



NEURAL NETWORKS RECOMMENDATION SYSTEM



on Amazon Reviews Dataset



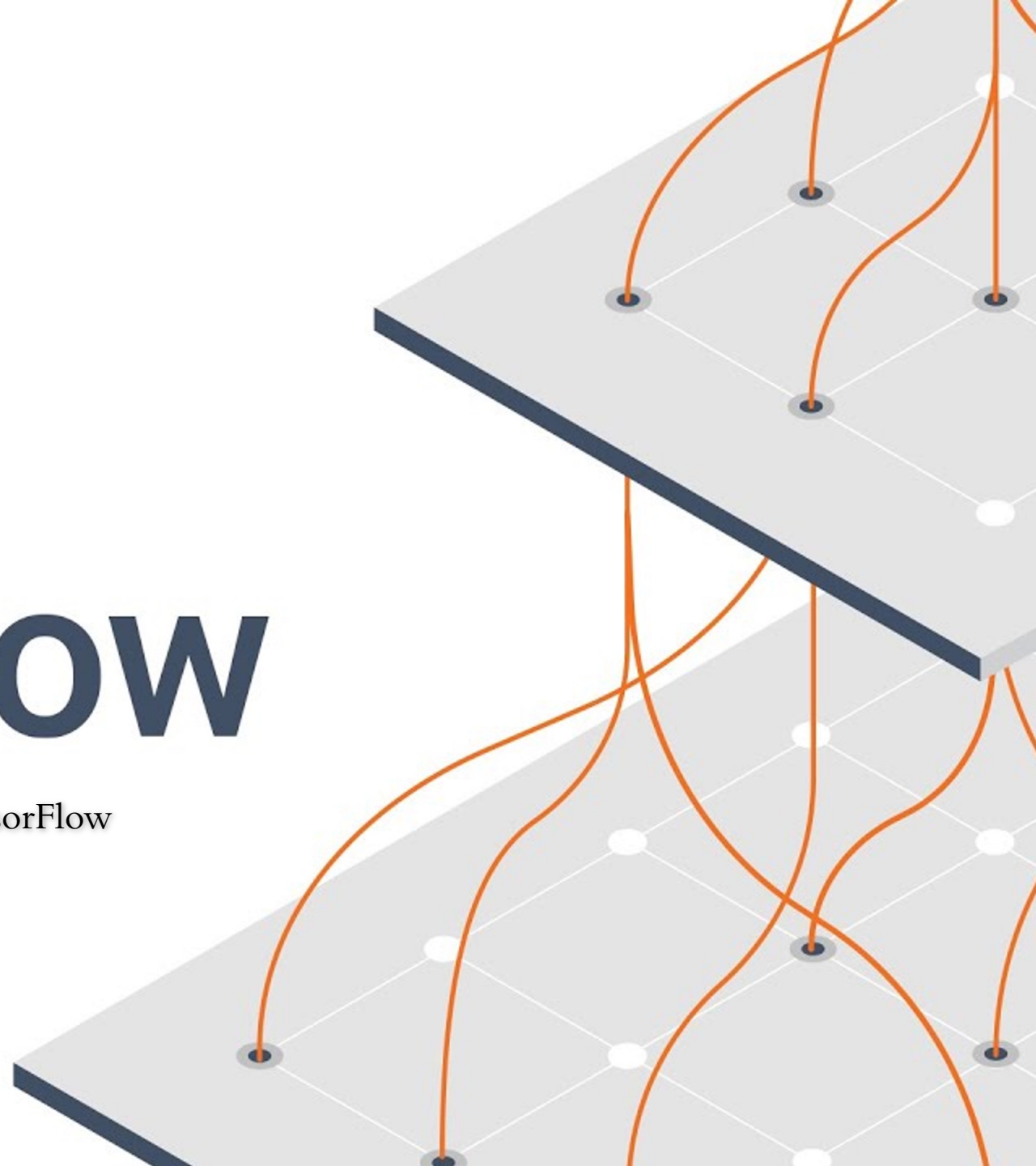
TensorFlow

OBJECTIVE: Explore Neural Networks by using TensorFlow Recommenders to address Cold Start problem.

