

Final Project Summary

Video Game Data Analysis

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CMP 262

Goals for Analysis:

I wanted to look at the ratings for different video games and see how they compared to genre, platform, ESRB rating, recommendation count, and the completion status. I made plots of the results to visualize trends about what developers should keep in mind when creating new games. In the future, I would like to take the same data from different game rating websites to perform more accurate analysis.

Tools used:

Jupyter Notebook

Python Packages:

pandas

numpy

matplotlib

seaborn

Video Game Data Analytics

Original Dataset: <https://www.kaggle.com/datasets/jummyegg/rawg-game-dataset/data>

474417 rows × 26 columns

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB		
1	id	slug	name	metacritic	released	tba	updated	website	rating	rating_top	playtime	achievements	ratings_count	suggestion	game_series	reviews_count	platforms	developers	genres	publishers	esrb_rating	added_stats	added_stats	added_stats	added_stats	added_status	playing		
2	1	dgeneratio	D/Generation HD	#####	FALSE	2019-09-17	http://dgen	0	0	1	80	2	292	0	4	PC mac	West Coas	Adventure	West Coas	Everyone 1	4	88	2	2	0	0	0		
3	10	g-prime	G Prime Into The Rain	1/6/2016	FALSE	2019-11-06T23:04:19	1/6/2016	0	0	0	26	3	389	0	3	macOS iP	Soma Gam	Simulation	Immanitas	Everyone	2	42	2	0	0	0	0		
4	100	land-slider	Land Sliders	9/24/2015	FALSE	2019-10-21	http://prett	0	0	0	0	2	83	0	2	iOS	Prettygreat	Adventure	Prettygreat	Everyone 1	0	2	2	0	0	1	0		
5	1000	pixel-gear	Pixel Gear	#####	FALSE	2019-08-21	https://ww	0	0	0	0	0	455	0	0	0	PC PlaySt	Oasis Gam	Action	In Geronimo	Teen	0	1	0	0	0	0	0	
6	10000	gods-and-i	Gods and Idols	#####	FALSE	2019-09-17	http://www	0	1	1	0	5	262	0	5	PC	Viking Tao	RPG Strat	Viking Tao		2	79	0	0	0	0	0		
7	100000	plague-ven	Plague venue	12/2/2017	FALSE	2019-01-09T12:41:06	12/2/2017	0	0	0	0	0	40	0	0	Web	Alexander Ponomariov				0	0	0	0	0	0	0		
8	100001	the-moon-	The Moon Sliver (itch)	5/3/2014	FALSE	2019-01-09T12:41:06	5/3/2014	0	0	0	0	0	116	0	0	0	PC mac	David Szym	Adventure			0	0	0	0	0	0	0	
9	100002	red-entity	Red Entity	8/26/2014	FALSE	2019-01-09T12:41:06	8/26/2014	0	0	0	0	0	39	0	0	0	PC mac	woof	Action	Shooter		0	0	0	0	0	0	0	
10	100004	hippiesvsc	HippiesVsCops	4/18/2016	FALSE	2019-08-28T23:25:11	4/18/2016	0	0	0	0	0	26	0	0	0	PC	alegarofici	Strategy			0	0	0	0	0	0	0	
11	100005	they-came	They Came Through th	6/24/2018	FALSE	2019-01-09T12:41:06	6/24/2018	0	0	0	0	0	98	0	0	0	PC	Atte Okkon	Platformer			0	0	0	0	0	0	0	
12	100006	fading-light	Fading Light: Descent	8/24/2017	FALSE	2019-01-09T12:41:06	8/24/2017	0	0	0	0	0	279	0	0	0	PC	Dansodic	Adventure			0	1	0	0	0	0	0	
13	100007	the-book-ri	The Book Ritual (Beta)	7/6/2018	FALSE	2019-01-09T12:41:06	7/6/2018	0	0	0	0	0	111	0	0	0	PC mac	Alistair Aitcheson				0	0	0	0	0	0	0	
14	100009	corner-of-t	Corner of the Club Sir	4/30/2018	FALSE	2019-01-09T12:41:06	4/30/2018	0	0	0	0	0	21	0	0	0	PC Web	Jayson Mu	Simulation			0	0	0	0	0	0	0	
15	10001	serious-sai	Serious Sam Fusion 2	3/20/2017	FALSE	2020-03-06	http://www	3.07	4	1	76	227	541	19	227	Linux ma	Croteam	Action	In Devolver Digital Crot		200	3292	41	11	79	2			
16	100010	intelligence	Intelligence: The 314t	8/31/2016	FALSE	2019-01-09T12:41:06	8/31/2016	0	0	0	0	0	355	0	0	0	PC	Bizarre Mo	RPG			0	0	0	0	0	0	0	
17	100011	que-sera-s	Que Sera Sera Demo	4/8/2018	FALSE	2019-08-28T23:25:11	4/8/2018	0	0	0	0	0	164	0	0	0	PC mac	Eufrasio	Action	Shooter Platformer		0	0	0	0	0	0	0	
18	100012	excelsior-p	Excelsior Phase One: I	2/6/2017	FALSE	2019-01-09T12:41:06	2/6/2017	0	0	0	0	0	164	0	0	0	PC	11th Dime	RPG			0	0	0	0	0	0	0	
19	100014	space-esc	Space Escape	9/5/2015	FALSE	2019-01-09T12:41:06	9/5/2015	0	0	0	0	0	58	0	0	0	Web	Dark Wall	Shooter			0	0	0	0	0	0	0	
20	100015	passing-thr	Passing Through the M	7/2/2018	FALSE	2019-01-09T12:41:06	7/2/2018	0	0	0	0	0	7	0	0	0	Web	Dermot				0	0	0	0	0	0	0	
21	100016	corpus100	CORPUS100	5/12/2017	FALSE	2019-08-28T23:25:11	5/12/2017	0	0	0	0	0	48	0	0	0	Web	MAVW	Shooter			0	0	0	0	0	0	0	
22	100017	thoughts	Thoughts	5/5/2016	FALSE	2019-01-09T12:41:06	5/5/2016	0	0	0	0	0	56	0	0	0	PC	VikkiRuttle	Platformer			0	0	0	0	0	0	0	
23	100018	blasted-bo	Blasted Bots	3/7/2016	FALSE	2019-01-09T12:41:06	3/7/2016	0	0	0	0	0	201	0	0	0	PC	IanAnimate	Shooter			0	0	0	0	0	0	0	
24	100019	the-spaghe	The Spaghetti Western	3/31/2018	FALSE	2019-01-09T12:41:06	3/31/2018	0	0	0	0	0	22	0	0	0	Web	Jordan Oloman				0	0	0	0	0	0	0	
25	10002	life-is-feud	Life is Feudal: Forest	8/26/2016	FALSE	2019-09-17	http://lifeisf	3.74	4	3	29	18	596	0	19	PC	Mindillusio	Strategy	Bitbox		8	150	7	10	5	4			
26	100020	legionwood	Legionwood 2: Rise of	1/3/2016	FALSE	2019-01-09T12:41:06	1/3/2016	0	0	0	0	0	230	0	0	0	PC	Dark Gaia	RPG			0	0	0	0	0	0	0	
27	100021	shape-mas	Shape Master	4/18/2016	FALSE	2019-01-09T12:41:06	4/18/2016	0	0	0	0	0	129	0	0	0	PC mac	B0pt1K				0	0	0	0	0	0	0	
28	100022	my-world	My World	4/25/2017	FALSE	2019-01-09T12:41:06	4/25/2017	0	0	0	0	0	84	0	0	0	PC mac	ciderwrath				0	0	0	0	0	0	0	
29	100023	toilet-tyco	Toilet Tycoon (itch)	5/3/2016	FALSE	2019-01-09T12:41:06	5/3/2016	0	0	0	0	0	124	0	0	0	PC	Plug In Digi	Strategy	Simulation		0	0	0	0	0	0	0	
30	100024	daddy-don	Daddy, Don't Explode	9/25/2015	FALSE	2019-01-09T12:41:06	9/25/2015	0	0	0	0	0	33	0	0	0	PC	Fi Silva	Puzzle			0	0	0	0	0	0	0	
31	100025	the-spellbe	The Spellbelト Keep	5/27/2016	FALSE	2019-08-28T23:25:11	5/27/2016	0	0	0	0	0	209	0	0	0	PC	Billy Slang	RPG			0	0	0	0	0	0	0	
32	100027	circuit-bre	Circuit Breakers - Dem	9/2/2016	FALSE	2019-01-09T12:41:06	9/2/2016	0	0	0	0	0	142	0	0	0	PC	reel_big_kr	Shooter			0	0	0	0	0	0	0	
33	100028	toadies-ad	Toadie's Adventure	3/30/2018	FALSE	2019-01-09T12:41:06	3/30/2018	0	0	0	0	0	99	0	0	0	PC	FelixBlobD	Adventure	Platformer		0	0	0	0	0	0	0	
34	100029	a-near-dav	A Near Dawn: Text Pro	11/1/2017	FALSE	2019-01-09T12:41:06	11/1/2017	0	0	0	0	0	10	0	0	0	Web	Leonid Pilc	Adventure			0	0	0	0	0	0	0	
35	10003	naval-actic	Naval Action	1/21/2016	FALSE	2020-11-06	http://www	0	5	15	0	4	342	0	5	PC	Game-Lab	Action	Ad Game-Labs		2	49	2	1	1	0			
36	100030	nurify	Purify	2/24/2017	FALSE	2019-01-09T12:41:06	2/24/2017	0	0	0	0	0	32	0	0	0	PC	Trov-Marte	Action			0	0	0	0	0	0	0	

