ลมน้อยกลอยใจ

Data Science Project

2110446 Data Science and Data Engineering (2022/2)

- Pras Pitasawad 6330305921
- Panithi Khamwangyang 6330301321
- Bhuribhat Ratanasanguanvongs 6330440921

Agenda

Project Objective

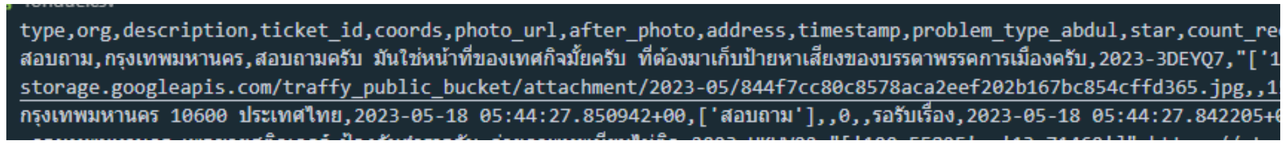
บริเวณชุมชนของผู้มีรายได้น้อยมีความสัมพันธ์กับบริเวณที่มีปัญหาประเภทต่างๆ หรือไม่ ?

Dataset

Traffy fondue

- Problem reported by user with problem coordinates, problem's types, and problem status
- Dynamic
- JSON -> convert to CSV

url : https://publicapi.traffy.in.th/share/teamchadchart/search



Low-income Community

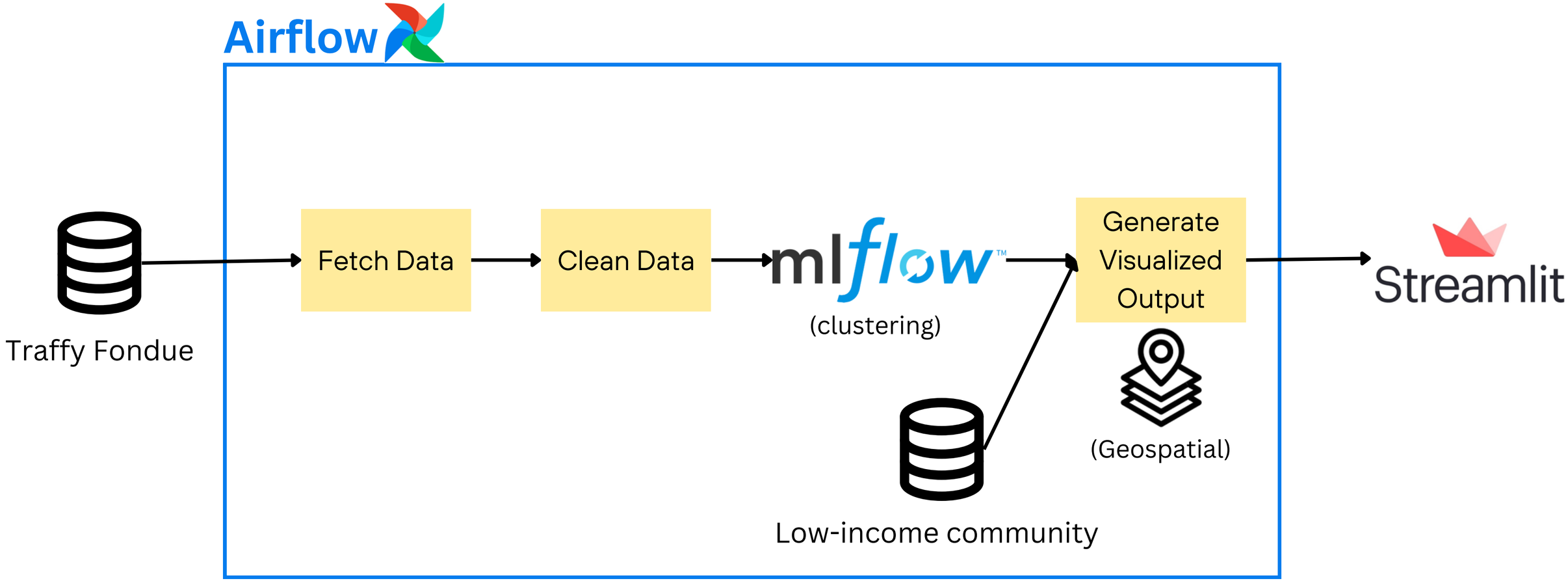
- Low-income communities' description with coordinates
- Static
- CSV

url : https://gdcatalog.nha.co.th/dataset/dataset11_01

COMM_ID	COMM_...	SHAPE_...	X	Y	Lat	Long	PROV_...	PROV_...	AMP_C...
100002	ริมคลองก...	2562	677065....	1520645...	13.749692	100.637...	10	กรุงเทพม...	6
100003	สาสาลีพั...	2562	678292....	1520800...	13.751023	100.64903	10	กรุงเทพม...	6
100004	วังโสม (บ...	2562	679393....	1521497...	13.75725	100.659...	10	กรุงเทพม...	6

Back to Agenda

Pipeline Overview

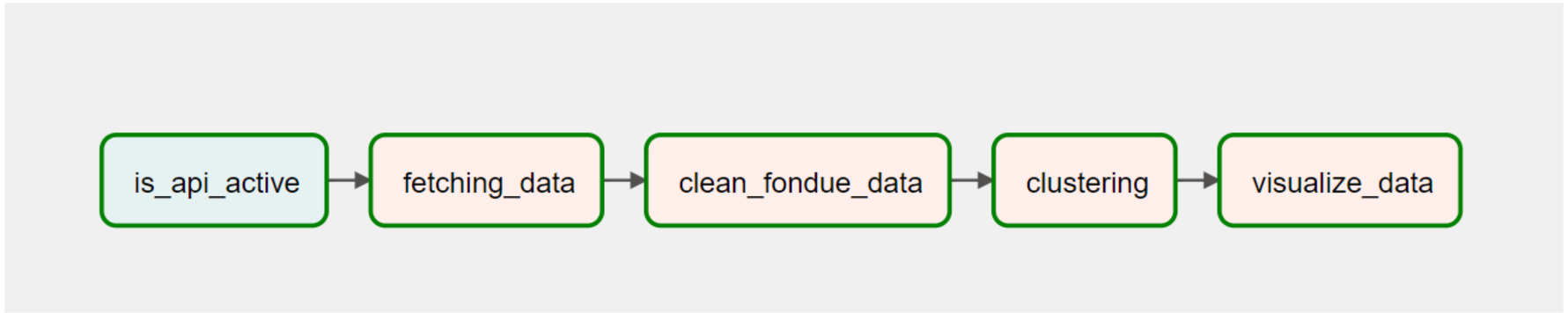


Data Engineering (DE)

