



Do You Want to Play Something Else?

A Board Game Recommender

Chuck Cao

Project

- Content-based board game recommendation system
- From toy store to hobby
- Who is it for?:
 - Consumers
 - Board Game Geek (BGG)
 - Creators/producers



Workflow



Data Collecting

BGG API Request



Processing and Modeling

Cleaning

Sentiment Analysis

Topics

Selection



Recommendation System

Find cosine similarity



Visualize

Streamlit App

Data

- Boardgamegeek.com API requests
 - 100,088 board games
 - “Front of the Box” Details
 - Community Aggregated Values and Scores
 - 100 Most Recent Comments



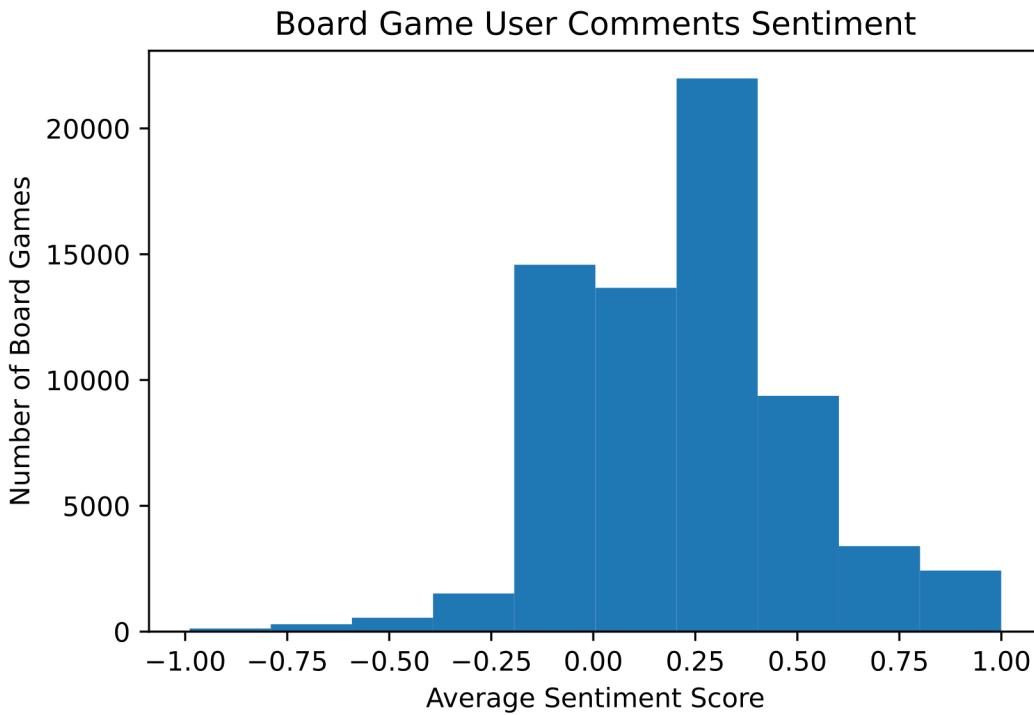
Features

- Year Published
- Minimum Players
- Maximum Players
- Minimum Play Time
- Maximum Play Time
- Minimum Age
- Categories
- Game Mechanics
- Board Game Families
- Average Play Time[^]
- Average User Rating[^]
- Complexity[^]
- Has Expansion(s)*
- Average Sentiment Score*
- Topic Number*

[^] - Community aggregate

* - Created

Sentiment Analysis



- Iraq War 2003: -0.59
- Furby Adventure Game: 0.39

Topic Modeling

- Components
- Quickplay
- Dice game
- Party Game
- Thematic
- Kickstarter
- New Versions/Editions
- Deckbuilding
- Scorekeeping
- Kids
- Wargame
- Other

Example

- Gloomhaven (BGG Ranked #1)
 - Frosthaven
 - Gloomhaven: Jaws of the Lion
 - Middara: Unintentional Malum – Act 1
 - Etherfields
- 1-4 Players
- User Ratings: 8.2-8.8
- Complexity: ~3.5
- Categories: Adventure, Exploration, Fantasy, Miniatures
- Board Game Families: Kickstarter, Campaigns, Games with Solitaire Rules