After Cleaning the Data

1842 rows × 11 columns

B	C	D	E	F	G	H	I	J	K	L
name	metacritic	rating	ratings_count	suggestions	reviews_count	platforms	genres	esrb_rating	added_status_beaten	added_status_dropped
Serious Sam Fusion 2017 (beta)	3.07	227	541	227	Linux macOS PC	Action Indie	N/A		41	79
Geneshift	2.2	139	380	139	Linux PC	Action RPG Indie	N/A		2	26
Space Engineers	68	3.54	176	479	177	PC Xbox One	Action Strategy Simu	N/A	26	119
Battlerite	3.24	393	518	395	PC	Action	N/A		41	249
HITMAN	83	3.92	1371	586	1375	Linux macOS PC Xbox One	Action Shooter	Adults Only		656
Europa Universalis IV	87	4.26	240	519	241	PC Linux macOS	Strategy	N/A	70	74
Tyranny	80	4.07	298	521	302	macOS Linux PC	RPG	N/A	182	79
Stellaris	78	4.25	421	402	428	Linux PC Nintendo Switch	n Strategy Simulation	N/A	113	156
Hitman: Codename 47	73	3.87	367	537	367	PC	Action Shooter	Mature		300
Thief Gold	92	4.13	173	478	173	PC	Action Simulation	Mature		81
Kane and Lynch: Dead Men	67	3.64	315	549	316	PC Xbox 360 PlayStation 3	Action Shooter	N/A		299
Watch Dogs 2	79	3.85	1044	592	1052	PC PlayStation 4 Xbox One	Action Adventure	Mature		742
Cities: Skylines	85	4.15	951	479	956	Linux macOS PC Nintendo	n Strategy Simulation	Everyone		300
Divinity: Original Sin 2	95	4.39	923	307	938	PlayStation 4 Xbox One PC	RPG Strategy	N/A		342
Owlboy	88	3.82	245	549	247	PlayStation 4 Nintendo Switch	Action Adventure In	N/A		159
Beholder	75	3.77	367	345	368	Linux PC iOS Android mac	Adventure RPG Strat	N/A		128
Minion Masters	2.42	241	420	242	PC Xbox One	Action Strategy Indie	N/A		10	99