PROJECTED OUTCOME:

Test Retrieval, Ranking, and Sequential models

Test efficient serving (ScaNN)



Outline



BUSINESS
PROBLEM



DATA AND
METHODS



RESULTS



CONCLUSIONS

Business Problem

Stakeholder: Marketing team

Low user
penetration in US
(20% at 2022)

Cold Start
Problem

Deliver to Elena
Newcastle 98059

Sports & Outdoors ▾

EN ▾

All
 Groceries ▾
 Pharmacy
 Buy Again
 Prime Video
 Health & Household
 Beauty & Personal Care

Sports & Outdoors
 Exercise & Fitness
 Outdoor Recreation
 Sports Fan Shop
 Team Sports
 Hunting
 Fishing

Hiland 27.5 inch Mountain Bike 27 Speeds, Lock-Out Suspension Fork, Aluminum 18/19.5 inch Frame Hydraulic Disc-Brake for Men Women Mens MTB Bicycle Adlut Bike

< Back to results

Roll over image to zoom in

Share

Hiland Aluminum Mountain Bike 27 Speeds, Hydraulic Disc-Brakes, Lock-Out Suspension Fork, 27.5 inch Wheel, 3 Sizes for Men Mens Mountain Bike Adult Womens Bicycle

Visit the HH HILAND Store

★★★★★ ▾ 555 ratings

| 80 answered questions

-8%

\$369⁹⁹

List Price: \$399.99

FREE Returns ▾

Get 40% off eligible products when using American Express Membership Rewards points.

Max discount \$40. Activation required. Prime exclusive offer. Limited-time offer, see terms.

Color: Grey&Orange

DATA & METHODS

DATA:

2.3M Outdoor product reviews (2000 – 2015)

FEATURES:

Product title, review title, review, review date, votes

DATA SOURCE:

[Amazon Reviews dataset](#)

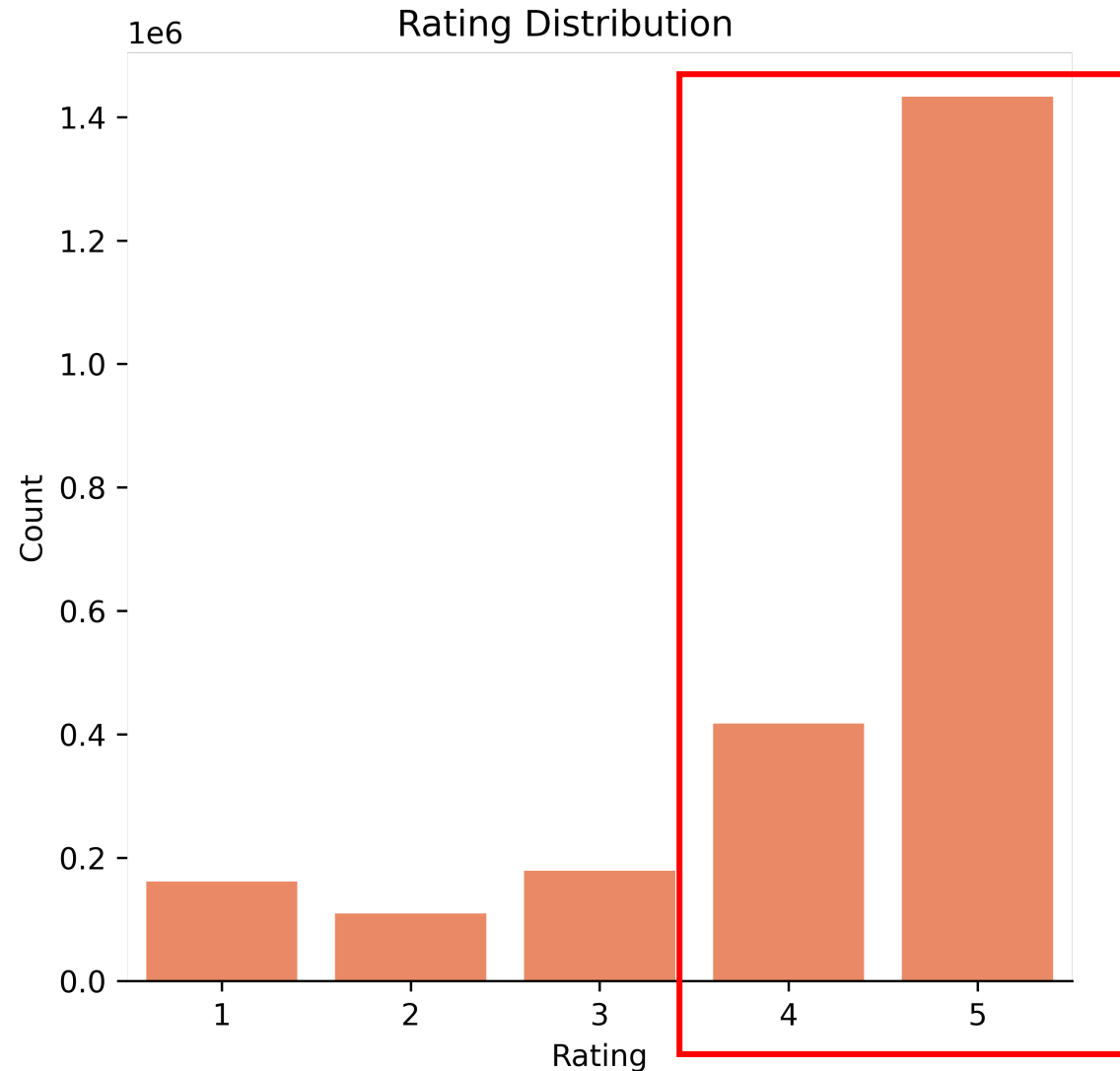
RECOMMENDATION SYSTEMS:

Retrieval

Ranking

Sequential

Combined Features



Star Rating Distribution:

62.4% - 5 star

18.1% - 4 star

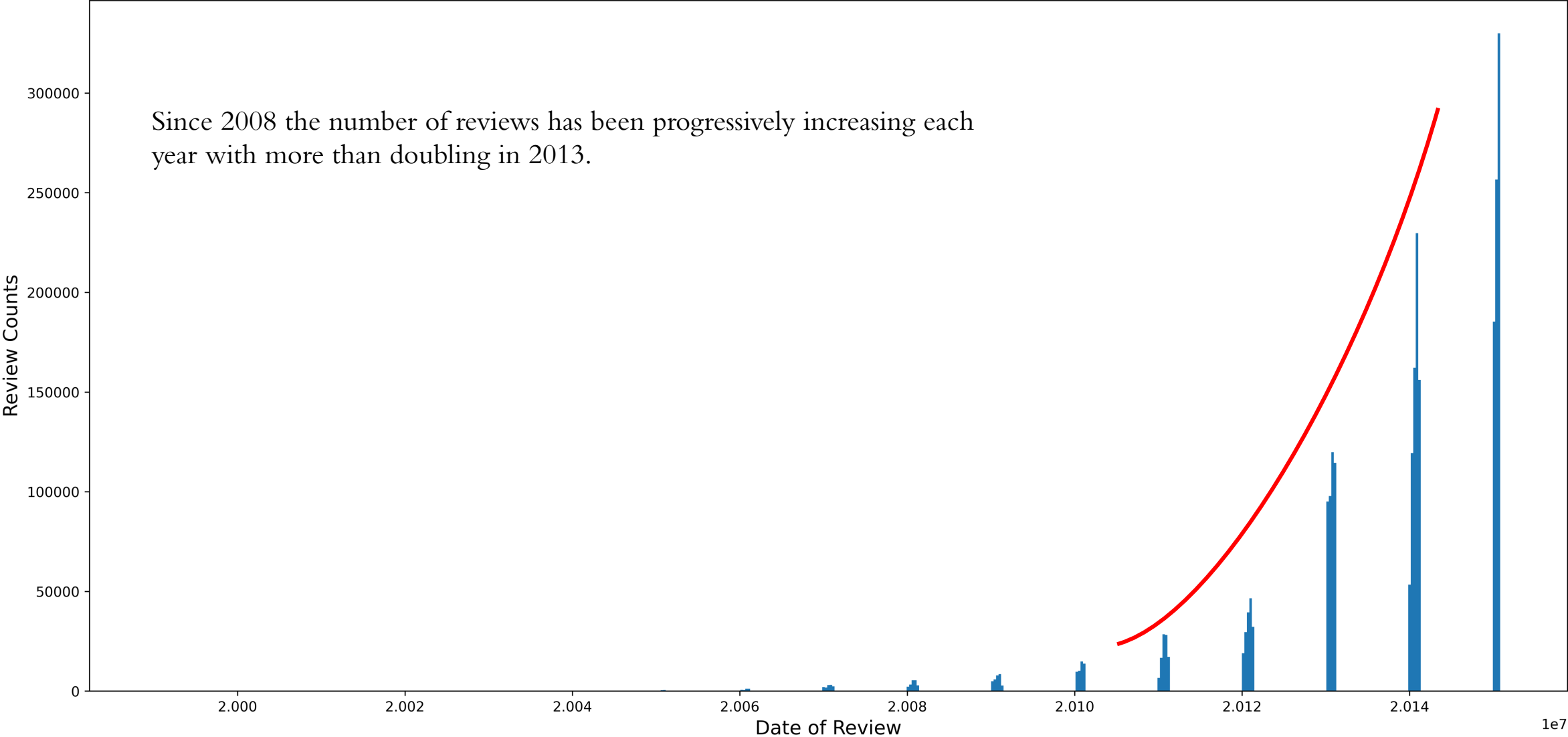
7.6% - 3 star

4.7% - 2 star

7.1% - 1 star

Rating distribution is skewed left indicating that customers tend to leave positive ratings.