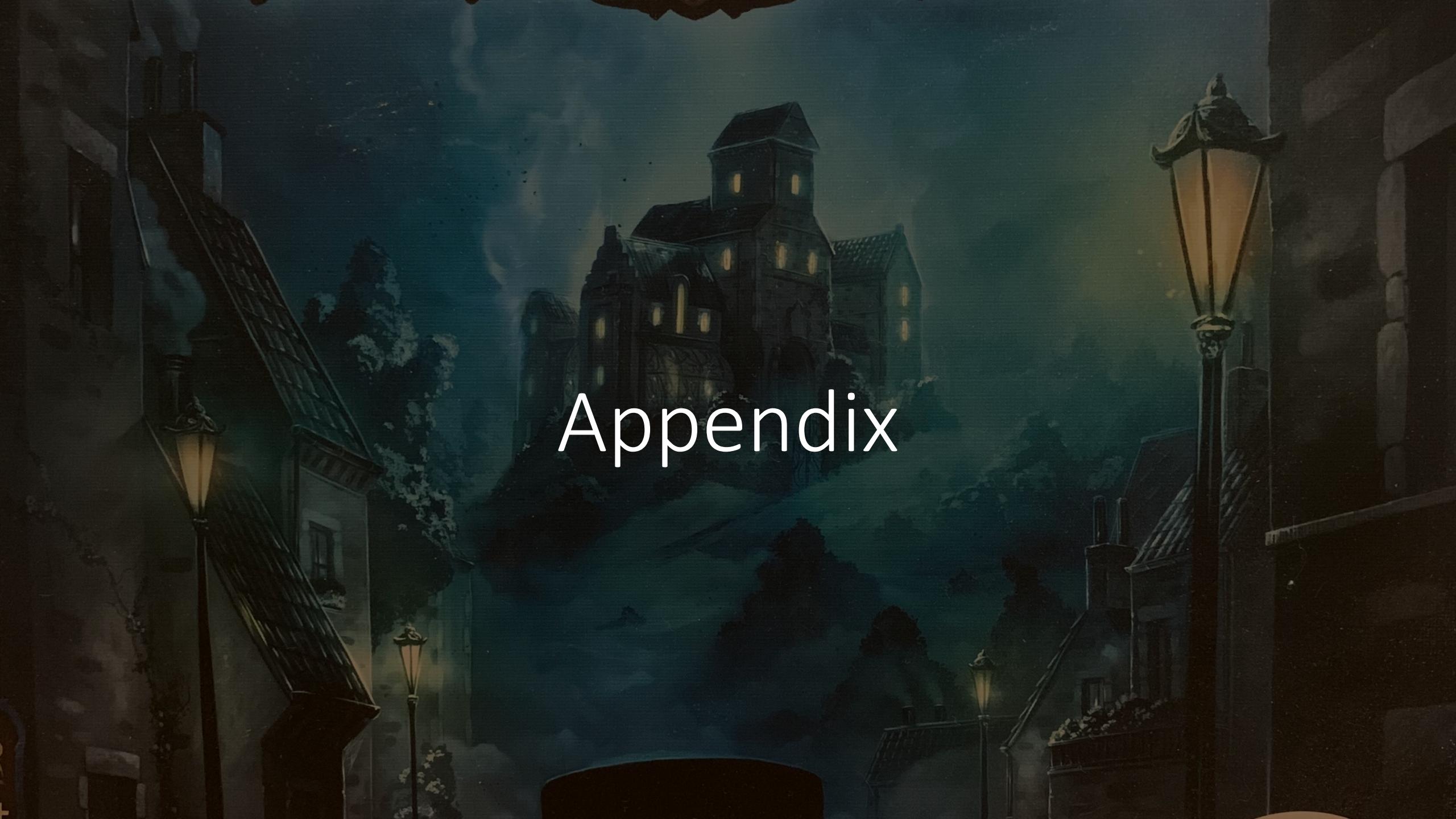
Example

- Catan (aka “Settlers of Catan”)
 - Sixteen closest are variations
 - Ponzi Scheme
 - Fund Manager
- Minimum Players: 3
- Minimum Age: 10+
- Minimum Playing Time: 60 mins.
- Complexity: 2+
- Category: Economic

Further Work

- User information
- Game Reviews
- Game Descriptions
- User Experience Improvements
(Images, Link to Review Videos)



The background of the image is a dark, atmospheric night scene. In the foreground, several street lamps with warm, glowing light are visible, their light reflecting off the wet cobblestone street. To the left, there's a building with a balcony and flowers hanging from it. In the center, a large, multi-story building with multiple gables and lit windows stands prominently. The sky is dark and filled with heavy, dark clouds.

Appendix

Tools Used

- Python
- Numpy
- Pandas
- Matplotlib
- Requests
- Pickle
- BeautifulSoup
- Scipy
- Scikit-Learn
- Gensim
- NLTK
- VADER

Topic Modeling

- 0, [board, abstract, pieces, tiles, interesting, strategy, rules, nice, opponent, simple]
- 1, [fun, simple, little, quick, light, filler, luck, nice, easy, fast]
- 2, [dice, roll, die, rolling, luck, pnp, print, solo, fun, free]
- 3, [fun, people, party, time, group, right, best, lot, think, better]
- 4, [theme, rules, time, fun, long, bit, interesting, think, lot, make]
- 5, [kickstarter, expansion, love, solo, art, fun, new, easy, theme, different]

Topic Modeling

- 6, [version, edition, original, box, better, copy, new, fun, set, years]
- 7, [cards, card, deck, hand, taking, draw, set, interesting, win, better]
- 8 [points, interesting, turn, scoring, building, end, different, control, action, area]
- 9 [kids, children, fun, old, year, kid, little, family, simple, son]
- 10 [rules, war, map, combat, battle, counters, time, series, wargame, interesting]
- 11 OTHER

Features

- Year Published
- Minimum Players
- Maximum Players
- Minimum Play Time
- Maximum Play Time
- Minimum Age
- Categories (84)
- Game Mechanics (182)
- Board Game Families (4,143)
- Average Play Time^
- Average User Rating^
- BGG Rating^
- Complexity^
- Has Expansion(s)*
- Average Sentiment Score*
- User Types*

^ - Community aggregate

* - Created

Examples

- Marvel Champions: The Card Game
 - Closest Match: DC Deck-Building Game: Rebirth
 - No Marvel recommendations within first fifty, including previous Marvel deck-building game
 - No Arkham Horror: The Card Game, similar known game by same publisher

Image Credits

- [ErikaWittlieb](#)
- [Dograapps](#)
- Personal Collection:
 - Deception
 - Everdell
 - Ticket to Ride
 - Dominion Expansions
 - Mysterium