



# Biblio

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# Problem Statement



- MGM Books pruned staff
  - Missing experienced recommendations
- Social Distancing
- In store app
  - No contact
  - Machine learning recommendations
  - Less staff needed
- Shift towards digital sales
- User feedback
  - Assess accuracy

# Biblio Overview

- Machine Learning Book Recommending Application
  - Trained on over 51million Amazon Book reviews!
- Customer interacts with biblio instead of person
  - Searches and rates books
  - Linked to CustomerID for personalized interactions across all devices
- Learns trends of customers

# The Data: Amazon Book Reviews

# Amazon Book Reviews

## Review Data

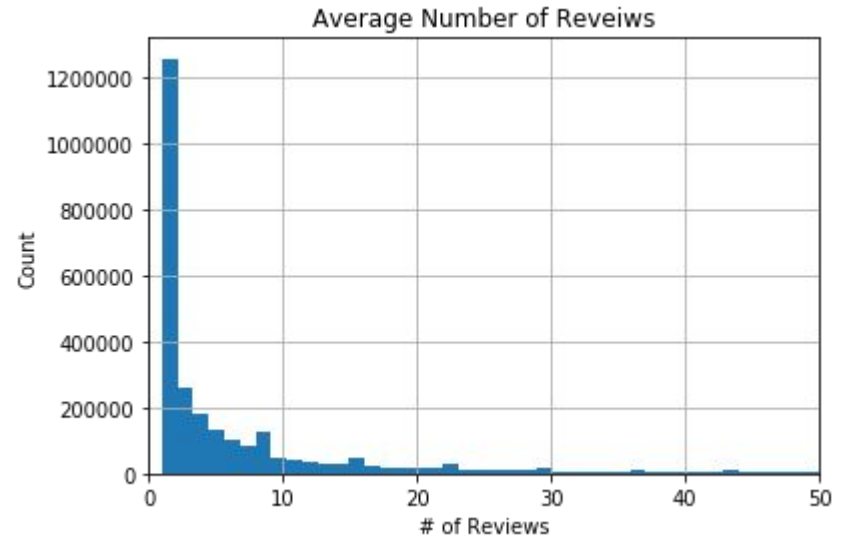
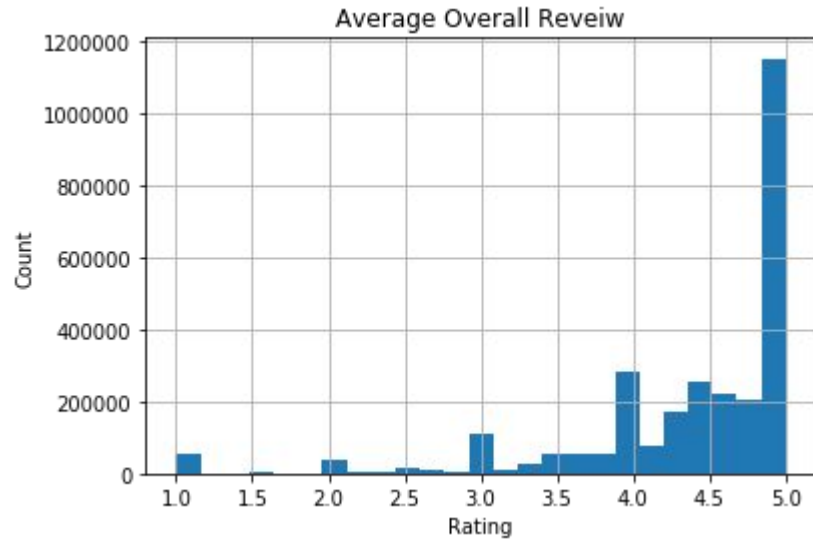
- reviewerID
- asin (item code)
- overall

