



Iceland Day-in-Life Excursion

Applied Data Science Capstone
Project

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Problem statement

Problem

- Busy travel professionals does not have time to plan when they visit a country
- Travelers want to maximize their local cultural experience with their limited free time

Solution

LoadsOfFun is a travel company aim to deliver memorable Day-in-Life experience on local culture with their short excursions' offerings

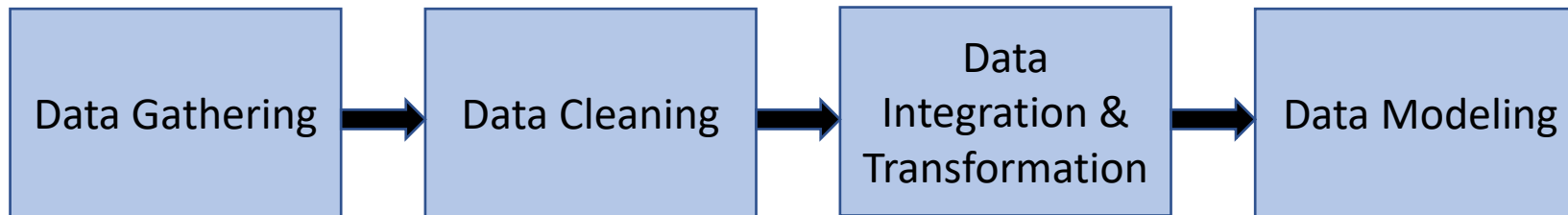
Methodology

Development Team Skills : Data Science

Tools : Jupyter and Python

Data : Trusted data from internet (i.e. Wikipedia and Foursquare)

Approach: Analysis and insight from data processing as follow



Note: not a waterfall model

Data Analysis (1/5)

^ 1xx: Capital Region and Southern Peninsula

Code	Area served (district)	Post office address (place, if outside area served)
101	Reykjavík (Miðborg)	Hagatorg 1
102	Reykjavík (Vesturbær)	Hagatorg 1
103	Reykjavík (Háaleiti og Bústaðir)	Síðumúla 3-5, 108 Reykjavík
104	Reykjavík (Laugardalur)	Síðumúla 3-5, 108 Reykjavík
105	Reykjavík (Hlíðar)	Síðumúla 3-5, 108 Reykjavík
107	Reykjavík (Vesturbær)	Eiðistorgi 15, 170 Seltjarnarnes
108	Reykjavík (Háaleiti og Bústaðir)	Síðumúla 3-5
109	Reykjavík (Breiðholt)	Þönglabakka 4
110	Reykjavík (Árbær)	Hraunbæ 119
111	Reykjavík (Breiðholt)	Þönglabakka 4, 109 Reykjavík
112	Reykjavík (Grafarvogur)	Hverafold 1-3
113	Reykjavík (Grafarholt og Úlfarsárdalur)	Hraunbæ 119, 110 Reykjavík
116	Reykjavík (Kjalarnes)	Surface mail
121	Reykjavík (Þróttavegur)	Þórhússtræti 5, 101 Reykjavík

