091	1529	e3 e5	A00	Van't Kruijs Opening	1	180	-1
28	27	FALSE	2	resign	white	180	1091	1701	e3 e6	A00	Van't Kruijs Opening	1	180	-1
29	28	FALSE	2	resign	black	0	1091	1500	e3 e5	A00	Van't Kruijs Opening	1	30	-1

Visualizations in Tableau

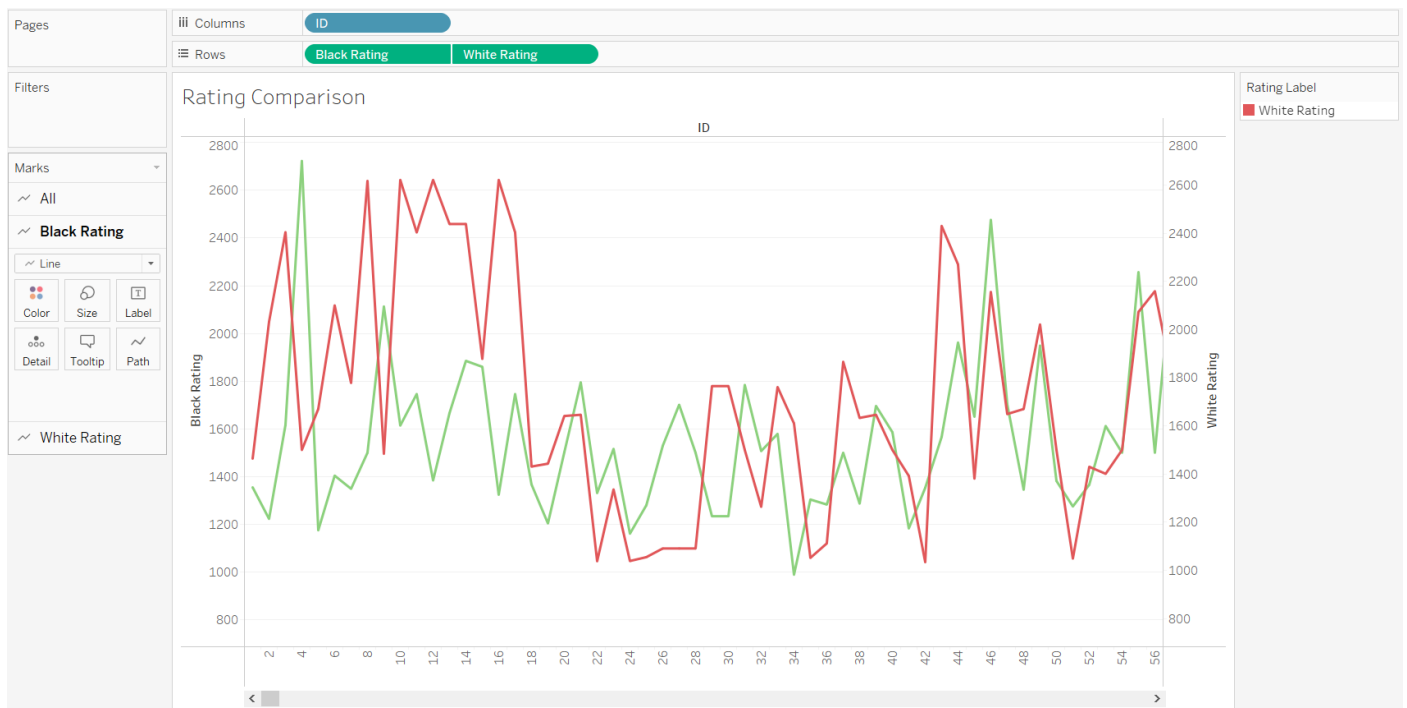
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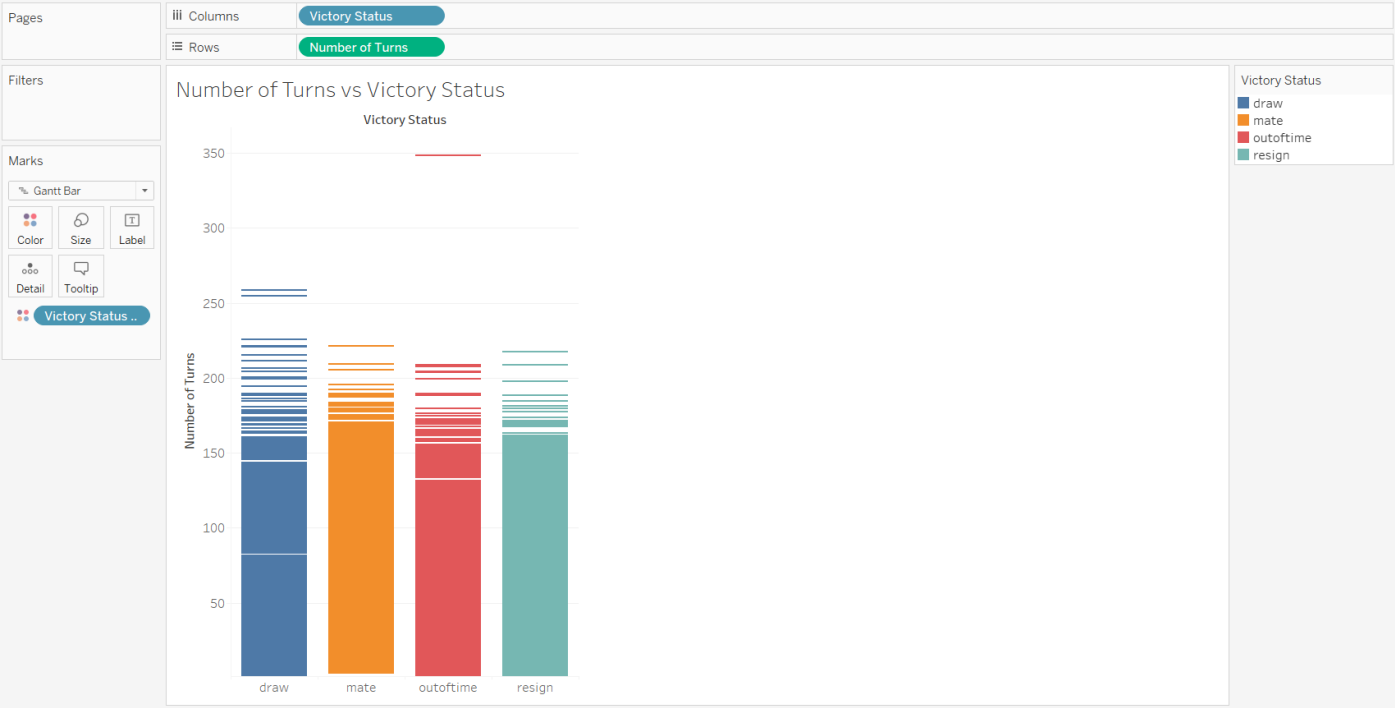