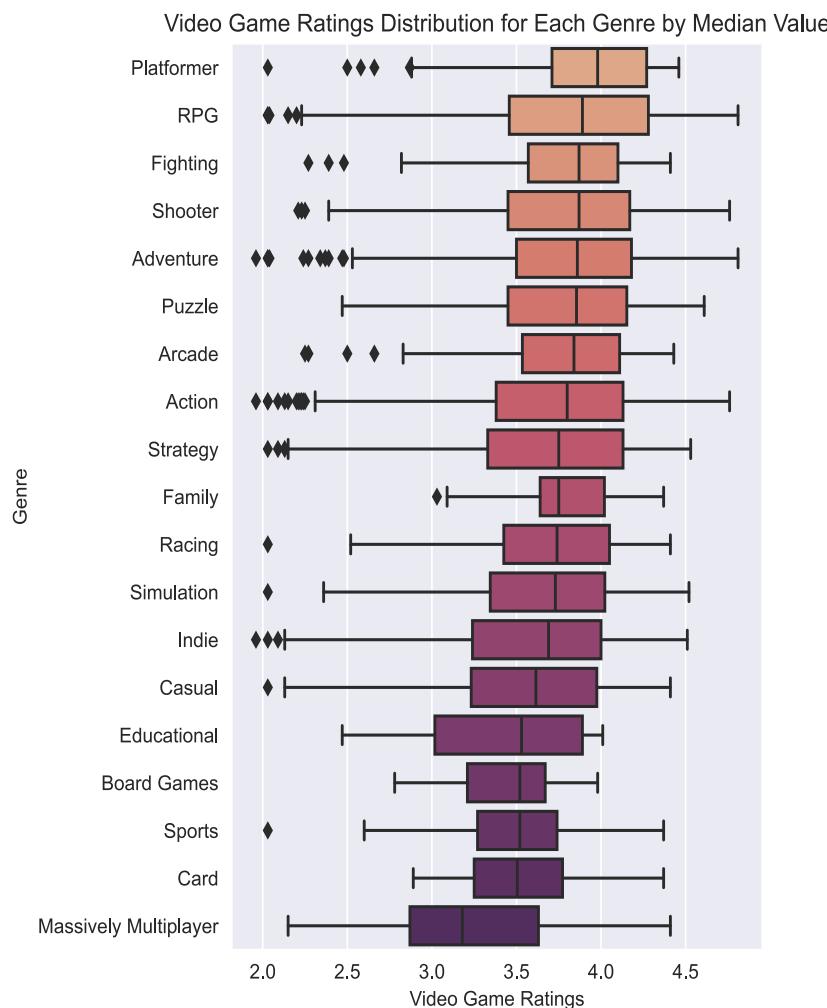
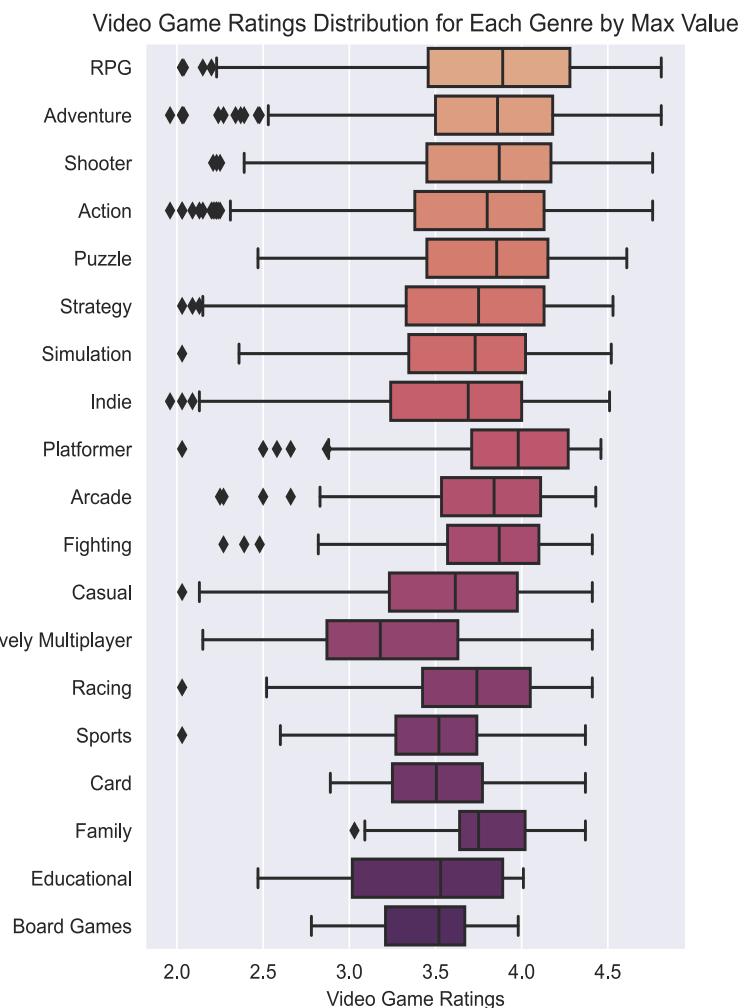
Which genres have the highest ratings?

This data shows that RPGs, Adventure, Shooter, and Platformer games are the most popular genres.

Developers would likely have better luck creating games in these genres than making MMO or board games.

