

Content-based Recommender for Ecommerce site

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Problem Statement

Brick & mortar \Rightarrow Online +

Poor user browsing experience =

Customers
spending
hours scrolling
through tons
of
merchandise
never finding
the item they
want to buy.



Solution?

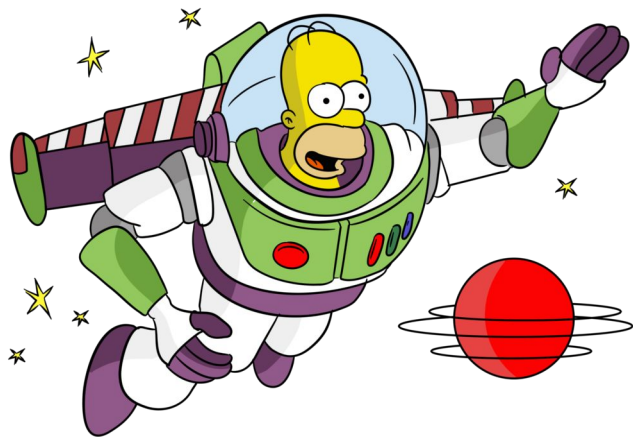
Recommender System!

What is a recommender system?

- An unsupervised learning algorithm
- Mostly used to aid in consumer decision making
 - Shopping
 - Movie selection
 - Online article reading
- Collaborative or Content-based
- Success measured on how similar a product is to another product



Amazon Reviews & Web Scrapping



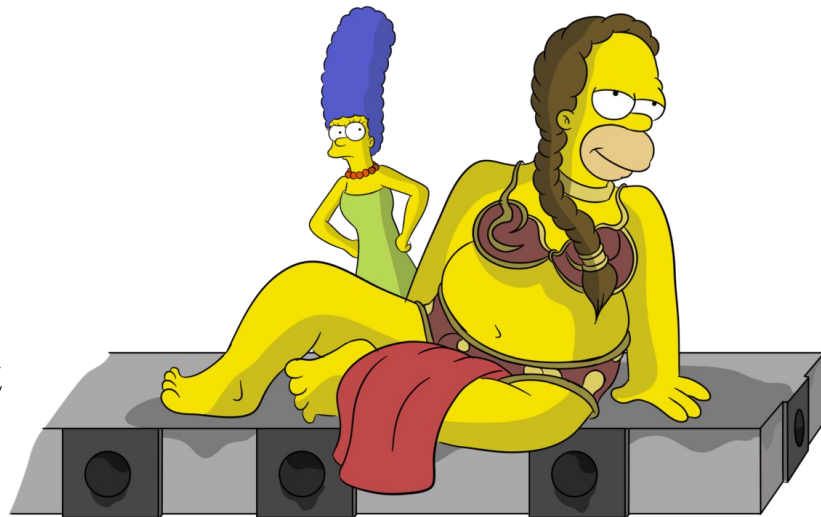
- 278,677 Amazon reviews and ratings of Clothing, Shoes, and Jewelry
- Scraped 23,033 unique Amazon product IDs for additional data:
 - Name
 - Description
 - Color
 - Size
 - Department/Category
- Successfully scraped 13,732 = approx 40% loss of data

Feature Engineering

- Name, Category & Average Rating ended up being the most important
- Colors lowered score
- Dropped Description & Size

Scoring

- No target variable
- Revenue and Click-through-rate vs. Human evaluation
- Measured relevance between product based on features







```
recommender_tfidf["Kanu Surf Men's Havana Swim Trunk"].sort_values()[1:11]
```