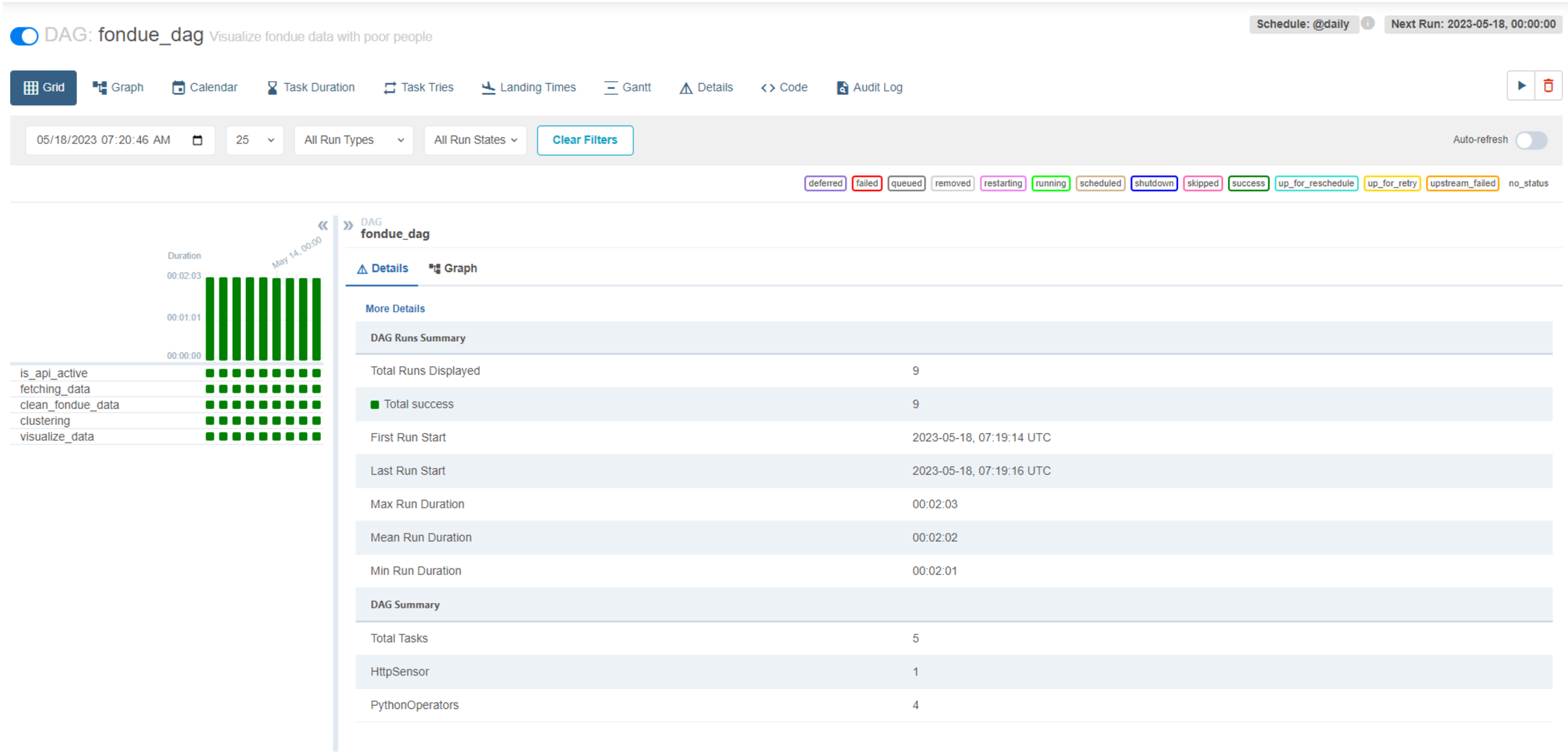
Airflow

- manage data pipeline
- monitor tasks in pipeline

DAG

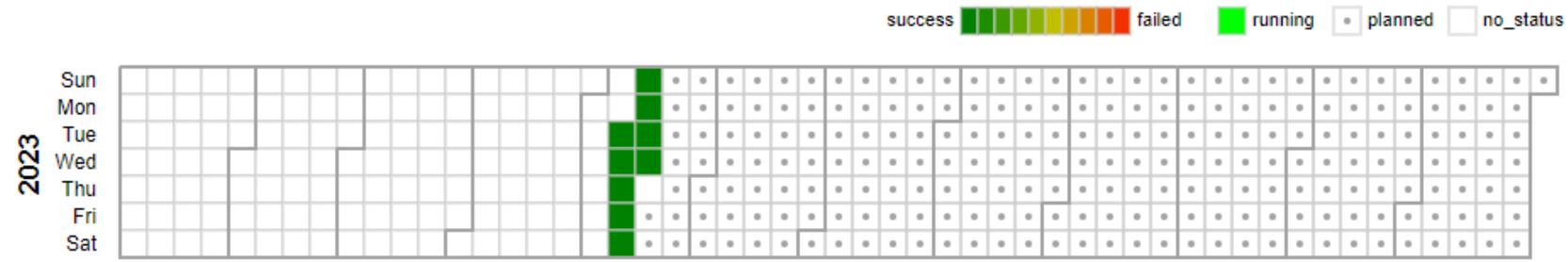


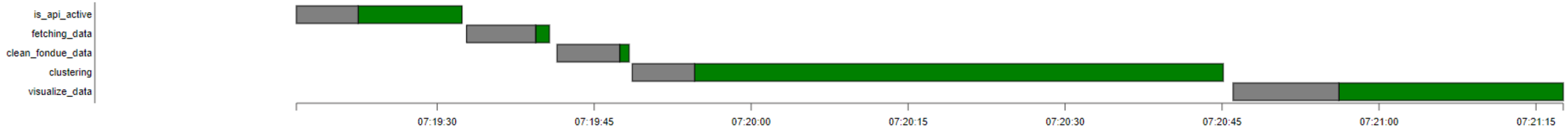
Data Engineering (DE)



