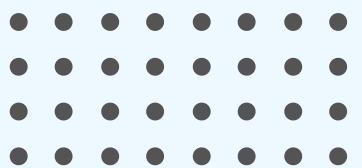




PORTOFOLIO



AURELIO JEREMI BASTEN SITINJAK

PROFILE

A freshgraduate with a bachelor's degree in geomatics engineering who is competitive and eager to learn and build new abilities in GIS programming, terrestrial mapping, and the mining business.

CERTIFICATION

- 3D Point Cloud Masterclass | Lidar | CloudCompare By Udemy
- Crash Course on Python By Coursera
- Introduction to Git And GitHub By Coursera
- Troubleshooting and Debugging Techniques By Coursera
- Machine Learning With Python (With Honors) By IBM
- TOEFL ITP By ETS (Score: 520)

BACKGROUND EDUCATION



- **INSTITUT TEKNOLOGI SEPULUH NOPEMBER**
Bachelor of Geomatics Engineering
2020 – 2024
GPA : 3.24 / 4.00

WORK EXPERIENCE



- **PT. Adaro Energy Indonesia, Tbk.**
Engineer Intern
July 2023 – Agt 2023



- **PT. Smartech Solutions International**
Pre sales Engineer
September 2024 - December 2024

3D MODELLING OF SUSTAINABLE GREEN NEIGHBORHOOD CITY FOR REDUCING UHI (URBAN HEAT ISLAND) EFFECT THAT AFFECTING POLLUTION LEVEL IN JAKARTA

Background of Project

03

Study Case



Over the past few months, Jakarta has gained notoriety as the world's most polluted city. According to data from the Air Quality Index (AQI) on September 1, 2023, Jakarta recorded an AQI of 163. The elevated AQI in Jakarta can be attributed to various factors, notably the excessive presence of PM2.5 particles, which exceeded the recommended limit set by the World Health Organization (WHO) by 7.4

Main Concerned

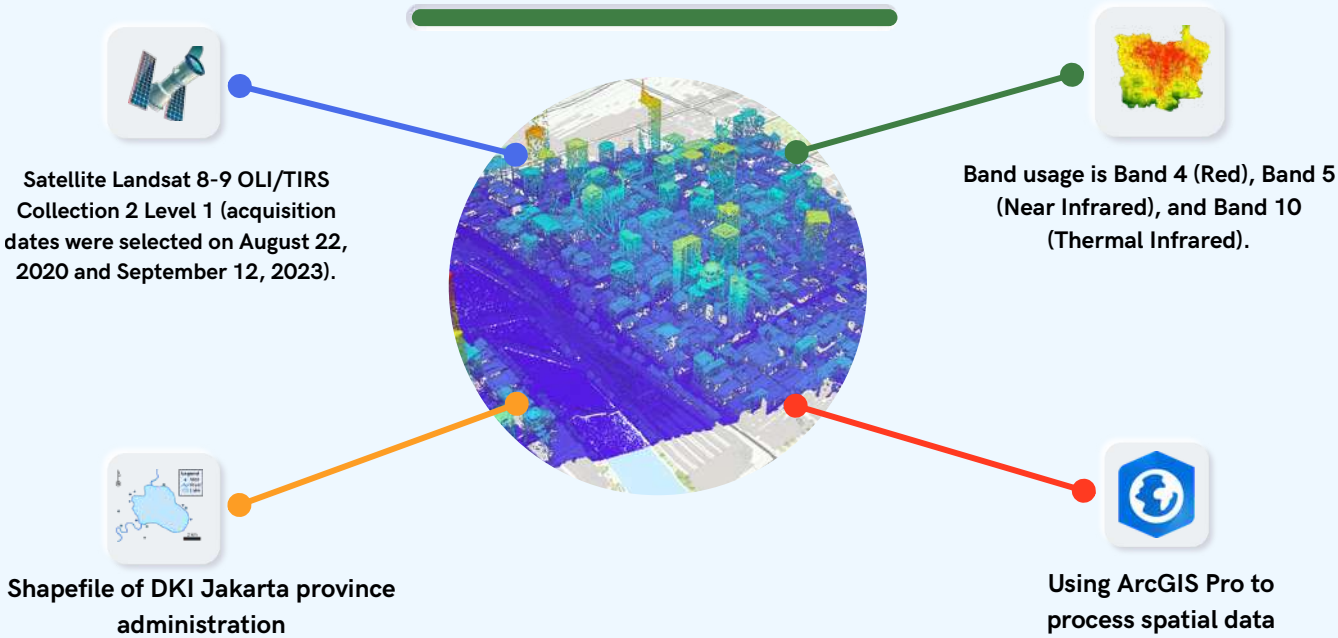


The increased level of temperature in Jakarta has resulted in the **UHI (Urban Heat Island) phenomenon**, which means that urban areas experience higher temperatures than surrounding areas. **UHI is our main concern in conducting spasiel analysis due to UHI's difficulties.** UHI itself occurs due to land surface modification through urban development that cause

