



# MovieRec4 Parents

An NLP-Based Recommender System

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# The Problem

- 1) Parents are busy people
- 2) Kids need entertainment

# Problem statement

Parents need an easy-to-use recommender system that will send them to entertainment the entire family can enjoy---without exposing their children to objectionable material.



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# What parents do today

## Consult the Web:

- **Common Sense Media**

[commonsensemedia.org/movie-reviews](https://commonsensemedia.org/movie-reviews)

- **Kids In Mind**

[Kids-in-mind.com](https://kids-in-mind.com)

- **Rotten Tomatoes**

[rottentomatoes.com/browse/opening](https://rottentomatoes.com/browse/opening)

# MovieRec4Parents' Approach:

Build a recommender based on words used in movie info

8625 movies' info scraped from Common Sense Media

NLP conducted on text:

Count vs. TF-IDF Vectorization to form word tokens

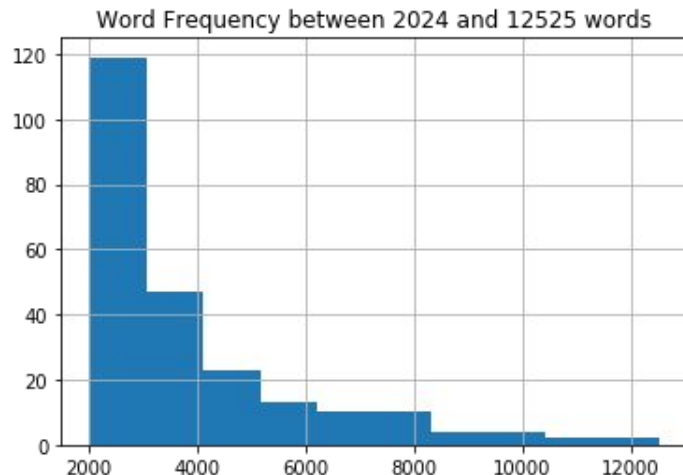
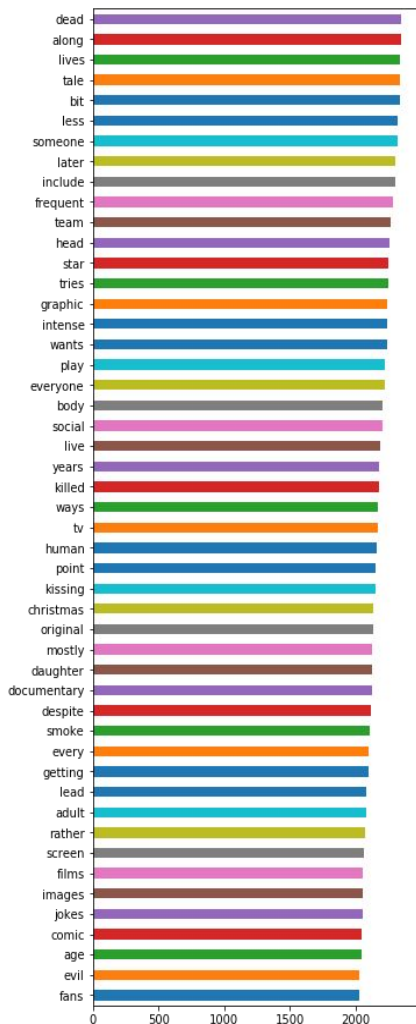
Truncated SVD to reduce dimensionality

Build cosine similarity matrix

Non-text features used to filter movie results

# Natural Language Processing

Component 1



|                         |          |
|-------------------------|----------|
| <b>characters</b>       | 0.145347 |
| <b>one</b>              | 0.140572 |
| <b>sex</b>              | 0.115348 |
| <b>character</b>        | 0.111659 |
| <b>film</b>             | 0.106805 |
| <b>violence</b>         | 0.106770 |
| <b>prejudge</b>         | 0.000025 |
| <b>beliebers</b>        | 0.000025 |
| <b>persson</b>          | 0.000023 |
| <b>sundberg</b>         | 0.000023 |
| <b>rebranding</b>       | 0.000023 |
| <b>anthropomorphize</b> | 0.000020 |

# Natural Language Processing

Component 2

|                  |           |
|------------------|-----------|
| <b>christmas</b> | 0.303203  |
| <b>kids</b>      | 0.204020  |
| <b>santa</b>     | 0.142073  |
| <b>holiday</b>   | 0.137228  |
| <b>dog</b>       | 0.133801  |
| <b>family</b>    | 0.129417  |
| <b>nudity</b>    | -0.098234 |
| <b>violence</b>  | -0.102057 |
| <b>women</b>     | -0.103081 |
| <b>shown</b>     | -0.109350 |
| <b>drug</b>      | -0.118820 |
| <b>sexual</b>    | -0.125117 |

