Recommend Popular Food from Yelp Restaurant Reviews

San José State
UNIVERSITY

Presented by
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Outline

Why a food recommender?

Implementation

Demo

At a Restaurant… What do I order…

yelp

Home **About Me** **Write a Review** **Find Friends** **Messages** **Talk** **Events**

Noah's Bagels

⭐⭐☆☆☆ 122 reviews 📊 Details

$ · Bagels, Sandwiches ✏ Edit

★ **Update My Review** 📷 Add Photo ↗ Share 🔖 Bookmark

M. S.
Redwood City, CA
👥 0 friends
⭐ 16 reviews

⭐☆☆☆☆ 4/28/2016

I wish we could replace them with a place with better bagels and better service. I'd rather go to Starbucks

Was this review ...?

💡 Useful   😀 Funny 1   ❄ Cool   🚩

Sebastian M.
San Francisco, CA
👥 17 friends
⭐ 17 reviews

↗ Share review
🏅 Compliment
✉ Send message
👣 Follow Sebastian M.

⭐⭐⭐⭐☆ 5/1/2016

I'm not a bagel connoisseur, but sometimes I get a hankering for a round dough bread ring with salty spread on it, and when I get that craving I go here. I like any of the savory bagels with the salmon schmear. It's all good. A lot of the other reviews complain about the service; I've never had a problem. If you want a bagel, and you're nearby, come here.

Was this review ...?

💡 Useful   😀 Funny   ❄ Cool   🚩

4

Automate this…

I'm not a **bagel** connoisseur, but sometimes I get a hankering for a **round dough bread ring** with **salty spread** on it, and when I get that craving I go here. I like any of the **savory bagels** with the **salmon schmear**. It's all good. A lot of the other reviews complain about the service; I've never had a problem. If you want a **bagel**, and you're nearby, come here.

Automate this…Demo I

```
dhiviyad@Dhiviyas-MacBook-Pro ~/M/MiningYelp> ./demo1.py

