

PREDICTING DOTA 2 MATCHES USING MACHINE LEARNING

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PROJECT QUESTION

- IS IT POSSIBLE TO PREDICT THE OUTCOME OF A DOTA 2 MATCH USING MATCH DATA HISTORY FROM THE STEAM API?
 - IS IT POSSIBLE TO PREDICT THE MATCH OUTCOME BASED ON HERO SELECTION?

WHAT IS DOTA 2?

- “DEFENSE OF THE ANCIENTS”
- DOTA 2 IS MULTIPLAYER ONLINE BATTLE ARENA (MOBA) PC GAME
- TEN PLAYERS PLAY AT ONCE, FIVE ON A TEAM. EACH TEAM BASED IN A CORNER OF THE MAP



WHAT IS DOTA 2?

- EACH TEAM OF 5 PLAYERS CHOOSES FROM 110 “HEROES” THAT HAVE UNIQUE ABILITIES.



WHAT IS DOTA 2?

- EACH HERO BECOMES MORE POWERFUL OVER TIME BY GAINING EXPERIENCE. PLAYERS ALSO EARN GOLD AND PURCHASE ITEMS THAT INCREASE SKILL OF HEROES



WHAT IS DOTA 2?



- A TEAM WINS WHEN THEY DESTROY THE OPPOSING TEAM'S ANCIENT

DATA COLLECTION

- STEAM API
 - ACCESS TO DETAILS ON EVERY PUBLIC MATCH

MATCH ID
169177907

DIRE VICTORY

22:50

The Radiant

PLAYER	LEVEL	HERO	K	D	A	ITEMS	GOLD	LAST HITS	DENIES	GOLD/MIN	XP/MIN
LGD.Taobao.longdd	9	Shadow Shaman	0	2	7		1665	32	5	217	219
LGD.Taobao.Sylar	14	Phantom Lancer	1	0	6		3474	173	25	522	478
LGD.Taobao.Yao	12	Lifestealer	1	0	3		2932	70	12	319	358
LGD.Taobao.ddc	12	Brewmaster	5	0	3		3651	79	6	374	391
LGD.Taobao.xiao8	10	Keeper of the Light	2	0	2		1494	65	2	273	248

The Dire

PLAYER	LEVEL	HERO	K	D	A	ITEMS	GOLD	LAST HITS	DENIES	GOLD/MIN	XP/MIN
zEn th` xFreedom	8	Juggernaut	2	0	0		357	34	0	162	152
? zEn th` Ice	8	Nyx Assassin	0	3	1		524	13	4	123	151
? zEn th` N.W.P	12	Storm Spirit	0	3	0		667	129	13	365	379
zEn th` iceiceice	11	Lone Druid	0	2	1		517	80	4	276	307
standin.Meracle	12	Mirana	0	1	0		1168	145	8	376	370

CLOSE

DATA COLLECTION

- TWO STEP PROCESS
 - NECESSARY TO FILTER RESULTS
 - CAN ONLY DO THAT THROUGH A SPECIFIC CALL
- GET LIST OF MATCHES
 - 100 AT A TIME (NEED THOUSANDS)

DATA COLLECTION

- TWO STEP PROCESS
 - NECESSARY TO FILTER RESULTS
 - CAN ONLY DO THAT THROUGH A SPECIFIC CALL
- GET LIST OF MATCHES
 - 100 AT A TIME (NEED THOUSANDS)
- USE THE LIST OF MATCHES TO GET THEIR DETAILS USING ANOTHER CALL
 - 1 MATCH AT A TIME

MODELING DOTA 2 MATCHES

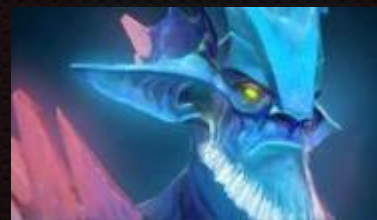
- CLASSIFICATION PROBLEM
 - WIN/LOSE
- LOGIT/LPM OR KNN MODELS
- INDEPENDENT VARIABLES: HEROES SELECTED, PERFORMANCE OF EACH HERO
- DEPENDENT VARIABLE: WIN (1 OR 0)

MODELING DOTA 2 MATCHES

- LIMITATIONS OF LOGIT/LPM, KNN:
 - DOESN'T AUTOMATICALLY ACCOUNT FOR INTERACTIONS

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QUESTIONS?