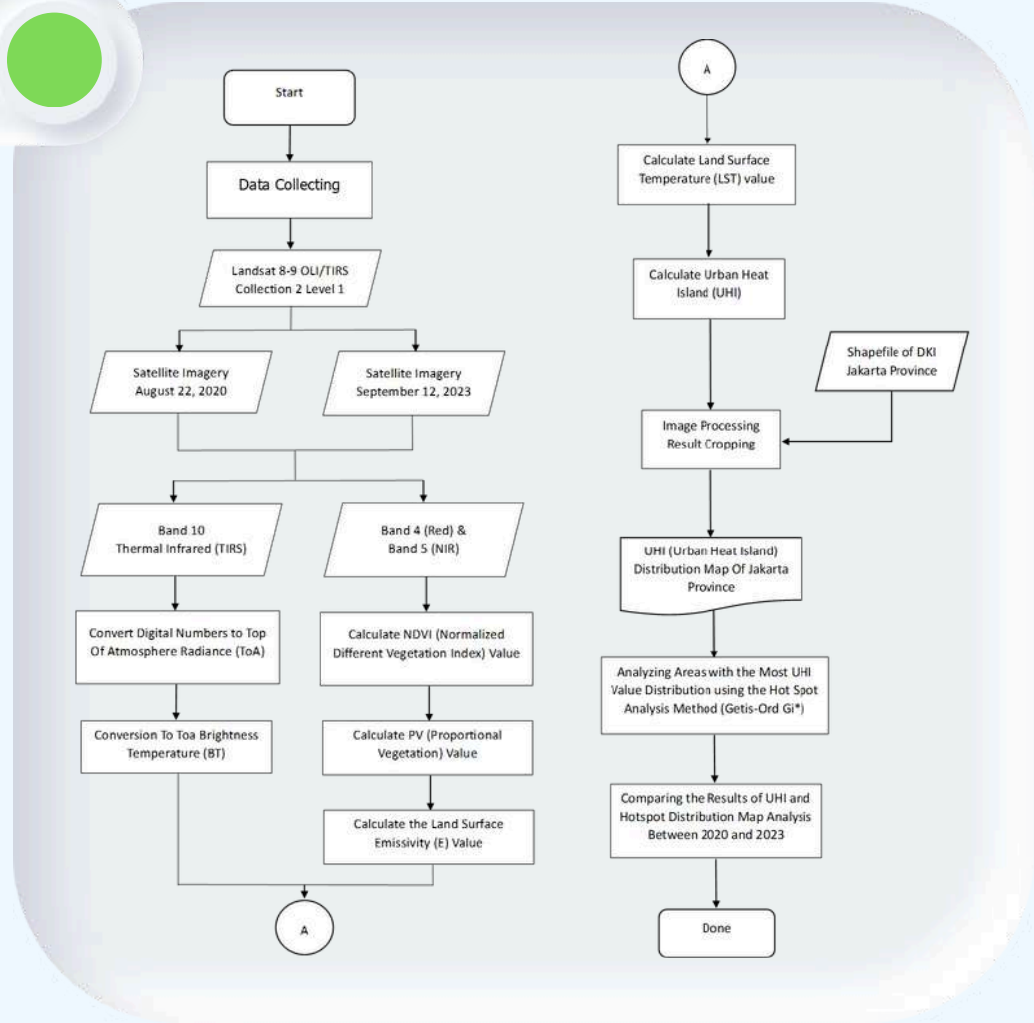
Urgencies



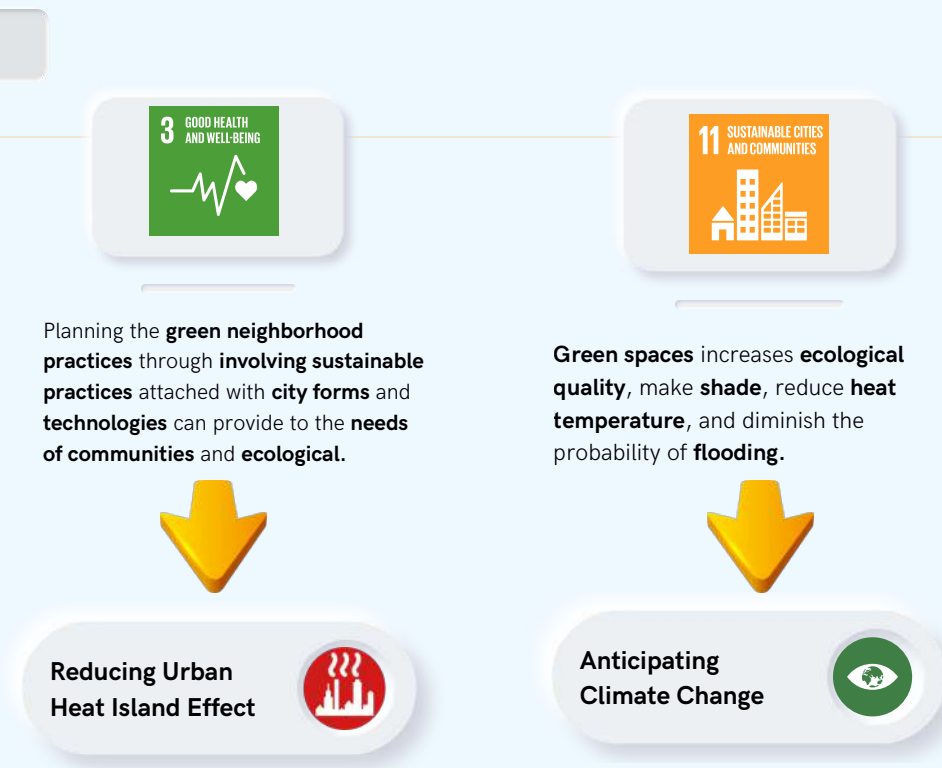