~~~~~~~~~~~~~~~~~~~~~~ Popular Items ~~~~~~~~~~~~~~~~~~~~~~~~
bagel    5
round dough bread ring    5
salty spread    5
salmon schmear    5
savory bagels    5
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
```

Project Aim

Idea of what to order at a restaurant

Online search

Work for new upcoming food names

Existing work

素什錦
蘿蔔糕
麻婆豆腐
牛肉飯
蛋餅
雞腿飯

Extracting Chinese Food Names from Food Reviews

Ge, X., & Qiu, L. (2015)

- Food words in Chinese

- POS tagger

Implementation - Job

Get the Data

Mine Food Phrases & Scores

Display, Store results

# Get Data - API JSON to CSV

6GB => Restaurant Data from all businesses

id	business_id	categories	review_count	name
1040	edjCywtqnQ8__vM7PUZbw	Mexican	56	Rubio's
1041	hLAWdi804nVfTLF7T0rB1Q	Mexican	32	La Salsita
1042	K2_Hmmo5crTYWiT_1sWnfQ	Fast Food–Mexican	108	Chipotle Mexican Grill
1043	ejfy33R1avFm7oygL34uQg	Greek–Delis–Sandwiches	29	Elie's Deli
1044	T–FM14EE1tt–94eONQEaVA	Italian	3	Fazoli's
1045	j0Uc–GuOe–x9_N_IK1KPpA	Food–Desserts–Pizza–Sandwiches	59	Slice of Sicily
1046	fVgrpVyp–nPLTac9YljTug	Mediterranean	241	T Cook's Restaurant
1047	5Js9G0axfWhbYlB9UgXLww	Food–Sandwiches–Bagels–Delis	56	Einstein Bros Bagels
1048	N–gqleVDebl3qgwxf1jMcw	Burge Mediterranean	12	McDonald's
1049	2dJ_UPPCpcjo5JeYPnjaYw	Sandwiches	23	Schlotzsky's

Restaurant Review Data

id	review_id	stars	reviewtext	business_id	funny	useful	cool
790528	aWigBp2tlUdQzY9LlhnHGg	5	saw this place featured on man v. foo…	QbmcCE_cLq4WO8ZMKImaLw	0	0	0
791552	1Yr5WnweWjutnGQdNXqhhA	5	goodness a couple fair warnings for y…	QbmcCE_cLq4WO8ZMKImaLw	1	2	2
793088	3Nmk2D6FjpNOQMiBk7uXRA	5	maple bacon waffles and sage fried ch…	QbmcCE_cLq4WO8ZMKImaLw	0	0	0