Component 3

|                  |           |
|------------------|-----------|
| <b>school</b>    | 0.203101  |
| <b>sex</b>       | 0.173508  |
| <b>teen</b>      | 0.153460  |
| <b>girls</b>     | 0.117679  |
| <b>christmas</b> | 0.116954  |
| <b>teens</b>     | 0.115779  |
| <b>evil</b>      | -0.092100 |
| <b>horror</b>    | -0.095386 |
| <b>scary</b>     | -0.100603 |
| <b>blood</b>     | -0.114092 |
| <b>war</b>       | -0.148512 |
| <b>action</b>    | -0.171642 |

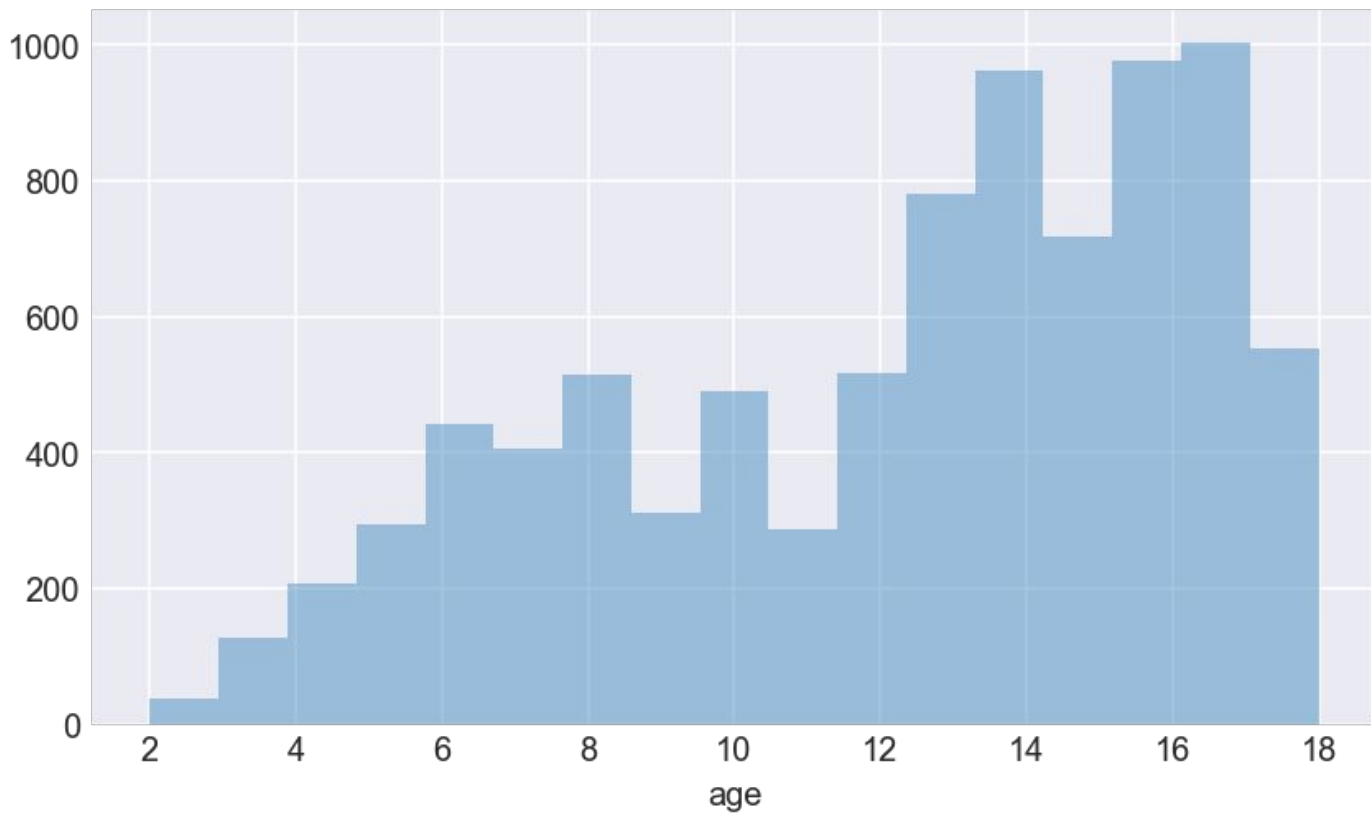
Component 6

|                  |           |
|------------------|-----------|
| <b>dog</b>       | 0.436106  |
| <b>dogs</b>      | 0.203989  |
| <b>animals</b>   | 0.180841  |
| <b>animal</b>    | 0.124016  |
| <b>family</b>    | 0.122604  |
| <b>man</b>       | 0.099306  |
| <b>war</b>       | -0.121366 |
| <b>santa</b>     | -0.124257 |
| <b>teen</b>      | -0.175223 |
| <b>girls</b>     | -0.177246 |
| <b>high</b>      | -0.185521 |
| <b>christmas</b> | -0.207730 |

