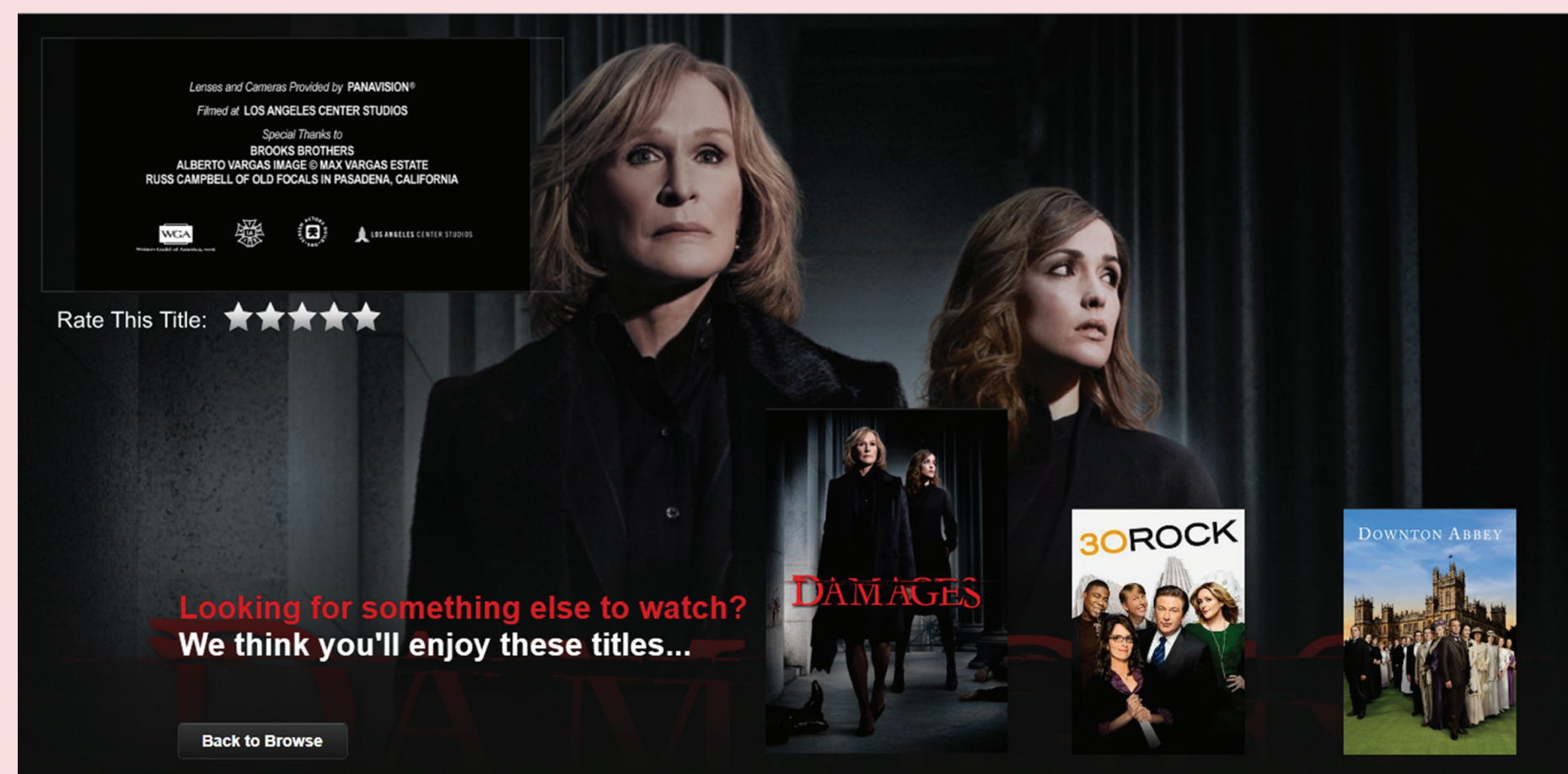# Recommender Systems

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Introduction

A recommender system is an information filtering system used by companies to create higher usability and user satisfaction, as well as ultimately increasing profits for companies. Recommender systems do this by managing large databases and filtering out what things consumers like from what they dislike and then presenting the consumer with suggestions on products they should purchase or use.

