

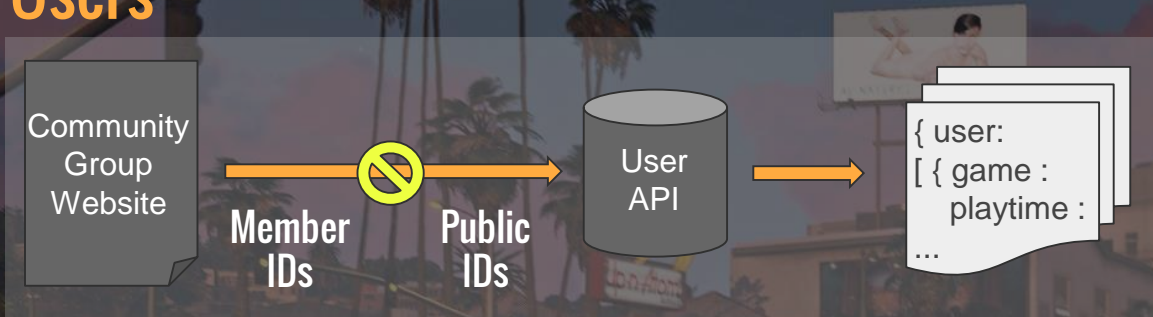
Brynne | Meg | Paul



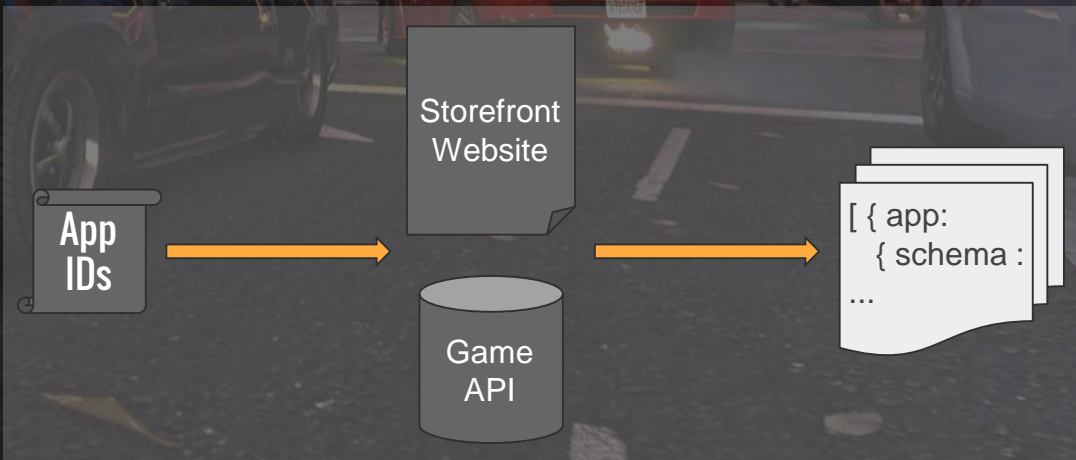
Steam is an entertainment platform from Valve offering both a storefront as well as a flexible client to game on.



Users



Games



DATA
COLLECTION

**MILLIONS OF USERS.
THOUSANDS OF GAMES.
4 ALGORITHMS.**

KModes



Clustering Game Profiles



A character from The Witcher 3, Geralt of Rivia, is shown from behind, looking into a dense forest. He is wearing his characteristic brown leather armor and has a sword on his back. Several grey and black wolves are scattered around him in the grassy forest floor. The background shows tall, thin trees and a misty atmosphere.

<i>Number of Trees</i>	<i>Depth</i>	<i>Mean Square Error</i>
70	4	1.837
100	4	1.560
120	4	1.757
100	6	1.580

