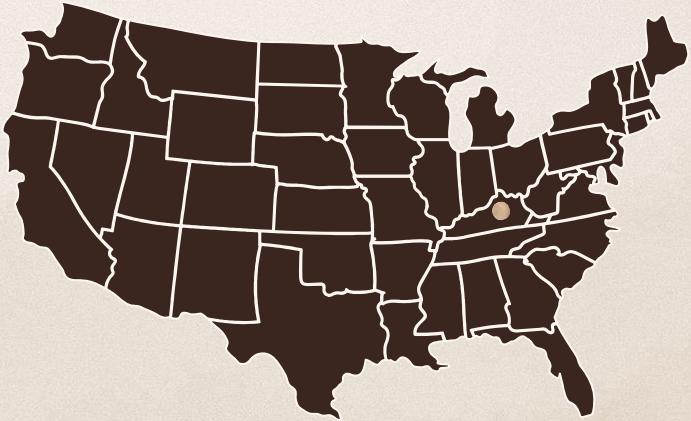




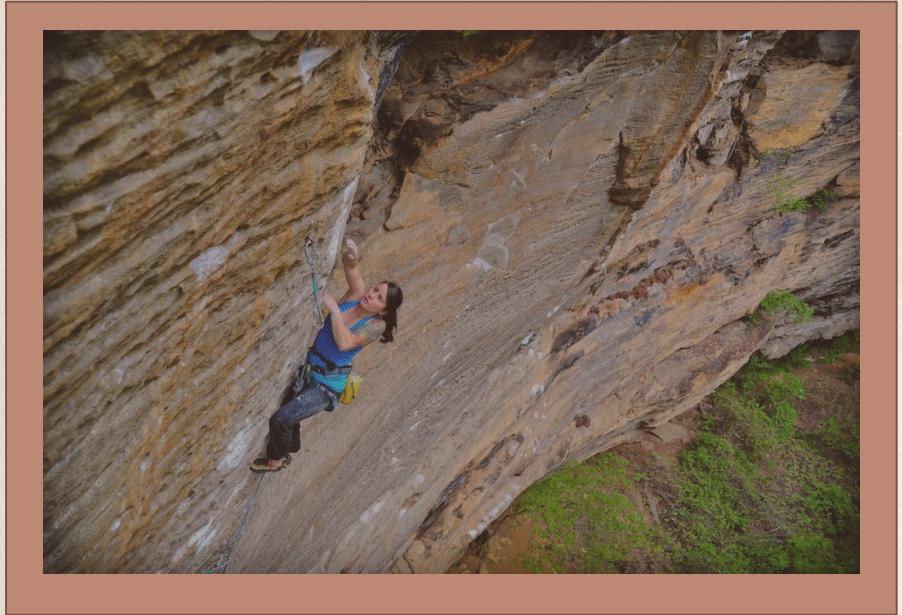
ROCK CLIMBING ROUTE RECOMMENDER

BY LEAH NAGY

▲ KENTUCKY ROCK CLIMBING



RED RIVER GORGE AREA
The rock climbing mecca of the East coast



Over 3,000 climbing routes and 100+ cliffs



01

DESIGN

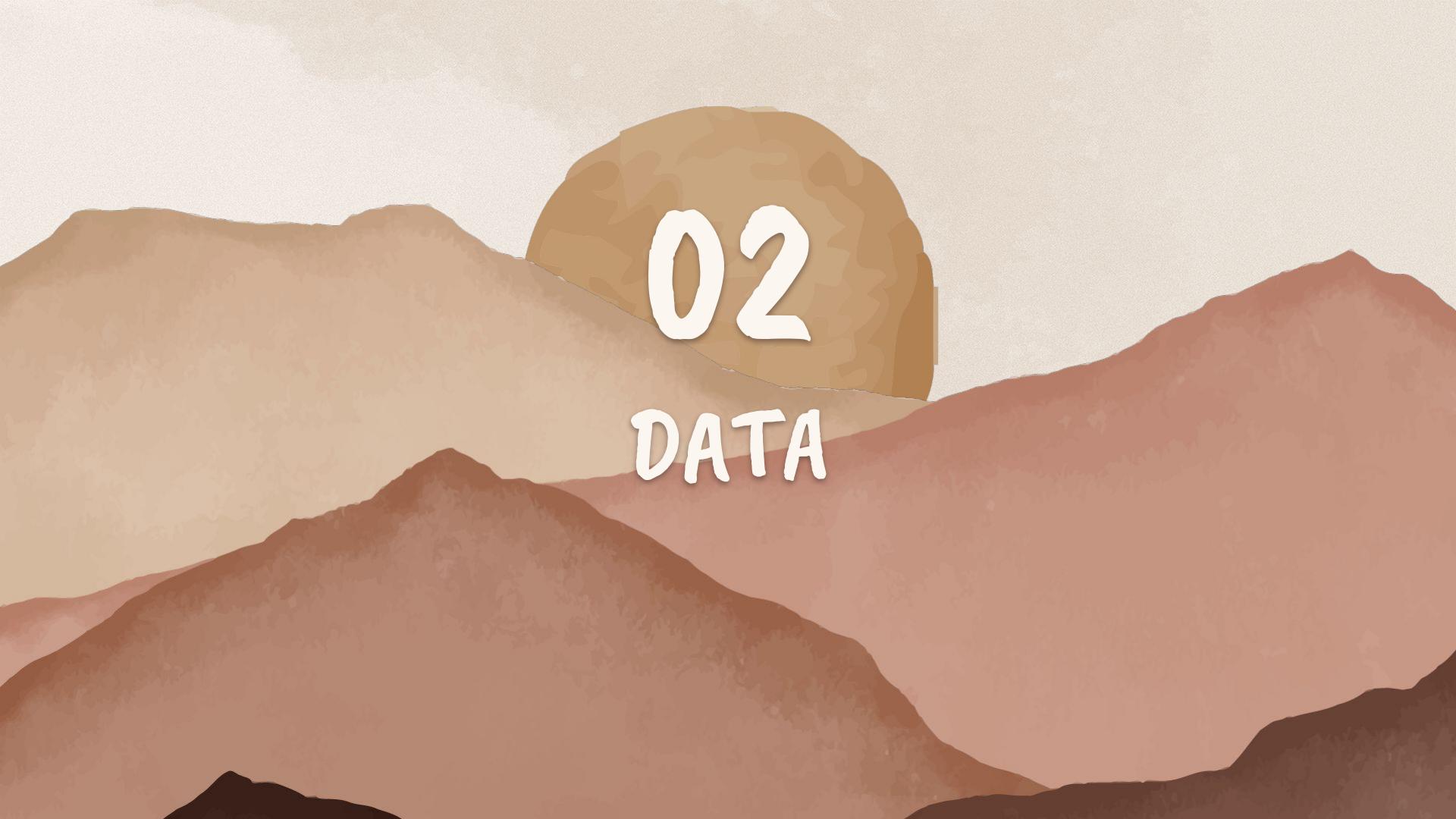
▲ DESIGN

Client: Mountain Project

Need: Users of Mountain Project's application would like recommendations for their next rock climbing route

Goal: Provide a list of similar routes to the one selected by the user





02

DATA

WEB SCRAPING

Scrape
route
statistics

All Locations > Kentucky > Red River Gorge > Bald Rock Fork... > Bear's Den

Zero Dark Fiddy

5.13a YDS Avg: 4 from 1 vote

Type: Sport, 75 ft (23 m)
FA: Dru Mack, Scott Curran 2013
Page Views: 105 total · 40/month
Shared By: Jonathan Laferriere on Dec 4, 2021
Admins: Shirtless Mike, saxfiend, DrRockso, Billy Simek

You & This Route 1 Opinions

Your To-Do List: Add To-Do · View List

Your Star Rating:

Your Difficulty Rating: -none- [Change](#)

Your Ticks: Add New Tick
-none-

Access Issue: Owned and managed by the RRGCC. Make sure to visit the Coalition's website to review their regulations and donate to help maintain climbing access in the RRG. [Details](#) ▾

Description

Tech up the vertical face to a great stance before the overhang. Charge up the 5.12- steep face on pumping edges to a heartbreaker crux before the last bolt. Embrace the heinous for a move or two then recollect yourself on some iron jugs before navigating to the anchor.

Location

Smack dab in between Pinkalicious and 72 Hour Energy.

