



VAMAP

A SIMPLE USER DATA-DRIVEN MAP-ANALYZING TOOL BASED ON FOLIUM

Team 16

SUNGJAE MIN SANGMIN LEE
HYUNJAE LEE SEOKCHEON JU



Team 16

Team Introduction

Needs & Similar services

VAMAP's Identity

Minimum Viable Product

Demo

Future development

TEAM LEADER



HYUNJAE LEE

1. README 작성
2. 도로데이터 전처리 구현 (roadmanager.py)
3. Main 함수 구성 및 기타 함수들 구현 (main.py, load.py, map3d.py, marker_func.py)

leehj8687@gmail.com



SUNGJAE MIN

1. 사용자의 입력값들을 검증하기 위한 파싱 구현 (parser.py)
2. 데이터 수집 (choropleth)

alstjdwo1601@naver.com



SEOKCHEON JU

1. Documentation
2. 입력된 엑셀 정보를 읽어서 전처리를 하는 함수 구현 (dataproc.py)
3. 데이터 수집 (user, roads, others)

smallfish06@cau.ac.kr



SANGMIN LEE

1. 유저데이터와 입력데이터들 간의 연산 구현 (scoring.py)
2. 데모 시연

snt.oceaner@gmail.com

Needs?

📖 README.md



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Prerequisites

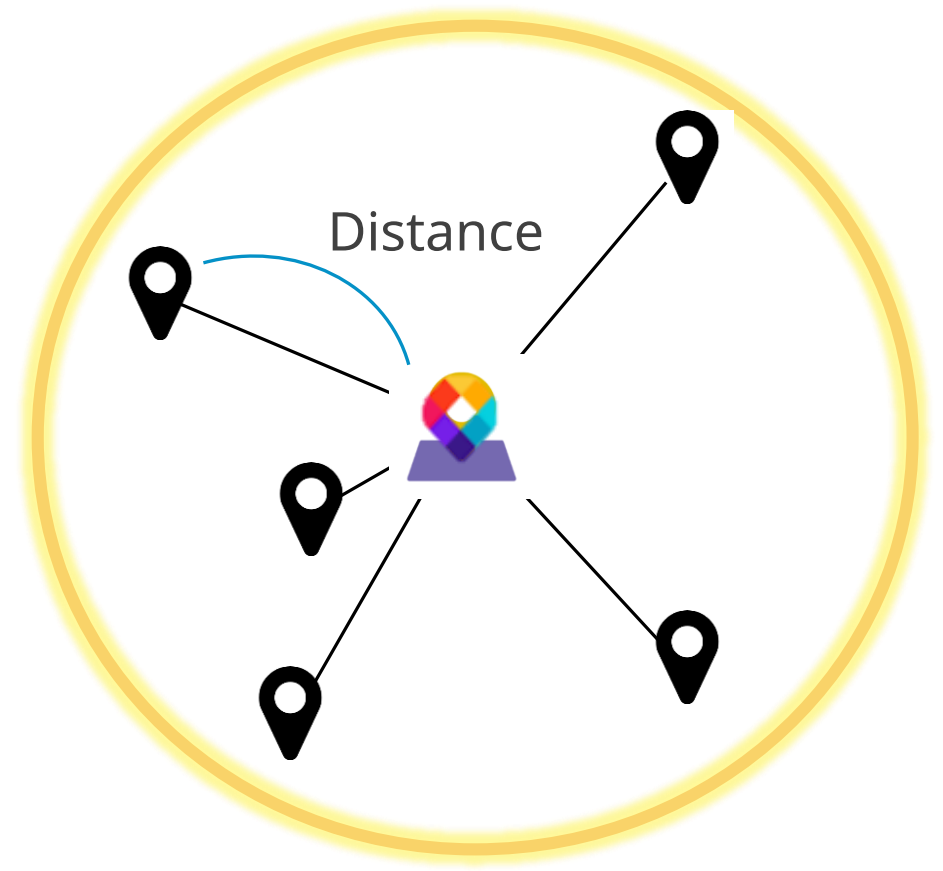
Python 3.7+ , folium 0.8.3

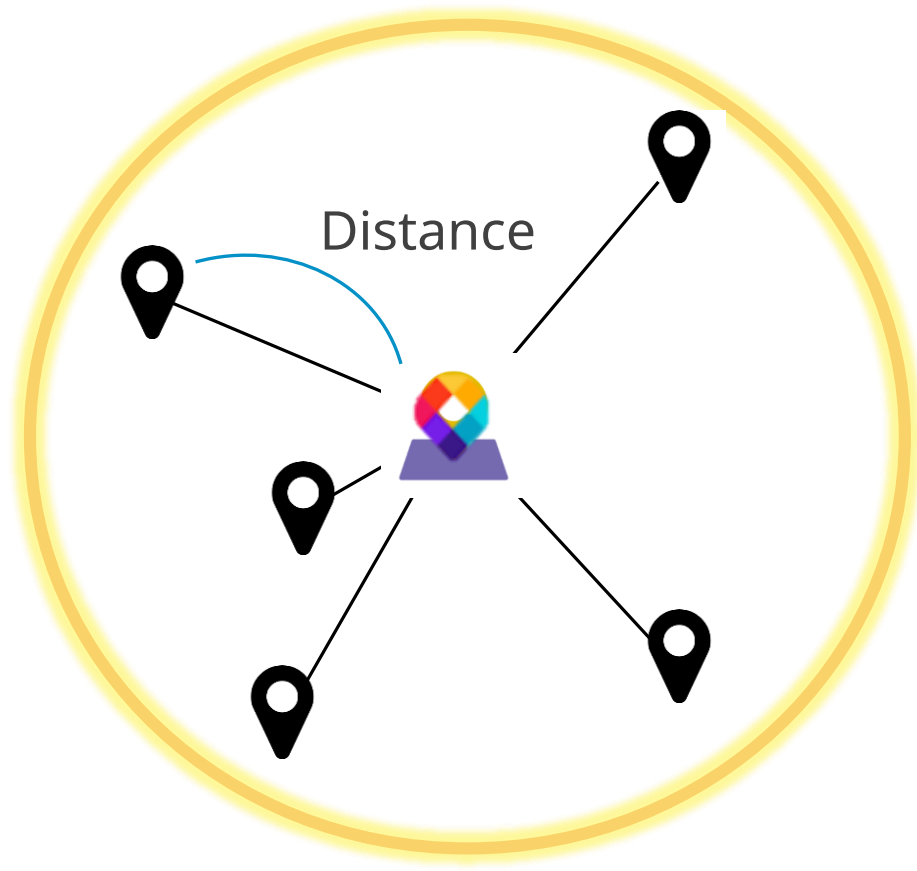


others




VAMAP





각 유저데이터 객체가 거리 연산을 기반으로 가치를 가진다.

이 가치는 꼭 있어야 할 곳에 반드시 있는지, 혹은 있지 않아도 될 곳에 무분별하게 있는지 등을 판단할 수 있는 척도가 될 수도 있고,

