
An Analysis into Winning League of Legends

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Agenda

1. Business Questions
2. Methodology
3. Findings
 - a. Winning Variables
 - b. Vision Control
 - c. Gold Advantage
 - d. Achieving Objectives
 - e. Champion Win Rates and Matchups
 - f. Predicting Outcomes
4. Recommendations/ Next Steps
5. Follow Ups

Business Question

“What components of League of Legend games lead to winning beyond the standard objectives?”

“How can we predict League of Legends games?”

Methodology

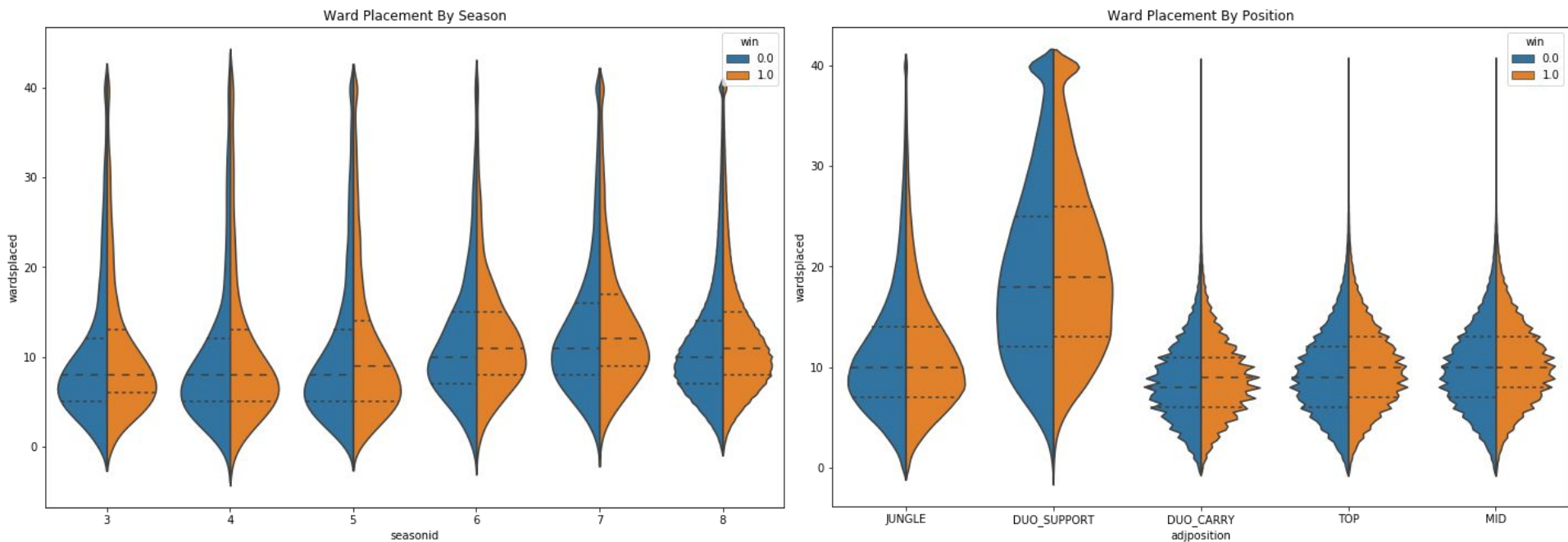
- 1) Gather data (180,000 played games)
- 2) Define variables that correlate with winning
- 3) Conducted multiple EDA practices on variables
- 4) Created and test models to predict outcome of games based on variables

Winning variables

Variable Correlations to Winning based on Game Durations (min)

<u>< 20</u>	<u>Corr</u>	<u>20 < X < 30</u>	<u>Corr</u>	<u>30 < X < 40</u>	<u>Corr</u>	<u>> 40</u>	<u>Corr</u>
Gold Earned	0.72	Gold Earned	0.56	Gold Earned	0.42	Inhibitor Kills	0.25
Deaths	0.66	Deaths	0.56	Turret Kills	0.39	Turret Kills	0.23
Turret Kills	0.57	Turret Kills	0.51	Deaths	0.38	Gold Earned	0.22
Largest Killing Spree	0.55	Assists	0.45	Inhibitor Kills	0.36	Deaths	0.19
Assists	0.54	Largest Killing Spree	0.44	Assists	0.33	Assists	0.19