Protection

8 bolts, bolt anchor

[Improve This Page](#) ▾
[Add To Page](#) ▾



WEB SCRAPING

Scrape
text
description

All Locations > Kentucky > Red River Gorge > Bald Rock Fork... > Bear's Den

[Improve This Page](#) ▾

[Add To Page](#) ▾

Zero Dark Fiddy

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Your Difficulty Rating: -none- [Change](#)

Your Ticks: [Add New Tick](#)

-none-



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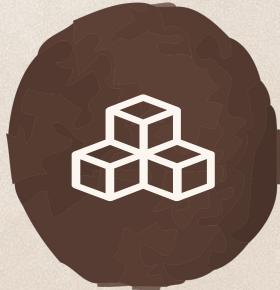
Protection

8 bolts, bolt anchor

▲ DATA - SUMMARY



2,044 ROUTES



12 FEATURES



155,023 Words



03 TOOLS

TOOLS USED



python

matplotlib

BeautifulSoup



spaCy



pandas



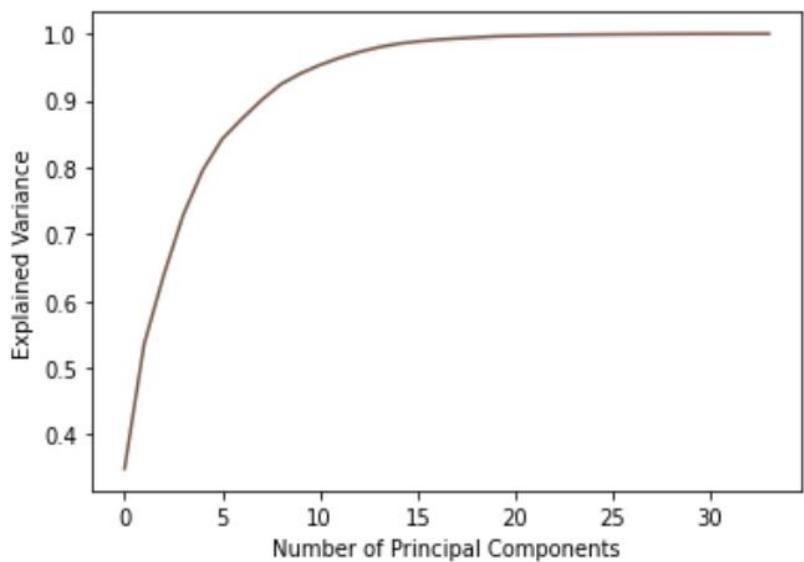


04

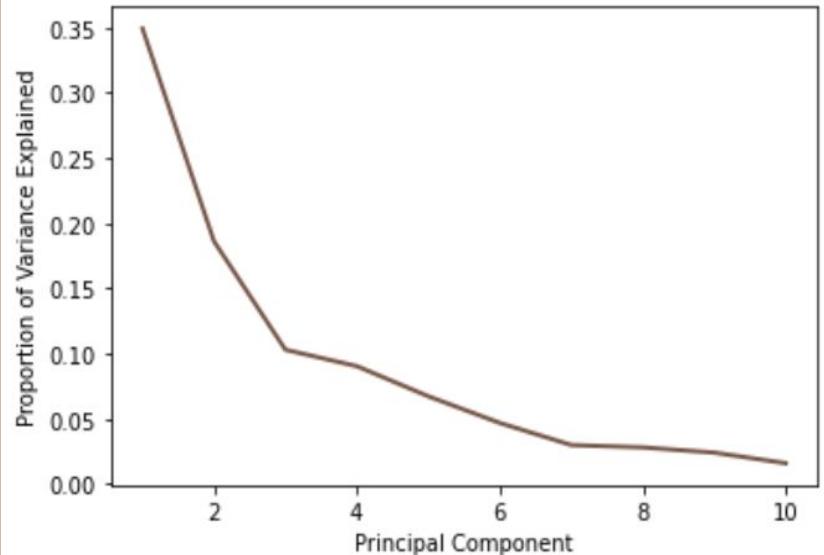
DIMENSIONALITY REDUCTION

▲ PRINCIPAL COMPONENT ANALYSIS

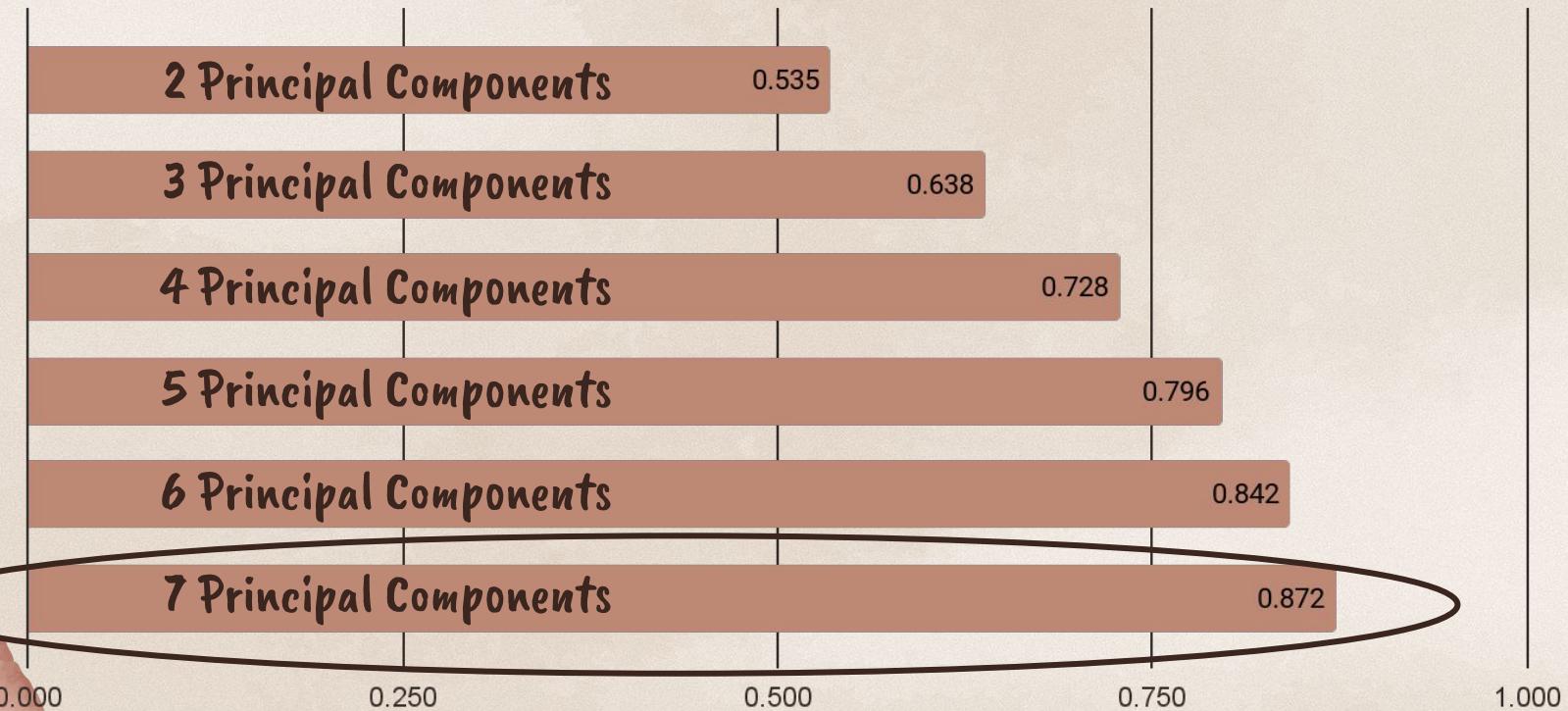
Total Explained Variance VS. No. Principal Components



Scree Plot



▲ PRINCIPAL COMPONENT ANALYSIS





05

RECOMMENDATION SYSTEMS

▲ POPULARITY RECOMMENDATIONS



ROUTE Weighted Score

Autumn	3.63
Roadside Attraction	3.62
Supercrack	3.59
Eureka	3.54
Cheaper than a Movie	3.50

Autumn

5.9 YDS  Avg: 3.7 from 475 votes

Type: Trad, 80 ft (24 m)