Data Engineering (DE)

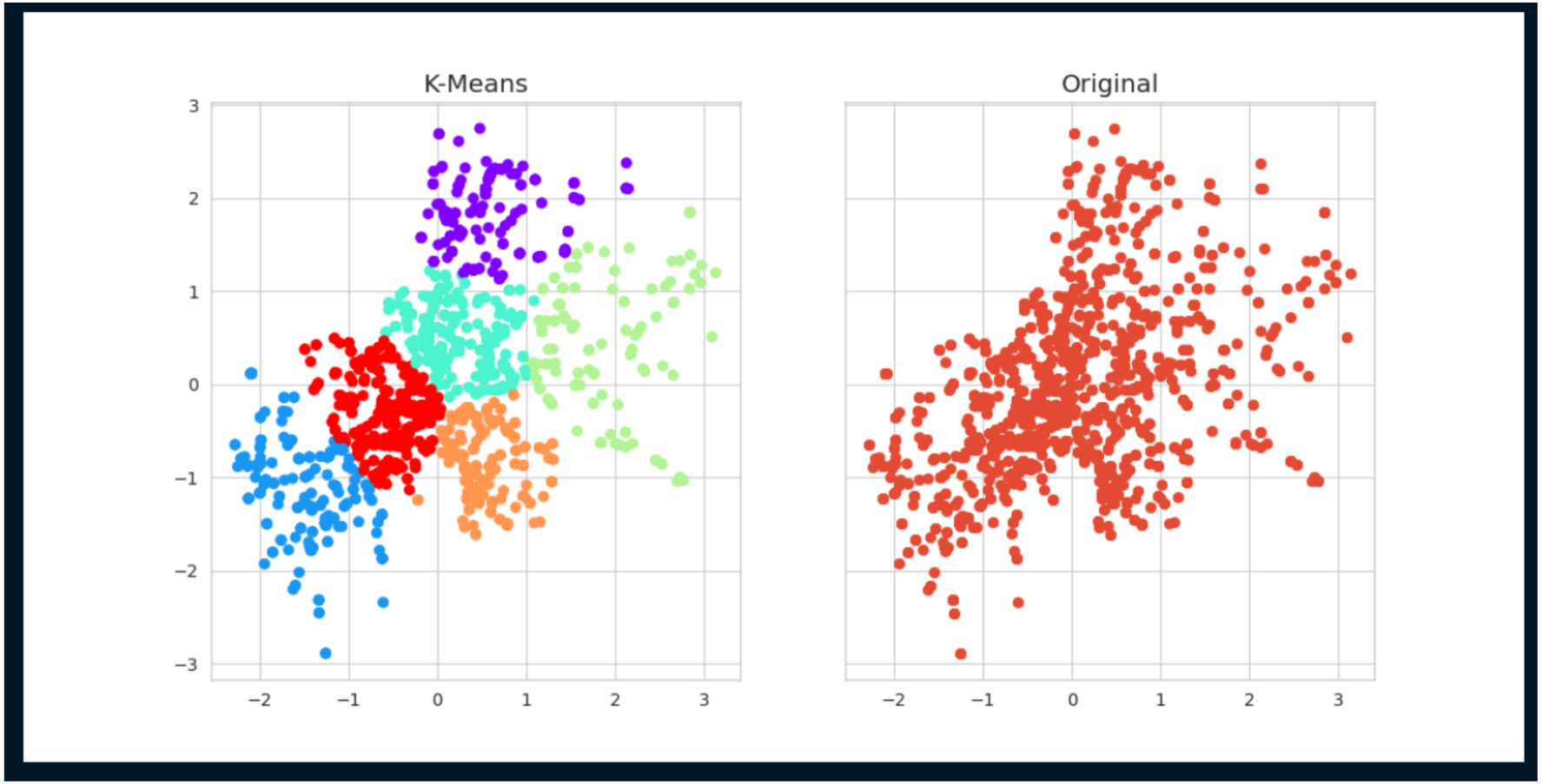
DAG	Owner	Runs	Schedule	Last Run	Next Run	Recent Tasks	Actions	Links
fondue_dag	pras	9	@daily	2023-05-17, 00:00:00	2023-05-18, 00:00:00	5		





Machine Learning (ML)

