



# Infrastructure Mapper - Culinary Spots

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JUL  
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## About Me

- Intern at **Kartoza**
- B. Eng (Geodetic Engineering)
- Exploring (open source) GIS



# Why Culinary Mapping?

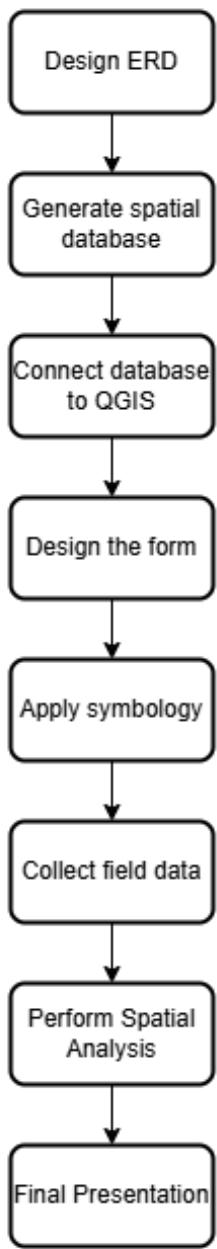
- Food = lifestyle
- Many spots still unmapped
- GIS shows access with isochrones
- Support better choices



# ? Analysis Problem

- Which places can be reached within 1 to 10 mins?
- Which ones have low price, high rating, Wi-Fi, indoor seating, are Cafes/Bakeries, reachable within 8 mins?





# Project Workflow

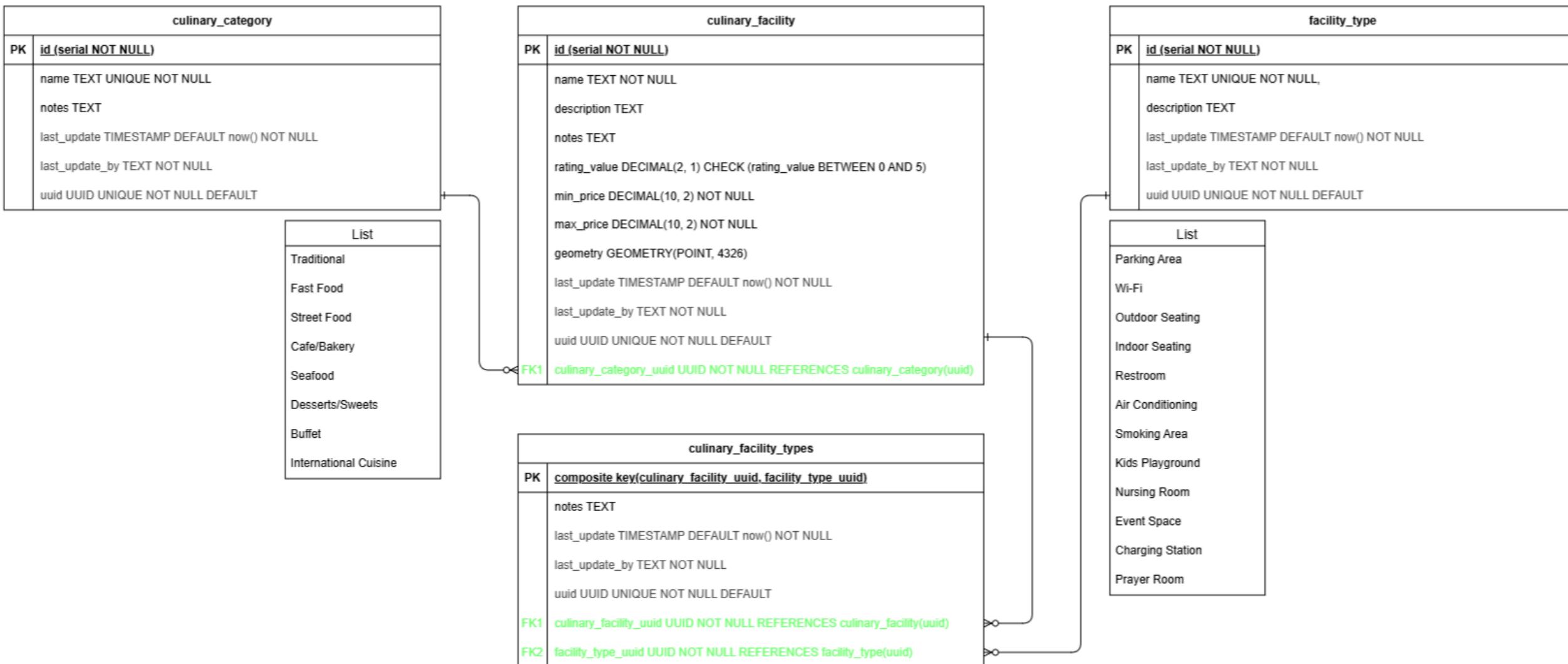


# The Model

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# Culinary Facilities



# ⚙️ Tools Used

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QGIS

QFieldCloud

PostgreSQL/PostGIS (SQL)