Development Geospatial Database



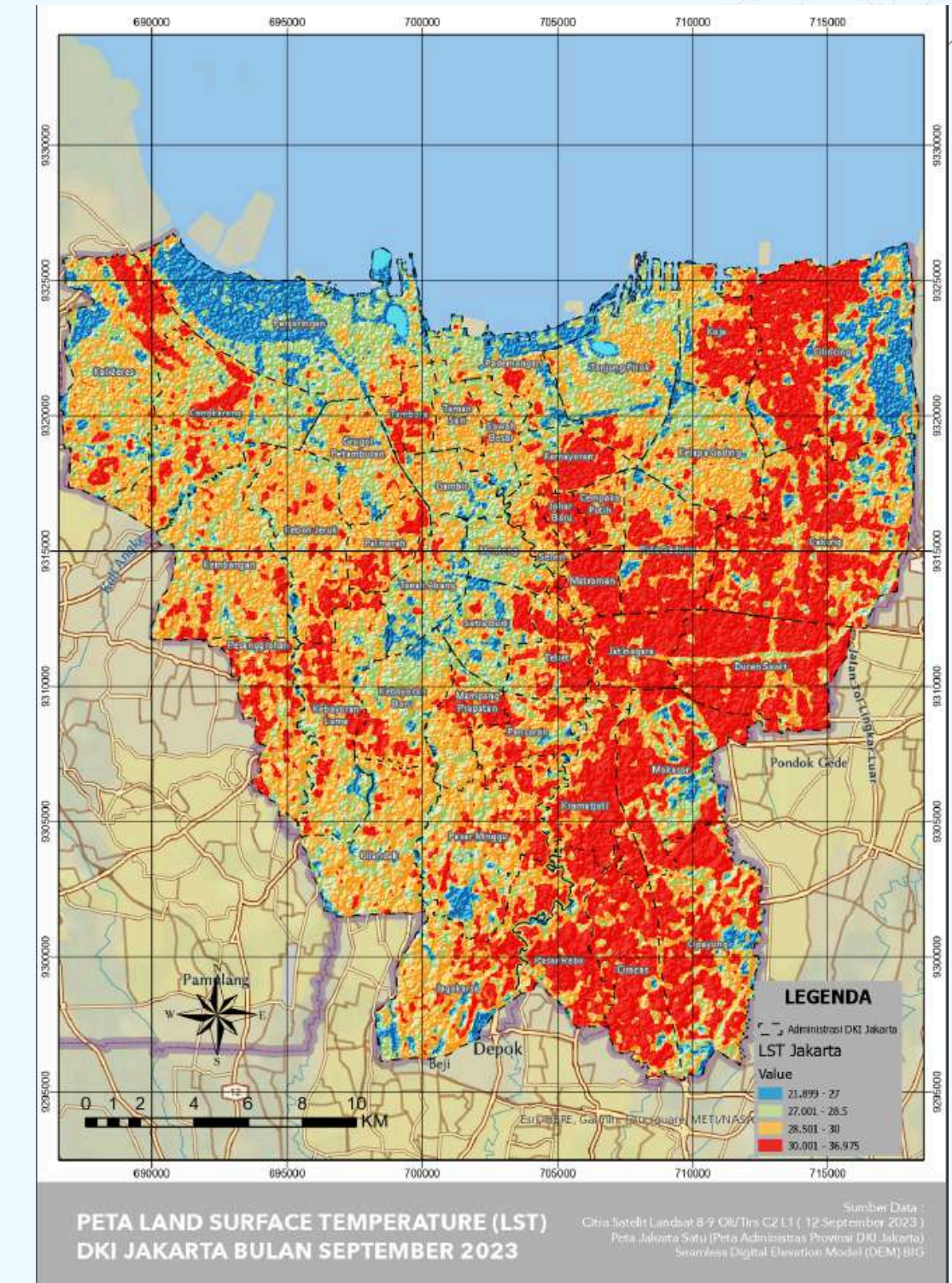
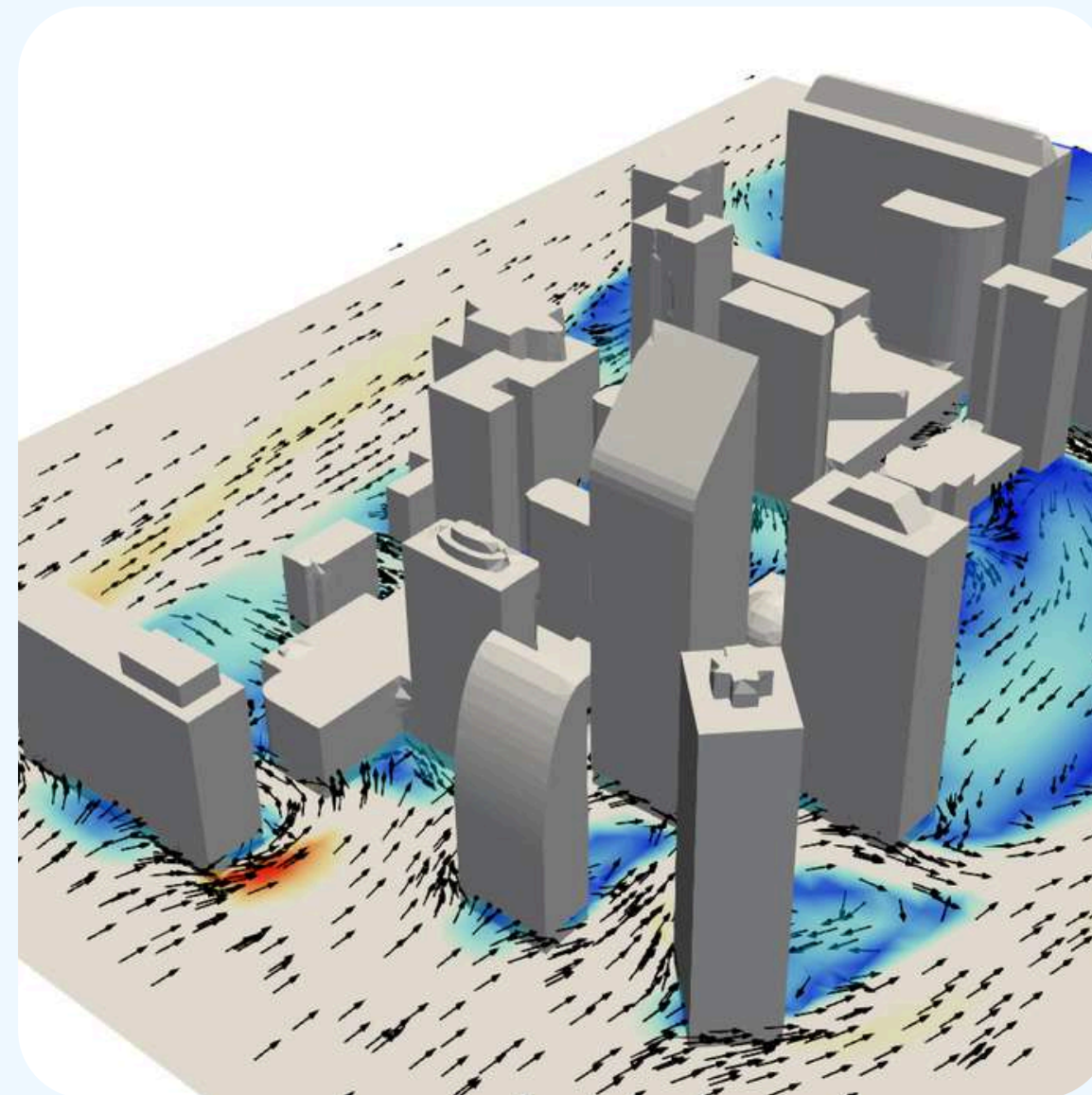
