

Appendix A

Diversity Surveys

The surveys in Chapter 5 were created using Zoomerang¹. Users were recruited via Twitter, Facebook and departmental mailing lists and directed to a web page² that allowed them to either (a) be taken to a randomly selected survey or (b) access each survey individually.

A.1 Pre-Survey Instructions and Demographics

The users were first given a set of instructions about the survey. These were the same across all three surveys. Figure A.1 show an example screen shot from Survey 1.

Five Weeks of Recommendations (Survey 1)

In this survey, we are interested in collecting your ratings about a **series** of movie recommendations. We have developed a system that produces **ten popular movie recommendations** per "week", over a period of five "weeks."

In this survey, we will show you each sequence of ten movie recommendations, and ask you to rate what you think about them. On each page, you will see (a) the list of ten movies, (b) links to their respective IMDB pages, and (c) a set of images with the movies' DVD covers. You will then be asked to rate the recommendations on a scale of one to five stars; when you submit your answer you will move on to the next week.

There are five (5) sets of recommendations to rate (5 weeks): this survey should take you between five and fifteen minutes. All answers and collected data will remain **completely anonymous**. Remember, you are not rating the individual movies, but the overall quality of the *recommendations*. Many thanks for your help!



Figure A.1: Example User Instructions from Survey 1

The users were then asked to input some demographic data. The questions related to gender, age, number of movies watched per month, and familiarity with recommender systems.

Users were not asked for any personally identifiable information (e.g., email address), in order to

¹<http://www.zoomerang.com>

²<http://www.cs.ucl.ac.uk/staff/n.lathia/survey.html>

Five Weeks of Recommendations (Survey 1)

1 Are you male or female?

Male

Female

2 What is your age range?

18 - 21

22 - 25

26 - 30

31 - 40

41 - 50

51 - 60

Over 60

3 How many movies do you watch, on average, each month?

4 How familiar are you with web recommender systems?

Very Unfamiliar

Slightly Unfamiliar

Familiar

Very Familiar

5 How often do you use recommender systems?

Never

Less Than Once A Month

Monthly

Weekly

Daily



Figure A.2: Demographic Data Questions: Gender, Age, Average Movies Per Month, Familiarity and Use of Recommender Systems

guarantee full anonymity. A consequence of this decision was that we were unable to know how many users completed more than one survey.

A.2 Movie Recommendations

Since all surveys were similarly structured, we first describe how the movie recommendations were presented to the users (Section A.2.1). We then specify the content of each survey: Survey 1, the non-diversified popular movies (Section A.2.2), Survey 2, the diversified popular movies (Section A.2.3) and Survey 3, the diversified randomly-selected movies (Section A.2.4).

A.2.1 Recommendation Structure

As described in the instructions, the users were first shown a page with (a) a list of movie titles, (b) links to each movies' IMDB information pages and (c) a set of images of the movies' DVD covers: an example screen shot is shown in Figure A.2.1. The users were then asked to rate how interesting they found the week's recommendations on a 1-5 star Likert scale.

Five Weeks of Recommendations (Survey 1)

6 **Algorithm 1 - Week ONE of FIVE**

1. Titanic [\[IMDB\]](#)
2. The Dark Knight [\[IMDB\]](#)
3. Star Wars (Episode IV) [\[IMDB\]](#)
4. Shrek 2 [\[IMDB\]](#)
5. E.T. The Extra-Terrestrial [\[IMDB\]](#)
6. Star Wars (Episode I): The Phantom Menace [\[IMDB\]](#)
7. Pirates of the Caribbean: Dead Man's Chest [\[IMDB\]](#)
8. Spider Man [\[IMDB\]](#)
9. Transformers: Revenge of the Fallen [\[IMDB\]](#)
10. Star Wars (Episode III): Revenge of the Sith [\[IMDB\]](#)



How interesting are Week 1's recommendations?

1*	2*	3*	4*	5*
1	2	3	4	5

Figure A.3: Example Screen Shot: Survey 1, Week 1

After rating the recommendations, the users would click through to a buffer screen, which contained a number of DVD covers. An example buffer screen is shown in Figure A.2.1. They would then click through into the next "week's" recommendations, structured as above in Figure A.2.1.

On the following page, you will see **WEEK TWO**: this algorithm was designed to recommend *very popular* movies over the course of five weeks.



Click submit to continue!

Figure A.4: Example Screen Shot: Survey 1, Buffer Screen 1

A.2.2 Survey 1: No Diversity

Survey 1 presented the users with the *same* recommendations for each week. The movies were selected from the IMDB³ list of all-time worldwide box office hits (accessed December 2009) and are summarised in Table A.1.

Rank	Movie
1	Titanic
2	The Dark Knight
3	Star Wars (Episode IV)
4	Schrek 2
5	E.T. The Extra Terrestrial
6	Star Wars Episode I: The Phantom Menace
7	Pirates of the Caribbean: Dead Man's Chest
8	Spiderman
9	Transformers: Revenge of the Fallen
10	Star Wars Episode III: Revenge of the Sith

Table A.1: S1 (All 5 Weeks): All Time Worldwide Box Office Ranking (December 2009)

A.2.3 Survey 2: Diversified Popular Movies

Survey 2 also contained popular movies from IMDB; this set are shuffled as described in Chapter 5.