pgAdmin

VS Code

Marp (Markdown)

Git and GitHub





# The Forms

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## Form Layout

id  
name  
description  
notes  
culinary\_category\_uuid  
rating\_value  
min\_price  
max\_price

## Culinary\_Facility\_Types

## General

Alias Culinary Category  
Comment The UUID of the culinary category, referencing the culinary\_category table.  
 Editable   
 Reuse last entered value  Label on top

## Widget Type

Value Relation  
Select layer, key column and value column  
Layer Culinary Category  
Key column abc\_uuid  
Value column abc\_name

## Relation

Label   
Cardinality Many to one relation  
 Force hide form on add feature  
Widget Type Relation Editor

## Project Properties — Relations

Name	Referenced Layer	Referenced Field(s)	Referencing Layer	Referencing Field(s) Id	Strength
Culinary_Faci... culinary_facility	uuid	culinary_facility_t...	culinary_facility_...	culinary_f_culina...	Association

## Add Relation

Id [Generated automatically]  
Name FID in culinary\_facility\_types  
Relationship strength Association

## Layer and fields mapping

Referenced (parent)	Referencing (child)
Layer culinary_facility	culinary_facility_types
Field 1 123 ID	123 fid

OK

Cancel

Help

## Culinary Facility - Feature Attributes

ID	81
Name	Cafe A
Description	NULL
Notes	NULL
Culinary Category	Cafe/Bakery
Rating Value	NULL
Minimum Price	NULL
Maximum Price	NULL

## ▼ Culinary\_Facility\_Types

Expression

 11dd072a-7900-479c-bc9b-ce0874... OK Cancel

culinary_facility_uuid	479c-bc9b-ce0874dd0b39
facility_type_uuid	Kids Playground
notes	NULL

- Spatial Bookmarks
- Project Home
- Home
- C:\ (Acer)
- D:\ (DATA)