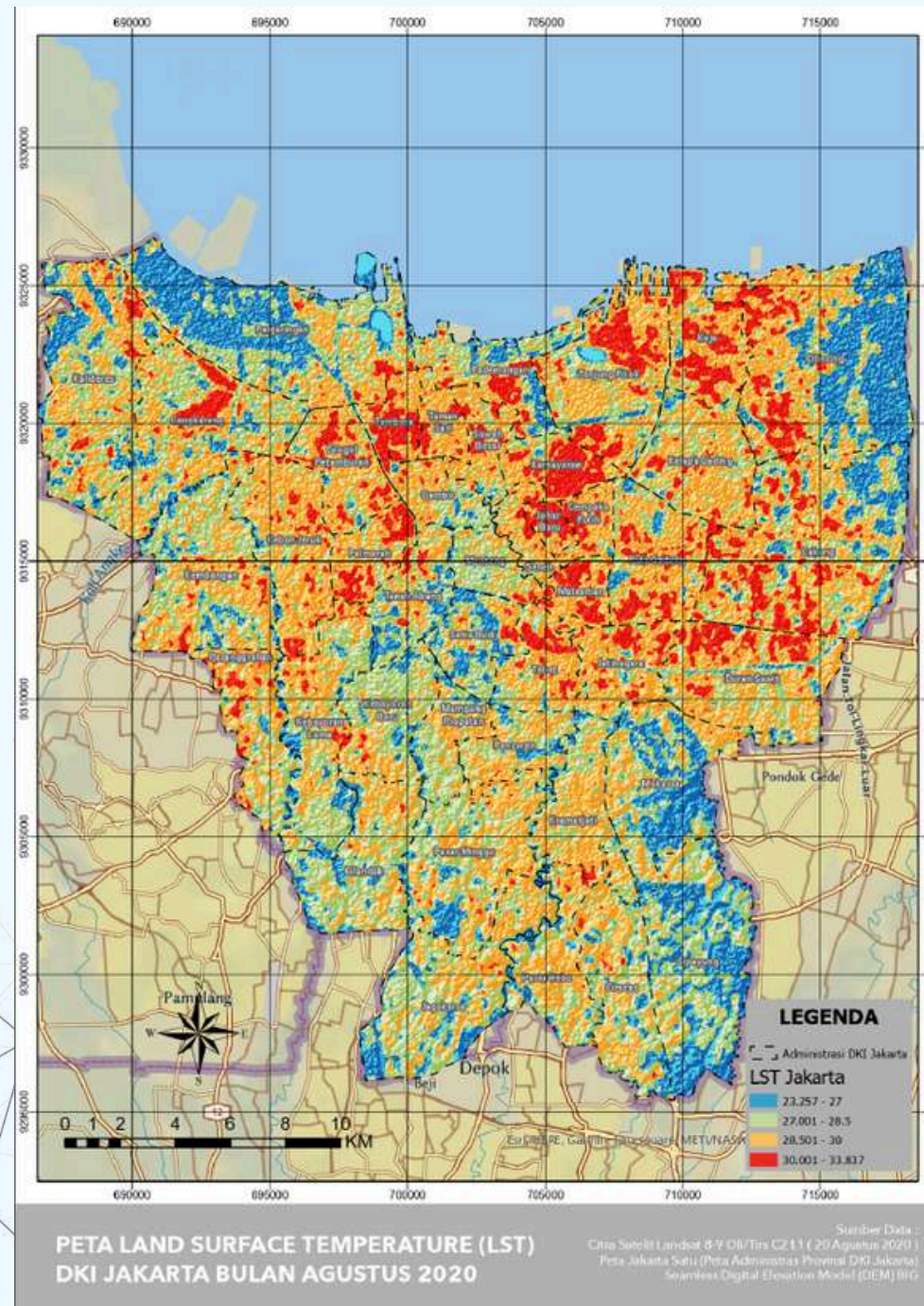
Data Process With Machine Learning Algorithm



