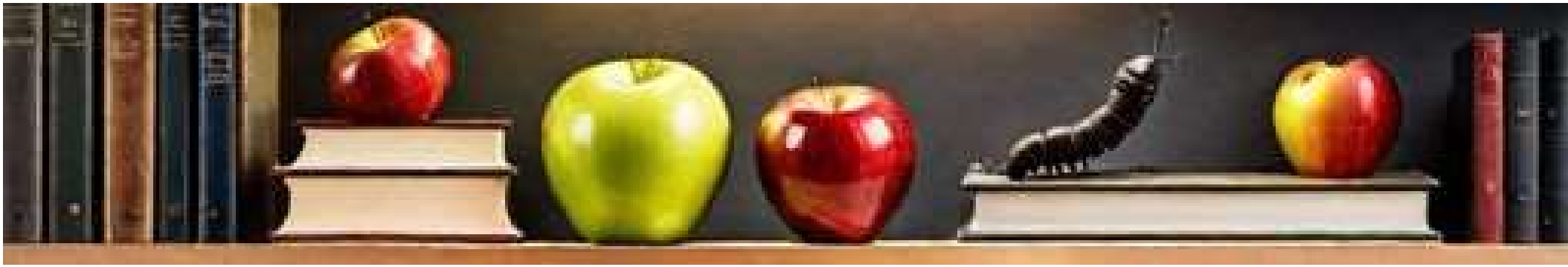
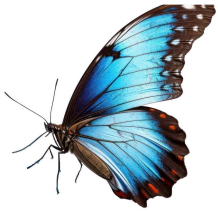


The Bookish Butterfly

Data Sources, Cleaning, and Preprocessing

Raw Data Sources



Book Ratings

[Kaggle Book Crossing Dataset]
BX-Book-Ratings.csv (1149779 values)
BX-Books.csv (271379 unique values)

BX-BookRatings.csv
ISBN (10 digit)
User ID
Book Rating

BX-Books.csv
ISBN (10 digit)
Book-Title
Book-Author
Year-Of-Publication
Publisher
Image-URL-S
Image-URL-M
Image-URL-L

Plot Summaries

[Kaggle CMU Book Summary]
BookSumaries.txt
16,559 unique values

BookSummaries.txt
Wikipedia article ID
Freebase ID
Book title
Author
Publication Date
Book genres
Plot Summary

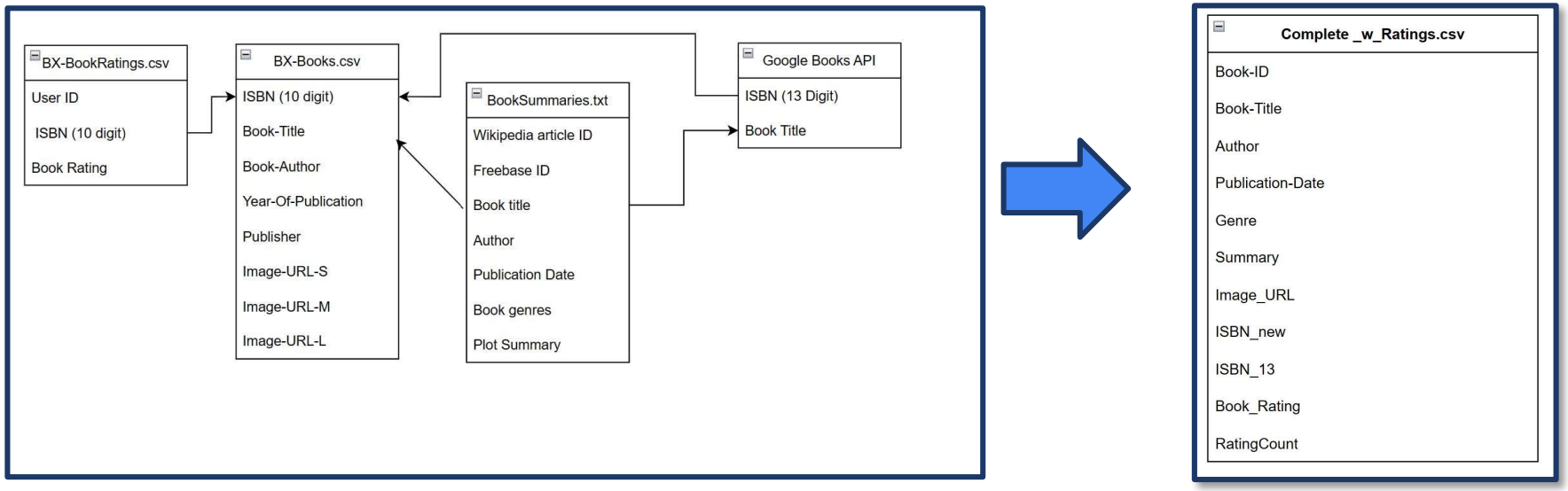
ISBN Matching

[Google Books API]