Review Distribution



Top 5 Rated Products between 2000 - 2015

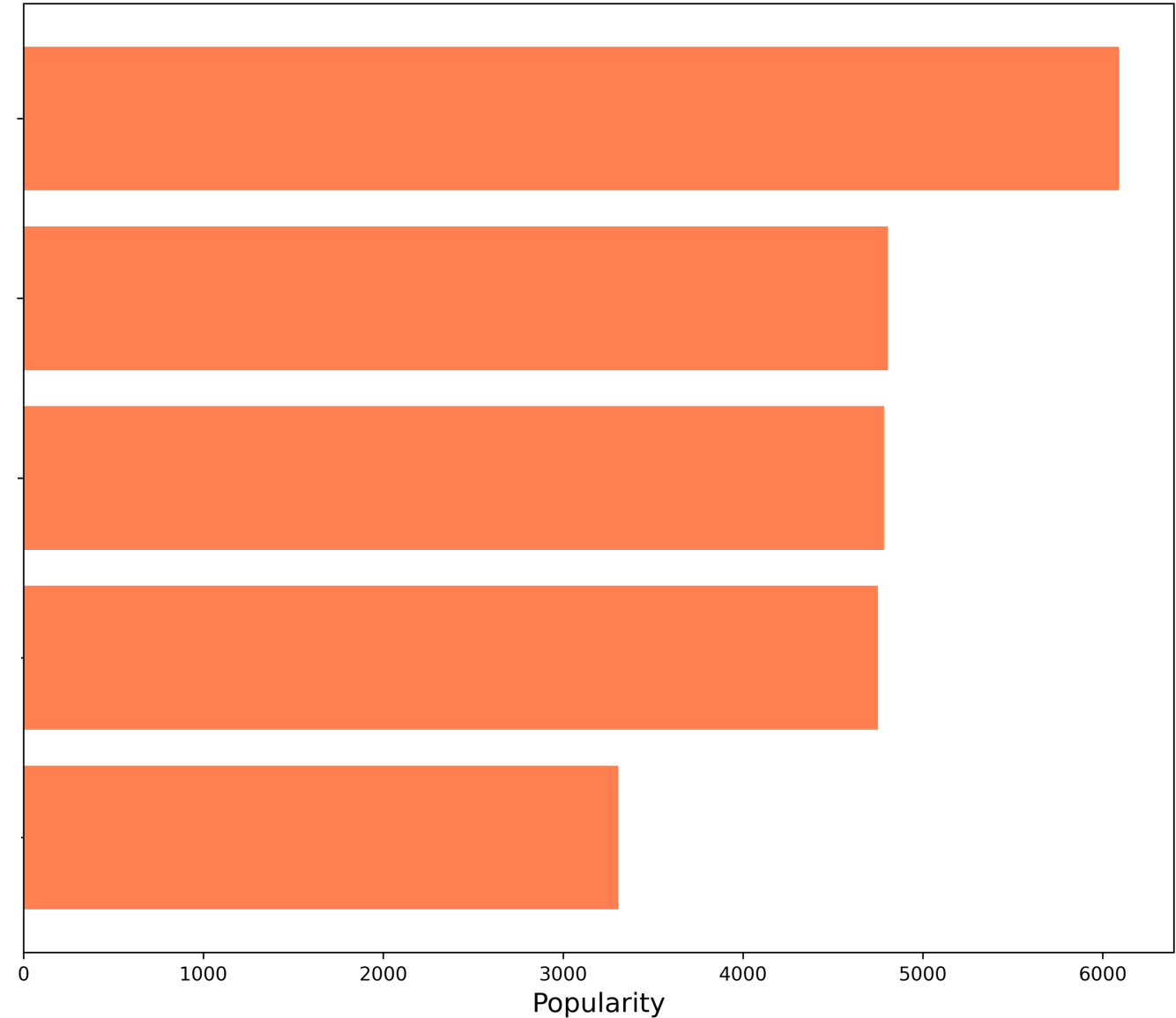
SoundAsleep Dream Series Air Mattress

Intex Pillow Rest Raised Airbed

Hydro Flask Insulated Water Bottle

Intex Raised Downy Airbed

LifeStraw Personal Water Filter for Camping



Item-to-item Retrieval Model