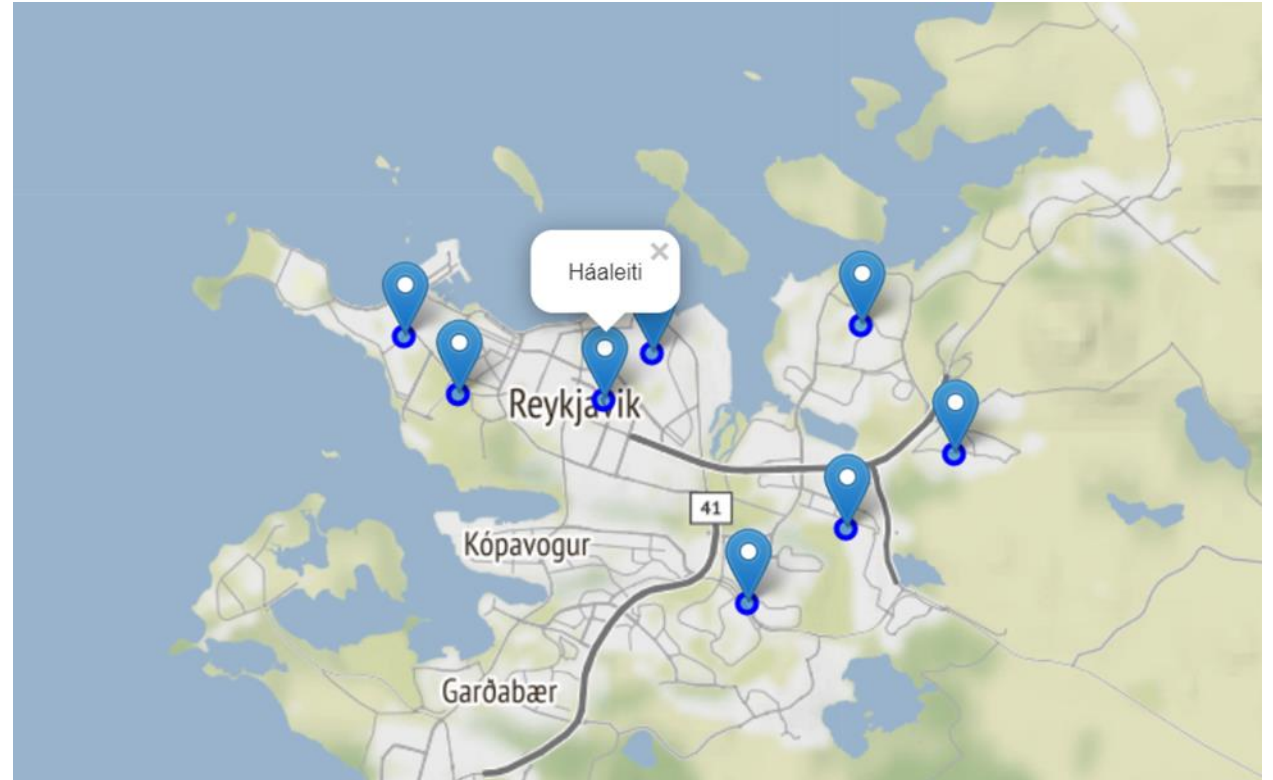


	City	Neighborhood
0	Reykjavík	Miðborg
1	Reykjavík	Vesturbær
2	Reykjavík	Háaleiti
3	Reykjavík	Laugardalur
4	Reykjavík	Hlíðar
5	Reykjavík	Breiðholt
6	Reykjavík	Árbær
7	Reykjavík	Grafarvogur
8	Reykjavík	Grafarholt

Obtain the data from credible source and cleaned for process

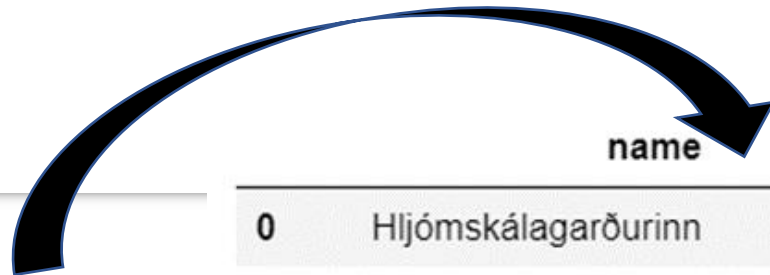
Data Analysis (2/5)

	City	Neighborhood	Latitude	Longitude
0	Reykjavík	Miðborg	64.135984	-21.938189
1	Reykjavík	Vesturbær	64.145461	-21.958172
2	Reykjavík	Háaleiti	64.135067	-21.884649
3	Reykjavík	Laugardalur	64.142568	-21.867004
4	Reykjavík	Breiðholt	64.102520	-21.832057
5	Reykjavík	Árbær	64.114373	-21.795208
6	Reykjavík	Grafarvogur	64.147253	-21.789674
7	Reykjavík	Grafarholt	64.126563	-21.755767



Add additional data or visualization to help understand the problem

Data Analysis (3/5)



	name	categories	lat	lng
0	Hljómskálagarðurinn	Park	64.140945	-21.940230
1	Norræna Húsið	Opera House	64.138162	-21.946746
2	AALTO Bistro	Scandinavian Restaurant	64.138363	-21.946862
3	Serrano (N1 Hringbraut)	Burrito Place	64.138683	-21.937948
4	Mýrin Mathús	Diner	64.137481	-21.934801
5	Galtafell Guesthouse	Bed & Breakfast	64.141343	-21.936922
6	Matstofa FÍ	Restaurant	64.132115	-21.944246
7	Hljómskálagarður	Garden	64.140792	-21.941457
8	Flugumsjón	Airport Terminal	64.132024	-21.945856