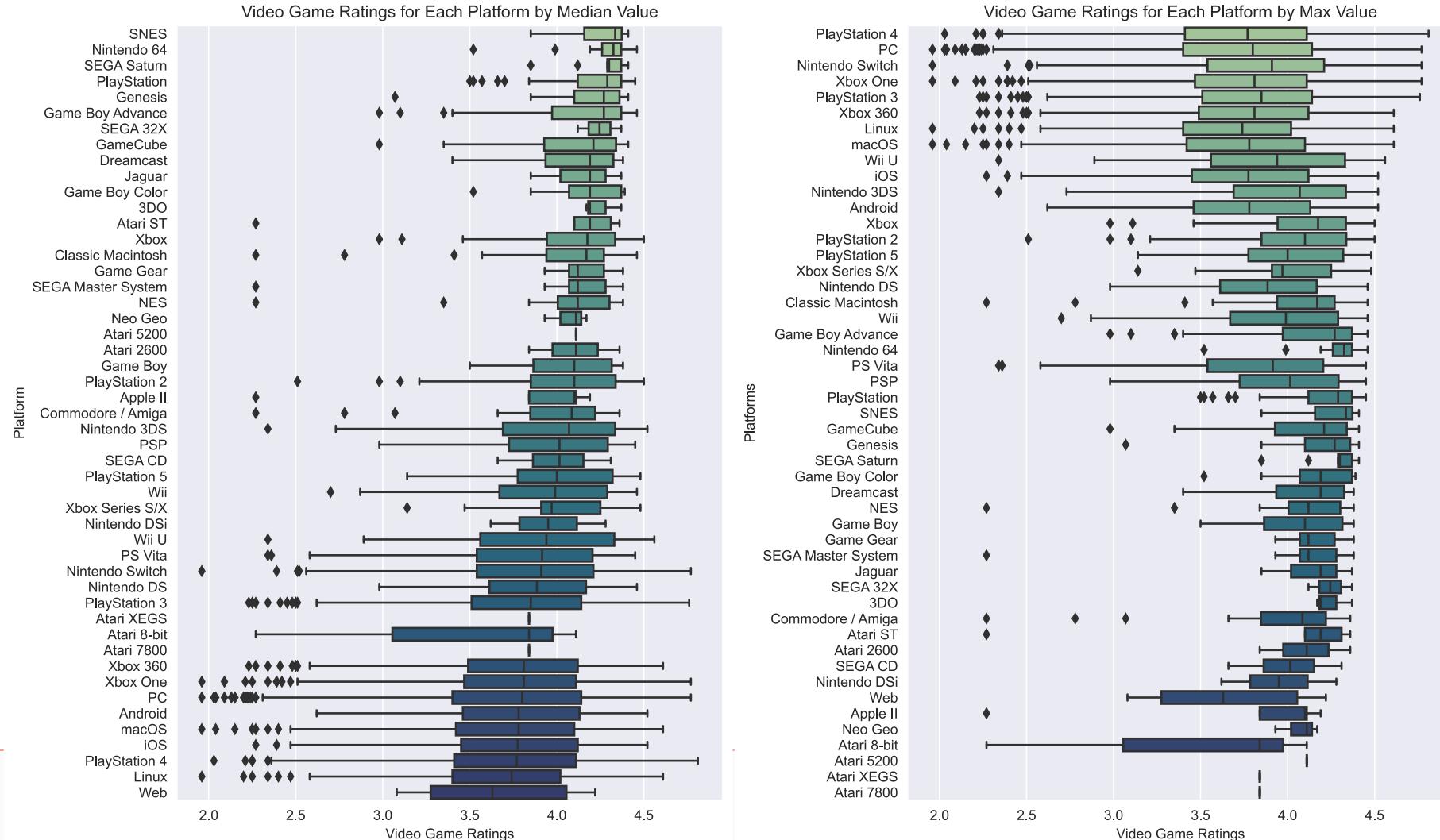
	genres	rating
	id	
339958	RPG	4.81
339958	Adventure	4.81
257255	Adventure	4.77
257255	RPG	4.77
4167	RPG	4.76
...
16183	Racing	2.03
16183	Simulation	2.03
17004	Adventure	1.96
17004	Action	1.96
17004	Indie	1.96