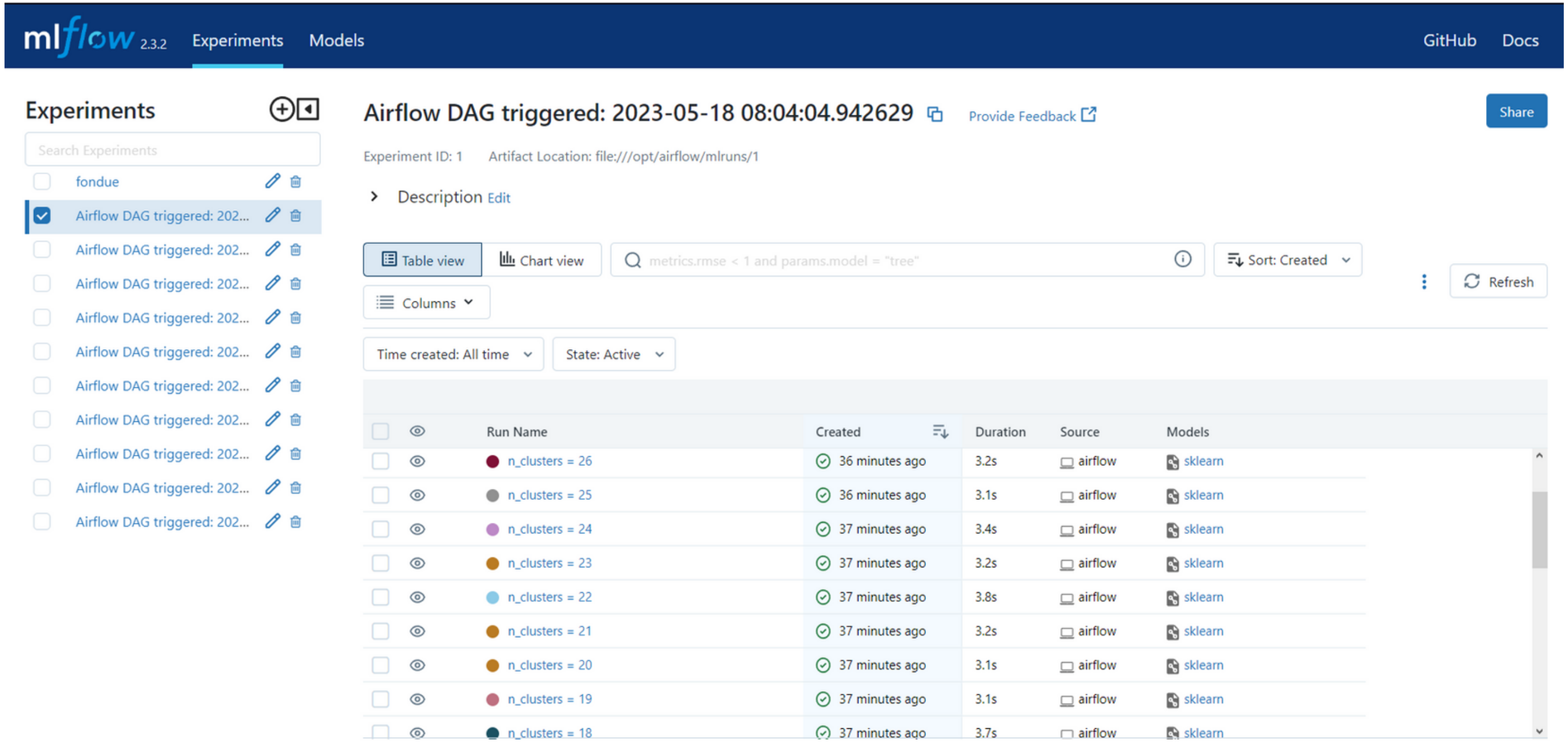
K-Means Clustering



Machine Learning (ML)

mlflow™

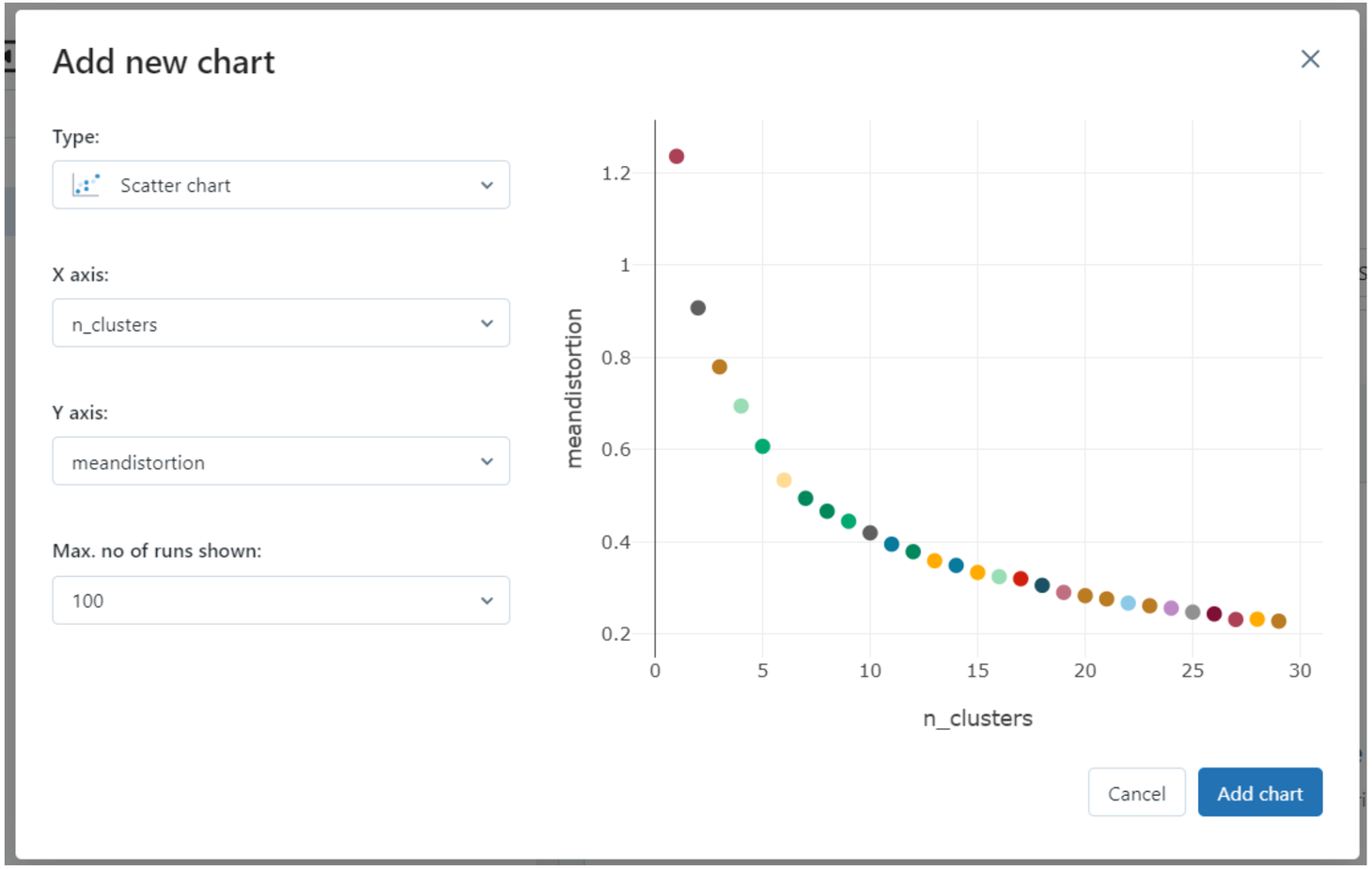
finding optimal k using elbow method



Machine Learning (ML)