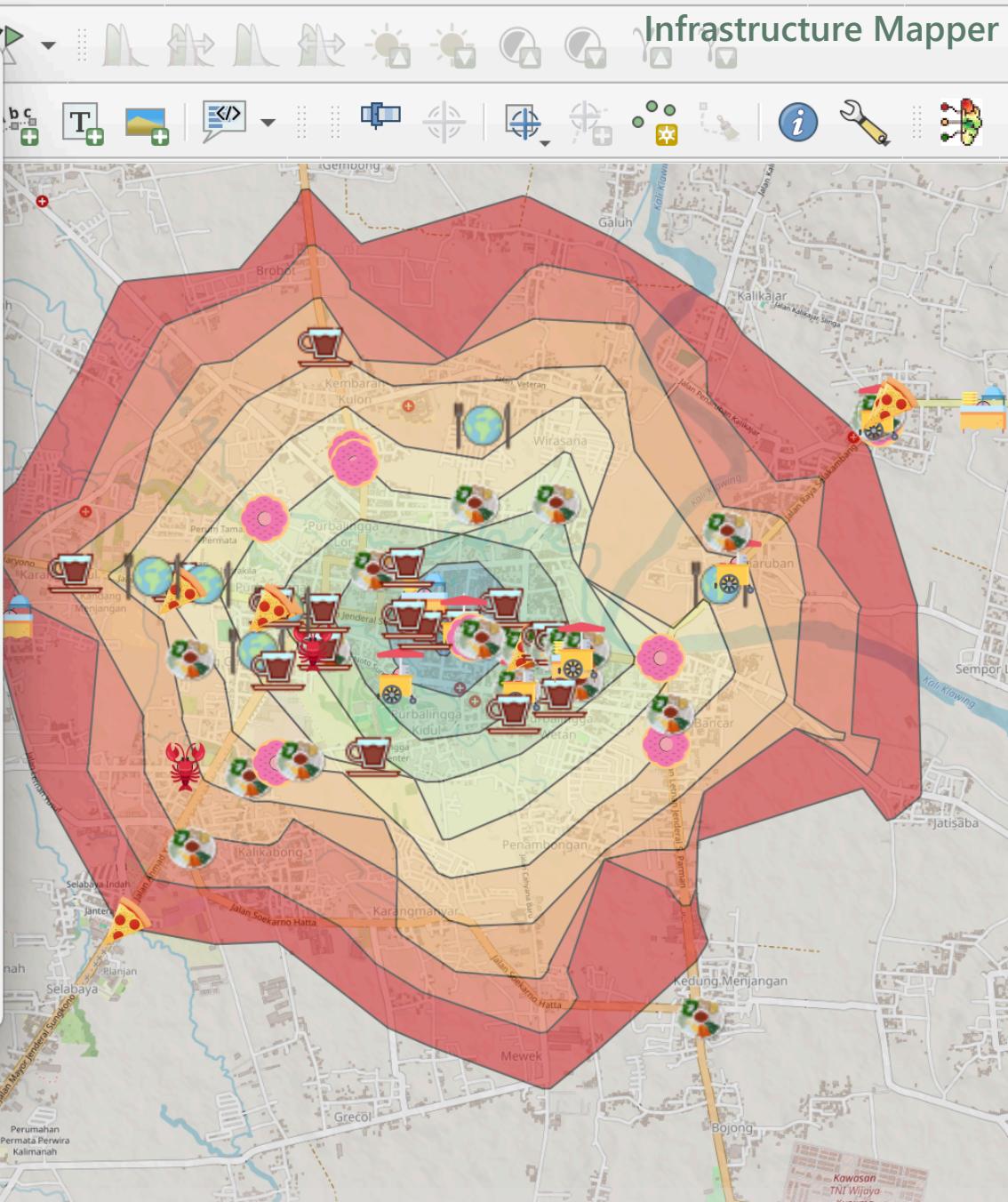
Type to locate (Ctrl+K)