4506 rows × 2 columns



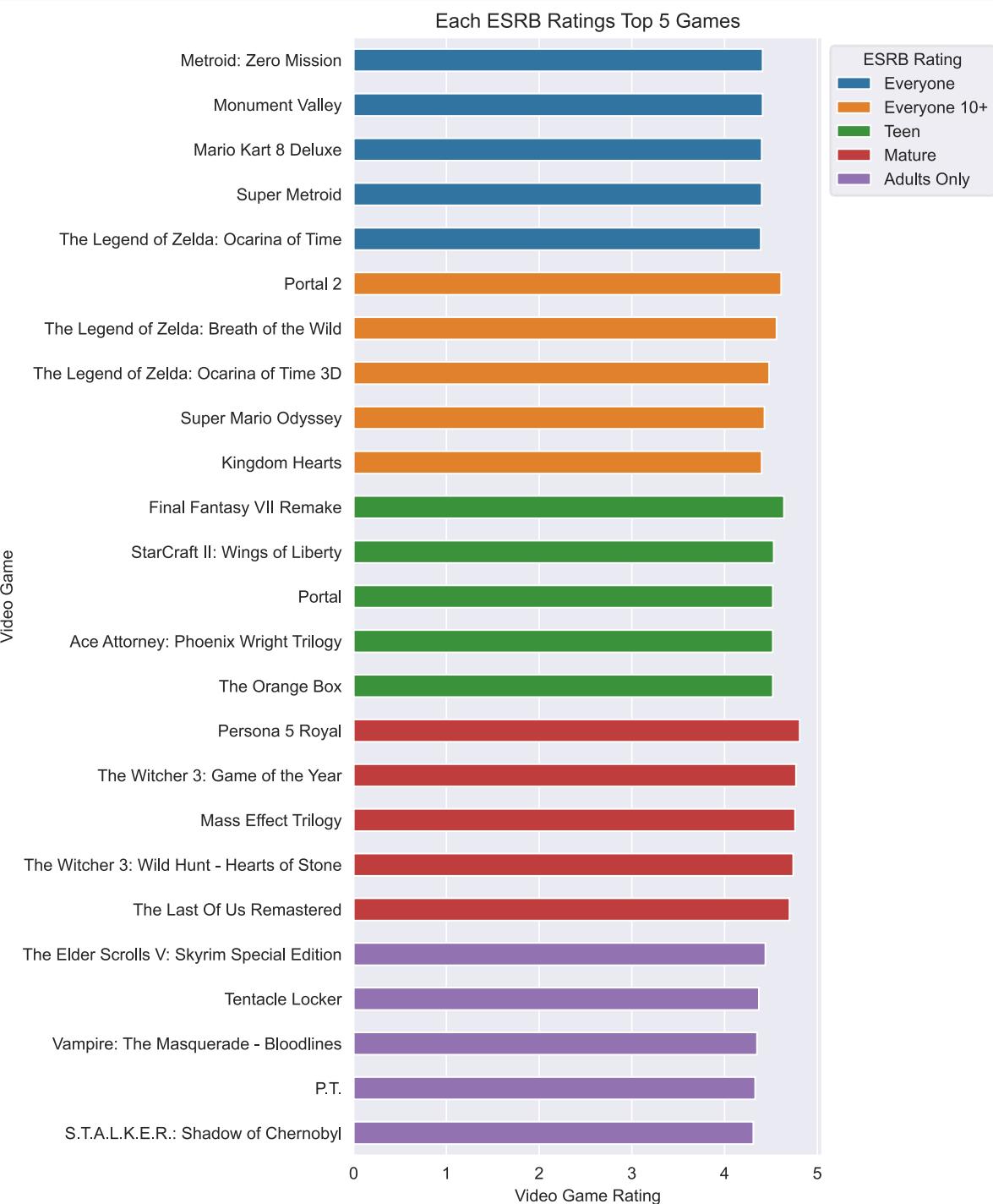
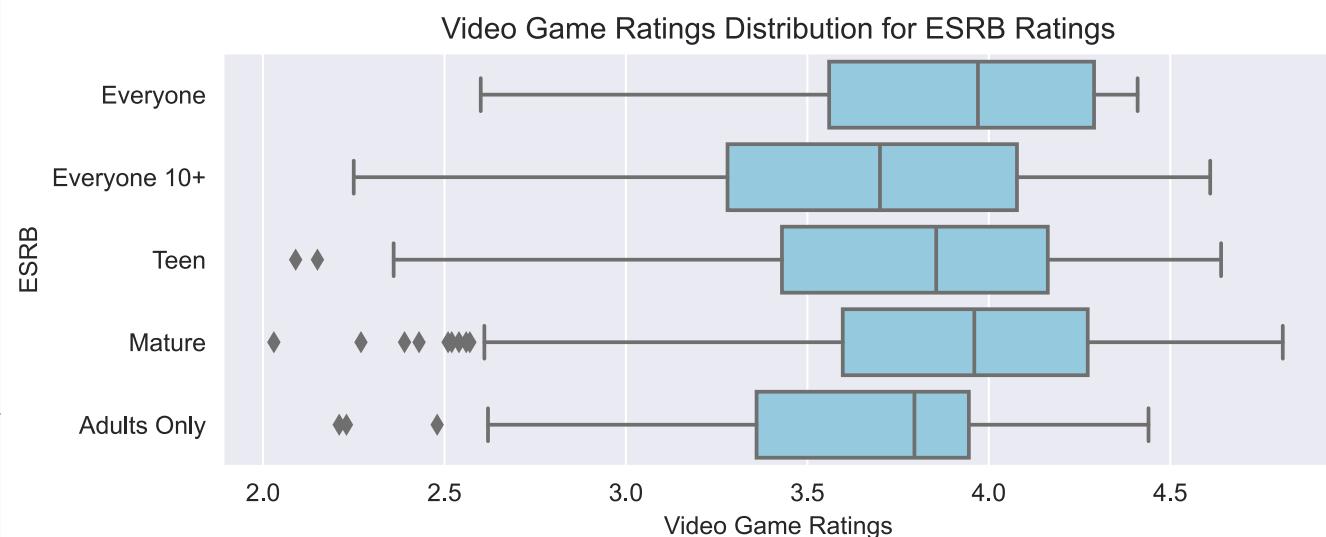
Video Game Ratings for Each Platform

When looking at the data for platform ratings, it's a bit harder to identify a clear winner. While PlayStation 4 has the highest maximum rating, it has the third lowest mean. PC is also at the top of the max value list, but the bottom of the median ratings.



