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Eliciting Ratings

SI583: Recommender Systems



Business Models

How is the recommendation site supported?



Business Models

- How is the recommendation site supported?
 - Value-addition attached to a purchase/circulation etc. service
 - Advertisements
 - Paid for by content owners

Related question: How are raters reimbursed/motivated?



Recap: Sources of information

- Explicit ratings on a numeric/ 5-star/3-star etc. scale
- Explicit binary ratings (like/dislike)
- Implicit information, e.g.,
 - who bookmarked/linked to the item?
 - how many times was it viewed?
 - how many units were sold?
 - how long did users read the page?
- Item descriptions/features
- User profiles/preferences



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This class: Eliciting Contribution of Ratings/Feedback

Goal: Get users to rate items, and rate the most useful items

Learning goals:

- What factors seem to matter
- How these are identified
- Design implications of these results.

Two sets of studies:

- Slashdot commenting
- MovieLens research on movie rating contribution



Slashdot Recommendations [Lampe and Resnick]

Books	SecondLife Bans Linregistered In-World Banks Ling In/Create an Account Liton L 312 comments LiSearch Discussion			
Developers	Secondene bans onregistered in-world banks tog in/create an Account Top 512 comments Search Discussion			
Games	Threshold: 2: 195 comments 🛨 Threaded 💌 Oldest First 💌 Change Reply			
<u>Hardware</u>	The Fine Print: The following comments are owned by whoever posted them. We are not responsible for them in any way.			
Interviews				
Ш	That should've been done day one. (Score:5, Insightful)			
Linux	by <u>Khyber (864651)</u> < <u>khyberkitsune@qmail.com</u> > on Wednesday January 09, @03:06PM (<u>#21973418</u>) <u>Journal</u>			
Mobile	LL should have had exclusive control over their currency and the exchange thereof to begin with. Allowing other parties to do this for them was an open in			
Politics	for them and their users to get shafted.			
Science	Morons			
YRO	Morons.			
▼ Help	Reply to This			
FAQ	Re:That should've been done day one. (Score:5, Interesting)			
<u>FAQ</u> Bugs	Re:That should've been done day one. (Score:5, Interesting) by <u>archen (447353)</u> on Wednesday January 09, @03:15PM (#21973572)			
FAQ Buqs ▼Stories	Re:That should've been done day one. (Score:5, Interesting) by <u>archen (447353)</u> on Wednesday January 09, @03:15PM (#21973572) It is however interesting how Second Life started out as this sort of free for all, and more and more it's starting to evolve a government out of necessity			
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Slashdot Recommendations [Lampe and Resnick]

What are the recommended items? What explicit feedback input is used?



10





Evolution of Distributed Moderation

Why?

- Workload of the moderator (and delay)
- Power of the moderator



Slashdot - moderation

rong side, and suddenly you've uclear or not) could be flown	g went wrong you're toast. Turn a little bit i at. -controlled planes armed with lethal c	estly, travelling that fast, if any	London in 2 hours. But hor st a wing from the shock. N
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iclear or not) could be flown	-controlled planes armed with lethal c	Moderatic	0
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NI Froll (sightful)			
$(\underline{92}) \supset$ on Friday March 26, (\underline{a} 10:48AM ($\underline{#8679993}$)			
goes wrong with a regular transatlantic airliner while it's over the North Atlantic, I think it's fairly safe to say you're			You kn Interesting
			toast as Informative
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nk it's f	:47AM D:48AM (<u>#8679993)</u> antic airliner while it's over the North Atlan	ay March 26, @10:45AM abbit (Score:1) Friday March 26, (sightful) <u>92)</u> ♥ on Friday March 26, (goes wrong with a regular trar	<u>Re:Why</u> Offtopic <u>Re:Why</u> Offtopic <u>Re:Why</u> Flamebait <u>Re:Why</u> Troll by <u>Hek</u> Redundant <u>Insightful</u> <u>Insightful</u> <u>Interesting</u> toast as Informative <u>Europy</u>

And yet, we still do this on a regular basis because guess what - it's actually fairly safe. As will hypersonic travel be, once we get around to getting better materials etc.





http://www.slashdot.org/

Slashdot – meta-moderation

Re:It's about time.

by - on Thursday March 18, @12:35PM (#8600408)

If the law were set up properly, you could sue a corporation and still deny it the rights of a person. Next. "Cats think we are crazy because to them it looks like we put our fur on every morning". - G.G. Miller

Original Discussion: Microsoft and EU Talks End

Rating: Interesting. This rating is Unfair O O Fair | See Context

Re:Uh oh

by - on Sunday March 21, @10:30PM (#8630970)

I don't see you charging money for that?