Coordinate 12172018, -825497

Scale 1:40285

Magnifier 100%

Rotation Kartoza 2025



✓ Add feature on culinary\_facility ✎

81

Name

Description

Notes

Culinary Category  
Not NULL

Rating Value

Minimum Price

Maximum Price

Culinary\_Facility.Types

Description

Notes

Culinary Category  
Not NULL

Traditional

Fast Food

✓ Add feature on culinary\_facility\_types

culinary\_facility\_uuid  
12c325e0-0704-4a98-a8de-b5c2de2e735e

facility\_type\_uuid

Parking Area

Wi-Fi

Indoor Seating

Indoor Seating

Restroom

Air Conditioning

Smoking Area

Kids Playground

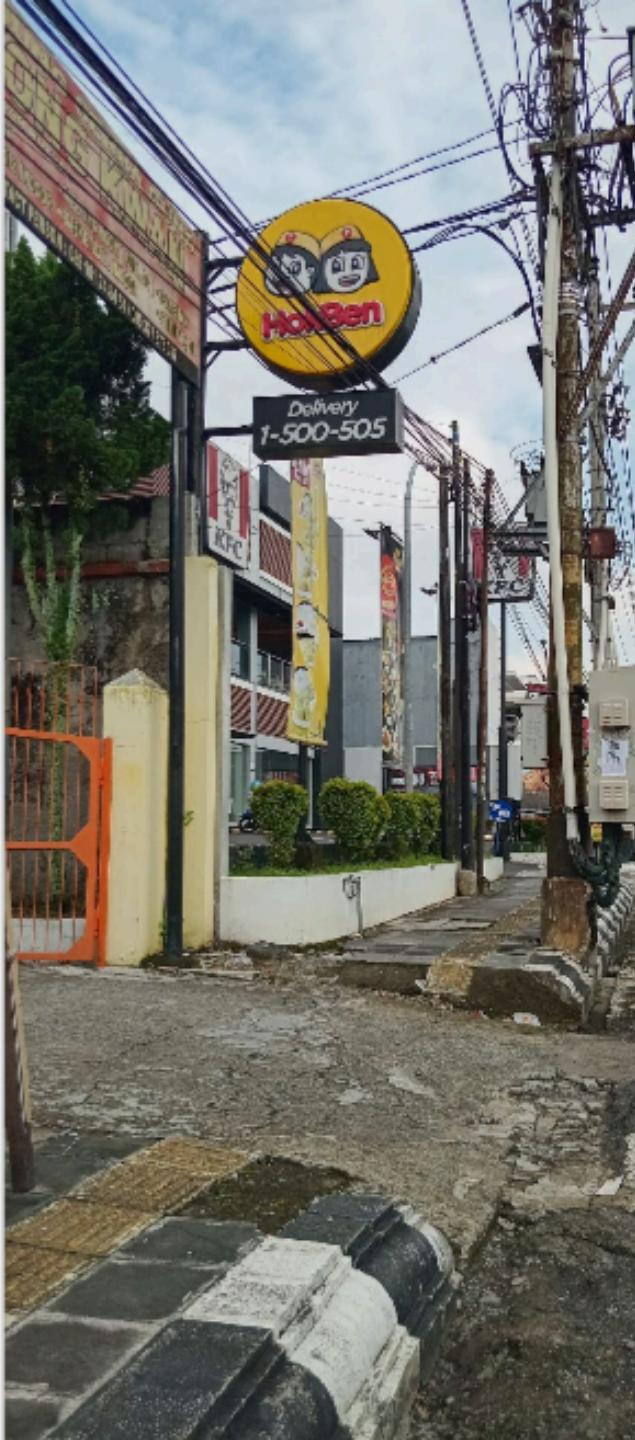
Nursing Room

Event Space

Charging Station

Prayer Room

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# Field Collection

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Collected using QField  
on a Samsung phone  
with GPS.





# Collection Results

- **Features collected:** 80 points
- **Area covered:** 15 km<sup>2</sup>





Traditional



Street Food



Seafood



Fast Food



Desserts/Sweets



Buffet



International Cuisine

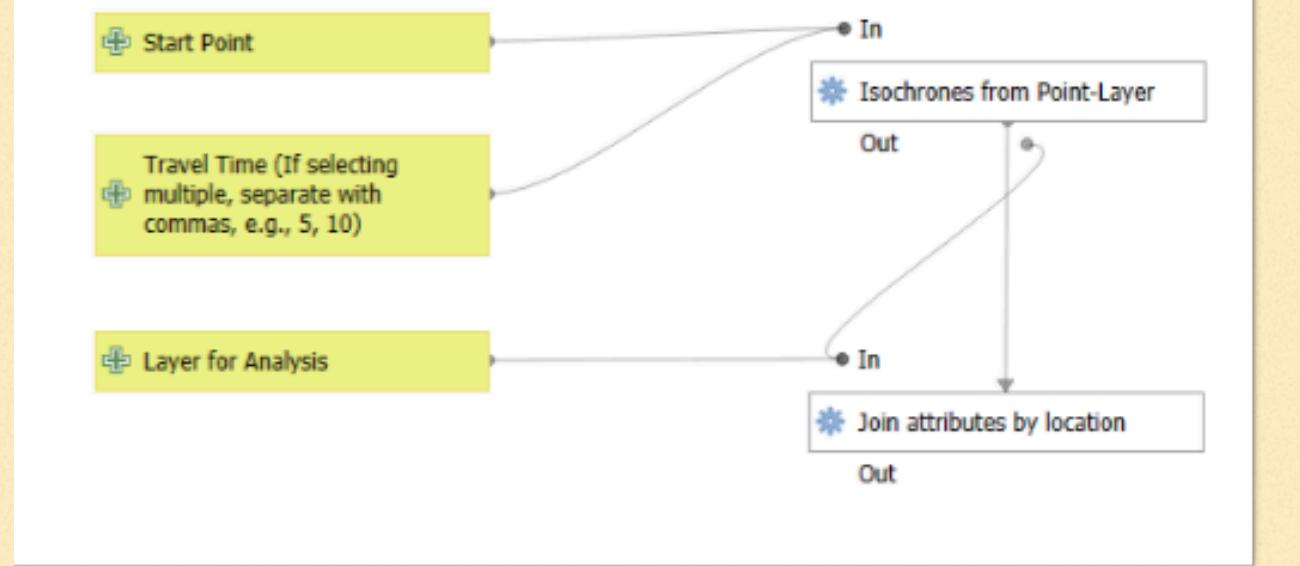


Cafe/Bakery

# ⚙️ Methodology

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### Isochrones

Parameters Log

Layer for Analysis  
Culinary Points [EPSG:4326]