790529	JE3Tv7IrVXgEy2ZMg6bHeQ	5	not only does this place have some of…	QbmcCE_cLq4WO8ZMKImaLw	0	0	0
791297	F1qOvvlqrWbc31wAPViArw	5	scrambled eggs with chicken, cheese…	QbmcCE_cLq4WO8ZMKImaLw	0	0	1
792065	xsjFRBWt90w–1dXLANYG4Q	5	great food and excellent service this p…	QbmcCE_cLq4WO8ZMKImaLw	0	0	0
792321	RSl7EDLfk_BhvXiPlewroQ	5	five stars for the enormous portion siz…	QbmcCE_cLq4WO8ZMKImaLw	0	0	0

Important Algo Components

Wordnet
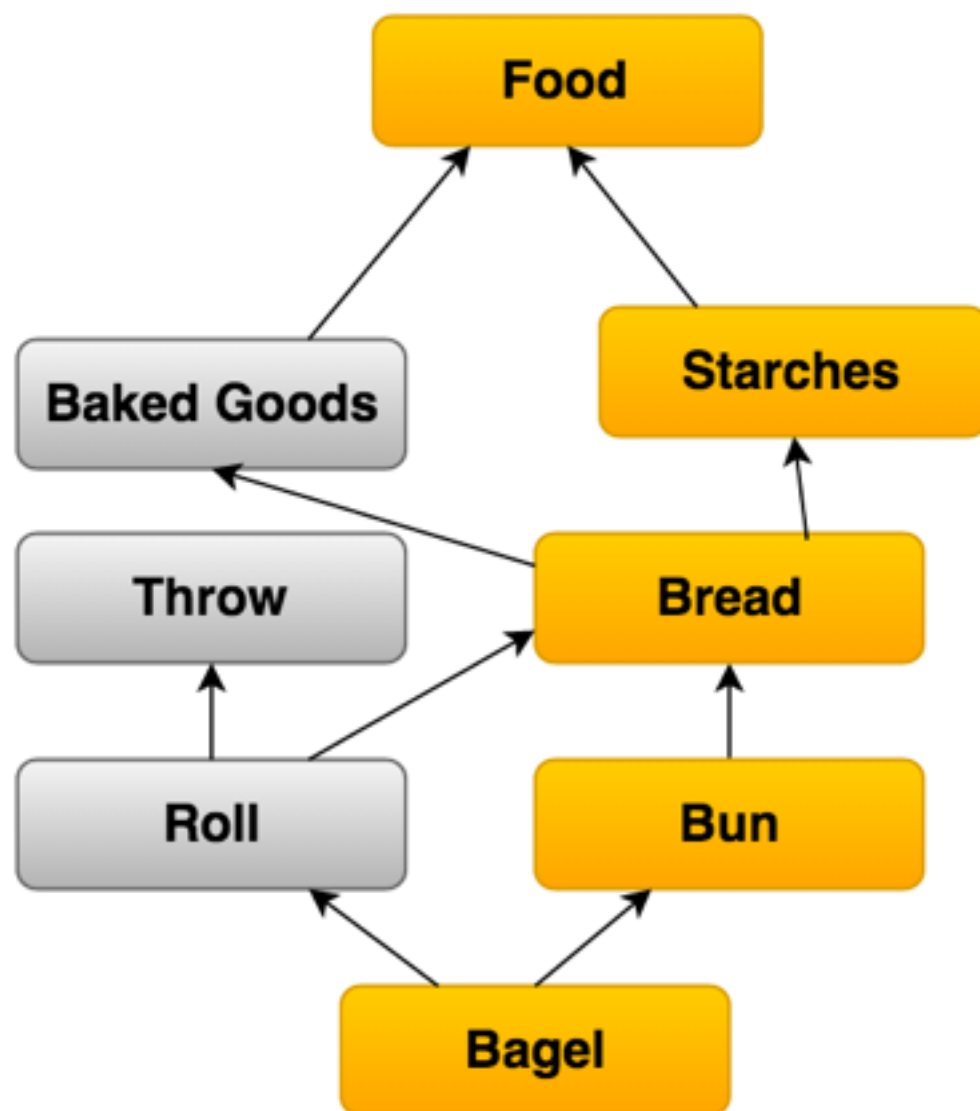
Scrape Wiki

Biryani

From Wikipedia, the free encyclope

Biryani (pronounced [bɪr.jaːniː]), sometimes known as **biriyani** or **biriani**, is a mixed rice dish from the Indian subcontinent. It is made with spices, rice and meat or vegetables.

Implementation Overview

1. Stopwords	**2. Wordnet**	**3. Wiki**
4. Stem	**6. Pos Tagging**	**7. Score**

Example

I'm not a bagel connoisseur, but sometimes I get a hankering for a round dough bread ring with salty spread on it, and when I get that craving I go here. I like any of the savory bagels with the salmon schmear. It's all good. A lot of the other reviews complain about the service; I've never had a problem. If you want bagels, and you're nearby, come here.

Food is spicy.

Step 1: Stopwords

I'm not a bagel connoisseur, but sometimes I get a hankering for a round dough bread ring with salty spread on it, and when I get that craving I go here. I like any of the savory bagels with the salmon schmear. It's all good. A lot of the other reviews complain about the service; I've never had a problem. If you want bagels, and you're nearby, come here.

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Step 2, 3: Wordnet-Wiki algo

