



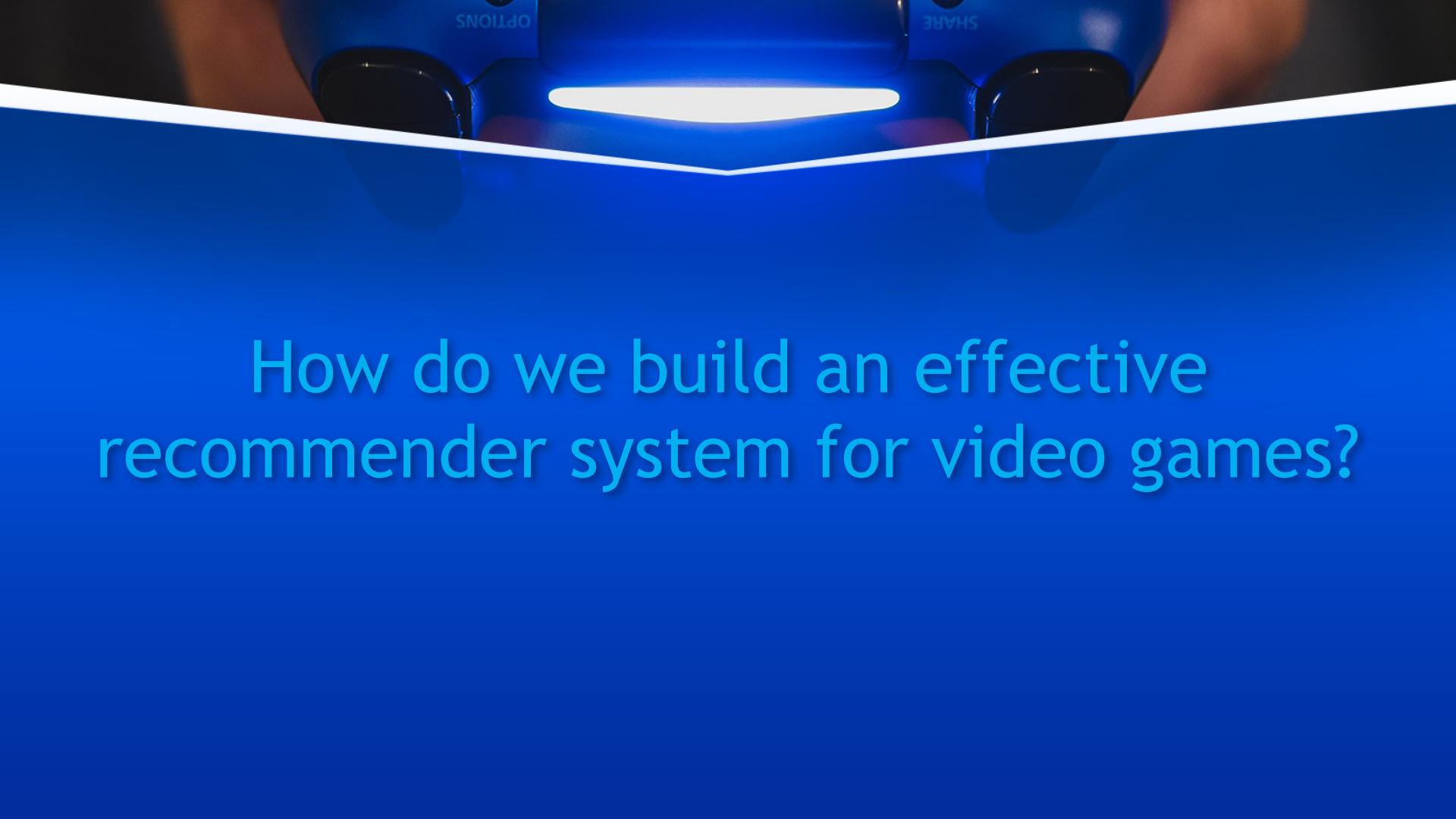
Video Game Recommender System

A Collaborative Filtering Study by Max Lan



The Video Game Industry

- Over \$31.5 billion revenue in the US in 2018
- Over 9,000 games released on Steam alone in 2018
- Increasing competition with other services and media



How do we build an effective
recommender system for video games?



The Data

- Over 100 million users and 9,000 games on Steam in late 2013 and 2014
- User IDs, game IDs, and playtime
- Stored on Amazon RDS



Primary Technologies Used:





Methodology - Implicit Rating

- Alternative Least Squares - PySpark
 - Run on Amazon EC2 Instance
- Calculate z-score of playtime for each game as an implicit rating
- Predict ratings for games not yet played using other users' ratings