Start Point  
Start Point [EPSG:4326]

Travel Time (If selecting multiple, separate with commas, e.g., 5, 10)

0%

Cancel

Advanced Run as Batch Process... Run Close

This dialog box is titled "Isochrones". It contains tabs for "Parameters" and "Log", with "Parameters" selected. Under "Layer for Analysis", the value "Culinary Points [EPSG:4326]" is listed. Under "Start Point", the value "Start Point [EPSG:4326]" is listed. There is a field for "Travel Time" with the placeholder text "(If selecting multiple, separate with commas, e.g., 5, 10)". At the bottom, there are buttons for "Cancel", "Advanced" (with a dropdown arrow), "Run as Batch Process...", "Run" (which is highlighted in blue), and "Close". A progress bar at the bottom shows 0% completion.

Properties Comments

Description Isochrones from Point-Layer

Show advanced parameters

Provider

123 openrouteservice

Travel mode

123 cycling-regular

Input Point layer

Using model input Start Point

Input layer ID Field (mutually exclusive with Point option) [optional]

123

Dimension

123 time

Comma-separated ranges [min or m]

Using model input Travel Time (If selecting multiple, separate with commas, e.g., 5, 10)

Location Type

123 start

Isochrones\_Layer\_2025-06-27\_12:12:50

123 ogr:dbname='C:/Users/ACER/QField/cloud/KartozaInterns\_\_KartozaInterns2025/InfrastructureMapper.gpkg' table="Isochrones" (geom)



Dependencies

0 dependencies selected



OK

Cancel

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Properties Comments

Description Join attributes by location

Join to features in

 Using model input Layer for Analysis

Features they (geometric predicate)

123 intersect ...

By comparing to

 Using algorithm output "Isochrones\_Layer\_2025-06-27\_12:12:50" from algorithm "Isochrones from Point-Layer"

Fields to add (leave empty to use all fields) [optional]

123 AA\_MINS

Join type

123 Create separate feature for each matching feature (one-to-many)

Discard records which could not be joined

123 Yes

Joined field prefix [optional]

123

Joined layer [optional]

123 ogr:dbname='C:/Users/ACER/QField/cloud/KartozaInterns\_\_KartozaInterns2025/InfrastructureMapper.gpkg' table="Selected Features by Travel Time" (geom)  ...

Unjoinable features from first layer [optional]

 [Enter name if this is a final result]

Dependencies

1 dependency selected ...

OK Cancel Help

 Selected Features by Travel Time — Select by Expression

Expression

Function Editor



```
"min_price" >= 1000 AND  
"min_price" <= 60000 AND  
"rating_value" >= 4.5 AND  
array_contains(string_to_array(  
"facilities", ', ', ), 'Indoor Seating'  
) AND  
array_contains(string_to_array(  
"facilities", ', ', ), 'Wi-Fi')  
AND "category" = 'Cafe/Bakery'
```

= + - / \* ^ || ( ) '\n'

Feature Ayam Gepuk Pak Gembus

Preview: 0

Help

Search... Show Help

**feature****geometry****id**

- ▶ Aggregates
- ▶ Arrays
- ▶ Color
- ▶ Conditionals
- ▶ Conversions
- ▶ Date and Time
- ▶ Fields and Values
- ▶ Files and Paths
- ▶ Fuzzy Matching
- ▶ General
- ▶ Geometry
- ▶ Map Layers
- ▶ Maps
- ▶ Math
- ▶ Operators
- ▶ Rasters
- ▶ Record and Attributes
- ▶ Relations