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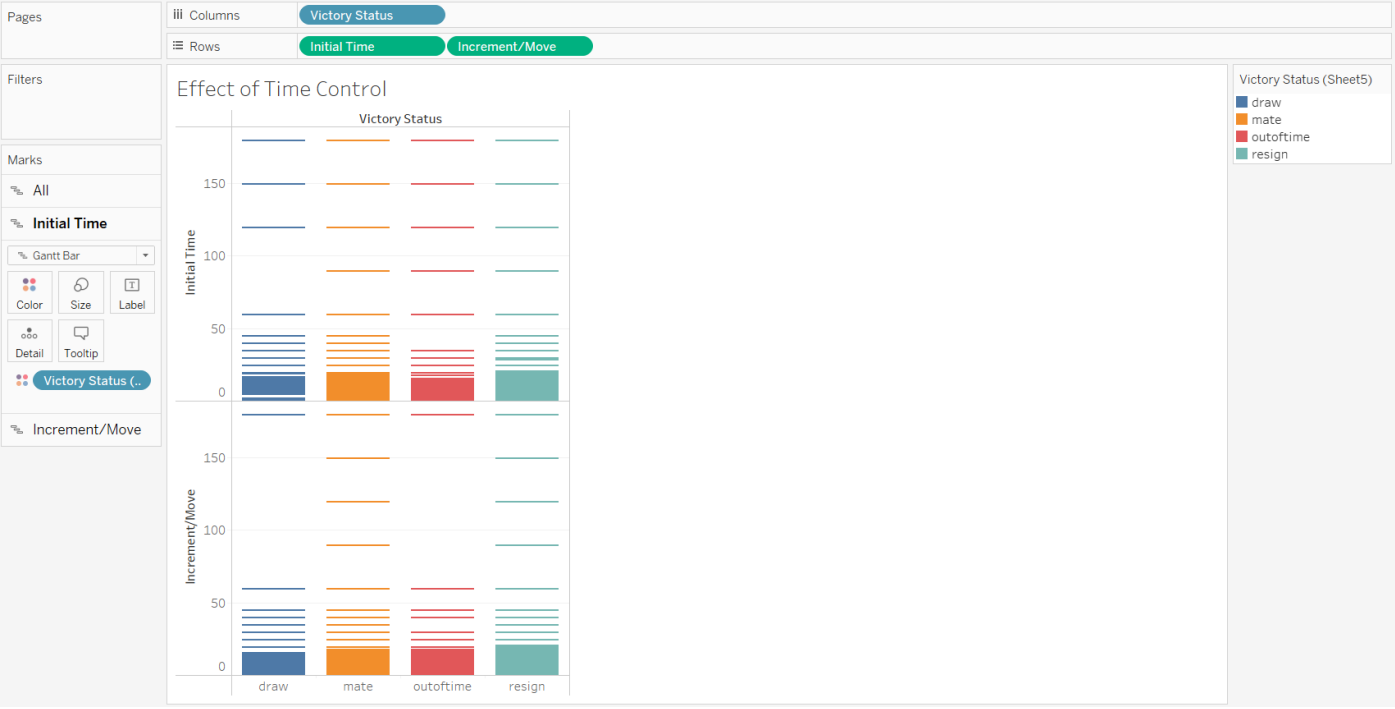
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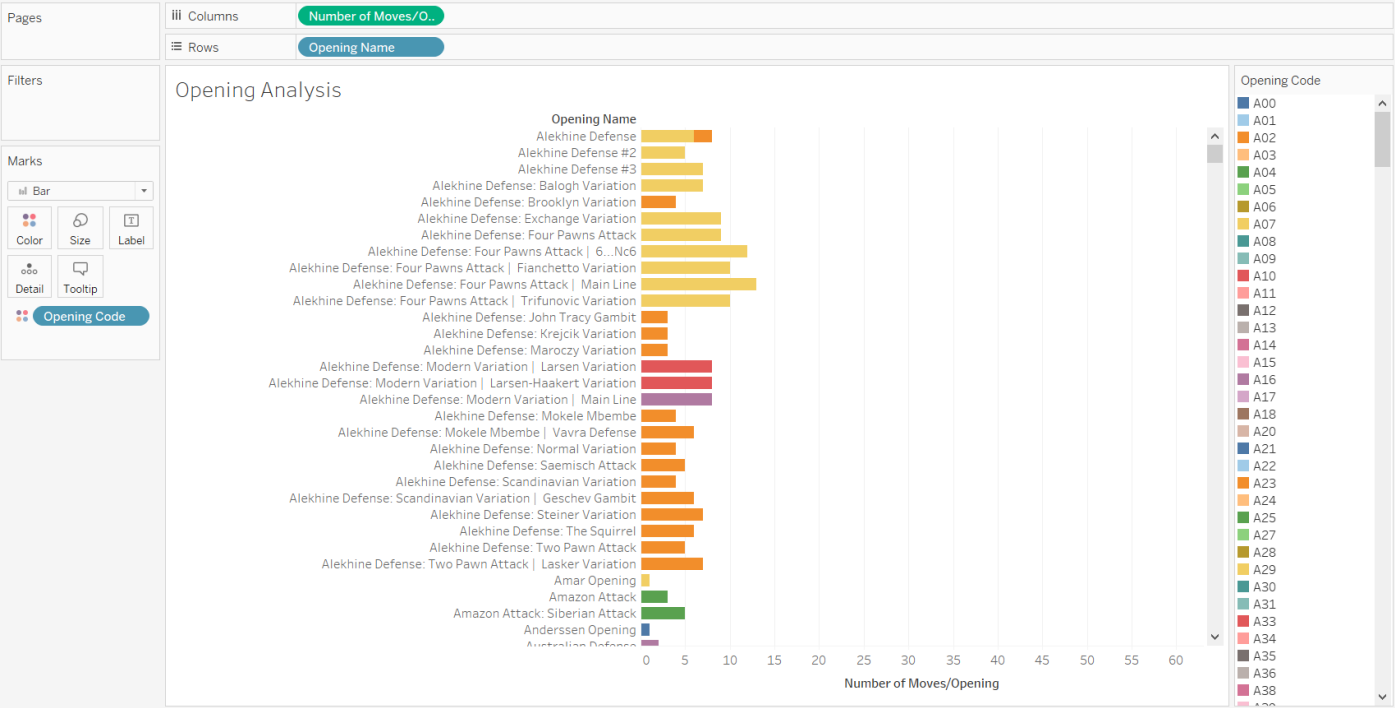
Sheet #4