For this project, we sought to find out how the users feel about these systems and the ethical issues involved with them.

Methodology

We sent out two surveys, one that asked about recommender systems in general, and one that asked about the ethical issues--mainly privacy--involved with recommender systems and the information they use in their algorithms. In the first survey, we focused on Netflix, Amazon, Pandora, and Last.fm, but since a very low group of users had opinions about Last.fm, we focused on the first three in the second survey.

We sent these out via Facebook and email and received 70 responses on the first survey and 88 responses on the second survey.

Results

Survey One

- 98.6% of users surveyed had encountered a recommender system online.
- Amazon, Netflix, Pandora, and Facebook Friends Suggestion were the most popular recommender systems.
- When asked which recommender system was their favorite, users most often chose Amazon, Netflix, and Pandora.

Netflix

	1- Poor	2 - Fair	3 - Good	4 - Very Good	5 - Excellent
Overall Opinion	0.0% (0)	15.1% (8)	**41.5% (22)**	35.8% (19)	7.5% (4)
Usefulness	0.0% (0)	17.0% (9)	24.5% (13)	**45.3% (24)**	13.2% (7)
Accuracy	3.8% (2)	**37.7% (20)**	30.2% (16)	20.8% (11)	7.5% (4)
Likeliness to Use/Buy Something Suggested	5.8% (3)	21.2% (11)	**32.7% (17)**	28.8% (15)	11.5% (6)

Amazon

	1- Poor	2 - Fair	3 - Good	4 - Very Good	5 - Excellent
Overall Opinion	3.1% (2)	15.6% (10)	**37.5% (24)**	31.3% (20)	12.5% (8)
Usefulness	9.4% (6)	18.8% (12)	28.1% (18)	**32.8% (21)**	10.9% (7)
Accuracy	6.5% (4)	16.1% (10)	**43.5% (27)**	29.0% (18)	4.8% (3)
Likeliness to Use/Buy Something Suggested	21.9% (14)	**26.6% (17)**	**26.6% (17)**	14.1% (9)	10.9% (7)

Pandora

	1- Poor	2 - Fair	3 - Good	4 - Very Good	5 - Excellent
Overall Opinion	1.9% (1)	15.1% (8)	22.6% (12)	**41.5% (22)**	18.9% (10)
Usefulness	1.9% (1)	15.1% (8)	28.3% (15)	**32.1% (17)**	22.6% (12)
Accuracy	9.4% (5)	11.3% (6)	**37.7% (20)**	28.3% (15)	13.2% (7)
Likeliness to Use/Buy Something Suggested	11.3% (6)	22.6% (12)	**34.0% (18)**	28.3% (15)	3.8% (2)

Survey Two

- 86.2% of users were concerned about giving up their private information to companies when creating an online account.
- When signing up for websites like Amazon, Pandora, and Netflix, 83% of users said that they are **not at all likely** to read the privacy policy.
- The majority of users said that they were **neutral/didn't care** about websites using this information to recommend products to them.
- Users were most concerned about **geographical location.**
- The majority of users **strongly agreed** with the statement, "Rental information is personal data," as well as, "My preferences for items on websites such as Netflix, Amazon, and Pandora could be used to identify me."
- However, they also **agreed** with the statement "I am comfortable with websites such as Netflix, Amazon, and Pandora using my personal information to persuade me to purchase or view items," and were **neutral** about "My personal information is safe and secure in a company's database."

Conclusions

- The majority of users have encountered and used recommender systems online.
- In general, users have favorable opinions of recommender systems.
  - Users still feel that these systems can be improved in terms of accuracy.
  - Despite this, users are still likely to use or buy the products recommended to them.
- Most users do not read the privacy policies of websites such as Amazon, Netflix, and Pandora, but most do not have strong feelings about the general safety of their personal information with these websites.
- Some users are concerned about their privacy online, but the majority are comfortable with websites using their information to recommend items to them.