Select Features

Close

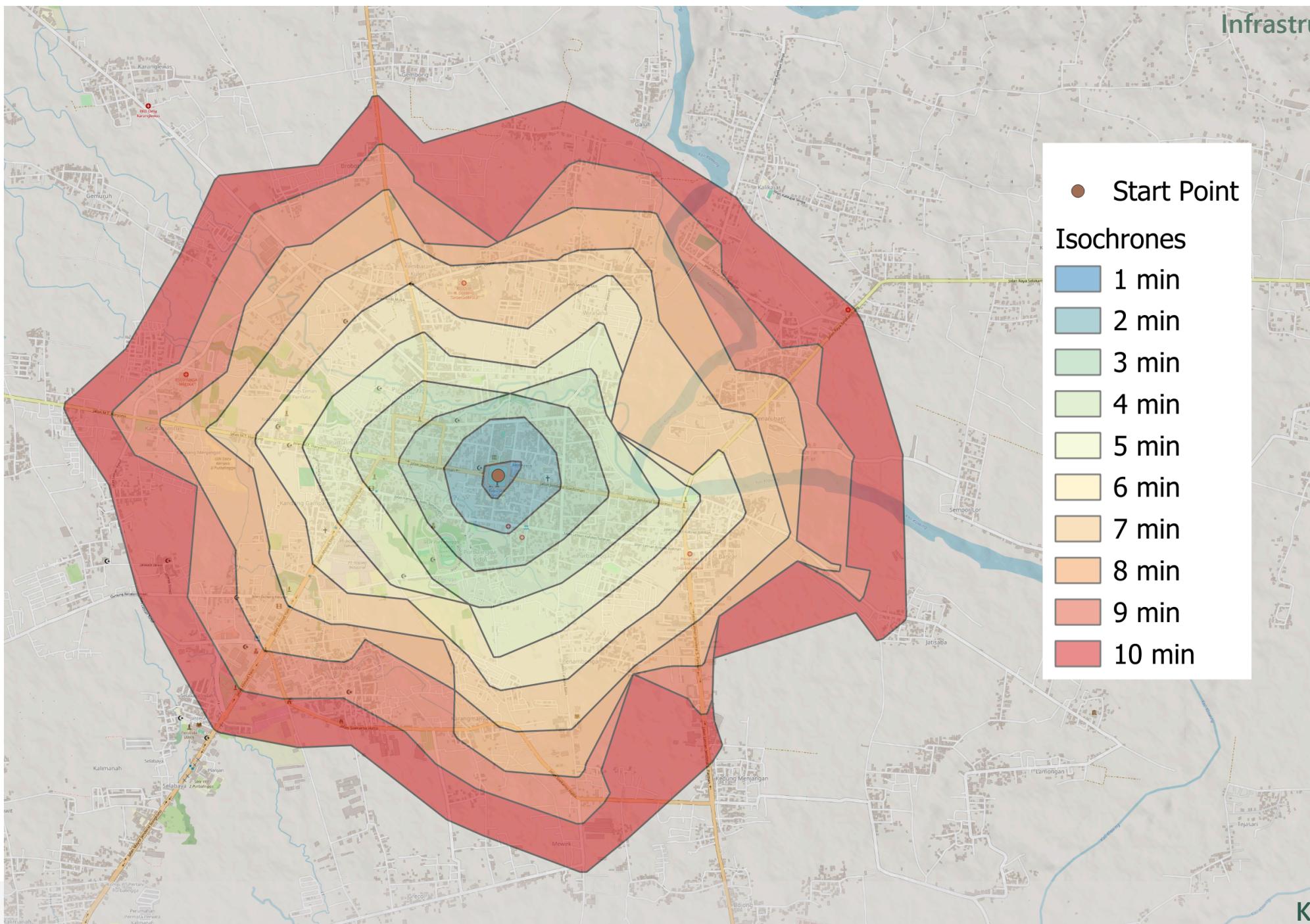


# Results - 1

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Isochrones show culinary spots that can be reached within 1 to 10 minutes from the starting point.