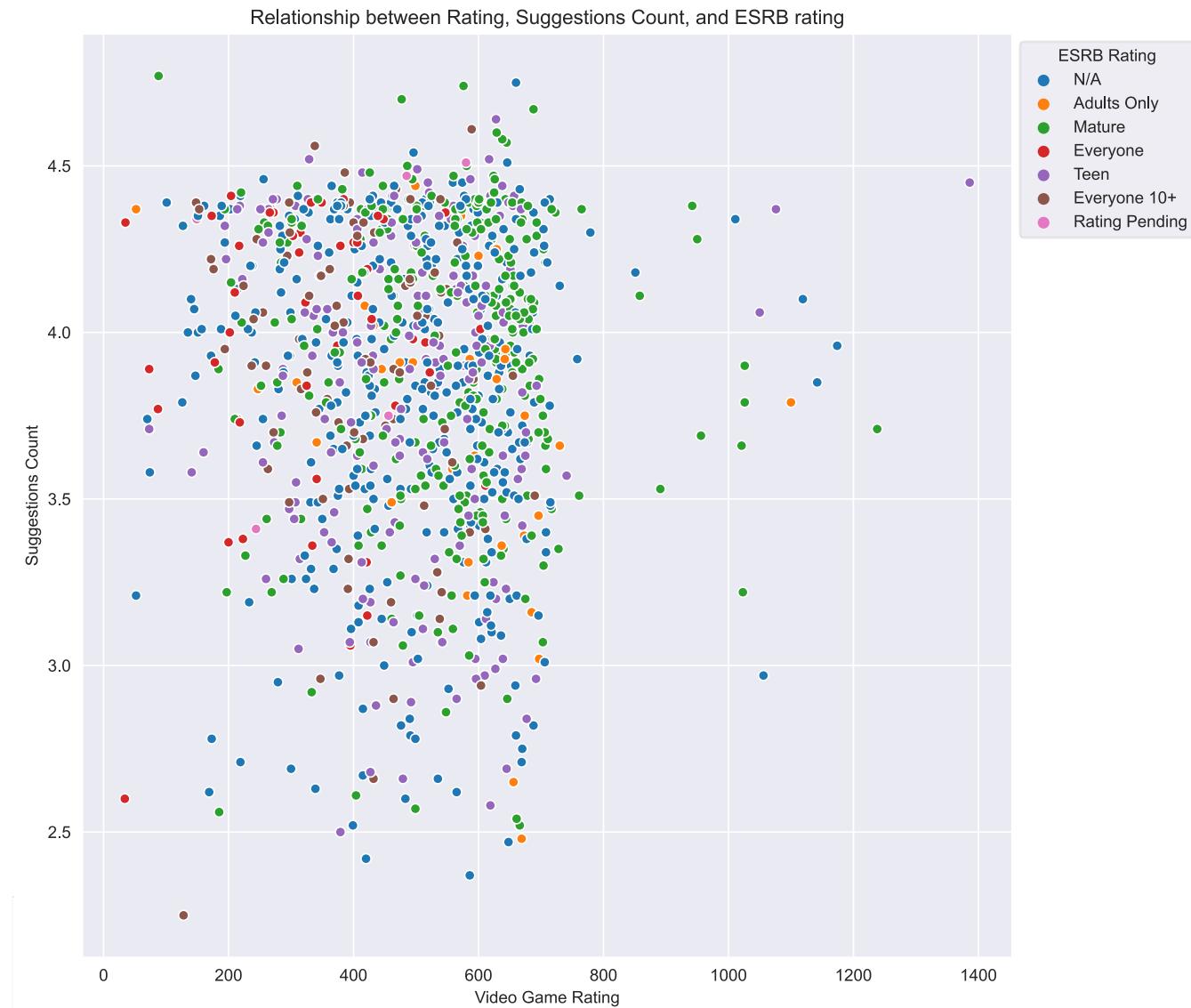
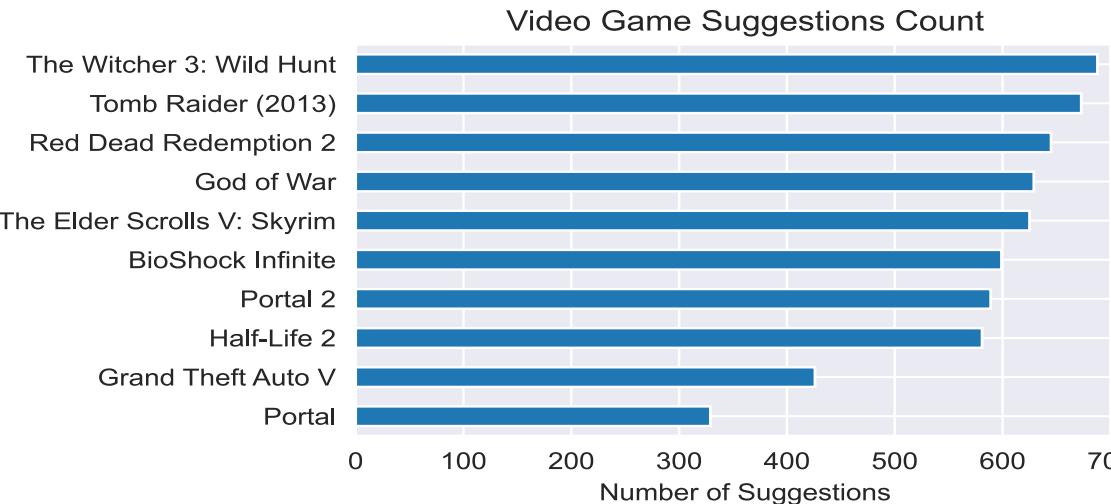
Popular ESRB Ratings

Persona 5 Royal is the highest rated game in this dataset, and it's rated Mature. Mature games have the highest max ratings, but for a developer looking to play it safe, games rated for Everyone also see success, with a very consistent average rating.