mlflow™

finding optimal k using elbow method



Visualization

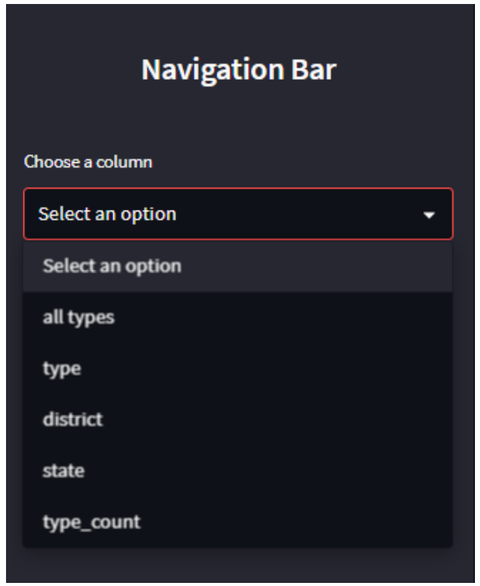
using Geospatial and heatmap

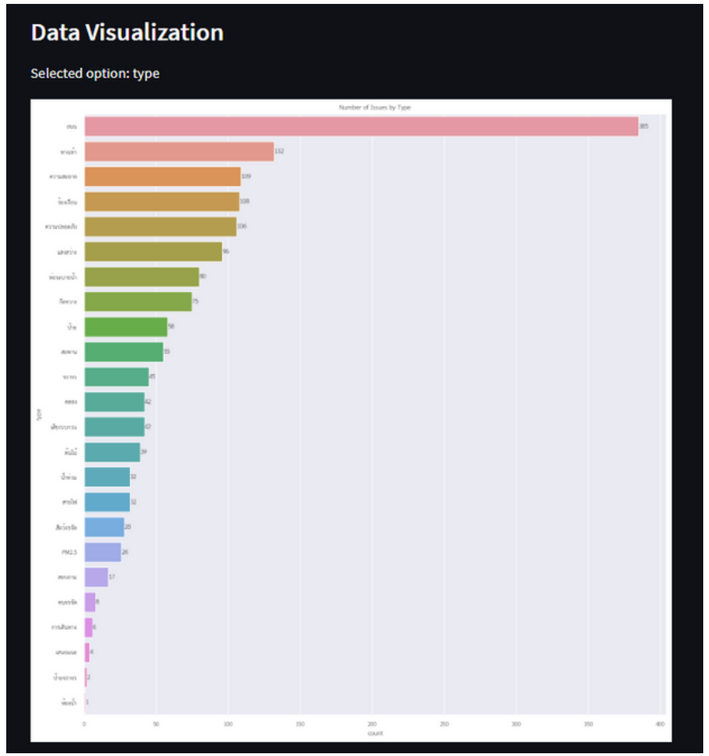
matplotlib	seaborn	folium	streamlit
Plot graph and save figure in outputs	Plot graph and save figure in outputs	Create interactive map for geospatial visualization	Create interactive dashboard in webserver

