

Recommendation systems are used in many different areas other than movies.

Jeff Bezos, the CEO of Amazon, said that, "If I have 3 million customers on the web, I should have 3 million stores on the web." The internet allows for mass personalization, and recommendation systems are a key part of that.

Recommendation systems build models about users' preferences to personalize the user experience.

This helps users find items they might not have searched for, like a new favorite band, an old friend who uses the same social media network, or a book or song that they're likely to enjoy.

Recommendation systems are a cornerstone of these top businesses.

Social networking sites, like Facebook, music streaming sites, like Pandora, and retail companies, like Amazon, all provide recommendation systems for their users.

Both collaborative filtering and content filtering are used in practice.

Collaborative filtering is used by companies like Amazon, Facebook, and Google News.

Content filtering is used by companies like Pandora, Rotten Tomatoes, and See This Next.

And Netflix uses both collaborative filtering and content filtering.

So now let's go back to the Netflix prize.

29 days after last call was announced, on July 25, 2009, the team The Ensemble submitted a 10.09% improvement, beating the 10.05% improvement that was submitted by Bellkor's Pragmatic Chaos to signal last call.

But by the time Netflix stopped accepting submissions the next day, Bellkor's Pragmatic Chaos had also submitted a 10.09% improvement, and The Ensemble had submitted a 10.10% improvement.

To really test the algorithms, Netflix tested them on a private test set that the teams had never seen before.

This is the true test of predictive ability.

On September 18, 2009, Netflix announced that the winning team was Bellkor's Pragmatic Chaos.

They won the competition and the \$1 million grand prize.

Recommendation systems provide a significant edge to many companies.

In today's digital age, businesses often have hundreds of thousands of items to offer their customers, whether they're movies, songs , or people they might know on Facebook.

Excellent recommendation systems can make or break these businesses.

Clustering algorithms, which are tailored to find similar customers or similar items, form the backbone of many of these recommendation systems.

Clustering also has many other interesting applications.

In the next lecture, we'll see how clustering can be used to improve the predictive ability of classification methods.