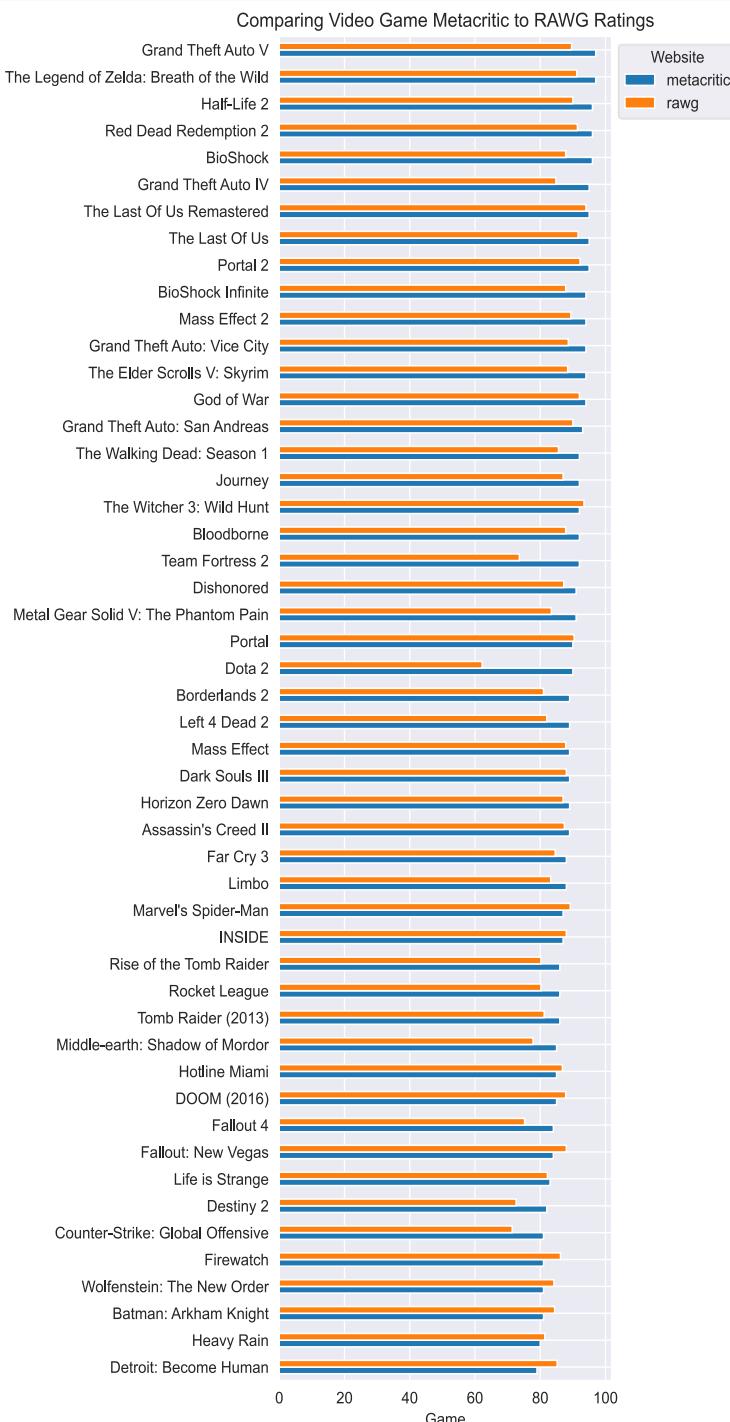
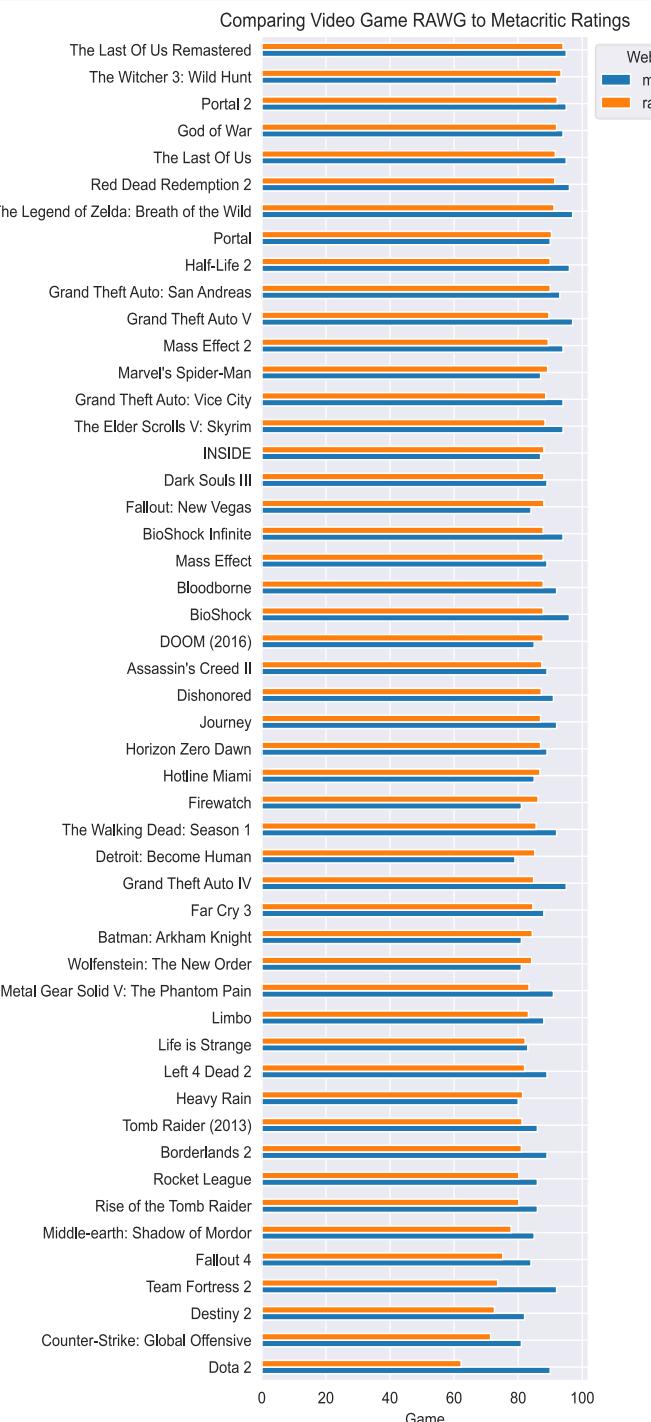
Top Recommended Games

Looking at this data, it looks like generally, higher rated games have more recommendations, and lower rated games have less. When looking at the games ESRB ratings, it looks like Mature games have the highest rating to suggestion count ratio. The top rated games are The Witcher 3: Wild Hunt and Tomb Raider.