Result Analysis



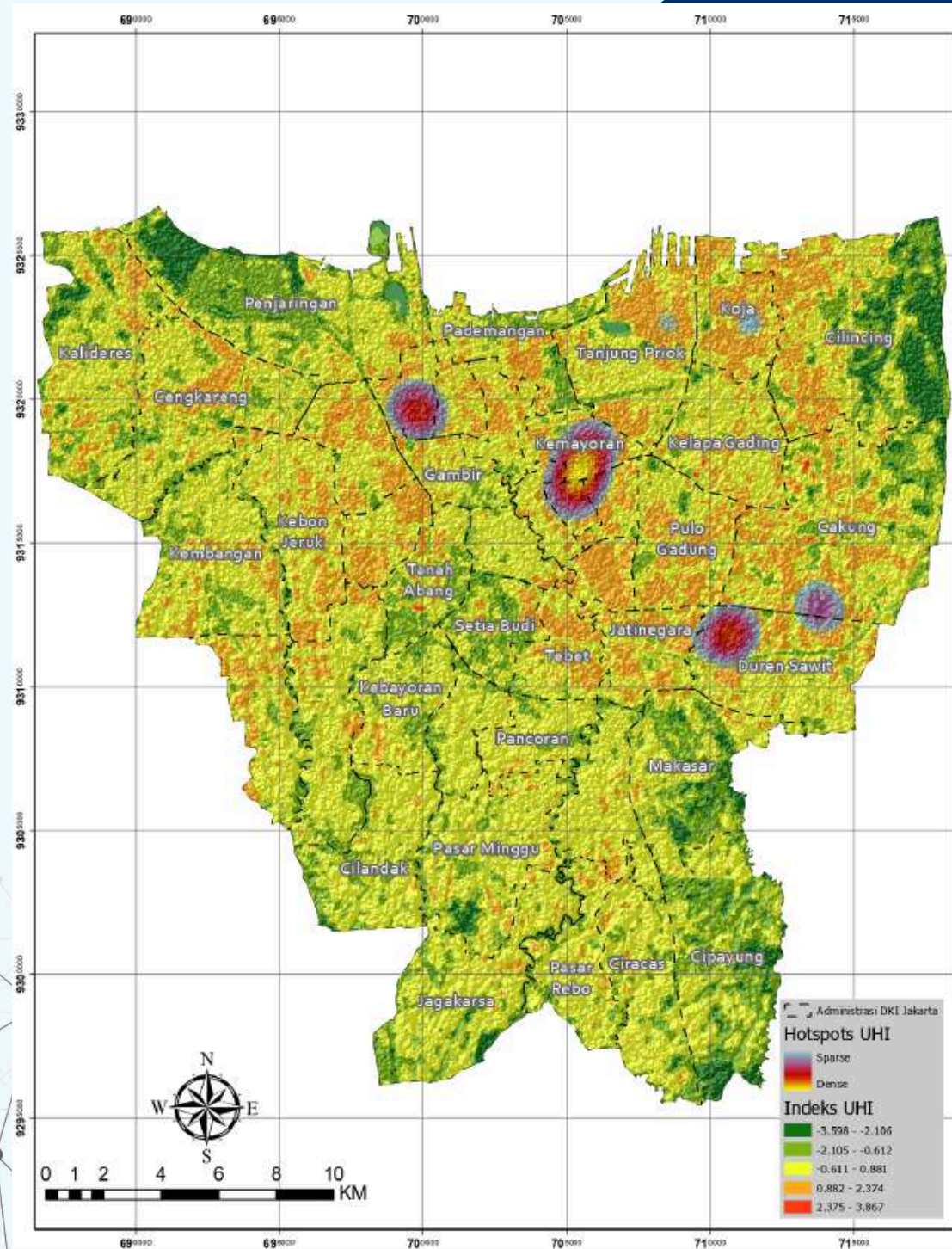
OUTPUT



Data Visualisation of Urban Heat Island using NDVI and BIM (Building Information Modelling) in 3D model