## Item Data

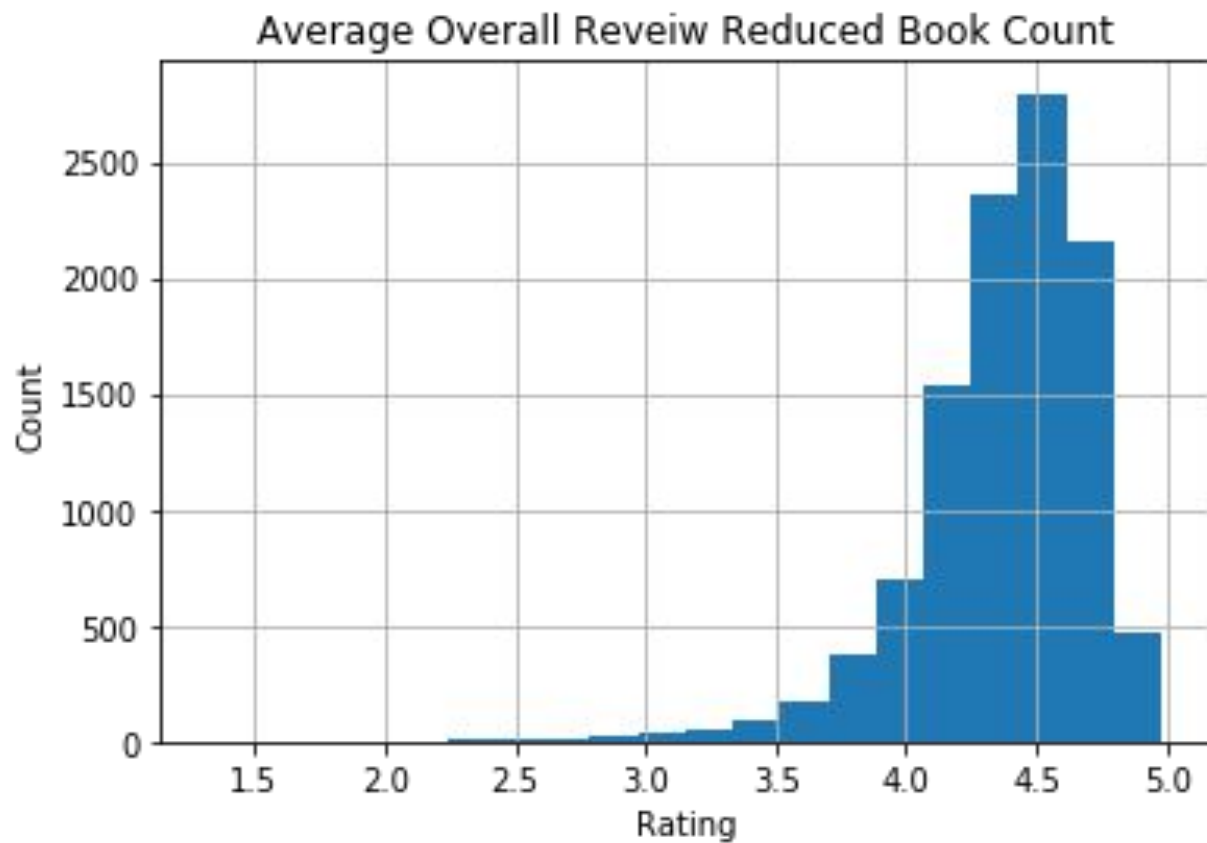
- asin (item code)
- title
- price
- category

51,311,621

# Initial Data Issues



## Reduced Reviews





# Limited Stock

- MGM Books has a smaller warehouse
  - Hold less titles than amazon
- Review count
  - More popular books have more reviews
- Average Rating
  - Most 1 5 star rating
- Remove books under 300 ratings

	overall	reviewCount
title		
<b>The Girl on the Train</b>	4.040911	58150
<b>The Pillars of the Earth</b>	4.052696	48732
<b>Gone Girl</b>	3.891027	44956
<b>Divergent</b>	4.491314	44381
<b>The Fault in Our Stars</b>	4.681788	37783

# Negative Correlation

	overall	reviewCount
title		
<b>It Could Happen To Anyone: Why Battered Women Stay</b>	1.324715	1315
<b>Discontinued</b>	1.516364	825
<b>Isle of Dogs (Andy Brazil)</b>	1.617871	526
<b>What is Amazon Prime?: The Complete Guide to Amazon Prime</b>	1.680247	810

You are not alone



3,465,689

# Biblio: Backbone

- Cosine similarities calculated using reduced review data
  - 10,795 books
- Returns books most similar to input
  - Input book title in query
  - Based on algorithm
  - Returns book titles

The Kite Runner

Average rating 4.5514018691588785

Number of ratings 1391

5 closest books

title

The Kite Runner (Chinese Edition)	0.999581
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A Thousand Splendid Suns: A Novel	0.272541
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The Curious Incident of the Dog in the Night-Time	0.132322
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Time Traveler's Wife	0.125786
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Life of Pi	0.111761
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# Biblio

1. Search Engine
2. Recommendation System
3. Promotion target  
(future development)



- Customer Selects Search
- Types in Title
  - Titles closes to the typed in results are returned
- Closest books to Title are recommended to user



# Biblio: Recommendation System

- Customer Selects Book recommendations
- Inputs query terms
  - Username
  - Genre
  - Price
- First time user prompted to rate 10 books
- Recommendations based off of personal preference returned



# Biblio: Promotion Target (future development)

- Biblio Backoffice user queries book
- Returns customers that have rated books similar to promoted one
- Adds customer email to a list





# Conclusions/Recommendations

- Machine Learning can be used to accurately recommend books
- Book Recommendation application will
  - Make accurate recommendations
  - Account for reduced staff/less human contact
  - Help sell more books with targeted promotions
- Technology can be used to create an API
  - Pools customers that use API
  - Algorithm becomes more accurate
  - Revenue beyond book sales

# Upcoming Endeavors

- Raise money to host website
  - Get a job
  - Cloud based database
- Children's book recommendation applet
  - Adults don't normally discuss/know much about children's books
  - Help nursery school teachers discover new books based on student enjoyment
  - Part of online curriculum post covid

questions?