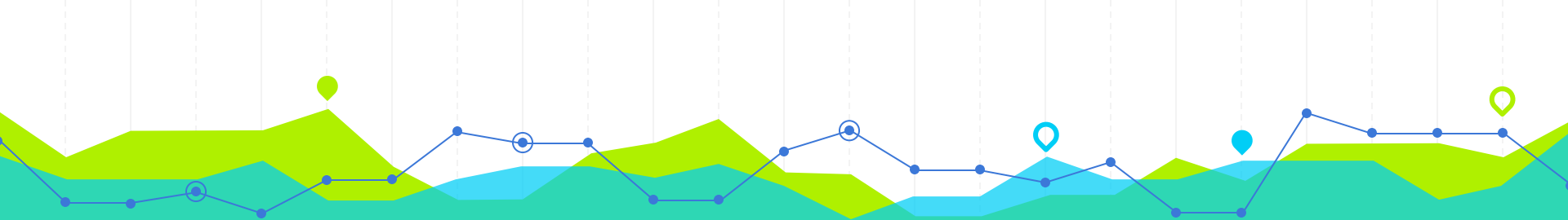


# RECOMMENDATION SYSTEM

## Garage Gym Reviews



# \$1,500,000,000

Growth in home gym equipment sales (2021)

# Background

## THE CONSUMER DILEMMA

- Much of the equipment purchased online
- Equipment is usually large & heavy
- Returns can be extremely costly

## GARAGE GYM REVIEWS (GGR)

- In depth blogs about gym equipment



# Introduction

## GOAL

- Suggest reviews of related products
- Increase time spent on website and satisfaction of consumer

## SOLUTION

- Construct a content based recommendation system
  - Topic modeling (Non-Negative Matrix Factorization)



# Background

## DATA

- Garage Gym Review
  - Scraped 432 product reviews
- Average length: 1,600 words

## CLEANING

- 19,000 terms → 6,000 terms
  - Stop words
  - Term frequency removal:
    - Over 60% (~260 docs)
    - Under 1% (~4 docs)

# Topic Modeling

## MODEL OUTPUT

- Corpus broken into 10 topics

Example:

Topic	Top Terms
1	Shoe, Nike, Metcon, Heel, Nano, Reebok
3	Bike, Air, Echo, Assault, Schwinn, Monitor
4	Dumbbell, Adjustable, Handle, Powerblock, Pound

# Topic Modeling

## MODEL OUTPUT

- Corpus broken into 10 topics

Example:

Topic	Top Terms	Top Document
1	Shoe, Nike, Metcon, Heel, Nano, Reebok	7 Best CrossFit Shoes of 2021
3	Bike, Air, Echo, Assault, Schwinn, Monitor	The Best Air Bike for 2021
4	Dumbbell, Adjustable, Handle, Powerblock, Pound	Best Adjustable Dumbbell for Home Gyms

# Topic Modeling

## MODEL OUTPUT

- Corpus broken into 10 topics

Example:

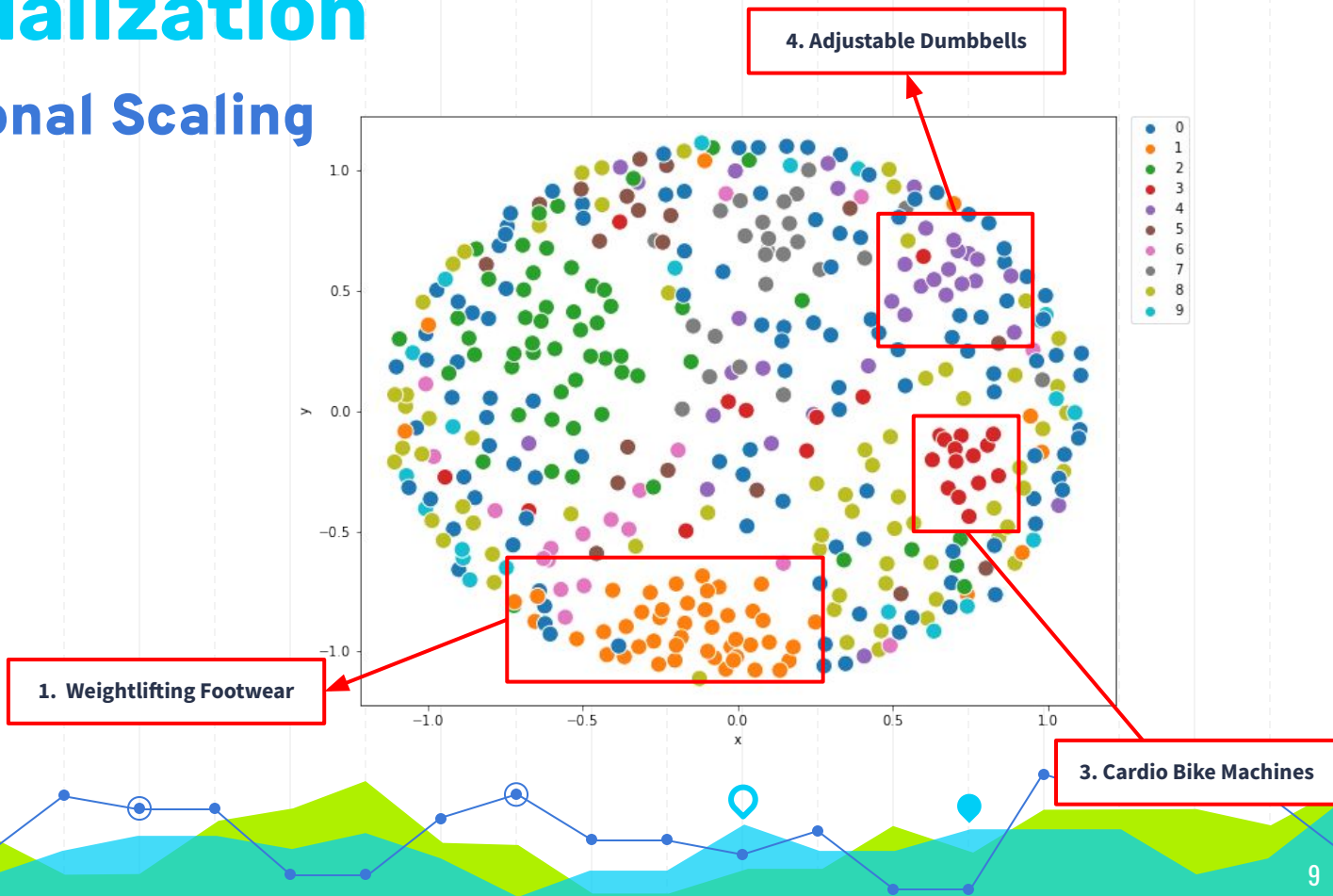
Topic	Top Terms	Top Document	Predicted Topic
1	Shoe, Nike, Metcon, Heel, Nano, Reebok	7 Best CrossFit Shoes of 2021	Weightlifting Footwear
3	Bike, Air, Echo, Assault, Schwinn, Monitor	The Best Air Bike for 2021	Cardio Bike Machines
4	Dumbbell, Adjustable, Handle, Powerblock, Pound	Best Adjustable Dumbbell for Home Gyms	Adjustable Dumbbells