Random Forest



Collaborative Filtering

CONSIDERATIONS

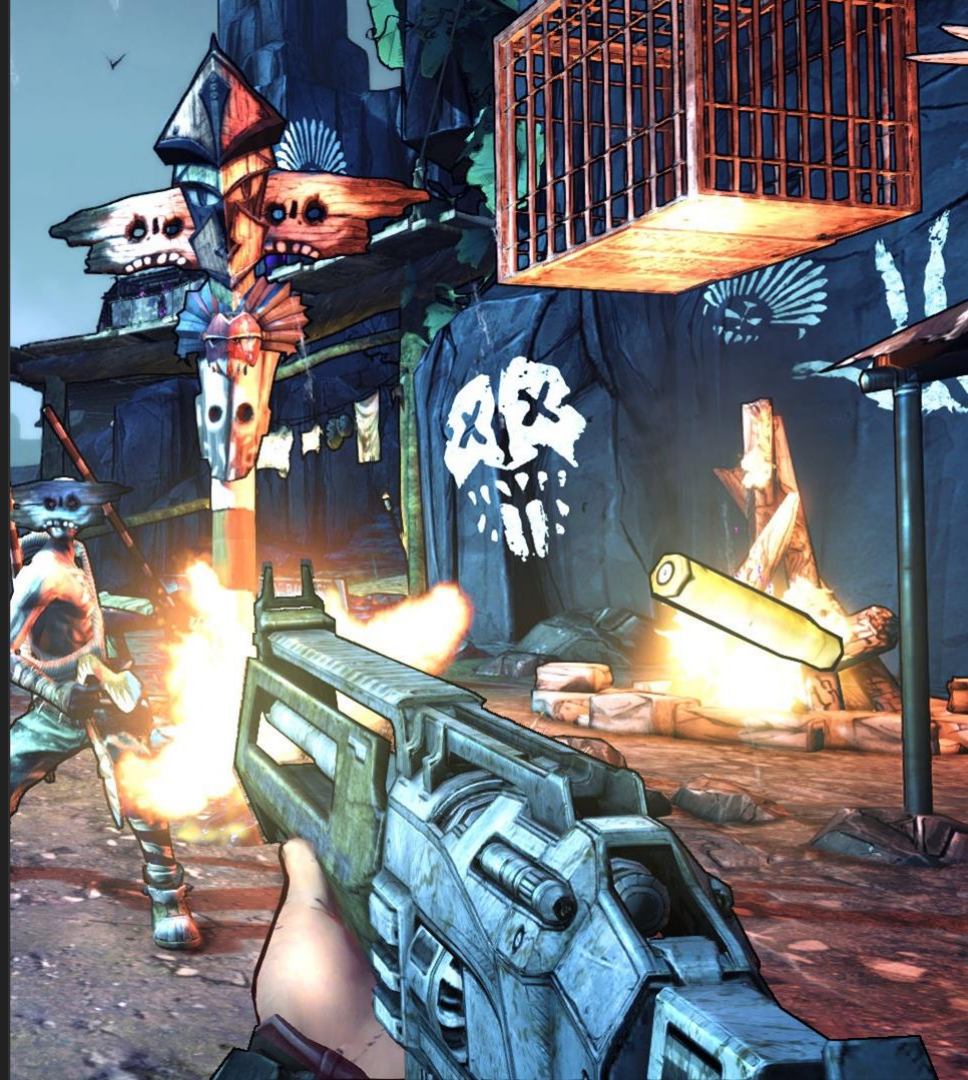
- Huge variety playtime across users
“Super Users” skew playtime distribution

RATING

$$\frac{\text{user playtime}_{\text{game}}}{\text{average playtime}_{\text{game}}} \mid \text{playtime} > 0$$

<i>Method</i>	<i>Mean Absolute Error</i>	<i>Root Mean Square Error</i>
Untreated Ratio	.97	2.36
Log Ratio	.18*	.24
Ratio to Discrete Rating	.92	1.12
Log Ratio to Discrete Rating	.93	1.14

Regression



TEST USER

Single test “super user”

- Held each game out of training set one at a time and ranked predictions

BEST MODELS

- ❑ Linear Regression with $\log(\text{playtime} + 1)$
- ❑ Logistic Regression

Majority of time spent on feature engineering.



Example Comparison





Payday 2

Warframe

Team Fortress 2

Left 4 Dead 2

Total War: ATTILA

Total War: Shogun 2

Global Agenda

Tera

Payday: The Heist

Killing Floor

Fallout: New Vegas

Company of Heroes: Opposing Fronts

Total War: Rome II - Emperor Edition

Dynasty Warriors 8

Grand Theft Auto V

Fallout 4

Firefall

Left 4 Dead

Tom Clancy's Rainbow Six Siege

Dead Island

Top Categories

1. Single-player
2. Mods
3. Co-op

Top Genres

1. Action
2. Indie
3. Strategy

Our Test User

Top Tags

1. Multiplayer
2. Adventure
3. Shooter

Random Forest

Log-transformed Playtime

1. Road Redemption
2. Hands on Deck
3. Spartans Vs. Zombies
Defense
4. Astro Lords
5. CaesarIA
6. Galcon 2
7. Battle for Blood
8. Simply Chess
9. Demise of Nations: Rome
10. Not the Robots

Collaborative Filtering

Binned Ratio of Ratings

1. VERLIES II
2. Pilot Crusader
3. Masterspace
4. DvDrum, Ultimate Drum
Simulator!
5. Herding Dog
6. Mystic Towers
7. RaySupreme 3D
8. Dandelion - Wishes brought
to you
9. Cheesecake Cool Conrad
10. Rise: Battle Lines

Linear Regression

Log-transformed Playtime

1. Fallout 3
2. Red Faction: Armageddon
3. Dead Island Riptide
4. The Witcher Adventure
Game
5. Metro: Last Light Redux
6. Super Sanctum TD
7. The Witcher: Enhanced
Edition
8. Command and Conquer 4:
Tiberian Twilight
9. MEDIEVAL: Total War
- Gold Edition
10. Summoner



THANK YOU.