Model Results

- Model RMSE: 1.04
- Generates 10 recommendations for each user
- Excludes currently owned games

```
1 result_list = recommend_top_10(test)
2 result_list
```

```
[Row(appid=105600, rating=0.6323094964027405),
 Row(appid=42910, rating=0.4917585551738739),
 Row(appid=49520, rating=0.4464302361011505),
 Row(appid=200710, rating=0.32448330521583557),
 Row(appid=65800, rating=0.3236539363861084),
 Row(appid=211820, rating=0.3003533184528351),
 Row(appid=211420, rating=0.2881532609462738),
 Row(appid=8980, rating=0.26377159357070923),
 Row(appid=304930, rating=0.22732530534267426),
 Row(appid=35720, rating=0.22662940621376038)]
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Preview of App Workflow

Please enter your Steam ID:

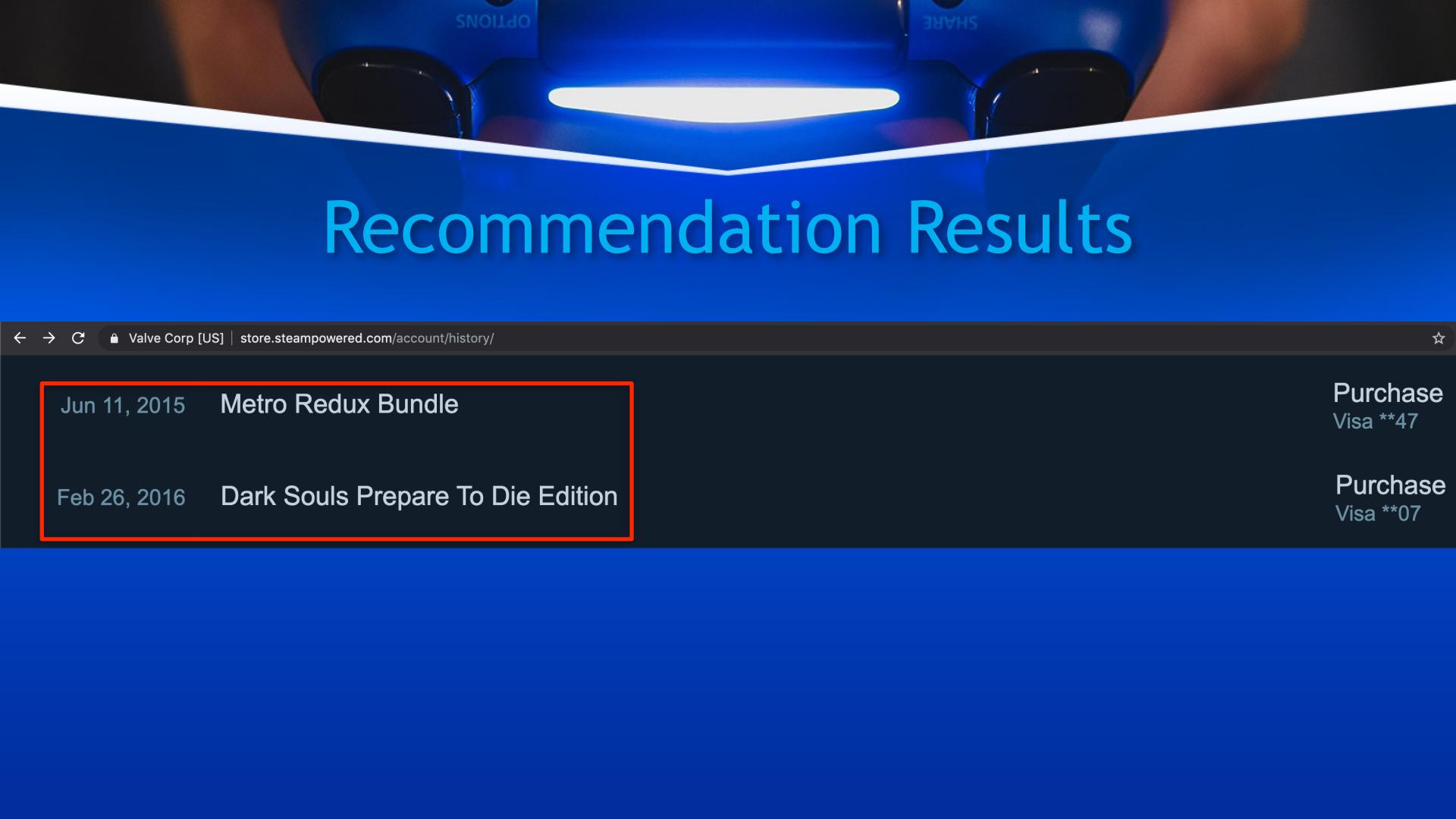
76561198048417833

Recommendations for Steam ID 76561198048417833:



Top games in the last 2 weeks:



The background of the image is a blue-tinted photograph of a Steam interface. It features a VR headset at the top, with the word "OPTIONS" visible on the left side of the screen and "SHARE" on the right. Below the headset, a white curved bar spans across the middle. The main title "Recommendation Results" is displayed in large, light blue letters. At the bottom, there's a dark bar with browser navigation icons and the URL "Valve Corp [US] | store.steampowered.com/account/history/".

OPTIONS

SHARE

Recommendation Results

← → C Valve Corp [US] | store.steampowered.com/account/history/ ★

Jun 11, 2015 Metro Redux Bundle

Purchase
Visa **47

Feb 26, 2016 Dark Souls Prepare To Die Edition

Purchase
Visa **07



Business Applications

- Applicable to any significant user dataset without explicit ratings/attributes
 - Metrics: user clicks, webpage time spent, shows watched
 - Products: retail, software, media
- Can calculate item and user similarities using latent factors



Thank You!

- Github: <https://github.com/mlan93>
- LinkedIn: <https://linkedin.com/in/maxlan93/>
- Data Source: <https://steam.internet.byu.edu/>