Back to Agenda

Visualization

using Geospatial and heatmap





- Streamlit app in navigation bar
- Choose a column to display count plot

matplotlib

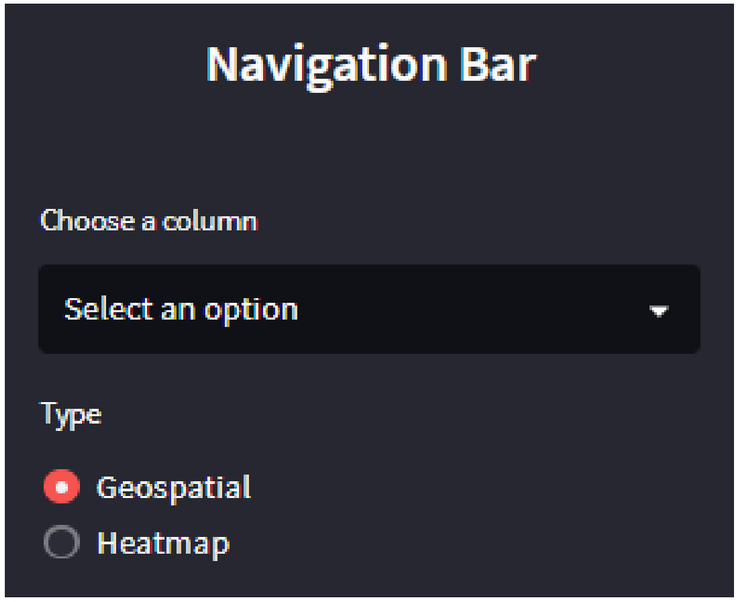
seaborn

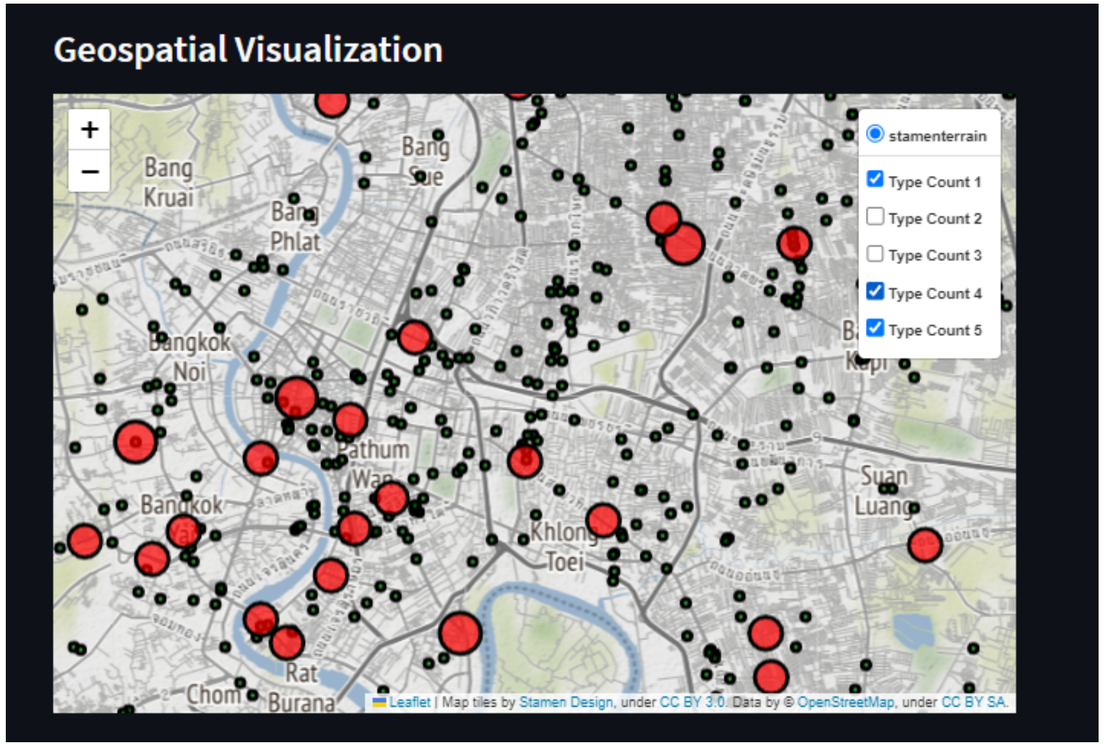
streamlit

Back to Agenda

Visualization

using Geospatial and heatmap





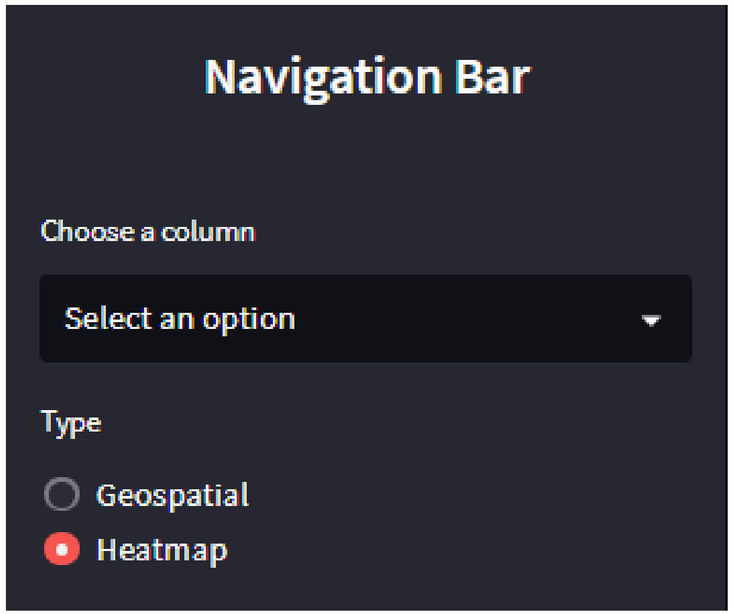
- Streamlit app in navigation bar
- Select Geospatial radio

folium

streamlit

Visualization

using Geospatial and heatmap

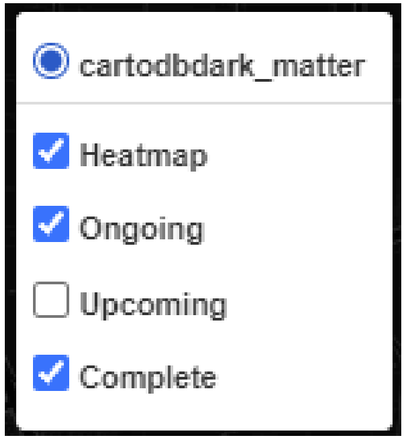


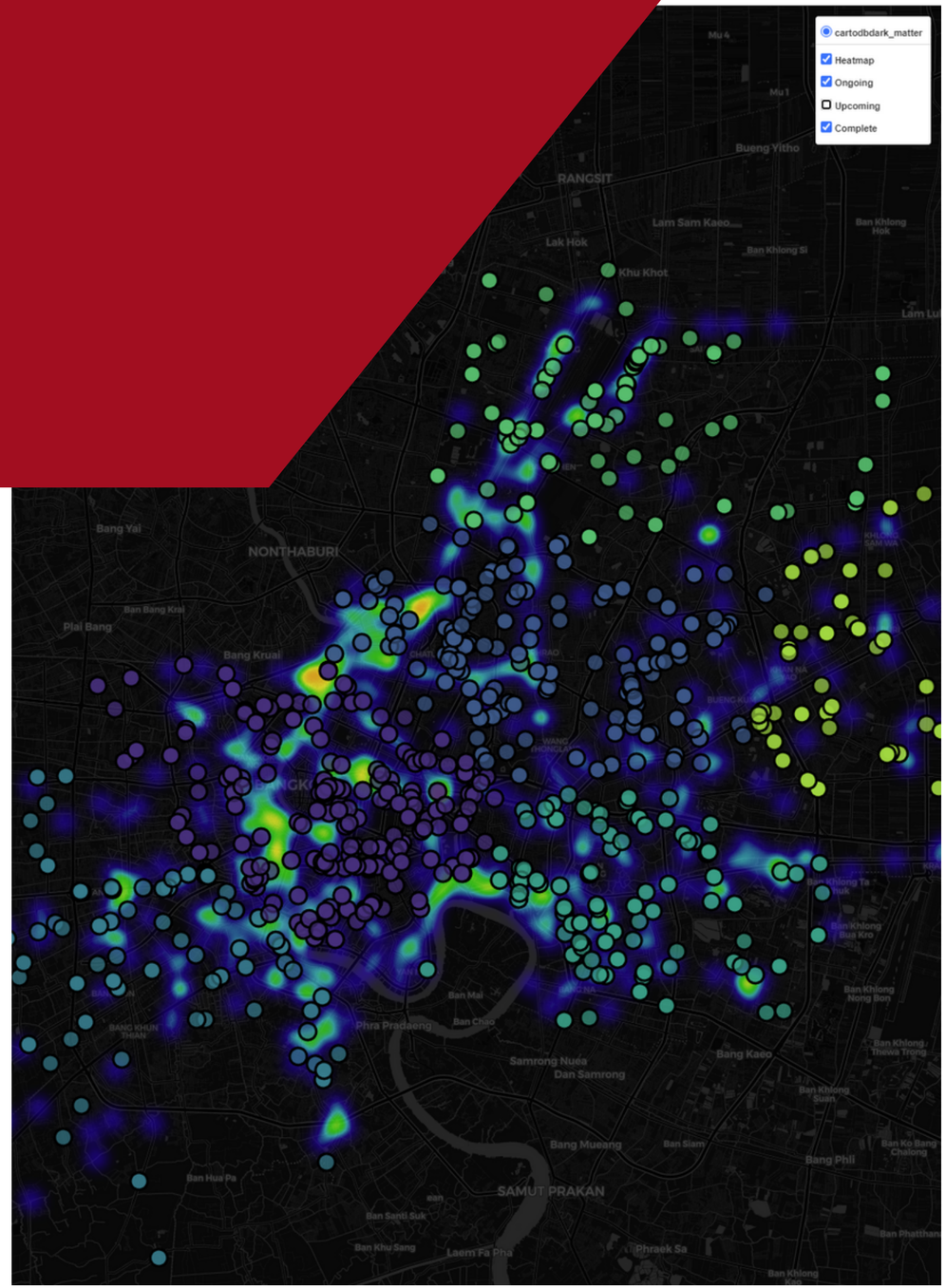
- Streamlit app in navigation bar
- Select Heatmap radio