Component 8

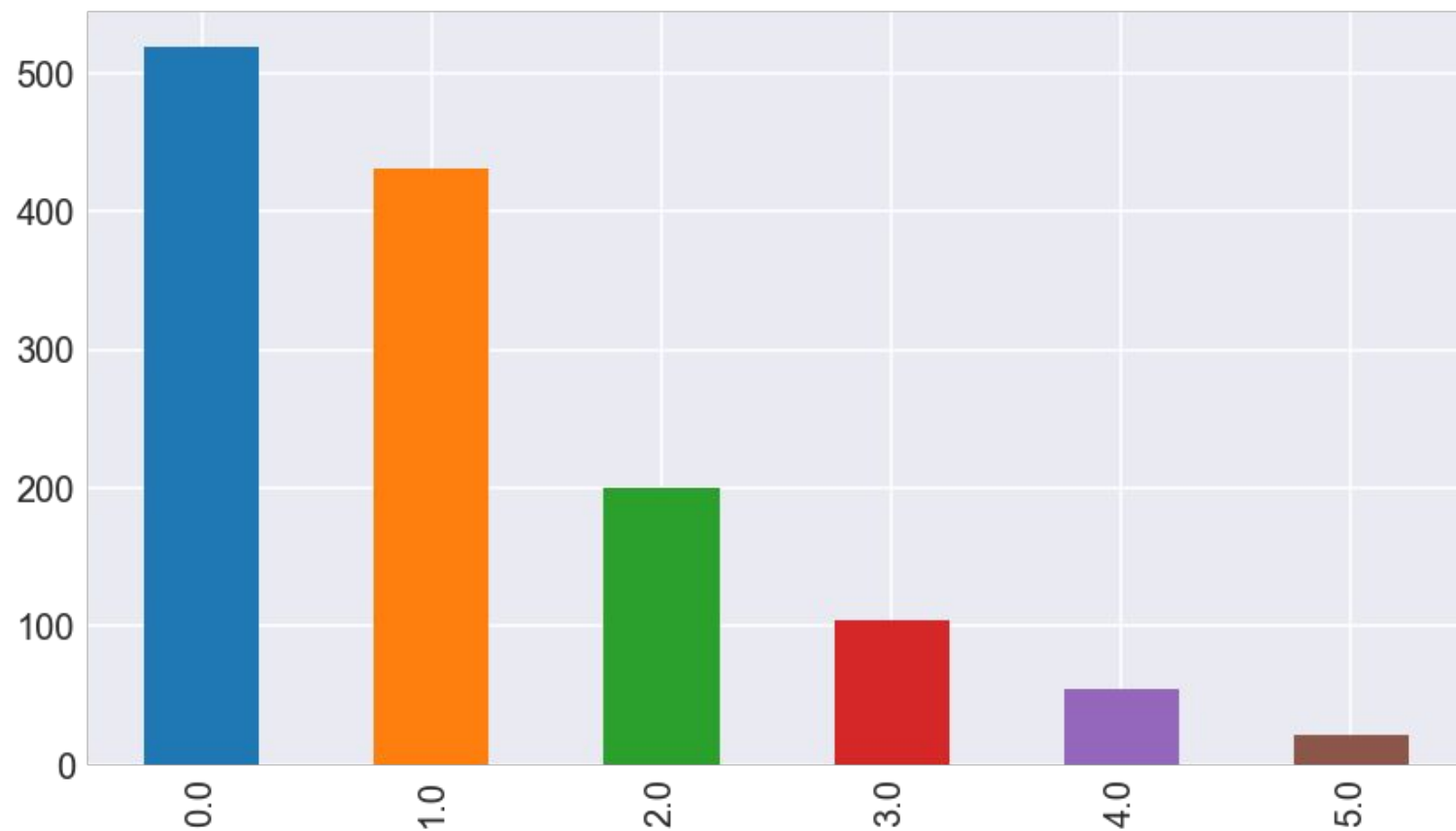
|                |           |
|----------------|-----------|
| <b>dog</b>     | 0.436691  |
| <b>war</b>     | 0.210952  |
| <b>dogs</b>    | 0.194946  |
| <b>team</b>    | 0.167513  |
| <b>school</b>  | 0.156317  |
| <b>sports</b>  | 0.142065  |
| <b>magic</b>   | -0.071185 |
| <b>fantasy</b> | -0.077160 |
| <b>horror</b>  | -0.083386 |
| <b>fairy</b>   | -0.092961 |
| <b>scary</b>   | -0.110499 |
| <b>love</b>    | -0.114002 |