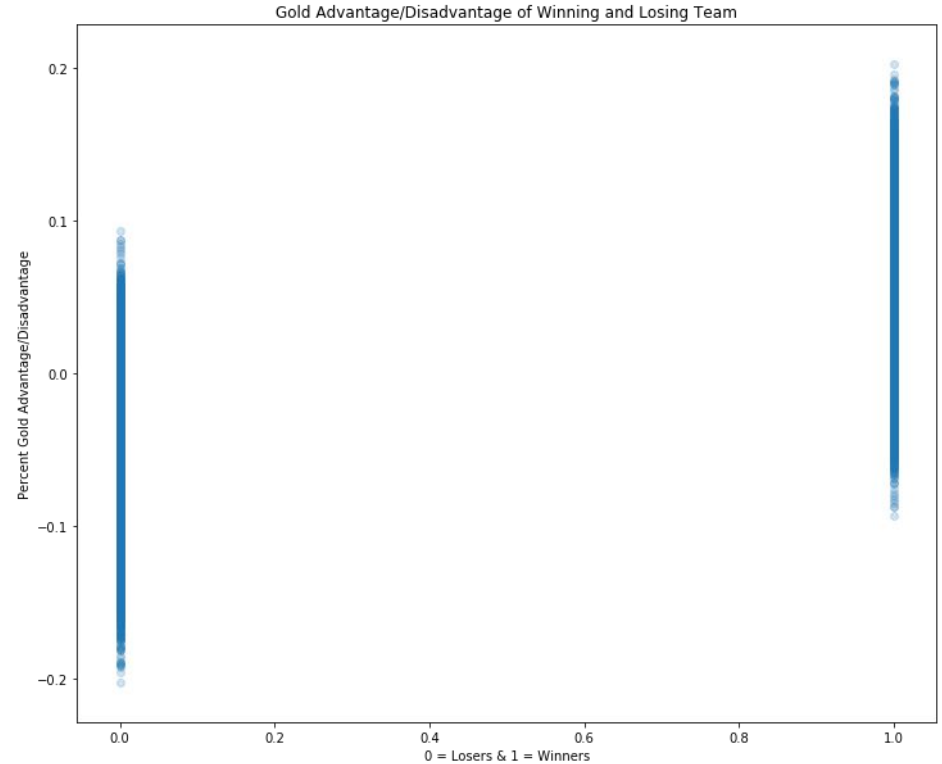
Vision control



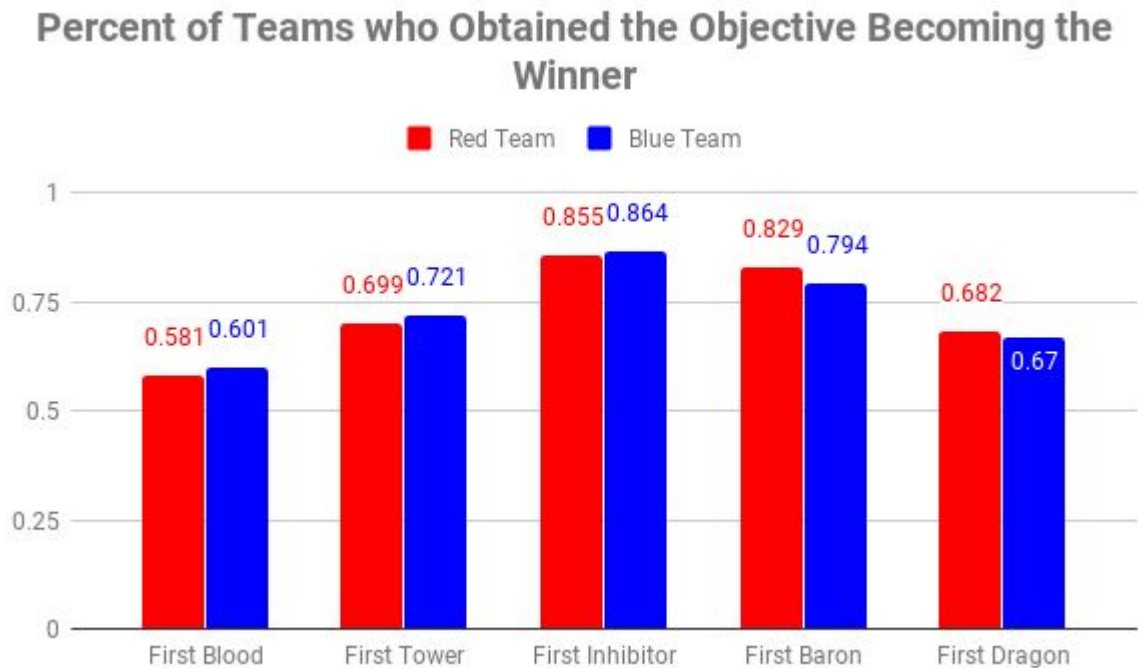
Gold Advantage



Winning teams had gold advantage



Achieving Objectives



Champion Win Rate and Matchups

Top 10 win rate

	win rate	K	D	A	KDA
name					
Ivern	55.9	2.6	4.2	13.3	3.8
Anivia	54.0	6.4	4.8	7.5	2.9
Xerath	53.6	7.3	5.4	8.6	2.9
Ahri	53.5	7.3	5.6	7.7	2.7
Sona	53.1	3.0	5.7	13.9	2.9
Skarner	53.1	4.8	5.0	9.2	2.8
Zilean	53.0	3.2	4.7	11.9	3.2
KogMaw	52.7	7.9	6.6	7.1	2.3
Janna	52.7	0.9	4.0	14.5	3.8
Pantheon	52.6	8.1	6.5	6.8	2.3

Score +/- means first/second champion dominant:

MID:

	match up	score
0	Annie vs Ryze	25.0
1	Ahri vs Ryze	21.2
8	Azir vs Lux	-14.7
12	Ryze vs Twisted Fate	-14.1
13	Ekko vs Ryze	13.8

JUNGLE:

	match up	score
2	Rengar vs Xin Zhao	-17.5
4	Evelynn vs Rengar	15.3
5	Hecarim vs Twitch	15.2
10	Graves vs Ivern	-14.4
11	Nunu vs Vi	14.2

TOP:

	match up	score
3	Gangplank vs Singed	15.7
6	Yasuo vs Yorick	15.1
9	Shen vs Teemo	-14.6
14	Maokai vs Yasuo	-13.7
15	Irelia vs Kennen	13.4

DUO_SUPPORT:

	match up	score
7	Janna vs Tahm Kench	14.9
23	Blitzcrank vs Galio	13.1
37	Leona vs VelKoz	12.1
61	Tahm Kench vs Zyra	-10.7
74	Brand vs Lux	10.4

DUO_CARRY:

	match up	score
29	Kalista vs KogMaw	-12.6
72	Ezreal vs Graves	-10.5
95	Graves vs Vayne	-9.7
110	Sivir vs Twitch	-9.2
176	KogMaw vs Twitch	-8.1