가치의 크기에 따라 해당 위치의 효율성도 판단할 수 있다.



Similar Services

Already developed?



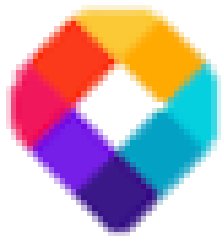
QGIS - Map Data Visualization



KNIME – Data preprocessing



VAMAP



§ Data preprocessing (User Input , Excel files)

§ Data calculation (Geo Distance, Data relation)

§ Data validation check (parser)

§ Map data visualization (Marker, Coverage)

Etc...



ARFF(attribute-relation file format)

: 웨카(weka)에서 사용하는 입력 데이터 파일 포맷. (a standard way of representing datasets)

```
@relation weather.symbolic

@attribute outlook {sunny, overcast, rainy}
@attribute temperature {hot, mild, cool}
@attribute humidity {high, normal}
@attribute windy {TRUE, FALSE}
@attribute play {yes, no}

@data
sunny,hot,high,FALSE,no
sunny,hot,high,TRUE,no
overcast,hot,high,FALSE,yes
rainy,mild,high,FALSE,yes
rainy,cool,normal,FALSE,yes
rainy,cool,normal,TRUE,no
overcast,cool,normal,TRUE,yes
sunny,mild,high,FALSE,no
sunny,cool,normal,FALSE,yes
rainy,mild,normal,FALSE,yes
sunny,mild,normal,TRUE,yes
overcast,mild,high,TRUE,yes
overcast,hot,normal,FALSE,yes
rainy,mild,high,TRUE,no
```