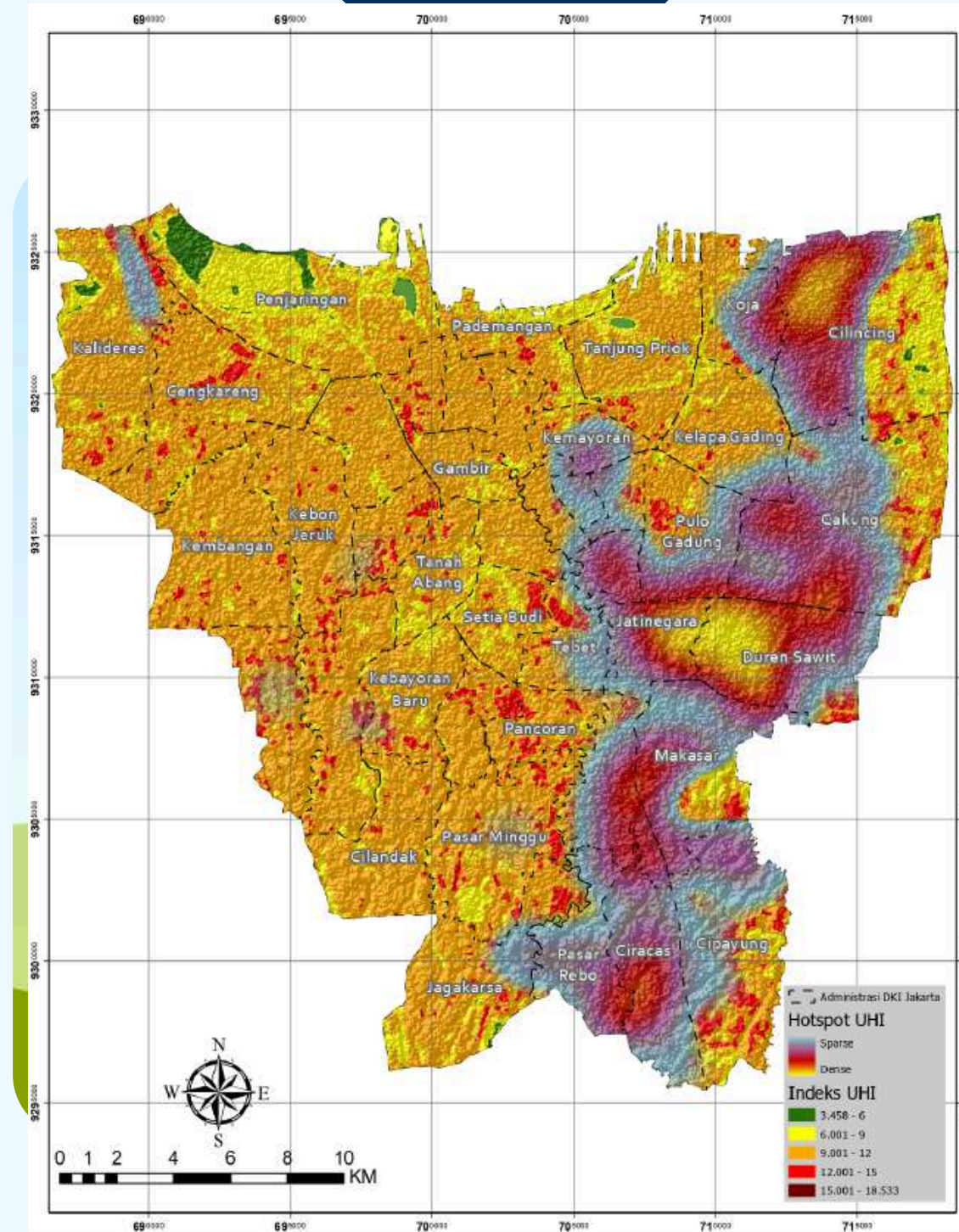
OUTPUT

URBAN HEAT ISLAND WITH HOTSPOT DENSITY ANALYSIS



PETA DISTRIBUSI UHI (URBAN HEAT ISLAND) DAN
HOTSPOT PROVINSI DKI JAKARTA BULAN AGUSTUS 2020

Sumber Data :
Citra Satelit Landsat 8-9 Oli/Tirs C2 L1 (20 Agustus 2020)
Peta Jakarta Satu (Peta Administrasi Provinsi DKI Jakarta)
Seamless Digital Elevation Model (DEM) BIG



