



Top 10 Videogame Recommendation System Using Steam

By me, Anthony Mansion



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Education:

- 3 years of computer programming
- 2 years of videogame development

Current Rec Sys State:

As there are 130 million users signed up to Steam and 73,000 games, it's hard to recommend the perfect game to everyone.

On the Steam community tab and other sites like Reddit, there seems to be confusion, disinterest, or maybe even frustration in users being recommend or clicking to look for games.

Agenda

Analysis



Methods



Recommendation System



Future Analysis

Data Analysis

	User_ID	Videogame	Behavior	Hours_Played
0	151603712	The Elder Scrolls V Skyrim	purchase	1.0
1	151603712	The Elder Scrolls V Skyrim	play	273.0
2	151603712	Fallout 4	purchase	1.0
3	151603712	Fallout 4	play	87.0
4	151603712	Spore	purchase	1.0
...
199995	128470551	Titan Souls	play	1.5
199996	128470551	Grand Theft Auto Vice City	purchase	1.0
199997	128470551	Grand Theft Auto Vice City	play	1.5
199998	128470551	RUSH	purchase	1.0
199999	128470551	RUSH	play	1.4

Perfectly Clean!

- Users: 12.4k
- Videogames: 5,155
- Purchases: 129.5k
- Plays: 70.4k

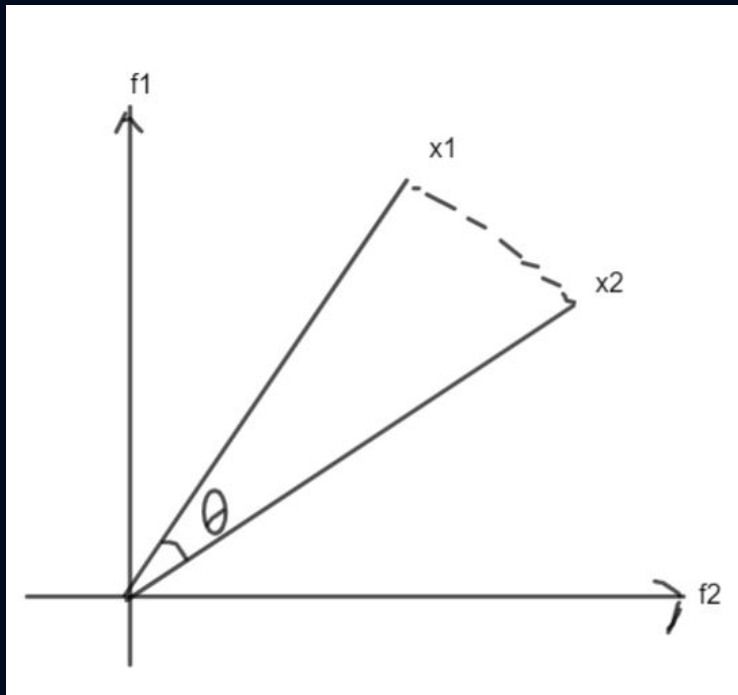
Outliers -

- Highest purchase count: 1.1k games
- Highest playtime sum: 11.7k hours
- Most played game: 980k hours, 2nd: 322k
- Most frequent game count: 9.6k, 2nd: 4.6k

Random -

- 572 users purchased games, never played them
- 1.8k instances of games played \leq 6 minutes
- 848 games played 6 minutes or less
- 655 games appear once
- Some rows aren't even games

Cosine Similarity



$$\text{cosinesimilarity}(x1, x2) = \cos\theta$$

Imagine two arrows on a graph arrows pointing in different directions. Cosine similarity is the measurement of how similar these 2 arrows are. The smaller the angle, the more similar.

Using cosine similarity, the program was able to compare many vectors of all the videogames, users, and their playtime in a multidimensional space to recommend the 10 most similar games.

User 5250's Recommendations



User_ID	Videogame	Behavior	Hours_Played
65423	5250	Cities Skylines	purchase 1.0
65424	5250	Cities Skylines	play 144.0
65425	5250	Deus Ex Human Revolution	purchase 1.0
65426	5250	Deus Ex Human Revolution	play 62.0
65427	5250	Portal 2	purchase 1.0
65428	5250	Portal 2	play 13.6
65429	5250	Alien Swarm	purchase 1.0
65430	5250	Alien Swarm	play 4.9
65431	5250	Team Fortress 2	purchase 1.0
65432	5250	Team Fortress 2	play 0.8
65433	5250	Dota 2	purchase 1.0
65434	5250	Dota 2	play 0.2
65435	5250	Counter-Strike	purchase 1.0
65436	5250	Counter-Strike Source	purchase 1.0

User 98102518's Recommendations



	User_ID	Videogame	Behavior	Hours_Played
39858	98102518	Team Fortress 2	purchase	1.0
39859	98102518	Team Fortress 2	play	2.7

Future Steps

- Don't recommend the same games
- Categorize games by length
- More playtime specifics
- Videogame publisher type



Questions? 🧐



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