Importing The Dataset

```
dataset = read.csv('dataset.csv')
```

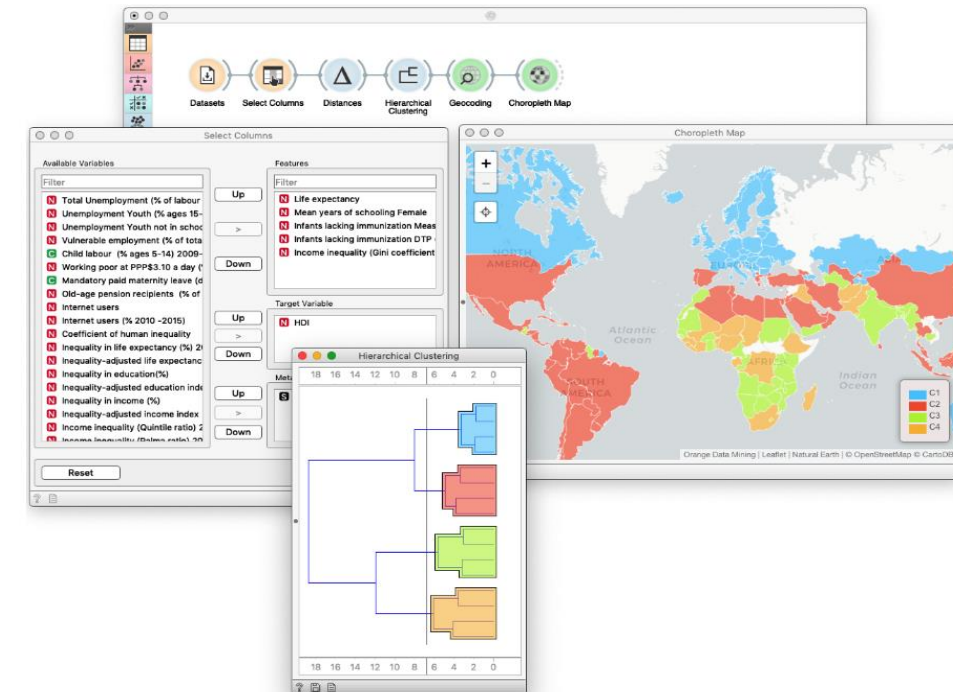
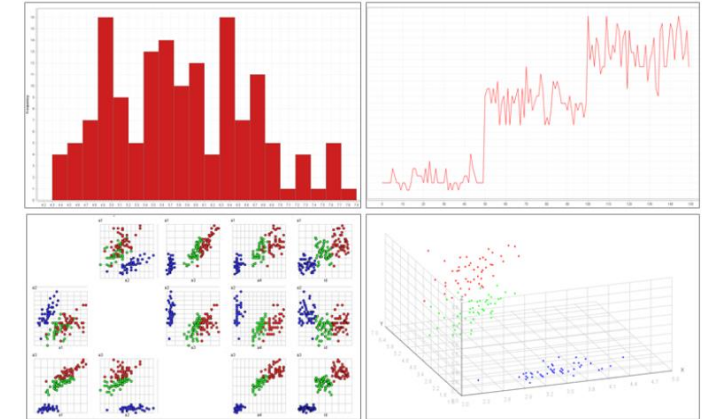
| | nation | purchased_item | age | salary |
|----|---------|----------------|-----|--------|
| 1 | India | No | 25 | 35000 |
| 2 | Russia | Yes | NA | 40000 |
| 3 | Germany | No | 50 | 54000 |
| 4 | Russia | No | 35 | NA |
| 5 | Germany | Yes | 40 | 60000 |
| 6 | India | Yes | 35 | 58000 |
| 7 | Russia | No | NA | 52000 |
| 8 | India | Yes | 48 | NA |
| 9 | Germany | No | 50 | 83000 |
| 10 | India | Yes | 37 | NA |
| 11 | Germany | No | 21 | 24000 |
| 12 | India | Yes | NA | 60000 |
| 13 | Russia | No | 63 | 70000 |
| 14 | Germany | yes | 26 | 36000 |
| 15 | India | No | 45 | 40000 |

RapidMiner chart – 고차원 데이터

March 21, 2017

우리가 데이터를 시각화 하기 위해서 다양한 차트를 사용하게 됩니다.

- 하나의 데이터 컬럼에 대한 1차원 차트 (Histogram, Line)
- X-Y 형태의 좌표로 보여지게 되는 2차원 차트 (Scatter plot)
- X-Y-Z 형태의 좌표로 보여지게 되는 3차원 차트 (Scatter 3D)



Already developed?



| | QGIS | WEKA | Rapidminer | Knime | VAMAP |
|----------------------------------|------|------|------------|-------|-------|
| Data Preprocessing | O | O | O | O | O |
| Data Visualization | O | O | O | O | O |
| Provide Map | O | X | O | O | O |
| Open Source | O | O | O | O | O |
| Deal with Excel | O | O | O | O | O |
| User data Input | O | O | O | O | O |
| Data Relationship | X | X | X | O | O |
| Calculate Data Value with Weight | X | X | X | X | O |
| Data Form designation | X | X | X | X | O |