PETA DISTRIBUSI UHI (URBAN HEAT ISLAND) DAN
HOTSPOT PROVINSI DKI JAKARTA BULAN SEPTEMBER 2023

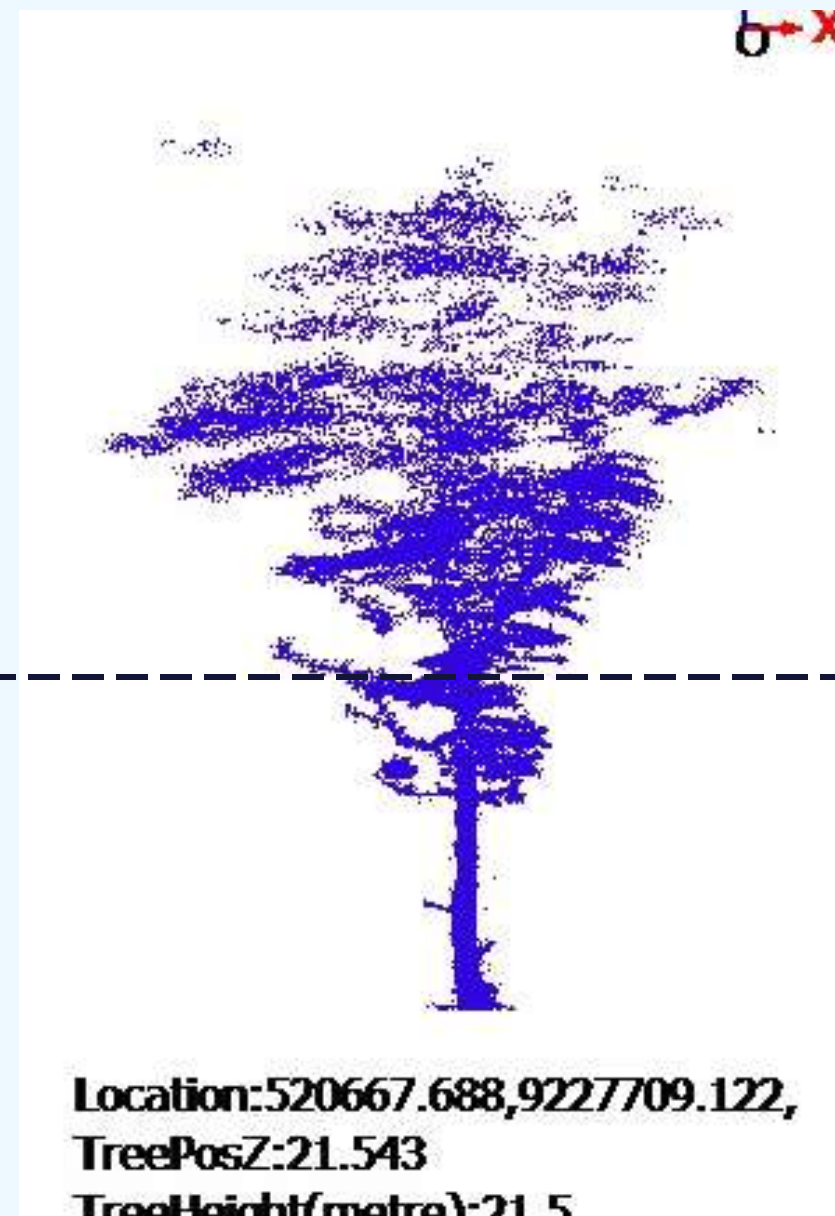
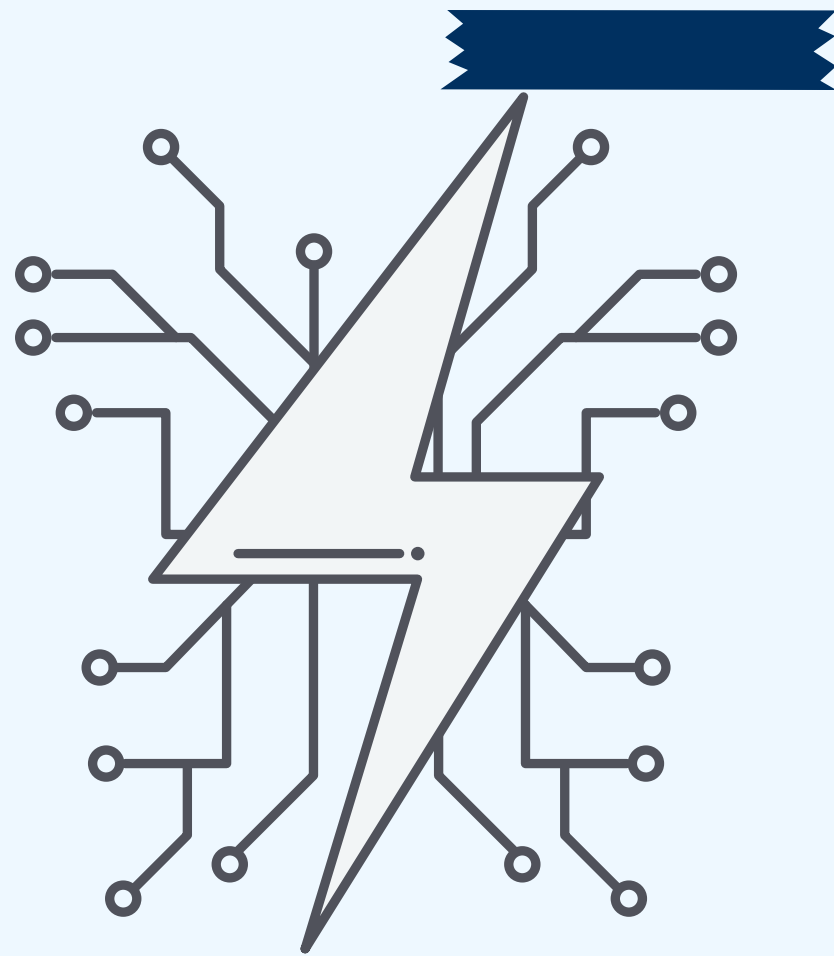
Sumber Data :
Citra Satelit Landsat 8-9 Oli/Tirs C2 L1 (12 September 2023)
Peta Jakarta Satu (Peta Administrasi Provinsi DKI Jakarta)
Seamless Digital Elevation Model (DEM) BIG

- 22 August 2020 in some parts of the UHI region experienced **negative conditions (no UHI occurred)**, namely between the intervals of **-3,598 to 3,867** degrees celsius
- UHI (Urban Heat Island) distribution map was made, which obtained **positive UHI results (UHI occurred)** on 12 September 2023, between the intervals of **3,458 to 18,533** degrees Celsius.
- Hotspot analysis obtained the **Duren Sawit** District area as the **highest hotspot point** and has the same condition, namely experiencing UHI between 22 August 2020 and 12 September 12, 2023