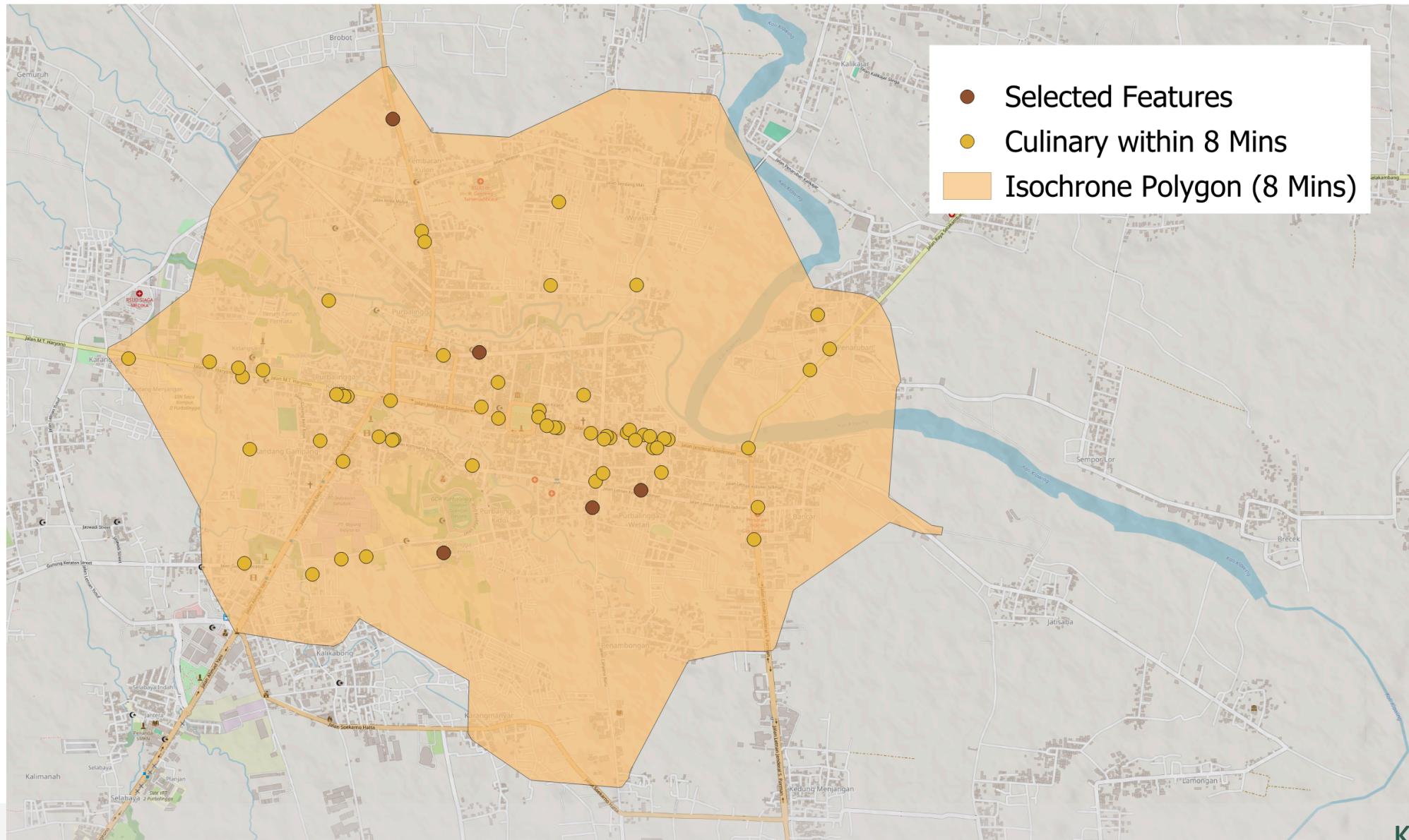


## Results - 2

- **Price Range:** 1.000–60.000
- **Rating:** above 4.5
- **Facilities:** Indoor Seating, Wi-Fi
- **Category:** Cafe/Bakery
- **Travel Time:** 8 mins



Which ones have low price, high rating, Wi-Fi, indoor seating, are Cafes/Bakeries, reachable within 8 mins?





# Results - 3

Selected Features by Travel Time — Features Total: 65, Filtered: 5, Selected: 5



fid	culinary_name	min_price	max_price	rating_value	facilities	category	Travel Time	
1	22	Kopi Mbok Minah	10000	60000	5	Air Conditioning, Smoking Area, Restroom, Indoor Seating, Outdoor Seating, Prayer Room, Parking Area, Wi-Fi	Cafe/Bakery	8
2	26	Kopi Pojok Purbalingga	3000	20000	4.6	Indoor Seating, Parking Area, Wi-Fi	Cafe/Bakery	8
3	29	Black Gold Coffee	5000	30000	5	Air Conditioning, Indoor Seating, Parking Area, Wi-Fi	Cafe/Bakery	8
4	42	Kopi Bathok Purbalingga	1000	30000	4.6	Smoking Area, Restroom, Indoor Seating, Outdoor Seating, Prayer Room, Parking Area, Wi-Fi	Cafe/Bakery	8
5	52	Piknik Coffee Eatery	11000	30000	4.6	Air Conditioning, Restroom, Indoor Seating, Outdoor Seating, Prayer Room, Parking Area, Wi-Fi	Cafe/Bakery	8