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{
  'city': 'Reykjavík',
  'state': 'Höfuðborgarsvæði',
  'country': 'Ísland',
  'formattedAddress': ['Hringbraut', '101 Reykjavík', 'Ísland'],
  'categories': [{
    'id': '4bf58dd8d48988d153941735',
    'name': 'Burrito Place',
    'pluralName': 'Burrito Places',
    'shortName': 'Burritos',
    'icon': {
      'prefix': 'https://ss3.4sqi.net/img/categories_v2',
      'suffix': '.png',
      'primary': True
    },
    'photos': {
      'count': 0,
      'groups': []
    },
    'referralId': 'e-0-4b17d2baf964a5208bc823e3-3',
    'reasons': {
      'count': 0,
      'items': [
        {
          'summary': 'This spot is popular',
          'type': 'general',
          'reasonName': 'globalInteractionReason'
        }
      ]
    },
    'venue': {
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      'name': 'Mýrin Mathús',
      'location': {
        'address': 'Vatnsmýrarvegur 10',

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New data source from Foursquare helped discover more information on the subject

Data Analysis (4/5)

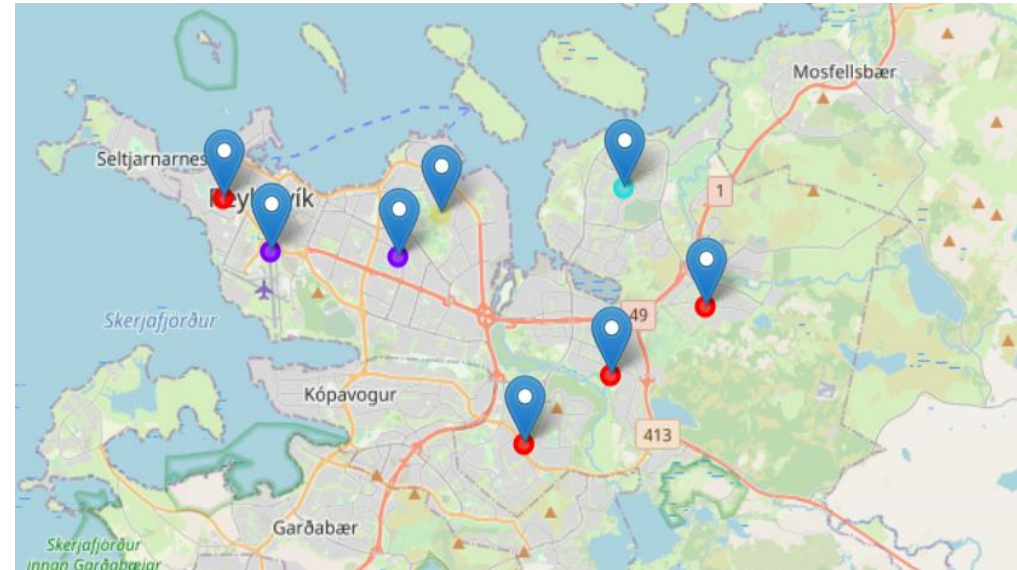
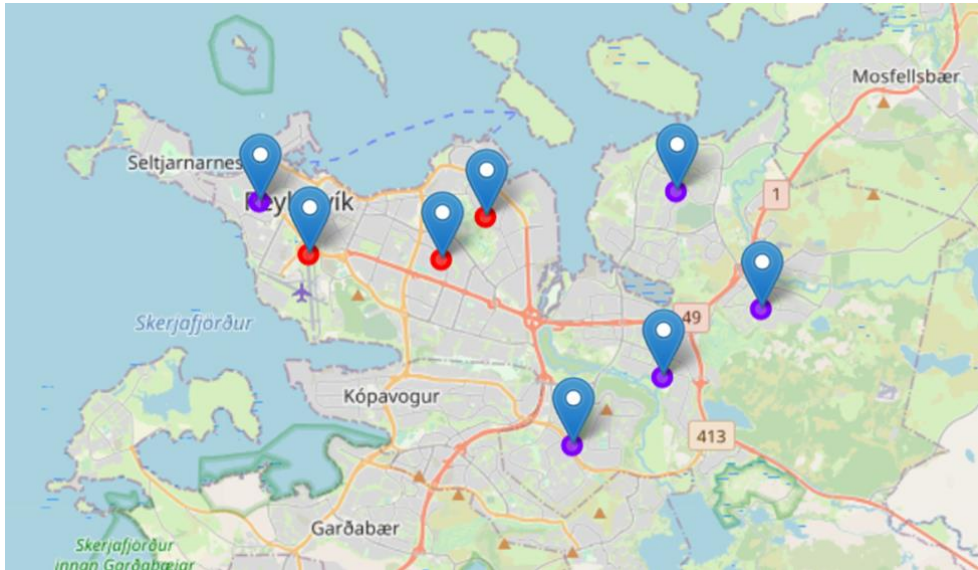
	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
Neighborhood						
Breiðholt	4	4	4	4	4	4
Grafarholt	4	4	4	4	4	4
Grafarvogur	4	4	4	4	4	4
Háaleiti	13	13	13	13	13	13
Laugardalur	5	5	5	5	5	5
Miðborg	4	4	4	4	4	4
Vesturbær	16	16	16	16	16	16
Árbær	7	7	7	7	7	7