PROJECT

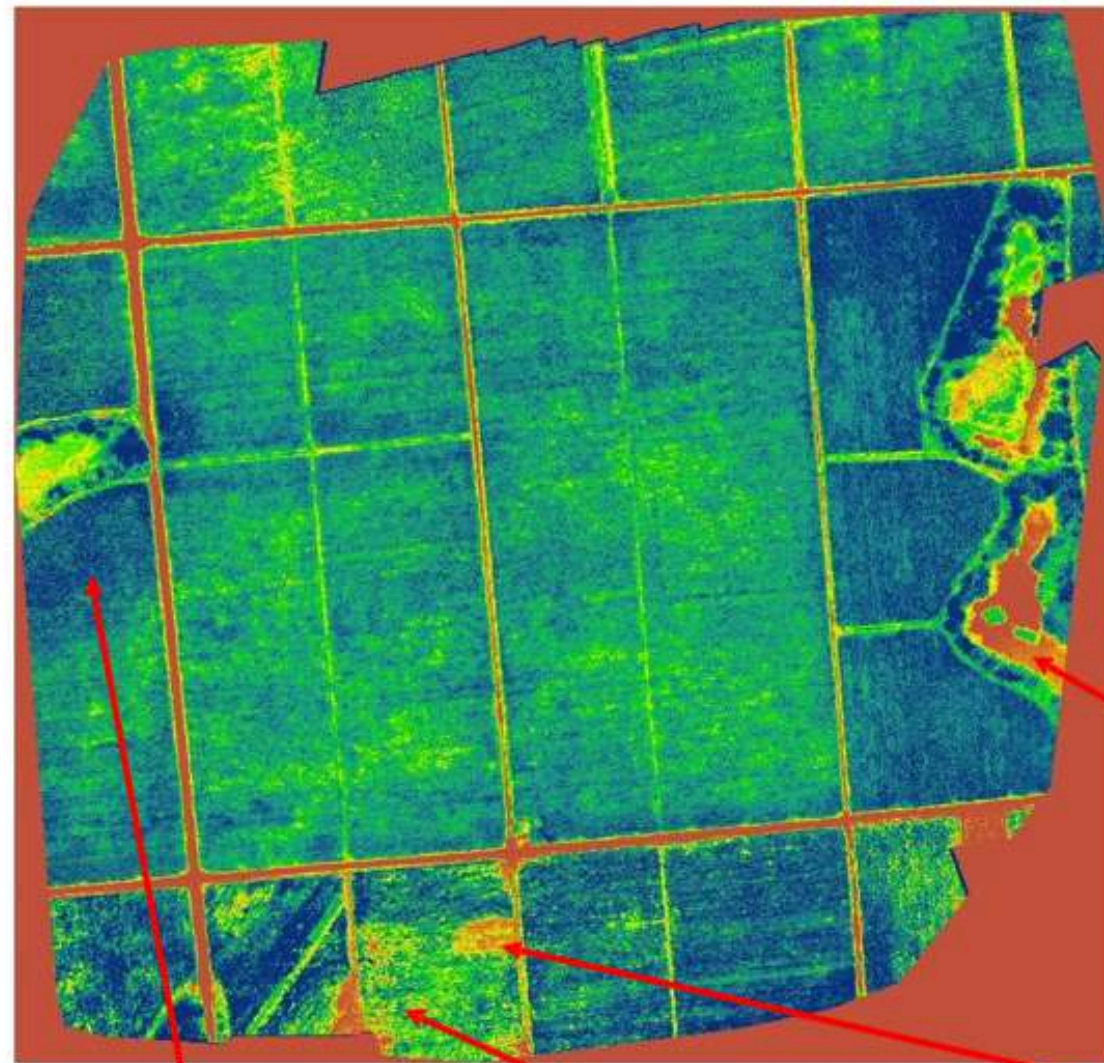


PORTOFOLIO



pointcloud result post-oprocessing data by backpack lidar

NDVI ANALYSIS FOR SUGARCANE FIELD BASED ON AERIAL PHOTOGRAPHY THAT WE ALREADY TOOK



Blue: healthy

Green: less healthy

Yellow: not healthy (disease)

Water



Location: Lampung

1. Using multispectral Micasense RedEdge MX sensor
2. Analysis focused on *Near Infrared* reflectance signal with various transformation vegetation index
3. Pest: **Stem borer**, most damaging pests to sugar cane, not so visible to plain eye as plants still look green and healthy. Up to 75% mortality rate on young shoots
4. Reflectance pattern will be used for colour classification to pinpoint pest affected plants
5. Further analysis for mineral deficiency (micro & macro nutrient deficiencies)



pgAdmin 4

File Object Tools Help

Dashboard Properties SQL Statistics Dependencies Dependents lesson3db/pos... nyc_poi.mixed/... lesson3db/pos... us: < > | x

Browser

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 - FTS Configurations
 - FTS Dictionaries
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 - FTS Templates
 - Foreign Tables
 - Functions
 - Materialized Views
 - Procedures
 - Sequences
 - Tables
 - Trigger Functions
 - Types
 - Views (1)
 - vw_capitals
 - Columns
 - Rules
 - Triggers

- Subscriptions

Query Editor

Query History

Scratch Pad

1 SELECT * FROM usa.vw_capitals

2

Data Output

	gid	uid	popclass	name	capital	stateabb	country	geom
	integer	double precision	double precision	character varying (40)	double precision	character varying (10)	character varying (10)	geometry
1	3	17307		2 Juneau		US-AK	USA	010100000017B2374ABACD60C039F7
2	560	140007		3 Montgomery		US-AL	USA	01010000002BD84781549155C02655
3	500	132307		3 Little Rock		US-AR	USA	01010000003174366DF51257C06A87
4	525	135607		4 Phoenix		US-AZ	USA	01010000004A6A4E7627055CC086DC
5	276	103907		3 Sacramento		US-CA	USA	0101000000E666DB8C9B5D5EC0ED0F
6	315	108807		3 Denver		US-CO	USA	0101000000DDA1FB84243C5AC0196E
7	105	81507		3 Hartford		US-CT	USA	0101000000000000000000000000

Successfully run. Total query runtime: 0.33 secs. 40 rows affected.

pgAdmin

Browser

- publications
- Schemas (4)
 - nyc_poi
 - nyc_poi
 - public
 - usa
 - Collations
 - Domains
 - FTS Configur
 - FTS Dictiona
 - FTS Parsers
 - FTS Templat
 - Foreign Table
 - Functions
 - Materialized
 - Procedures
 - Sequences
 - Tables (3)
 - census20
 - cities
 - states
 - Column
 - Constra
 - Indexes
 - RLS Pol
 - Rules
 - Trigger
 - Trigger Funct
 - Types

Query Editor

Query History

1 sub_region, ST_Transform(geom,2163) AS geom FROM usa.state

Data Output

	gid	uid	popclass	name	capital
	integer	double precision	double precision	character varying (40)	double preci
1	3	17307		2 Juneau	
2	229	98307		2 Dover	
3	336	112107		2 Frankfort	
4	243	99807		2 Annapolis	
5	23	65607		2 Augusta	
6	356	114307		2 Jefferson City	
7	52	71907		2 Helena	
8	64	74207		2 Bismarck	
9	66	74407			

Successfully run. Total query runtime: 0.33 secs. 40 rows affected.

Designing a database query using PostgreSQL