# Insights

- Top categories with high ratings
  - Desserts/Sweets
  - International Cuisine
  - Buffet
- Most common facility: Parking Area (69)
- Most common category: Traditional (27)



## Further Research

If I had more time, I would:

- Develop a specific travel mode for motorcycles
- Improve the QGIS processing model
- Increase the study area and collect more data



# My Internship Experience

## Highlights

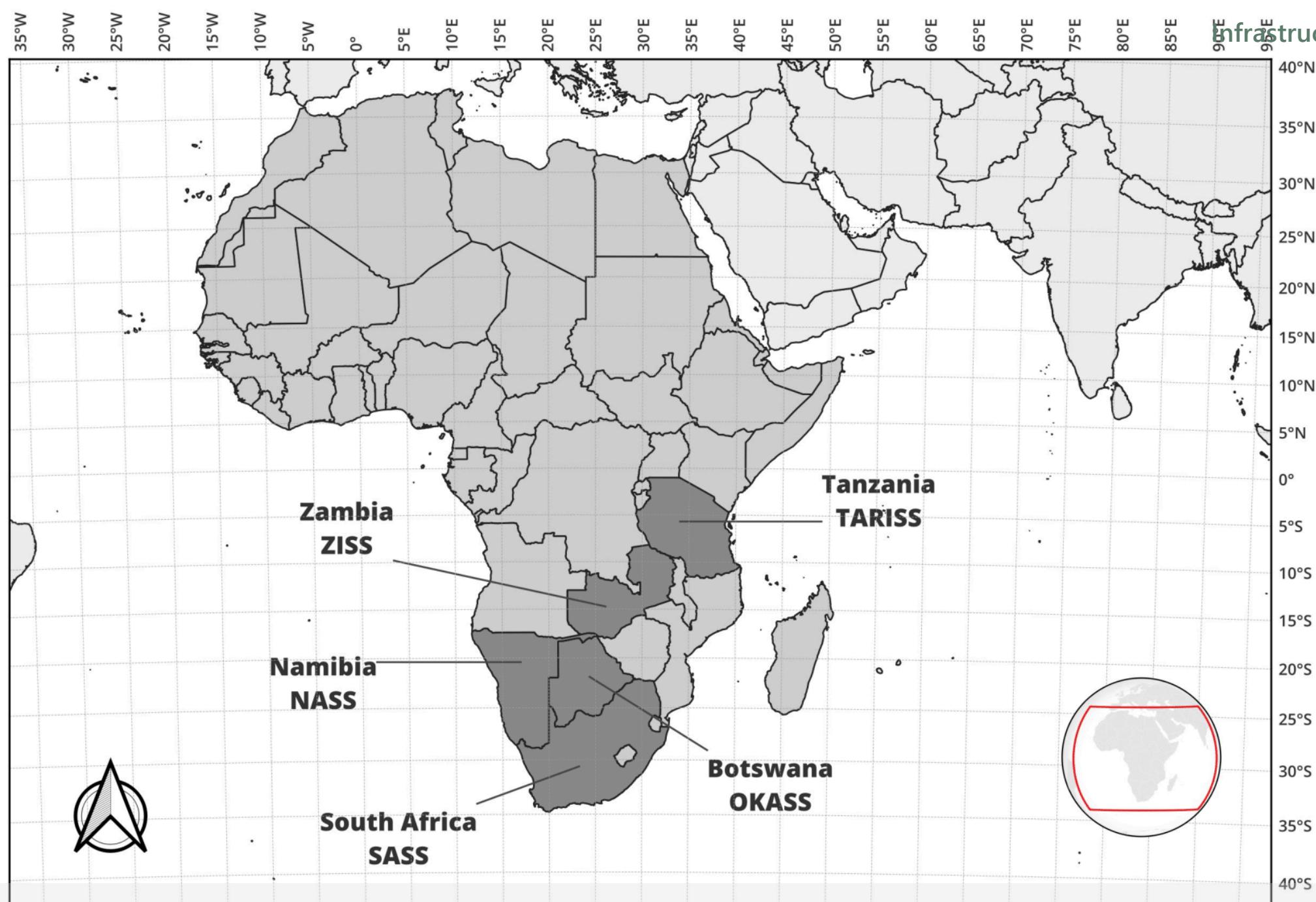
- Learned QGIS and GIS tools
- Impactful projects
- Problem-solving, adaptability, and critical thinking
- Time management



## Bonus Creations: What Else I Made

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## Contact Me

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