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PS: To speeden … use existing DB

Step 4: Stem

I'm not a bagel connoisseur, but sometimes I get a hankering for a round dough bread ring with salty spread on it, and when I get that craving I go here. I like any of the savory bagels with the salmon schmear. It's all good. A lot of the other reviews complain about the service; I've never had a problem. If you want bagels, and you're nearby, come here.

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4. POS tagging - nouns, adj, etc.

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Food is spicy.

5. Score

Food	Score
bagel	*4*
round dough bread ring	*5*
salty spread	*4*
savory bagels	*10*
salmon schmear	*3*

Data Hiccups

Sarcasm: Russian ice skating

Slang: za == pizza?

Typos (1 typo in 15k reviews)

Context - Jack (fruit), Jack (Person)

Future work

Get access to Reviews from Yelp? (currently not available)

Host on server

More effective POS tagging
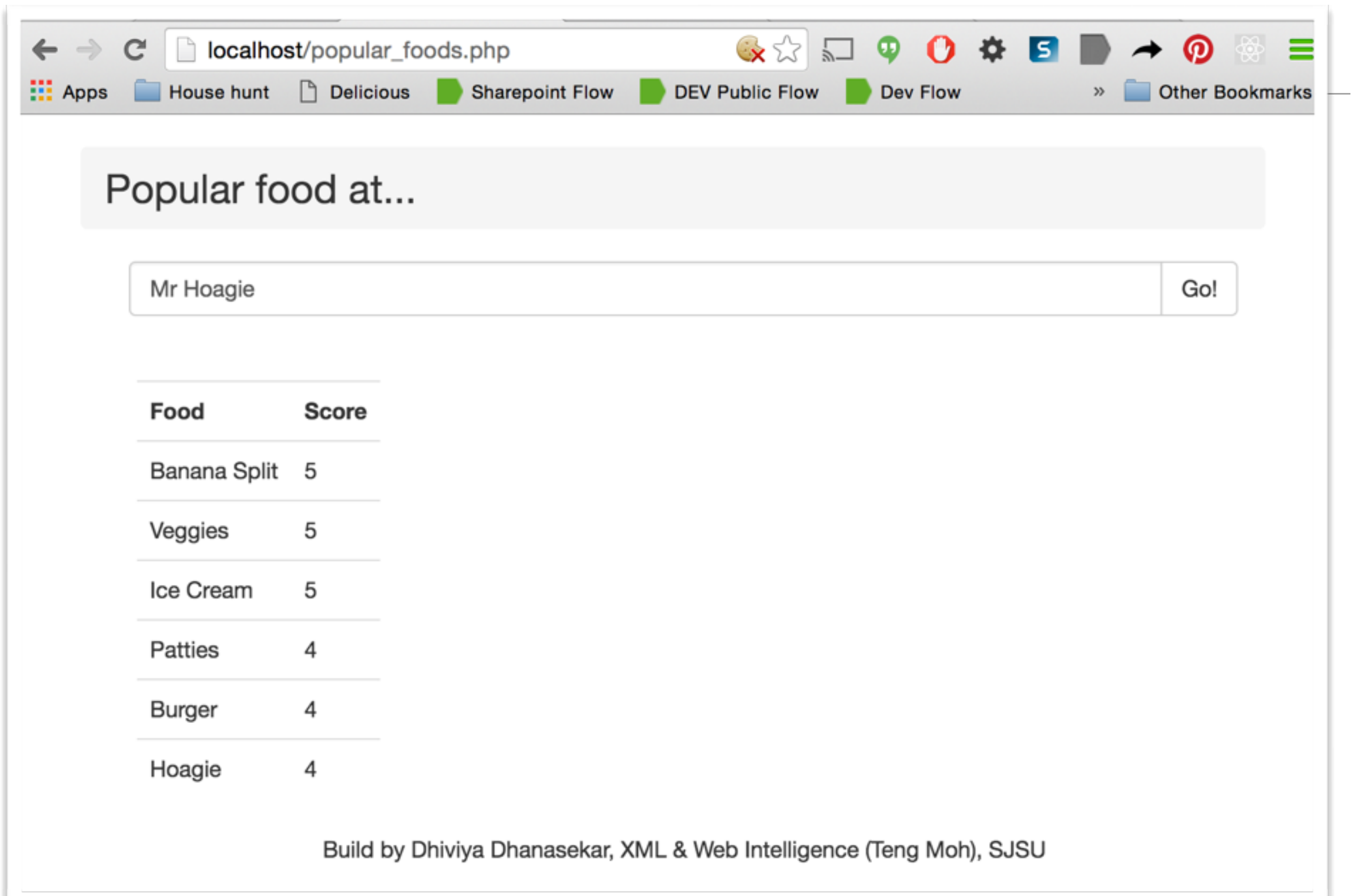
Summary

Fetch JSON

Store Reduced Data

Stop words

Wordnet

Wiki

Stem

Score

Store & Display

Demo II

Popular food at...

| Mr Hoagie | Go! |

Food	Score
Banana Split	5
Veggies	5
Ice Cream	5
Patties	4
Burger	4
Hoagie	4

Build by Dhiviya Dhanasekar, XML & Web Intelligence (Teng Moh), SJSU

And…
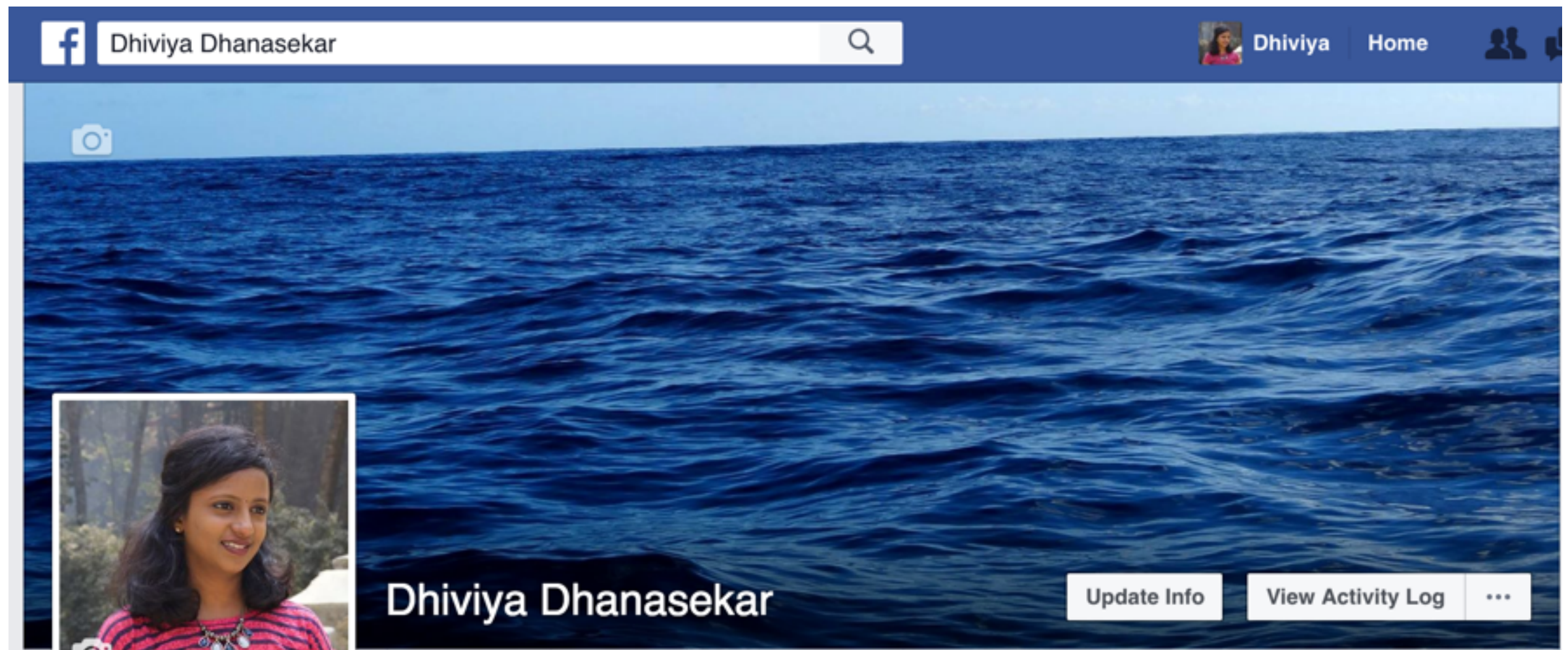
11th May 2016

References

1. Yelp APIs - https://www.yelp.com/developers/documentation/v2/search_api

2. Python NLP Processor - http://www.nltk.org/

3. Wordnet - http://wordnet.princeton.edu/

4. Wiki API: https://en.wiktionary.org/w/api.php?action=help&modules=main