Visualization

using Geospatial and heatmap

- Streamlit app in navigation bar
- Select Heatmap radio
- Filter in the control layer
  - heatmap
  - ongoing
  - upcoming
  - complete





folium — **streamlit**

Navigation Bar

Choose a column

Select an option

Type

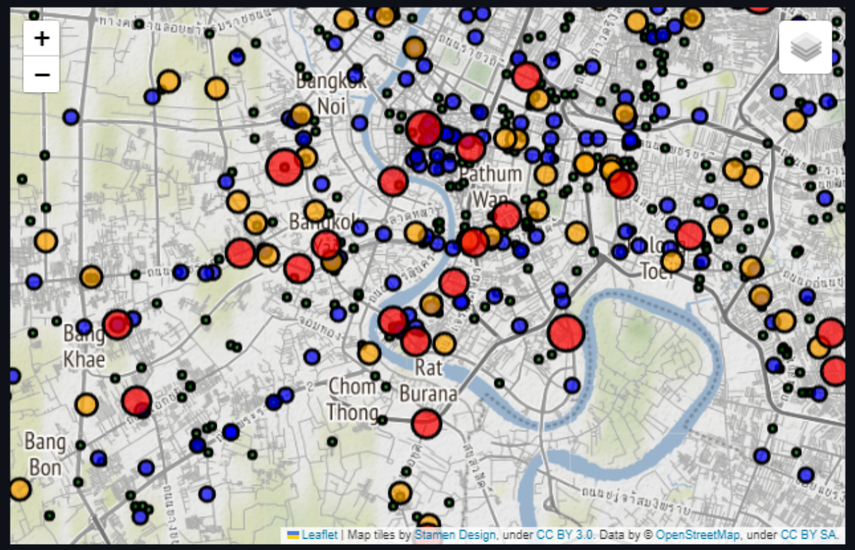
- (•) Geospatial
- ( ) Heatmap

Traffy Fondue Clustering

Source: https://share.traffy.in.th/teamchadchart

	type	address	t
0	['ถนน']	29/11 ถ. เพชรเกษม แขวงหนองค้างพลู เขตหนองแขม กรุงเทพมหานคร 10160 ประเทศไ	2
1	['ป้าย', 'การเดินทาง']	39 1 แขวง จตุจักร เขตจตุจักร กรุงเทพมหานคร 10900 ประเทศไทย	2
2	['ความสะอาด', 'ถนน']	34/63 ซอย เจริญกรุง 107 แยก 11 แขวงบางคอแหลม เขตบางคอแหลม กรุงเทพมหานคร	2
3	['ถนน']	ถนนศรีนครินทร์ : 2998 ถ. พัฒนาการ แขวงสวนหลวง กรุงเทพมหานคร 10250 ประเทศไทย	2
4	['ถนน', 'ท่อระบายน้ำ']	573/16 ถ. สุทธิสารวินิจฉัย แขวงดินแดง เขตดินแดง กรุงเทพมหานคร 10400 ประเทศไทย	2