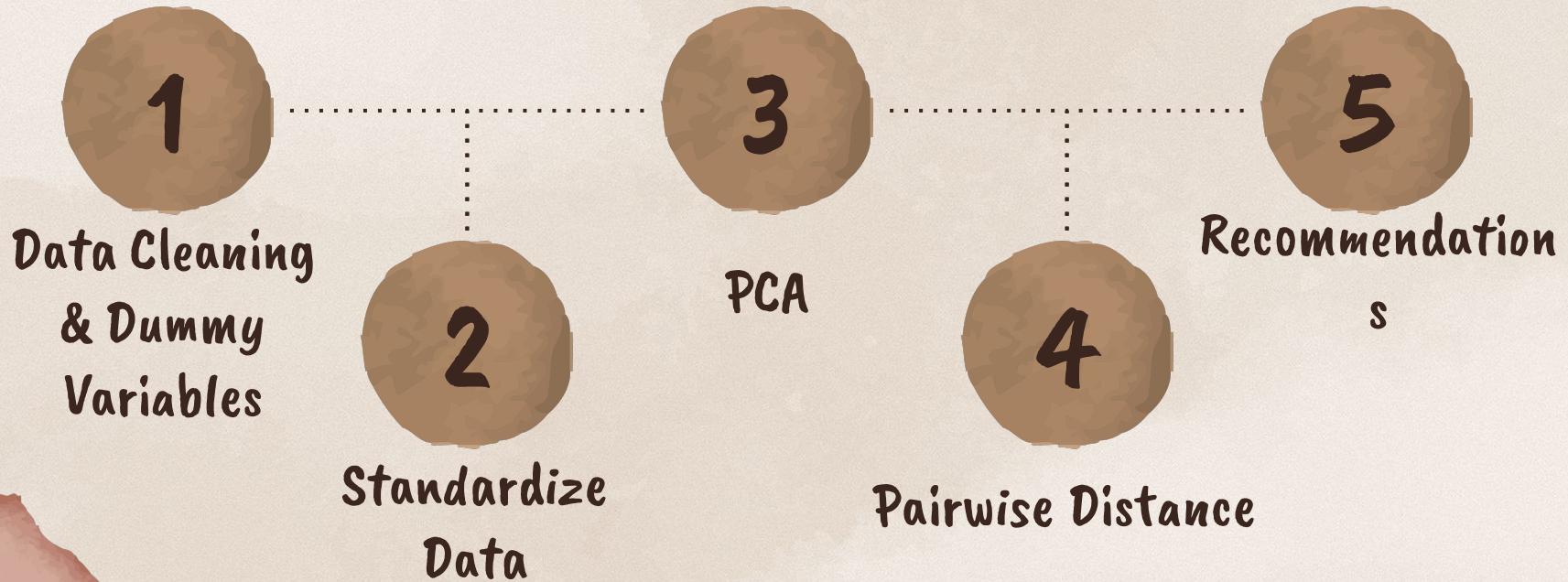
FA: M. Hackworth, T. Anderson, '84

Page Views: 19,413 total · 102/month

Shared By: Tony B on Oct 3, 2006

Admins: Shirtless Mike, saxfiend, DrRockso, Billy Simek

▲ NUMERICAL/CATEGORICAL DATA RECOMMENDER



CONTENT-BASED FILTERING RECOMMENDATION SYSTEM

Using Numerical & Categorical Data

Input Route



Closest Route

All Locations > Kentucky > Red River Gorge > Natural Bridge... > Graining Fork Nature...