Which is a key difference... There are iTunes skins for windoze music players, and iPod skins as well.... they don't go after them because they don't charge. (Of course there's always a good chance you're just trying to get some free linkage, but I'll give you the benefit of the doubt...)

That said, I wonder how WinPLOSION (formerly called WinExpose) has survived this long.

Original Discussion: <u>Apple Quashes pBop</u>

Rating: Informative. This rating is Unfair O O Fair | See Context

MacDailyNews?

by - on Sunday March 21, @10:56PM (<u>#8631126</u>)

What business does a Macintosh fan site have reporting on Windows viruses?

Bunch of children over there celebrating it.

Original Discussion: Nasty New Virus Variants

Rating: Insightful

This rating is Unfair O 💿 O Fair | See Context



http://www.slashdot.org/







15

The Workload is Distributed

	Commented	Didn't
Moderated	16,286	7,783
Didn't	23,670	



16

	Time in minutes			
	to reach a	to reach a		
	score >= 4	score <=0		
Percentile	(n=47,474)	(n=28,277)		
10	19	2		
20	37	5		
30	61	9		
40	96	16		
50	148	28		
60	227	49		
70	350	90		
80	554	190		
90	932	517		
Table 1: Time to reach benchmark scores				



17

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Unfair Moderations Often Not Reversed



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Final Scores Distribution





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Design Implications

- Useful "recommendations" can be very quickly be reached in a large community with similar norms
- Moderators exhibit selection biases which might cause "buried treasures"
- Significant contribution without any explicit incentive to contribute



Rating contribution on MovieLens

Would you rate movies? Why?



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Modelling users' incentives to rate

- "An Economic Model of User Rating in an Online Recommender System", Harper, Li, Chen, and Konstan, Proceedings of User Modelling 2005.
 - Potential reasons to rate:
 - Get better recommendations yourself
 - Rating fun
 - Non-rating fun (searching, browsing)



Methodology overview

Use surveys and rating behavior measurements

- Find numeric "proxies" for qualitative ideas, e.g.,
 a "fun score" derived from number of sessions per month, freq. of rating just-seen movies
 - a measure of "rareness of tastes"

Construct a model that expresses overall benefit in terms of these attributes rating benefit = a₁*rec_quality + a₂*fun_score + ...

Regression: Find best-fitting coefficients to match reported/estimated benefit



Some results of the regression

Entering additional ratings has a significant cost

Rating benefits through recommendation quality are not significant

Fun is a significant factor influencing rating volume



24

Insights for Eliciting Ratings

Making rating more entertaining/less costly could be most useful

Users have different characteristics, so personalized interfaces might be helpful.



Impact of Social Information

- [Social Comparisons to Motivate Contributions to an Online Community, Harper, Lin, Chen, and Konstan]
- Starting point: how do users decide how much to rate?
- Social comparison theory asserts that decisions are often made by comparing to others
 - experimentally, making social norms visible can increase contributions



Experimental design

- An opt-in experiment on MovieLens
- Half the group gets a personalized email newsletter with social comparison information:
 - "You have rated <u>movies</u>; compared to others who joined at the same time, you have rated [less/more/about the same]..."
- Other half, control group, gets non-social information
- Measure changes in rating behavior after newsletter



Experiment Results

- All three types in the experimental group rated more than the control group – especially the below-average group.
- This suggests that social information about ratings can influence users' rating behavior
- Surveys report that most subjects did not mind receiving comparison information



Summary: Eliciting Ratings

Fun/Intrinsic enjoyment often enough

Social information useful

Also potentially useful:

- rewards in terms of a reputation, privilege, e.g.
 "karma points"
- monetary rewards for contribution
 e.g., ePinions revenue shares