Champion Win Rate and Matchups cont.

Top 10 win rate

	total matches	win rate	K	D	A	KDA
teammate						
Draven & Zilean	388	60.8	5.2	5.4	10.3	2.9
Twitch & Zilean	376	60.1	5.2	5.2	10.8	3.1
Lucian & Gragas	308	58.4	5.1	5.5	10.1	2.8
KogMaw & Blitzcrank	428	58.4	5.9	6.2	11.4	2.8
Ashe & Zilean	502	58.2	4.1	5.3	11.3	2.9
Twitch & Nautilus	468	58.1	5.6	5.8	10.9	2.8
Miss Fortune & Leona	2066	57.5	5.5	5.9	11.7	2.9
Twitch & Sona	1084	57.2	5.5	5.9	11.0	2.8
Draven & Sona	1154	57.2	5.0	5.8	10.4	2.7
KogMaw & Janna	1262	56.7	4.4	5.0	10.9	3.1

Predicting Outcomes

<u>Baseline</u>	VS	<u>Model</u>
51%		62%

1. Champion win rate vs their matchup
2. Champion overall win rate
3. Overall composition of team
4. Champion playrate

Recommendations / Next Steps

Components to winning:

1. Learn Champions Advantages:
 - a. Matchups
 - b. Overall strength
2. "Game Flow"
 - a. Early Game = gold and staying alive
 - b. Mid and Late Game = Macro (Neutral Objectives, Turrets, Inhibitors)
3. Winners Ward

Predicting outcomes:

1. Very difficult for public games:
 - a. Recommend voice communication
 - b. Update player queuing system

Follow Ups

Potential follow up analysis:

- 1) Conduct same analysis breaking up data into ranked tiers (if available)
- 2) Conduct analysis with players who play with each other vs random teams