Identity

📖 README.md



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Prerequisites

Python 3.7+ , folium 0.8.3



1. Road data preprocessing

Focused on utility

| name | start | end | value | length |
|---------|------------|------------|-------|--------|
| 새정1길 | 신원동 2-3 | 신원동 33-2 | 7 | 60 |
| 청계산로 | 원지동 528-8 | 원지동 4-54 | 3 | 700 |
| 새정2길 | 신원동 2-3 | 신원동 2-3 | 6 | 53 |
| 새정길 | 신원동 7-4 | 신원동 10-5 | 8 | 56 |
| 새정길 | 신원동 7-4 | 신원동 10-9 | 4 | 20 |
| 시흥대로12길 | 시흥동 962 | 시흥동 957-11 | 6 | 71 |
| 시흥대로17길 | 시흥동 983-13 | 시흥동 982 | 6 | 198 |
| 원터길 | 원지동 380-4 | 원지동 520-6 | 7 | 916 |
| 시흥대로26길 | 시흥동 954-16 | 시흥동 947-10 | 8 | 24 |
| 시흥대로26길 | 시흥동 954-16 | 시흥동 947-10 | 6 | 31 |
| 시흥대로34길 | 시흥동 942 | 시흥동 942-5 | 6 | 126 |



1. Road data preprocessing

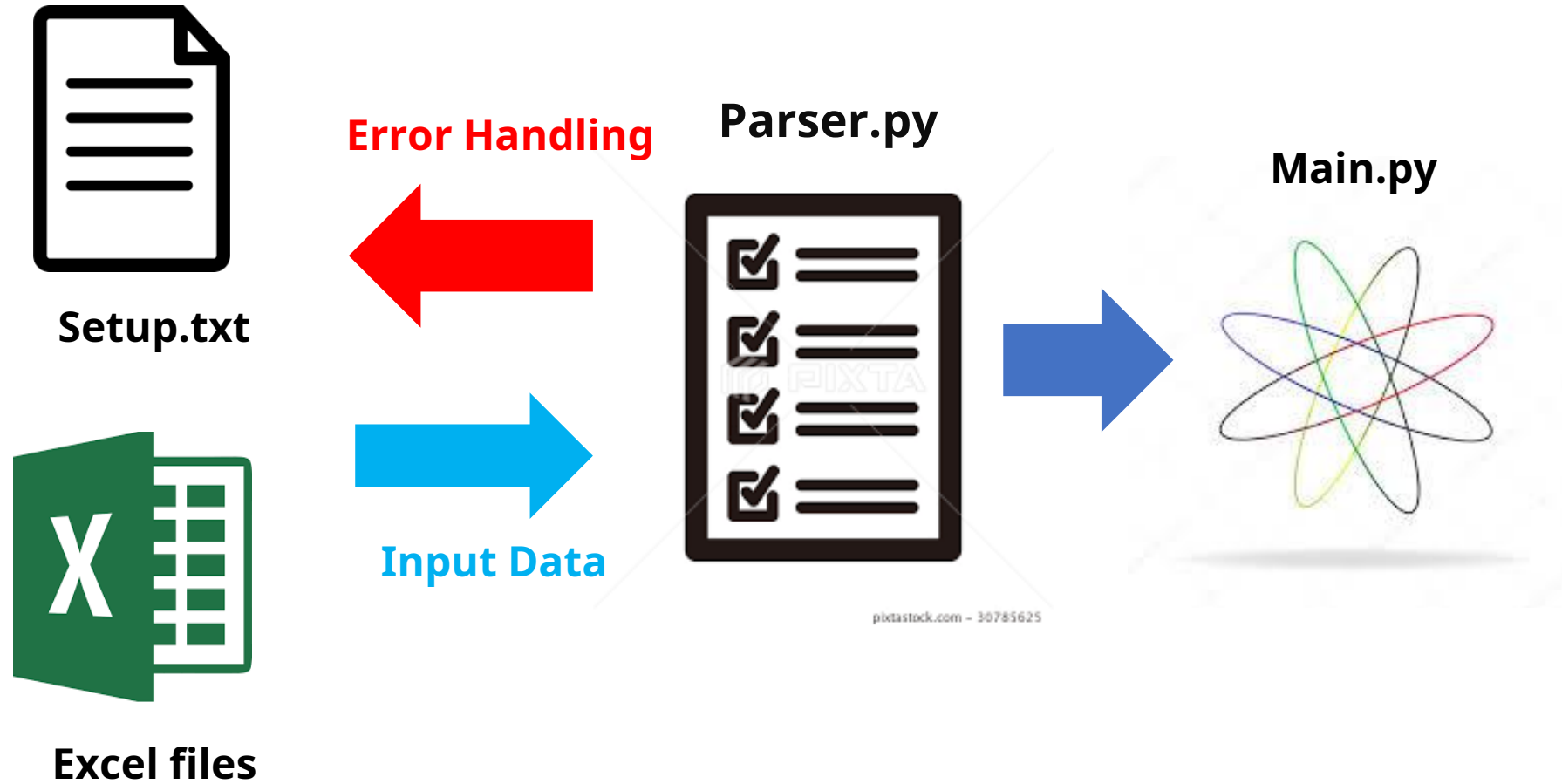
Focused on utility

| start_x | start_y | end_x | end_y |
|---------|---------|---------|---------|
| 37.4794 | 126.927 | 37.4794 | 126.927 |
| 37.445 | 127.049 | 37.445 | 127.049 |
| 37.4794 | 126.927 | 37.4794 | 126.927 |
| 37.4451 | 127.06 | 37.6705 | 126.882 |
| 37.4451 | 127.06 | 37.4451 | 127.06 |
| 37.4507 | 126.909 | 37.4507 | 126.909 |
| 37.4191 | 127.102 | 37.4507 | 126.909 |
| 37.445 | 127.049 | 37.445 | 127.049 |
| 37.4507 | 126.909 | 37.4507 | 126.909 |
| 37.4507 | 126.909 | 37.4507 | 126.909 |
| 37.4507 | 126.909 | 37.4507 | 126.909 |



2. Parser