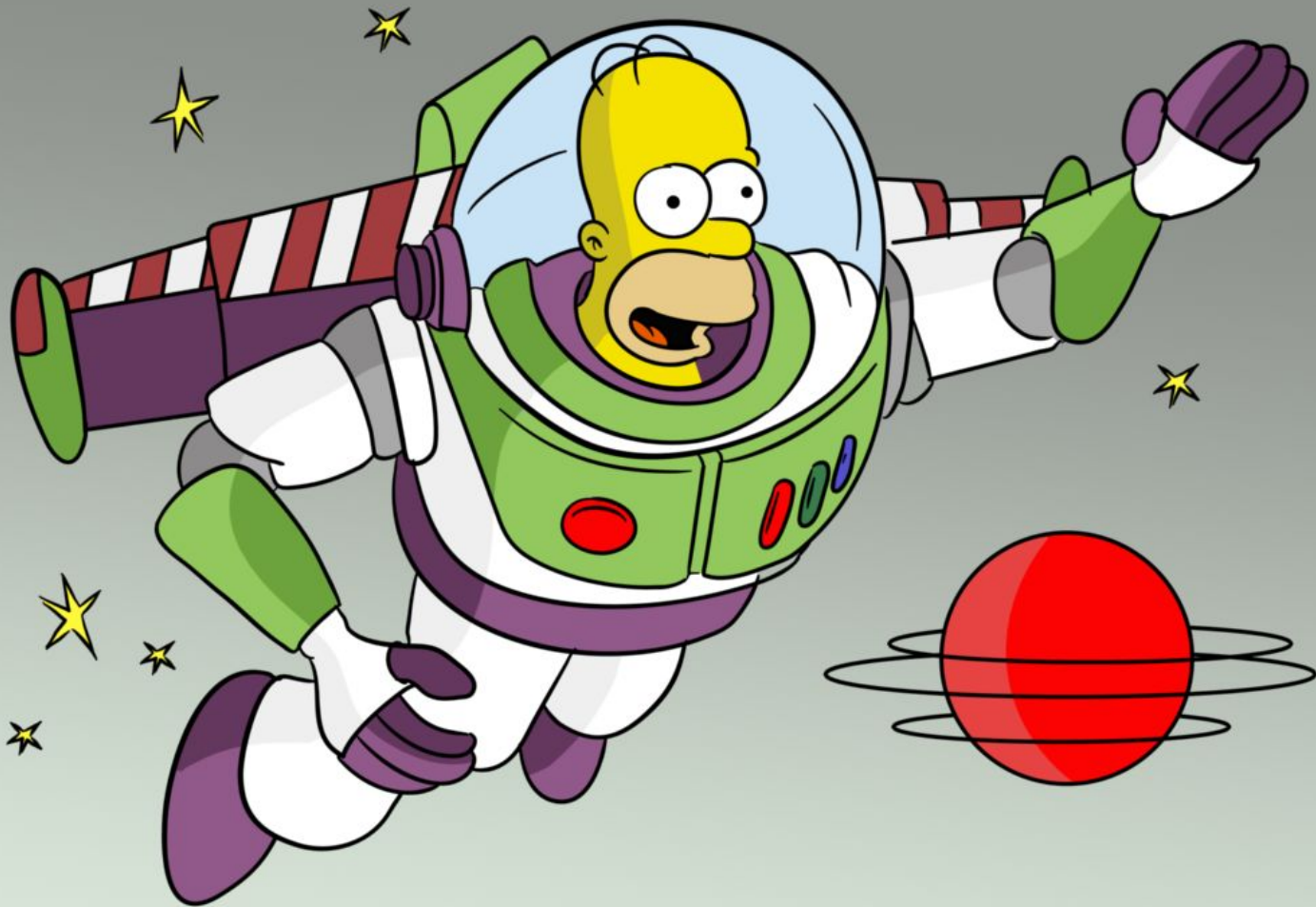
name_x

Kanu Surf Men's Barracuda Swim Trunk	0.007
Kanu Surf Men's Barracuda Swim Trunks (Regular & Extended Sizes)	0.010
Speedo Surf Runner Volley Swim Trunks, Red Pepper, X-Large	0.027
Speedo Men's Marina Swim Trunk	0.029
Speedo Men's Marina Swim Trunk- Manufacturer Discontinued - Manufacturer Discontinued	0.032
Zehui Mens Swimwear Sexy Sport Shorts Tie Rope Swim Trunks	0.032
Speedo Men's Poly Mesh Square Leg Swimsuit	0.048
Kanu Surf Men's CB Rashguard UPF 50+ Swim Shirt	0.060
Kanu Surf Men's Solid Rashguard UPF 50+ Swim Shirt	0.062
Mens Solid Color with Racing Stripe Skate Surf Board Short/Swim Trunks	0.076