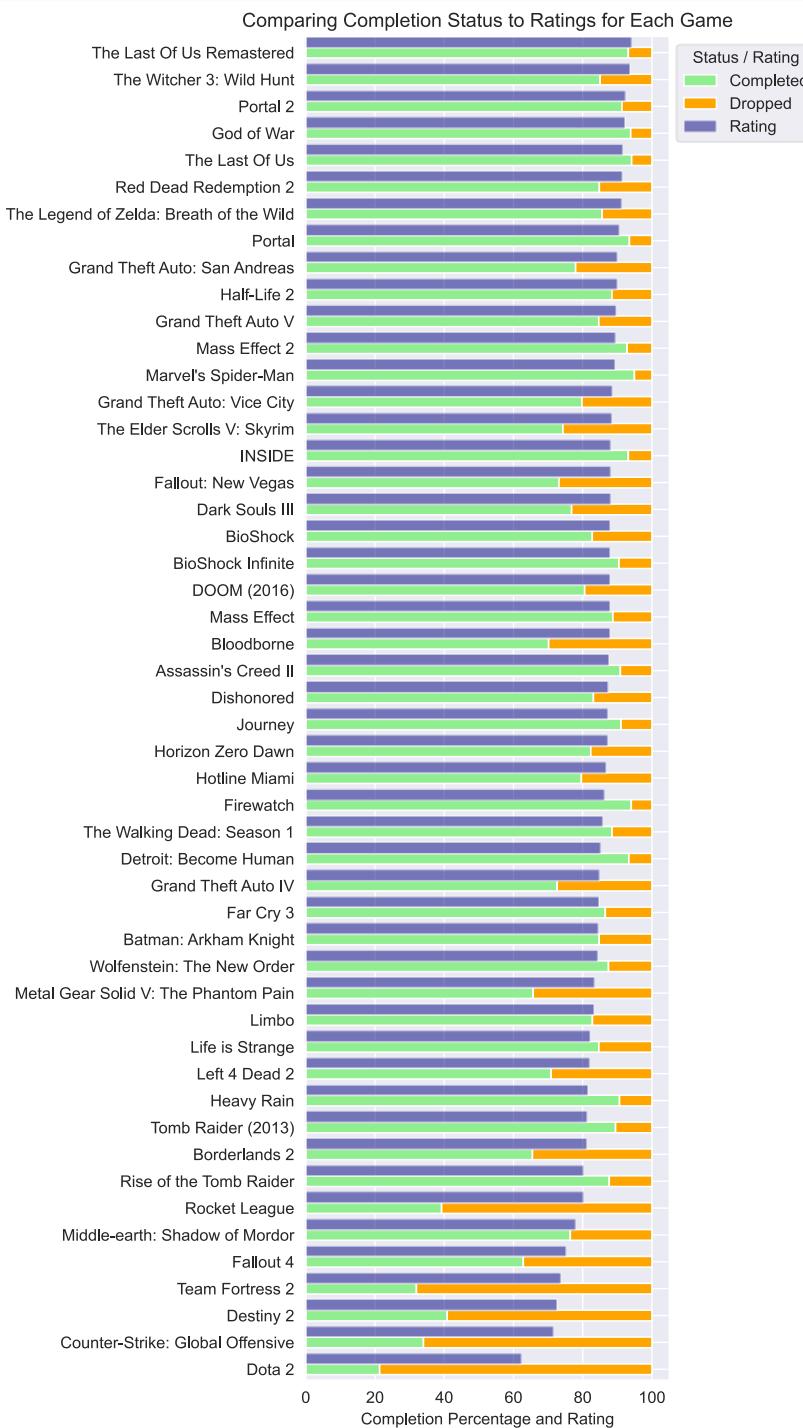
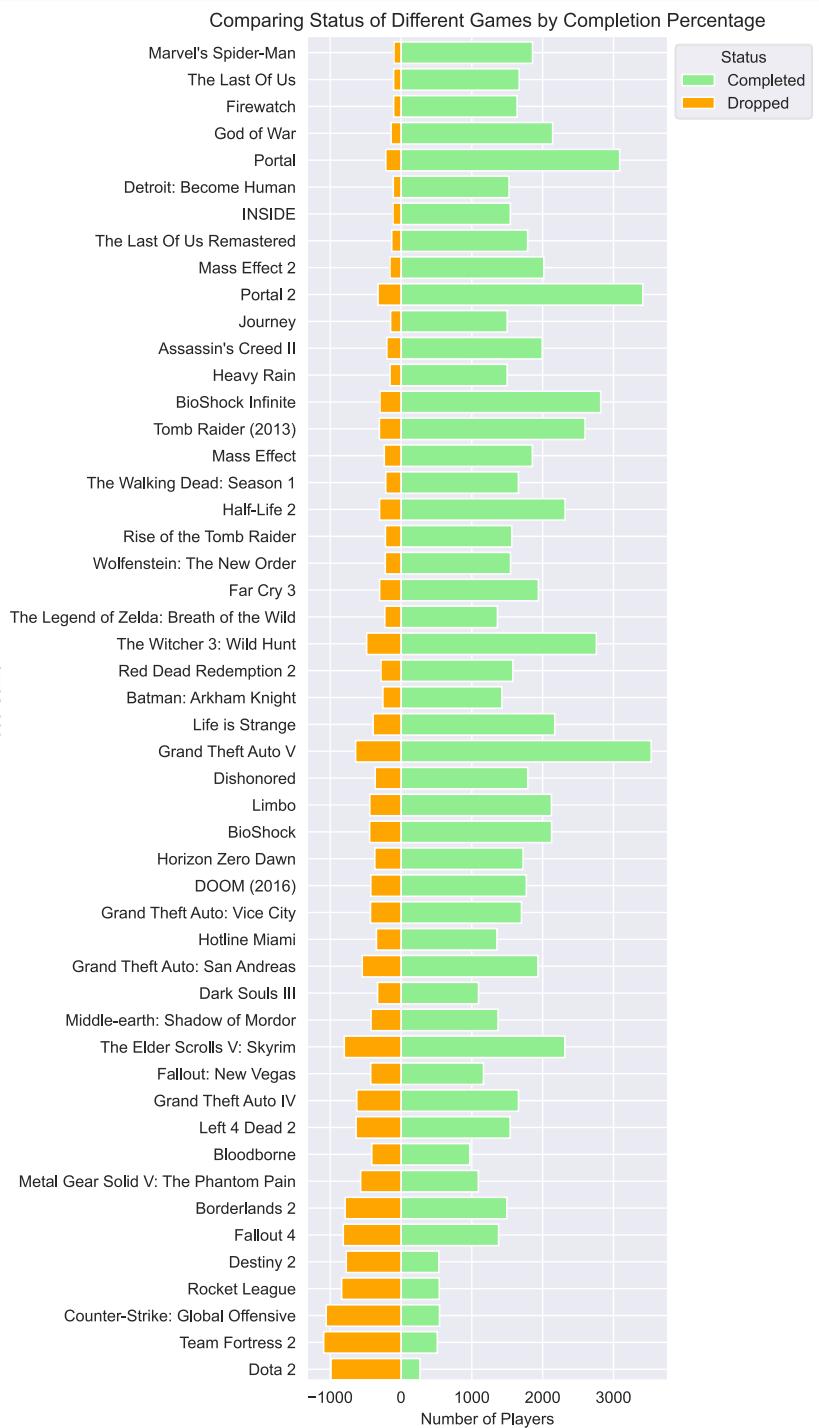
Comparing Ratings on Different Sites

I took the ratings from Metacritic and from RAWG and compared them side by side to see how different sites rated the same games. I wasn't expecting quite so many differences, especially how Dota 2 is the bottom rated game in the RAWG list but is in the middle of Metacritic, who rated it about 30 points higher.



Game Completion Status

For these plots, I took the number of RAWG players who marked a game as completed or dropped and compared these values to the ratings. There does seem to be a general correlation between higher rated games and higher completion rates.



Thank You

I hope you gained some insights from my analysis!