Focused on easy-to-use
Parser.py



2. Parser

Focused on easy-to-use
Parser.py

```
1  # Coverage : this is absolute meter-wise distance centered on each user data, which will include all possible value objects. (50 ~ 1000m)
2  120
3
4  # User data file, sheet name, latitude, longitude
5  seoulbikeinfo_test.xlsx, Excel_Import_1, 위도, 경도
6
7  # The number of value files (this must be at least 1)
8  3
9
10 # The number of road files
11 1
12
13 # Weights (number of value files = number of weights)
14 0.3, 0.3, 0.4
15
16 # Road file, sheet name, latitude, longitude, start latitude, start longitude, end latitude, end longitude (value, value-weight(-10 ~ 10 ))
17 # This can be empty
18 road_test.xlsx, road_2, x, y, start_x, start_y, end_x, end_y, value, 4
19
20
21 # Other value files, sheet name, latitude, longitude, (value, value-weight( -10 ~ 10 ))
22 seoul_building_1.xlsx, building_2, x, y, value, 5
23 seoul_building_1.xlsx, building_3, x, y, value, 4
```



2. Parser

Focused on easy-to-use
Parser.py

Error Handling?

1. Check Setup.txt , Excel
files path & existence

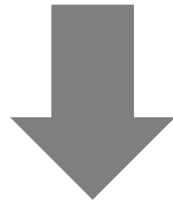
2. Check validation of
Setup.txt , Excel files

3. If error occurs, parser
print error message



3. Data preprocessing

Focused on easy-to-use
Data preprocessing

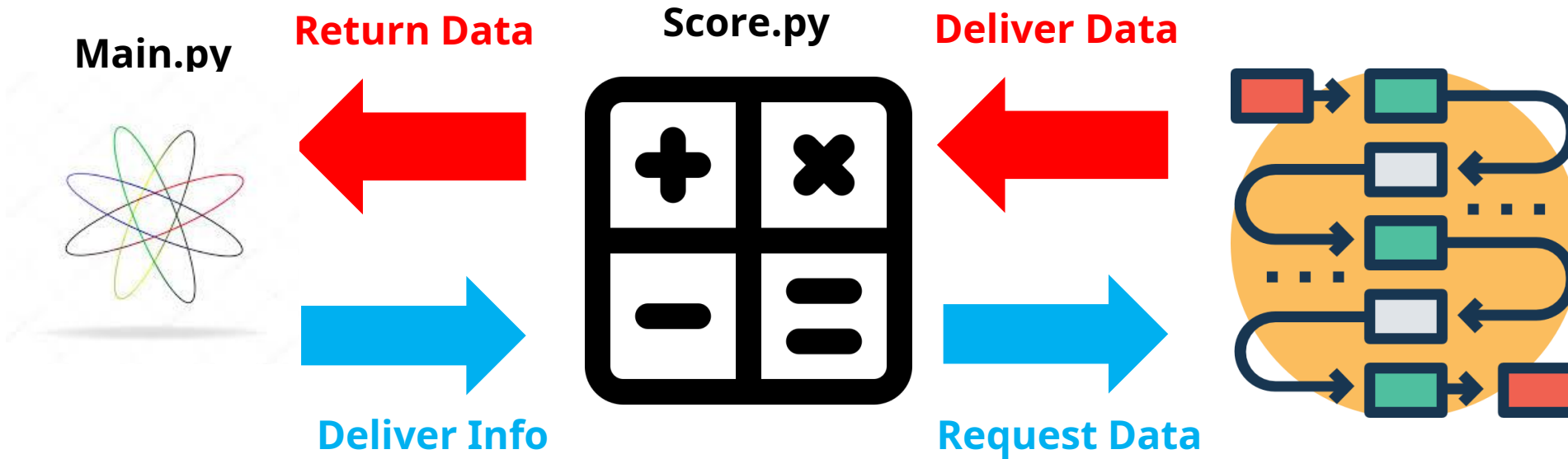


```
datalist=[[numpy.array][numpy.array]...]
```