## Common Sense Media's Minimum Suggested Ages for Movies

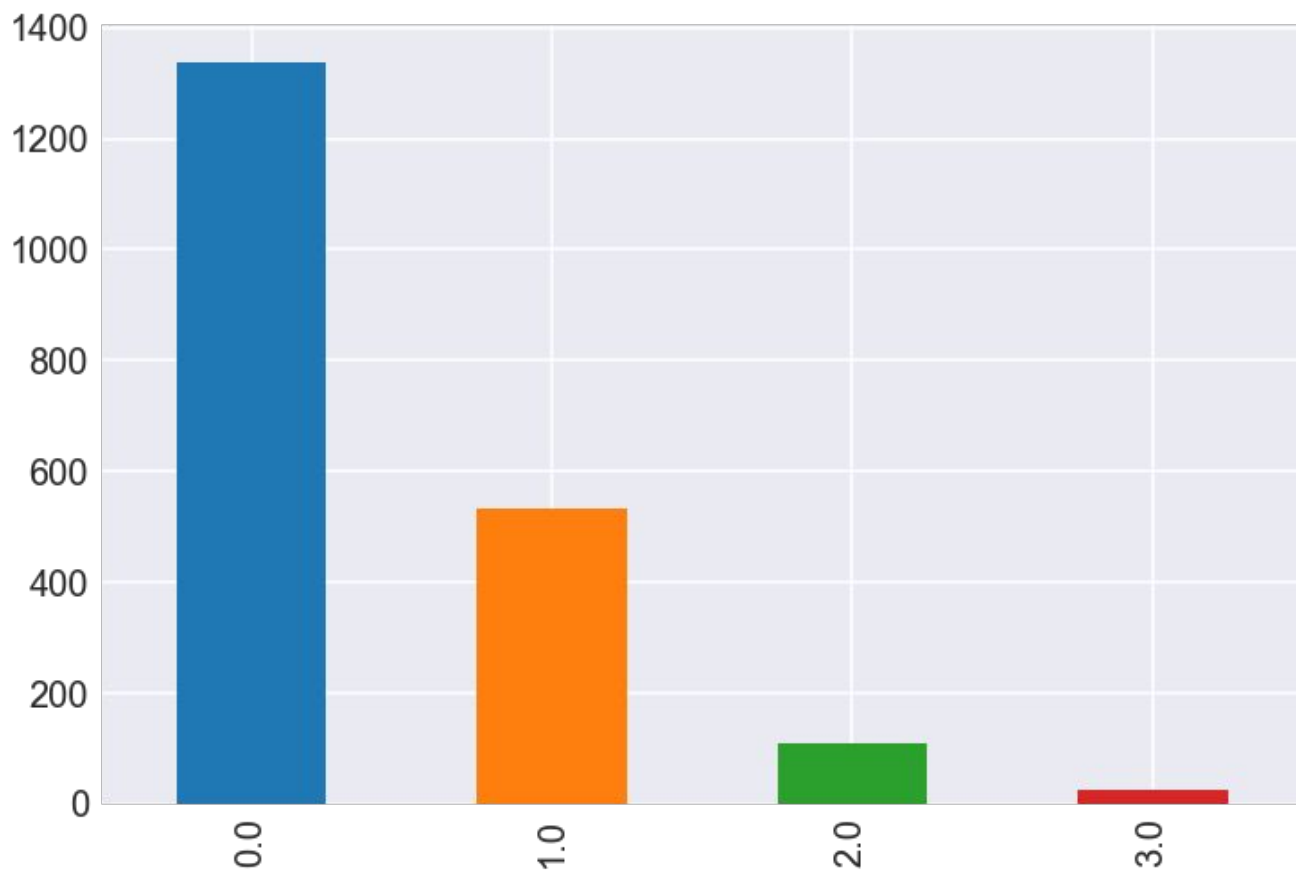




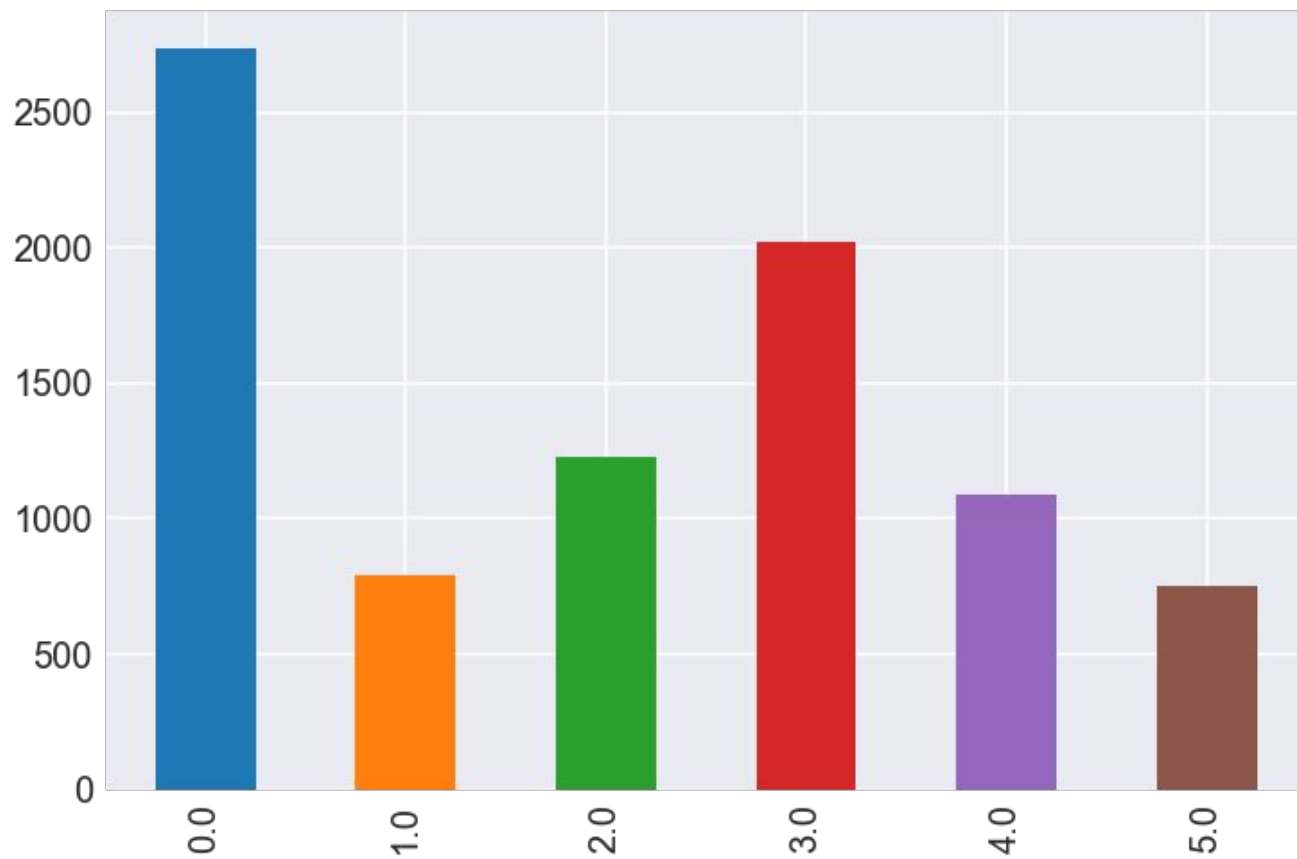
# Educational Value Rating



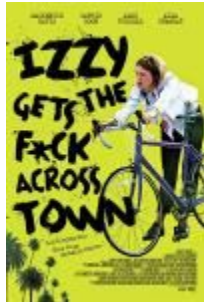
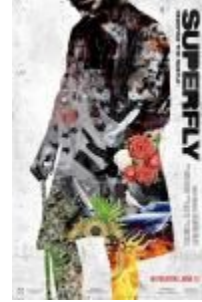
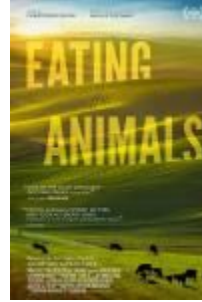
## Sexy Stuff



# Violence



# Try MovieRec4Parents!



# Future Directions:

- Update movie selection
- Give a link to Common Sense Media
- Join non-text data to feed cosine similarity matrix
- Include more reviews from Common Sense Media and other sites
- Collect user preferences, build collaborative recommender
- Refine NLP: leverage sentiment and/or topic analysis
- Bridge to other entertainment options

Questions?