Geospatial Visualization



Navigation Bar

Choose a column

Select an option

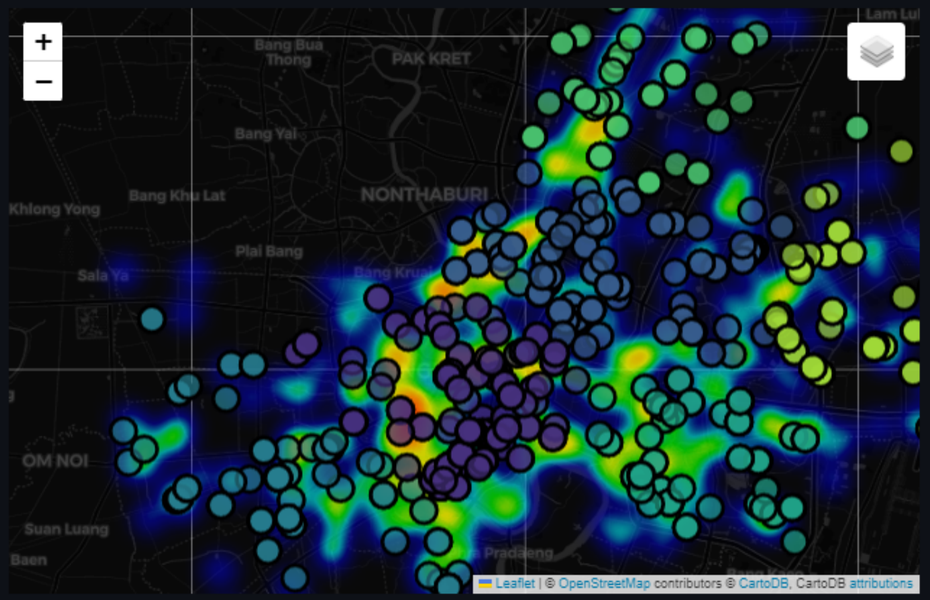
Type

- ○ Geospatial
- ◉ Heatmap

Heatmap Visualization

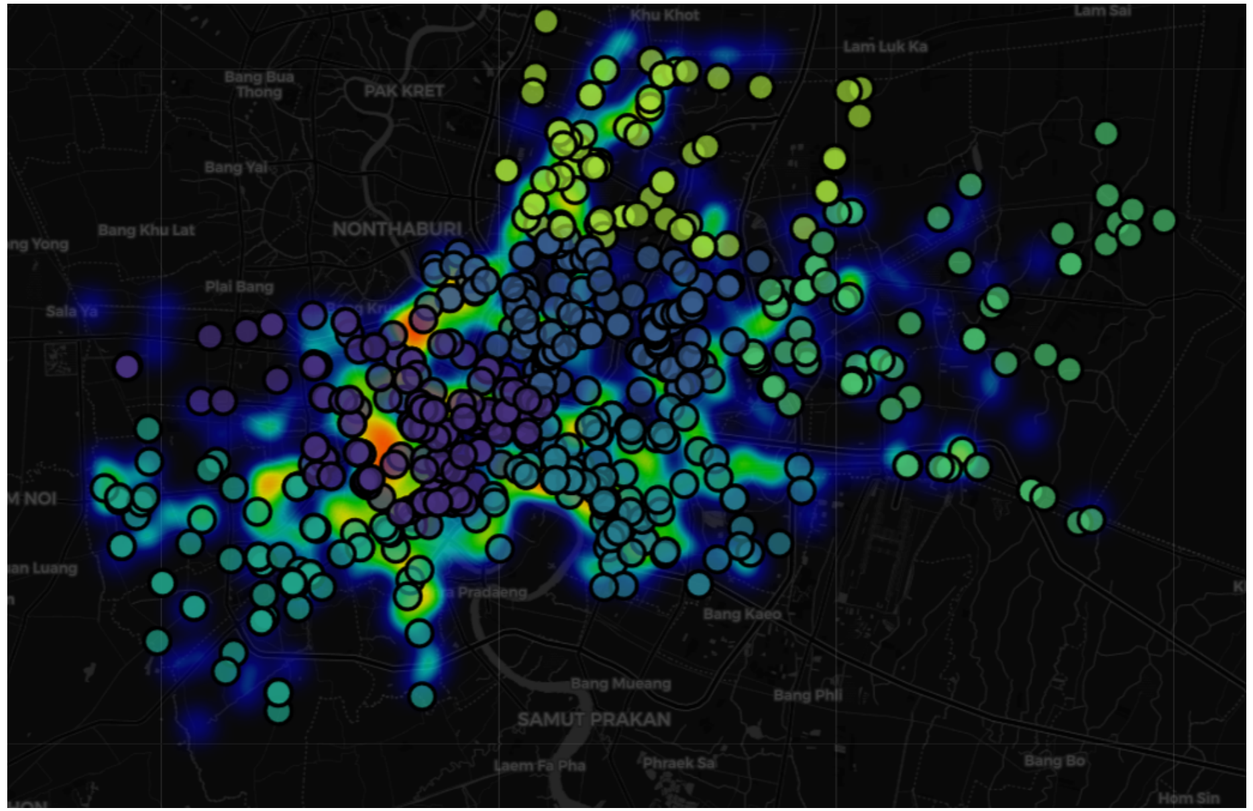
Source: https://gdcatalog.nha.co.th/dataset/dataset11_01

	COMM_ID	COMM_NAME	SHAPE_YEAR	X	Y	Lat	Long
0	100,002	ริมคลองกะจะ (บางส่วน)	2,562	677,065.7983	1,520,645.352	13.7497	100.6377
1	100,003	ลำสาลีพัฒนา (บางส่วน)	2,562	678,292.0616	1,520,800.927	13.751	100.649
2	100,004	วังโสม (บางส่วน)	2,562	679,393.2645	1,521,497.51	13.7573	100.6593
3	100,006	สามัคคีพัฒนา (บางส่วน)	2,562	679,269.1078	1,522,178.436	13.7634	100.6582
4	100,008	สุขเจริญพัฒนา (บางส่วน)	2,562	675,926.9076	1,526,648.306	13.804	100.6275

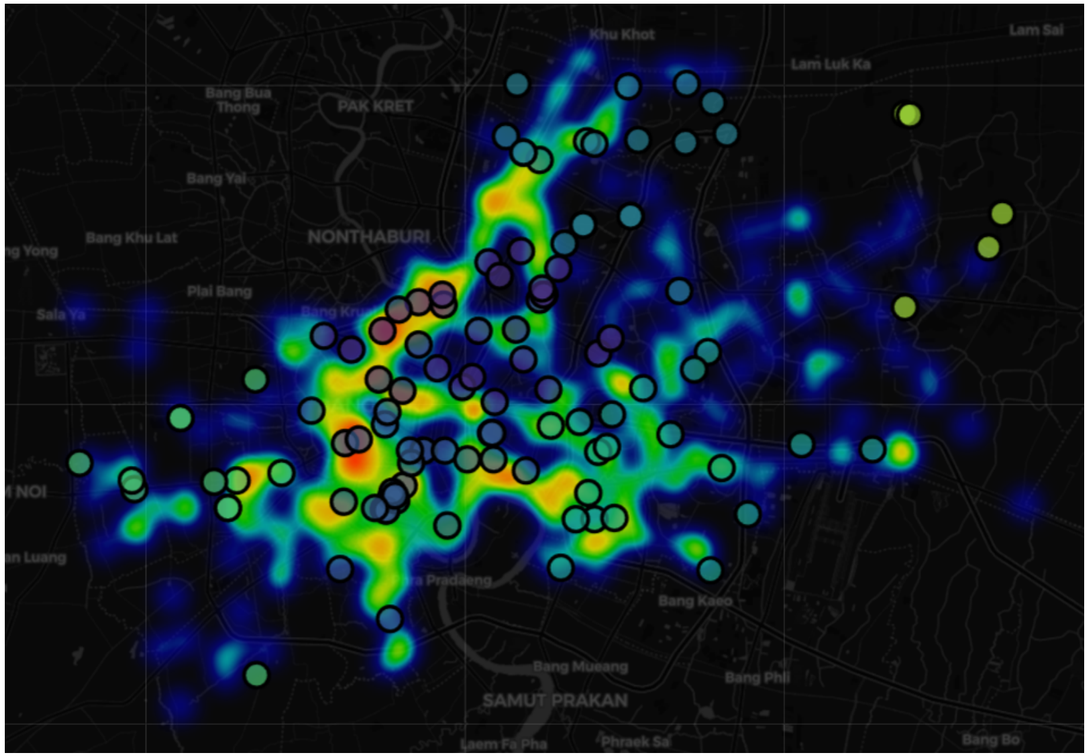


Insight

ถนน ทางเท้า ท่อระบายน้ำ vs low-income heatmap



ความสะอาด vs low-income heatmap



DEMONSTRATION

Thank you

Group name: ลมน้อยกลอยใจ
Github: https://github.com/Bhuribhat/Traffy-Clustering/tree/main