4. Scoring by distance

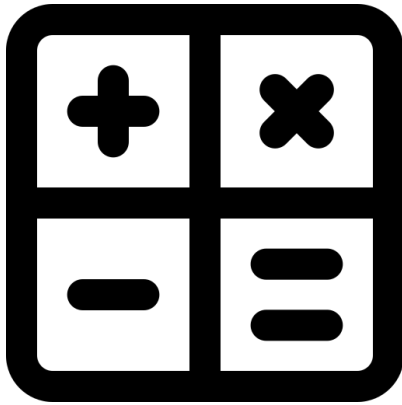
Focused on easy-to-use
Scoring by distance



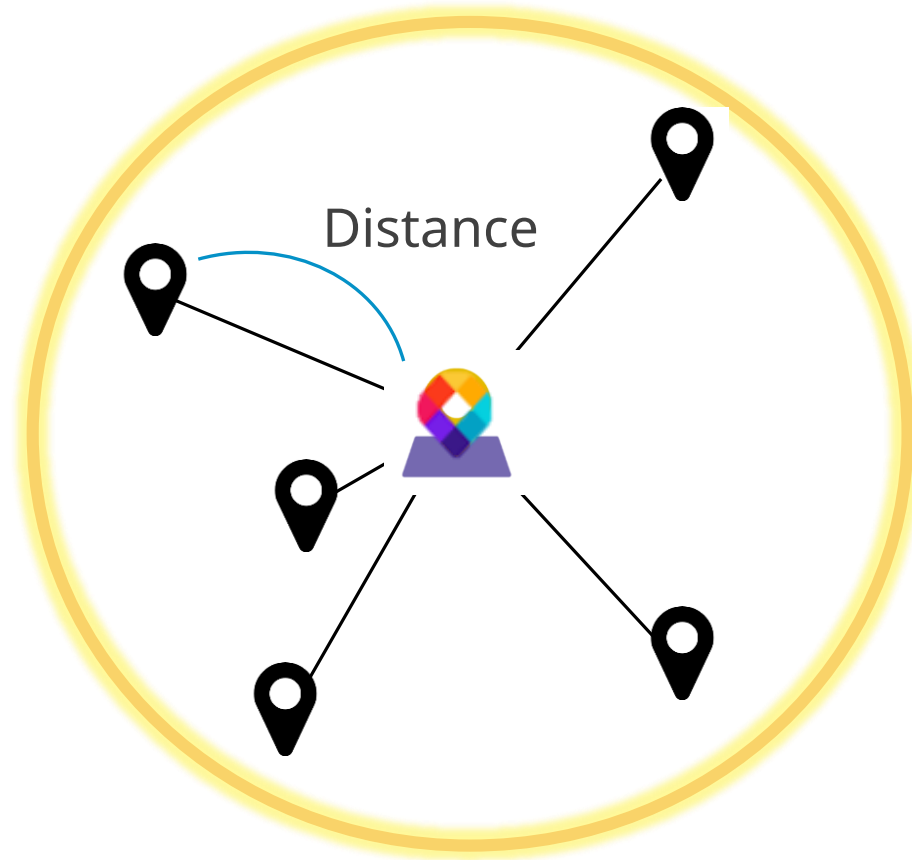
4. Scoring by distance

Focused on easy-to-use
Scoring by distance

Score.py




VAMAP





Minimal Viable Product

What we have **planned**

1. Parser
2. Road Manager
3. Scoring
4. Data preprocessing
5. Folium map
6. Folium choropleth
7. Html separation



What we have **done**

1. Parser
2. Road Manager
3. Scoring
4. Data preprocessing
5. Folium map
6. Folium choropleth
7. Html separation



What we have **done**