Sheet #5



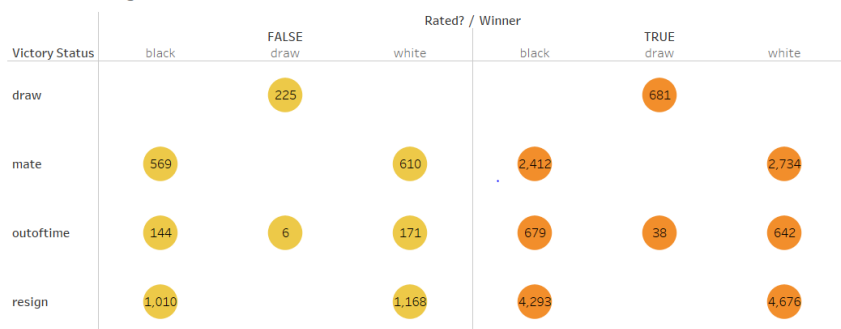
Sheet #6



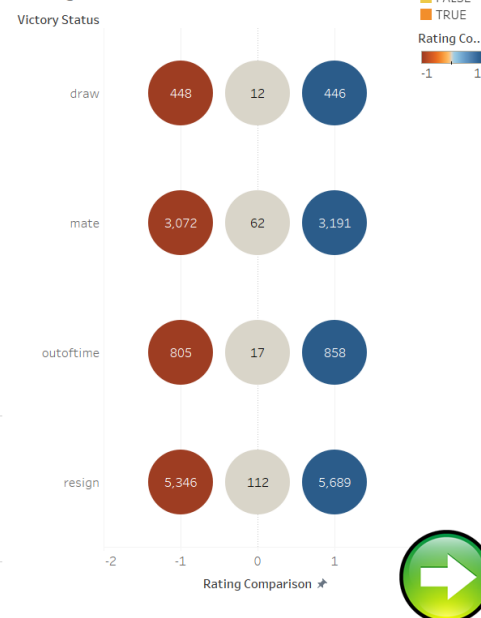
Final Dashboard

Chess Games' Analysis

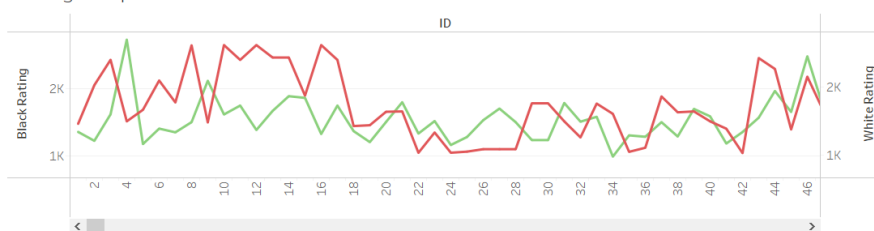
Match Configuration's Effect on Wins



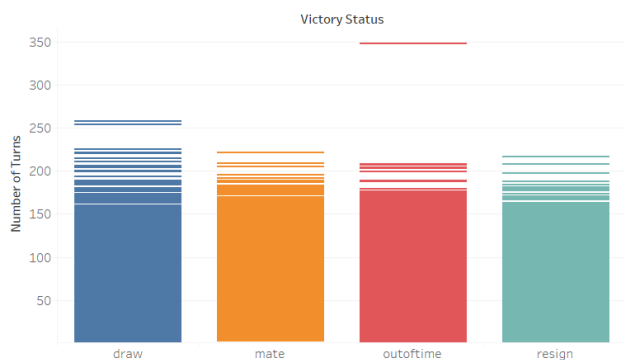
Rating's Effect on Wins



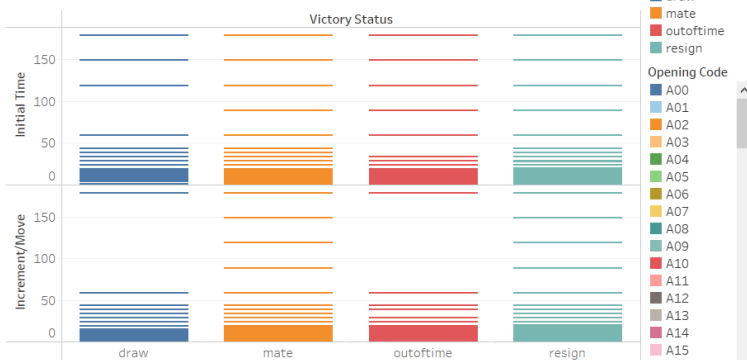