Accuracy rate of Top-10 recommendations is 63.26%



BUSINESS RECOMMENDATIONS

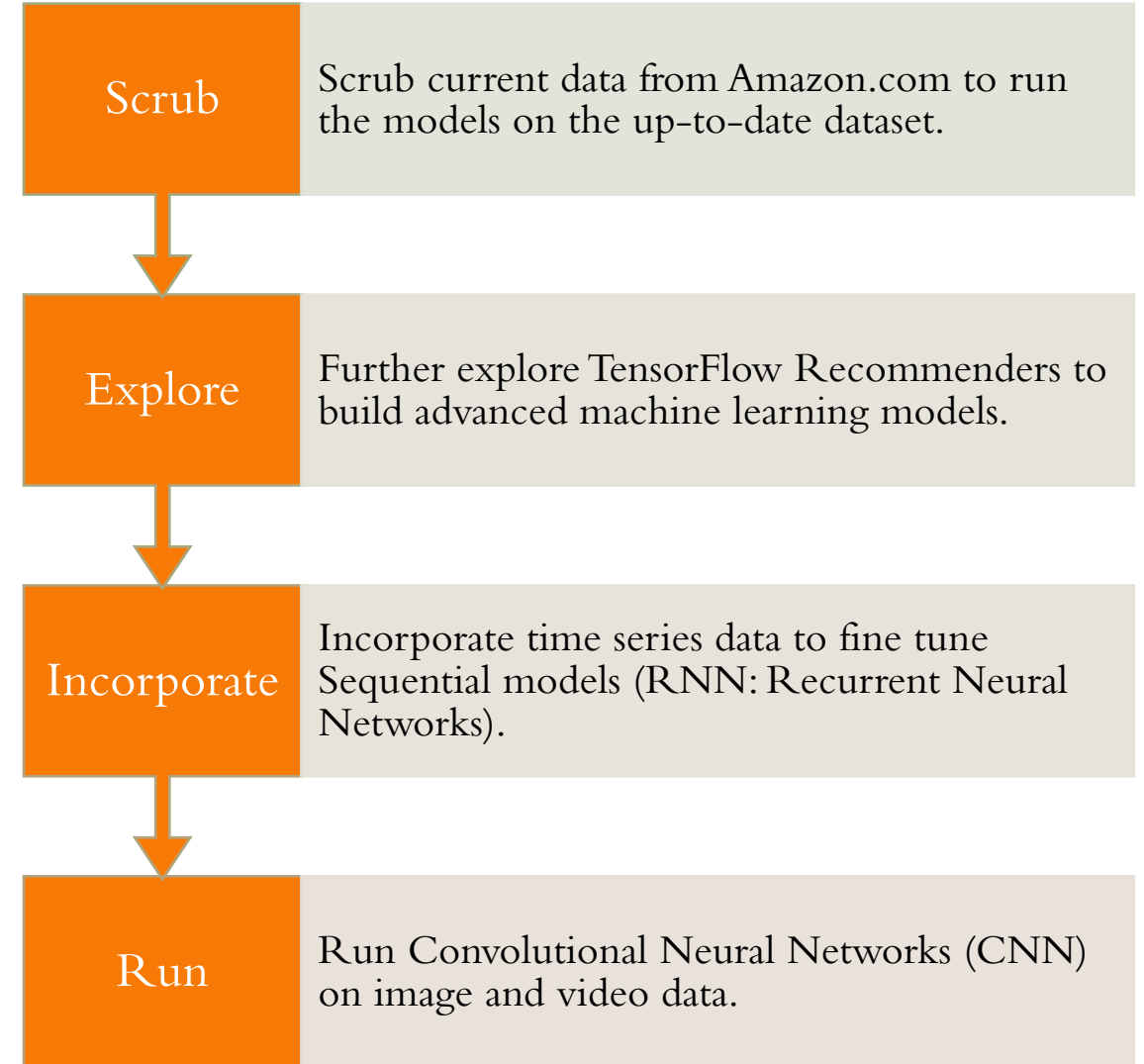


A/B test item-to-item Retrieval
TensorFlow model on the website.



Implement ScaNN for efficient
and fast serving.

NEXT STEPS





THANK YOU

[Link to Notebook](#)