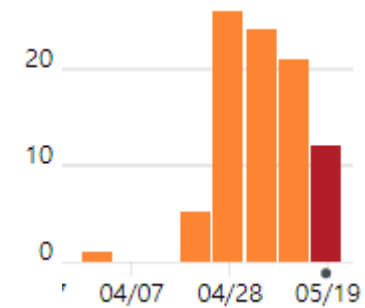
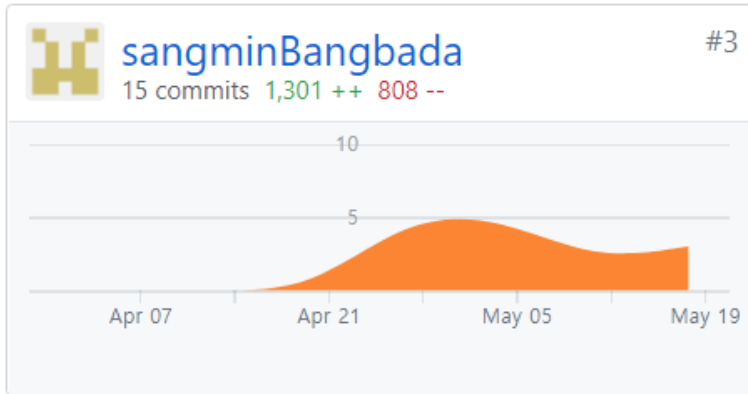
1. Parser
2. Road Manager
3. Scoring
4. Data preprocessing
5. Folium map
6. Folium choropleth
7. Html separation

Member roles

1. Sungjae Min
2. Hyunjae Lee
3. Sangmin Lee
4. Seokcheon Ju
5. Hyunjae Lee
6. ALL



Github log 등을 통해 얼마나 협업



Minimum Viable Product





Demo



Future Development

We are open to have your contributions!

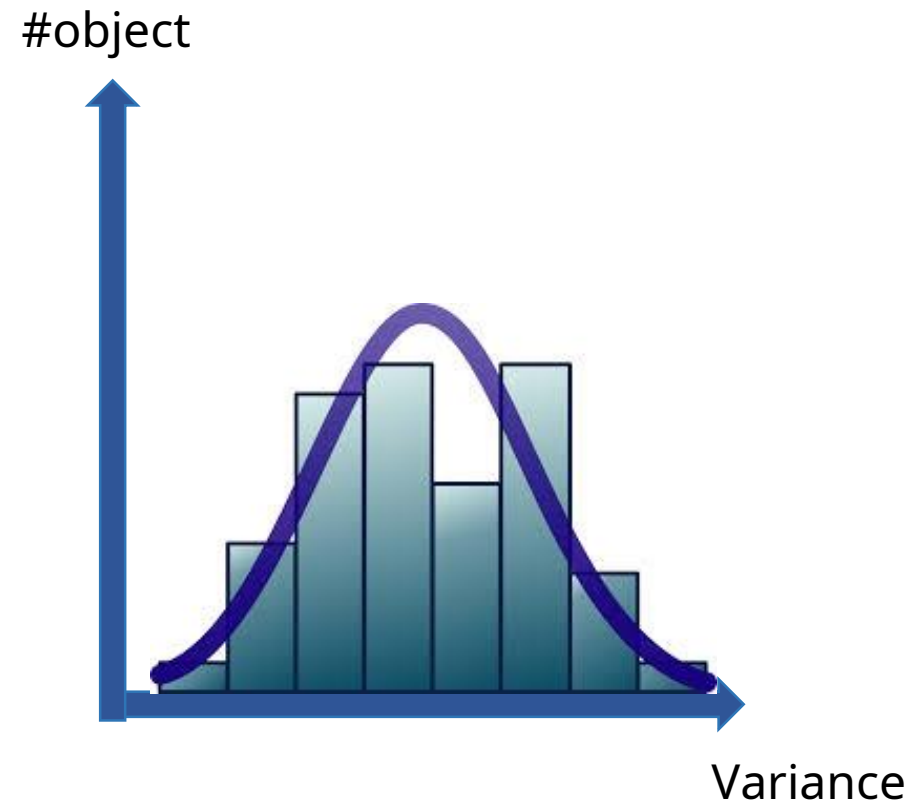
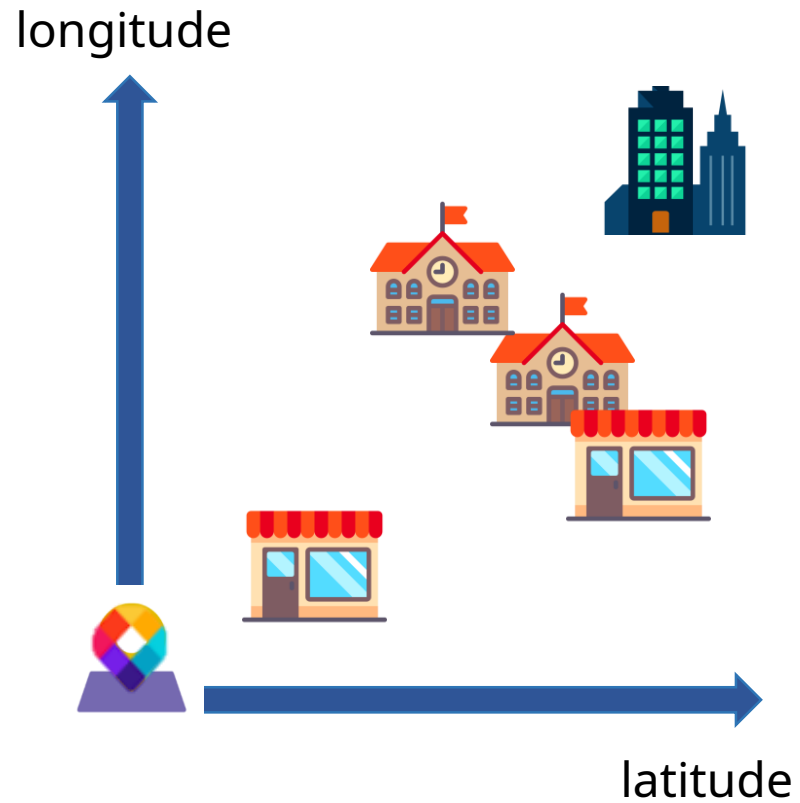
1. Another calculation method
2. Feature Clustering using folium