Rank	Movie
Week One	
1	The Lord of the Rings: The Return of the King
2	Spider-Man 2
3	The Passion of the Christ
4	Jurassic Park
5	Finding Nemo
6	The Lion King
7	Forrest Gump
8	Pirates of the Caribbean: Dead Man's Chest
9	Transformers: Revenge of the Fallen
10	Iron Man
Week Two	
1	Titanic
2	The Dark Knight
3	Star Wars (Episode IV)
4	Home Alone
5	The Bourne Ultimatum
6	Finding Nemo
7	The Da Vinci Code
8	Forrest Gump
9	Pirates of the Caribbean: Dead Man's Chest
10	Kung Fu Panda

Table A.2: S2 (Weeks 1, 2): Diversified All Time Worldwide Box Office Ranking

³<http://www.imdb.com/boxoffice/alltimegross?region=world-wide>

Rank	Movie
Week Three	
1	Pirates of the Caribbean: Dead Man's Chest
2	E.T. The Extra-Terrestrial
3	Independence Day
4	The Sixth Sense
5	Wedding Crashers
6	Terminator 2
7	300
8	Titanic
9	The Dark Knight
10	Shrek 2
Week Four	
1	300
2	Jurassic Park
3	Forrest Gump
4	Spider-Man
5	The Lord of the Rings: The Return of the King
6	The Lion King
7	The Passion of the Christ
8	The Sixth Sense
9	Iron Man
10	Wedding Crashers
Week Five	
1	Iron Man
2	Finding Nemo
3	Wedding Crashers
4	The Sixth Sense
5	Transformers: Revenge of the Fallen
6	Terminator 2
7	300
8	Forrest Gump
9	The Lion King
10	Shrek 2

Table A.3: S2 (Weeks 3, 4, 5): Diversified All Time Worldwide Box Office Ranking

Note that *diversity* does not necessarily imply no repetition of recommendations; in this set of movies, a number of entries appear more than once (in different ranks). For example, “*Pirates of the Caribbean: Dead Man's Chest*” appears in the first three weeks, in ranks 8, 9, and 1 respectively.

A.2.4 Survey 3: Diversified Random Movies

The last set of movies were selected uniformly at random from the Netflix prize dataset. The only condition to be met when selecting a set of movies was that the same movie may not appear twice in the *same* top-10 list. The 5 weeks of recommendations are listed in Table A.4.

Rank	Movie	Rank	Movie
Week One		Week Two	
1	Woman of the Year	1	Nightbreed
2	Cujo	2	Predator Island
3	Birdman of Alcatraz	3	Bad Company
4	The Rundown	4	Holiday Heart
5	Shadow of Doubt	5	Jurassic Park III
6	In Dreams	6	Devo Live
7	The Marksman	7	Pursued
8	The Way We Live Now	8	Lionheart
9	Baby Van Gogh	9	Antibody
10	Nicholas Nickleby	10	It Came From Outer Space
Week Three		Week Four	
1	G-Men From Hell	1	A Stranger Among Us
2	The Marriage Circle	2	Soul Assassin
3	Harry Potter and the Sorcerer's Stone	3	Jane Eyre
4	Baby Einstein: Baby Da Vinci	4	Annie Lennox: Live in Central Park
5	Island of Dr. Moreau	5	The Magic Flute
6	My Voyage to Italy	6	The Hills Have Eyes 2
7	Koma	7	A Better Tomorrow II
8	The Toy	8	Atomic Train
9	Bulletproof	9	Speed Racer
10	The Englishman Who Went Up a Hill but Came Down a Mountain	10	Vampires: The Turning
Week Five			
1	Crash		
2	Riding the Bullet		
3	Kicked in the Head		
4	Diary of a Serial Killer		
5	Oh God!		
6	French Twist		
7	Degrassi Junior High		
8	Black Adder		
9	Red Dirt		
10	Frequency		

Table A.4: S3 (Weeks 1, 2, 3, 4, 5): Randomly Selected Movies

A.3 Post-Survey Questions

After completing the 5 weeks of recommendations, the users were asked to comment on the quality of the recommendations. A screen shot of the questions is shown in Figure A.3.

- 11 Do you have any comments about **this algorithm's** recommendations?
-
- 12 How important is it for recommendations to be **accurate**?
- | | | | | |
|------------------|-------------|---------|-----------|----------------|
| Very Unimportant | Unimportant | Neutral | Important | Very Important |
| 1 | 2 | 3 | 4 | 5 |
- 13 How important is it for recommendations to **change over time**?
- | | | | | |
|------------------|-------------|---------|-----------|----------------|
| Very Unimportant | Unimportant | Neutral | Important | Very Important |
| 1 | 2 | 3 | 4 | 5 |
- 14 How important is it for the system to provide **new recommendations**?
- | | | | | |
|------------------|-------------|---------|-----------|----------------|
| Very Unimportant | Unimportant | Neutral | Important | Very Important |
| 1 | 2 | 3 | 4 | 5 |

Figure A.5: Example Screen Shot: Survey 1, Final Questions