Rating Comparison



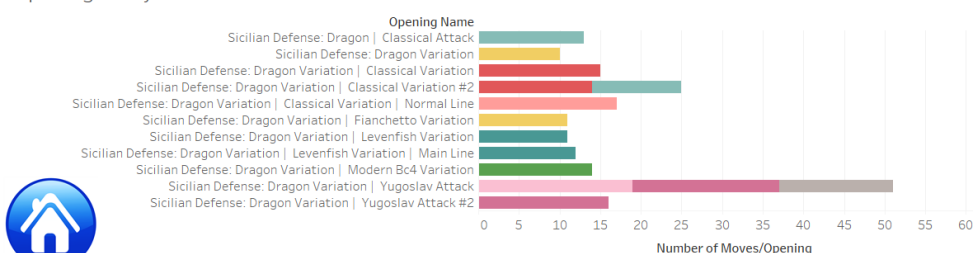
Number of Turns vs Victory Status



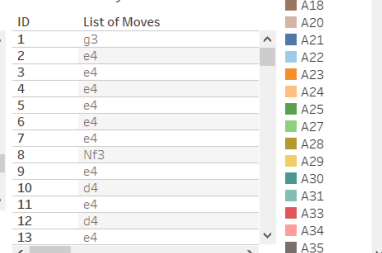
Effect of Time Control



Opening Analysis



Moves Played



Link:

https://public.tableau.com/app/profile/harshit.gogia/viz/Book1_16687134865710/Dashboard1?publish=yes