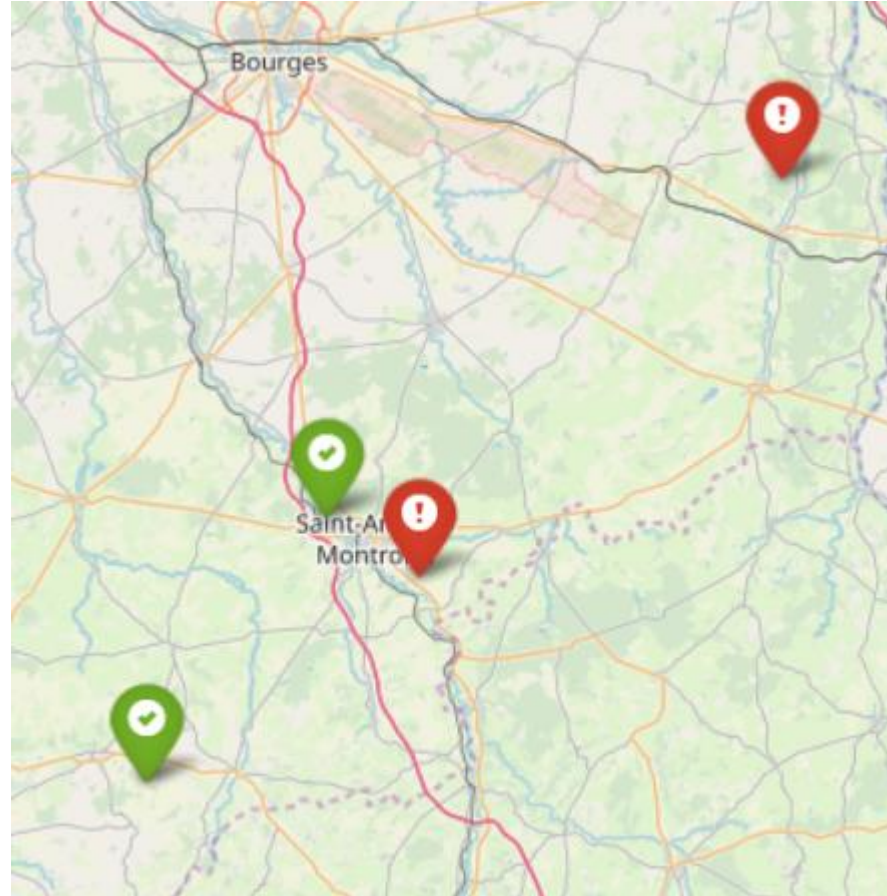
1. Another calculation method



1. Another calculation method



2. Feature Clustering using folium



3. Finish MVP features

1. Folium choropleth
2. Html separation