# Topic Visualization

## Multidimensional Scaling

Topic	Predicted Topic
1	Weightlifting Footwear
3	Cardio Bike Machines
4	Adjustable Dumbbells



# Recommendation System

## INPUT:

Document Number (6)

## OUTPUT:

You just read: Rogue US MIL Spec Bumper Plates Review (2021)

You might like:

Document Number	Title	URL
30	FringeSport Bumper Plates Review	<a href="https://www.garagegymreviews.com/fringesport-bumper-plates-in-depth-review">https://www.garagegymreviews.com/fringesport-bumper-plates-in-depth-review</a>
289	Vulcan Strength Alpha Bumper Plates Review (2021)	<a href="https://www.garagegymreviews.com/vulcan-strength-alpha-bumper-plates-review">https://www.garagegymreviews.com/vulcan-strength-alpha-bumper-plates-review</a>
209	The Best Bumper Plates for 2021	<a href="https://www.garagegymreviews.com/best-bumper-plates-guide">https://www.garagegymreviews.com/best-bumper-plates-guide</a>



# FUTURE WORK

- Create a Streamlit app
- Recommendations based on keyword input
- Automate tag creation for new reviews

# THANKS!

Any questions?



# Appendix

## Topic 0:

HOLE, UPRIGHT, ATTACHMENT, PULL, TITAN, SORINEX, MONSTER, BAND, HANDLE, UP, SLED, GAUGE, SAFETY, STAND, MACHINE

## Topic 1:

SHOE, NIKE, METCON, HEEL, NANO, REEBOK, ROMALEOS, WEIGHTLIFTING, FOOT, TOE, OUTSOLE, UPPER, MIDSOLE, ADIDAS, STABILITY

## Topic 2:

OHIO, KNURL, SHAFT, SLEEVE, KNURLING, BUSHING, TENSILE, STAINLESS, PSI, CERAKOTE, ZINC, POWERLIFTING, OLYMPIC, FINISH, SPIN

## Topic 3:

BIKE, AIR, ECHO, ASSAULT, SCHWINN, SEAT, MONITOR, AIRDYNE, PEDAL, FAN, XEBEX, CALORIE, RESISTANCE, CONSOLE, CONCEPT

## Topic 4:

DUMBBELL, ADJUSTABLE, HANDLE, POWERBLOCK, POWERBLOCKS, BOWFLEX, POUND, IRONMASTER, IRONMASTERS, KETTLEBELL, HEX, SELECTTECH, LB, DB, MUSCLE

## Topic 5:

BELT, PIONEER, LEATHER, DOMINION, BUCKLE, SBD, PRONG, LEVER, RHINO, WEIGHTLIFTING, BRUTE, PLY, TROLLEY, CUT, PLATFORM

## Topic 6:

BUMPER, FRINGESPORT, RUBBER, BOUNCE, URETHANE, ALPHA, COMPETITION, REP, VIRGIN, 10, POUND, DUROMETER, CRUMB, IRON, INSERT

## Topic 7:

BENCH, PAD, FLAT, ADJUSTABLE, FAT, UTILITY, REP, FB, THOMPSON, FOOT, 5000, AB, GAUGE, HEIGHT, VINYL

## Topic 8:

TREADMILL, MACHINE, IFIT, RUNNING, TRUEFORM, NORDICTRACK, ELLIPTICAL, APP, RUNNER, TRAINER, ROWER, STRIDE, PROGRAMMING, CARDIO, SMART

## Topic 9:

VEST, CARRIER, WEIGHTED, HYPER, VELCRO, HYPERWEAR, EZ, SLED, POCKET, TACTICAL, KENSUI, CORDURA, ROPE, INVEST, STRAP