Roadside Attraction

5.7 YDS  Avg: 3.7 from 417 votes

Type: Trad, 120 ft (36 m), 2 pitches

FA: G. Smith, R. Snider

Page Views: 42,605 total · 224/month

Shared By: Mike on Sep 16, 2006

Admins: Shirtless Mike, saxfiend, DrRockso, Billy Simek

All Locations > Kentucky > Red River Gorge > Northern Gorge > Fortress Wall

Bedtime for Bonzo

5.6 YDS  Avg: 3.4 from 455 votes

Type: Trad, 100 ft (30 m), 2 pitches

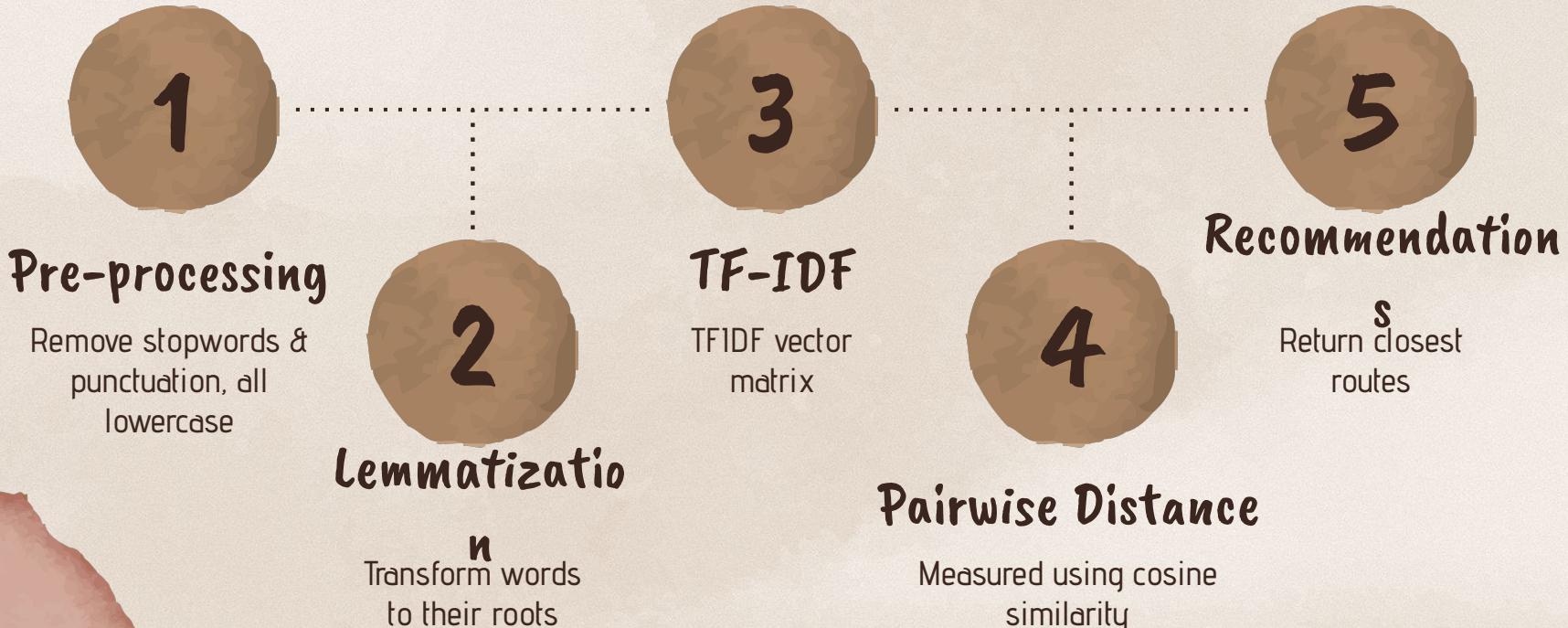
FA: G. Robinson, M Hackworth, 1983

Page Views: 22,487 total · 118/month

Shared By: Tony B on Oct 11, 2006

Admins: Shirtless Mike, saxfiend, DrRockso, Billy Simek

TEXT DATA RECOMMENDER



CONTENT-BASED FILTERING RECOMMENDATION SYSTEM



Using Text Data

Input Route



Closest Route

All Locations > Kentucky > Red River Gorge > Natural Bridge... > Graining Fork Nature...

Roadside Attraction

5.7 YDS  Avg: 3.7 from 417 votes

Type: Trad, 120 ft (36 m), 2 pitches

FA: G. Smith, R. Snider

Page Views: 42,605 total · 224/month

Shared By: Mike on Sep 16, 2006

Admins: Shirtless Mike, saxfiend, DrRockso, Billy Simek

All Locations > Kentucky > Red River Gorge > Natural Bridge... > Graining Fork Nature...

Trouble Clef

5.9- YDS  Avg: 2.5 from 182 votes

Type: Sport, 80 ft (24 m)

FA: John Bronaugh, 2002

Page Views: 3,675 total · 22/month

Shared By: Carl Sherven on Aug 11, 2008

Admins: Shirtless Mike, saxfiend, DrRockso, Billy Simek

* This would not be a sufficient recommendation since the type of routes are not the same



06

RESULTS

▲ DISCUSSION

Route description text was not useful in content-based filtering recommendations

- Why: descriptions give logistic info, not route characteristics
- Solution: use route statistics for recommendations





FUTURE WORK

01

COLLABORATIVE FILTERING

Using users' reviews from their profiles

03

MULTIPLE ROUTES

Recommend routes based on several liked routes

02

HYBRID RECOMMENDER

Utilize both content and collaborative filtering

04

APPLICATION

Interactive application that returns recommendations



THANKS

INQUIRIES

<https://www.linkedin.com/in/leah-j-naqy/>

FULL PROJECT CODE

<https://github.com/leahnqy>

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