	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
0	Breiðholt	Grocery Store	Pizza Place	Fast Food Restaurant	Vacation Rental	BBQ Joint	Bakery	Burger Joint	Burrito Place	Café	Convenience Store
1	Grafarholt	Supermarket	Bakery	Fast Food Restaurant	Grocery Store	Vacation Rental	BBQ Joint	Burger Joint	Burrito Place	Café	Convenience Store
2	Grafarvogur	Sandwich Place	Pizza Place	Supermarket	Vacation Rental	Garden	BBQ Joint	Bakery	Burger Joint	Burrito Place	Café
3	Háaleiti	Hotel	BBQ Joint	Bakery	Burrito Place	Restaurant	Pizza Place	Electronics Store	Mobile Phone Shop	Ice Cream Shop	Garden
4	Laugardalur	Park	Garden	Skating Rink	Scandinavian Restaurant	Vacation Rental	BBQ Joint	Bakery	Burger Joint	Burrito Place	Café
5	Miðborg	Scandinavian Restaurant	Burrito Place	Diner	Opera House	Vacation Rental	Grocery Store	BBQ Joint	Bakery	Burger Joint	Café
6	Vesturbær	Bakery	Soccer Stadium	Grocery Store	Vacation Rental	Ice Cream Shop	Burger Joint	Café	Convenience Store	Flower Shop	Asian Restaurant
7	Árbær	Stadium	Soccer Stadium	Bakery	Burger Joint	Pool	Supermarket	Grocery Store	Vacation Rental	Flower Shop	BBQ Joint

---- Háaleiti----		
	venue	freq
0	Hotel	0.38
1	Ice Cream Shop	0.08
2	Restaurant	0.08
3	Mobile Phone Shop	0.08
4	BBQ Joint	0.08
5	Electronics Store	0.08
6	Burrito Place	0.08
7	Bakery	0.08
8	Pizza Place	0.08
9	Soccer Stadium	0.00

Data analysis using different data view

Data Analysis (5/5)



Machine Learning using K-means cluster to compare neighborhood similarities

Product Development

After analyze the data from the Reykjavik neighborhoods LoadsOfFun was able to developed several sample excursions

Modborg Half Day Trip	<ol style="list-style-type: none">1. Get a quick bite at AALTO Bistro in the morning2. Take the bus to explore Modborg's surroundings3. Have dinner at Myrin Mathus4. Go to Opera House
Modborg Full Day Trip	<ol style="list-style-type: none">1. Stay at Galtafell Guesthouse2. Eat at Serrano3. Visit Hljómskálagarðurinn4. Dinner at Matstofa Fí5. Go to Opera House6. Go to airport
Háaleiti and Laugardalur Half Day Trip	<ol style="list-style-type: none">1. Get bakery at Mosfellsbakarí in the morning2. Take a walk at the Laugardalurinn park3. Lunch at Dirty Burger & Ribs4. Have some icecream at Ísbúð Háaleitis
Háaleiti and Laugardalur Full Day Trip	<ol style="list-style-type: none">1. Get bakery at Mosfellsbakarí in the morning2. Take a walk at the Grasagarðurinn garden3. Go to Café Flóran for lunch4. Try out skating at Skautahöllin Laugardal5. Have some icecream at Ísbúð Háaleitis6. Dinner at Mulakaffi
Breiðholt half day Trip	<ol style="list-style-type: none">1. Stay in vacation rental2. Visit grocery store3. Go to Indian Restaurant

Conclusion

- Data is crucial in understand everything around us.
- Connecting the right data and using right analytic tools such as Machine Learning algorithm can turn seemingly unimportant fact to useful information
- Project uses simple postal code and latitude and longitude data to developed meaningful excursion package
- Successful pilot excursion can lead to application in other countries and cities
- A new business can take place because of data discovery, the potential in data is limitless.