Google Books API
ISBN (13 Digit)
Book Title

Used to augment CMU data with ISBN Numbers for matching with Book Ratings

Data Cleaning and Joining



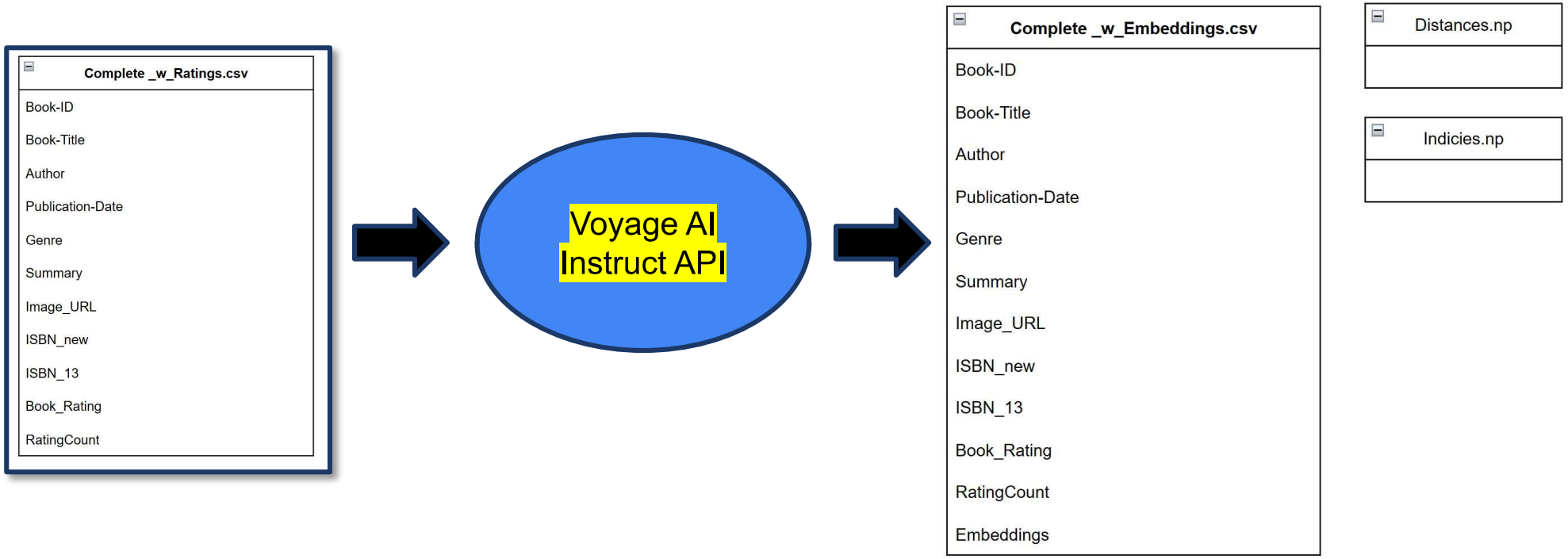
Data Limitations

- Small Number of Books can lead to surprising/frustrating results in app (e.g. no results returned for common book or author)
- BookSummaries.txt had no ISBN field for hard matching to ratings data
  - Used fuzzy/best matching on author field between BX-Books.csv and BookSummaries.txt **6360** matches
  - Obtained ISBN (13 digit) for **7289** matches using Google API for total of **13649** matches
- Sparse Fields
  - Book genres (**11025** of 13649 books had genre marked)
  - Book Rating (**5115** of 13649 books had ratings)
  - Rating Count is close to 0 for most books

Data Preprocessing - Book Similarity Measures

Voyage-AI-Instruct API

- Ranked #1 in MTEB leaderboards on hugging face in Semantic Textual Similarity(STS)
- Maps user text query to closest book, for use in Book Title and Plot Search
- Calculates “distances” between books based on STS for use in Plot Search



Data Used In Production

Simple Field Matching

(*e.g. Author2 Search*)

Complete _w_Ratings.csv

- Book-ID
- Book-Title
- Author
- Publication-Date
- Genre
- Summary
- Image_URL
- ISBN_new
- ISBN_13
- Book_Rating
- RatingCount

Semantic or Semantic + Keyword Search

(resource and memory intensive, only use when necessary)

Complete _w_Embeddings.csv

- Book-ID
- Book-Title
- Author
- Publication-Date
- Genre
- Summary
- Image_URL
- ISBN_new
- ISBN_13
- Book_Rating
- RatingCount
- Embeddings

Distances.np

Indicies.np

Search on Standardized Genre

(one book can span multiple Generic Genres and thus appear in multiple rows)

Genre.csv

- Book-ID
- Book-Title
- Author
- Genre
- Publication-Date
- Summary
- Image_URL
- ISBN_new
- ISBN_13
- Book_Rating
- RatingCount
- Generic Genre