Name: Kanu Surf Men's Havana Swim Trunk, dtype: float64

Kanu Surf Men's Havana Swim Trunk





```
recommender_tfidf["Buzz Lightyear Boy's Deluxe Toy Story Costume"].sort_values()[1:11]
```

name_x

California Costumes Toys Hercules

0.025

California Costumes Toys Vampire Girl

0.026

Rubies Star Wars Classic Child's Deluxe Jedi Knight Costume, Medium

0.029

Rubie's Deluxe George Washington Children's Costume, Large

0.031

Super DC Heroes Deluxe Muscle Chest Superman Costume, Child's Large

0.032

DC Comics Wonder Woman Toddler Costume Red Caped T-Shirt

0.033

Forum Novelties Sparkle Princess Costume, Toddler Size

0.033

Child's Red and Black Spanish Princess Costume, Small

0.033

Melissa & Doug Chef Role-Play Costume Set (Pretend Play, Materials, Machine-Washable, 17.5" H x 24" W x 0.75" L)

0.034

DC Super Heroes Child's Batgirl Costume, Large

0.035

Buzz Lightyear Boy's Deluxe Toy Story Costume





```
recommender_tfidf["Secret Wishes Star Wars Princess Leia Prisoner Adult Costume"].sort_values()[1:10]
```

name_x	
Secret Wishes Star Wars Princess Leia Costume	0.013
Secret Wishes Maid Costume	0.025
Secret Wishes Women's Adult Supergirl Costume	0.027
Secret Wishes Batman Arkham City Sexy Harley Quinn Costume	0.033
DC Comics Secret Wishes Wonder Woman Corset Costume	0.036
DC Comics Deluxe Batgirl Adult Costume	0.038
InCharacter Wretched Witch Adult Costume-	0.039
Secret Wishes Women's Dark Knight Rises Adult Catwoman Costume	0.042
California Costumes Deluxe Hooded Robe Adult Costume	0.043

Secret Wishes Star Wars Princess Leia Prisoner Adult Costume



```
recommender_tfidf["Long Satin Bandage Evening Gown Formal Bridesmaid Prom Dress Brooch"].sort_values()[1:11]
```

name_x	
Ever-Pretty Sleeveless V-Neck Semi-Formal Maxi Evening Dress 09016	0.030
Ever-Pretty Sleeveless V-Neck Semi-Formal Maxi Evening Dress 09016	0.034
50s Strapless Satin Bridesmaid Bridesmaid Dress Homecoming	0.034
Wild Zebra Inspired Graphic Print Beaded Halter Smocked Bodice Long/Maxi Dress	0.035
Sakkas Stonewashed Rayon Embroidered Adjustable Spaghetti Straps Long Dress	0.036
Arlyn Perez V Neck Floral Lace 3/4 Sleeve Cocktail Party Mini Dress	0.036
Columbia Women's Saturday Trail Stretch Dress	0.036
Funfash Plus Size Women Blue Black Empire Waist A Line Block Long Maxi New Dress	0.036
Funfash Plus Size Women Empire Waist A Line Slimming Cocktail Dress Made in USA	0.037
Funfash Plus Size Women Empire Waist A Line Slimming Cocktail Dress Made in USA	0.037

Long Satin Bandage Evening Gown Formal Bridesmaid Prom Dress Brooch



Success!!

