



# Infrastructure Mapper - Culinary Spots

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## About Me

- Intern at **Kartoza**
- Bachelor of Engineering, majored in Geodetic Engineering
- Exploring GIS (open-source GIS)

# ⚙️ Tools Used

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QGIS

QFieldCloud

PostgreSQL/PostGIS

pgAdmin

VS Code

Marp

Git and GitHub



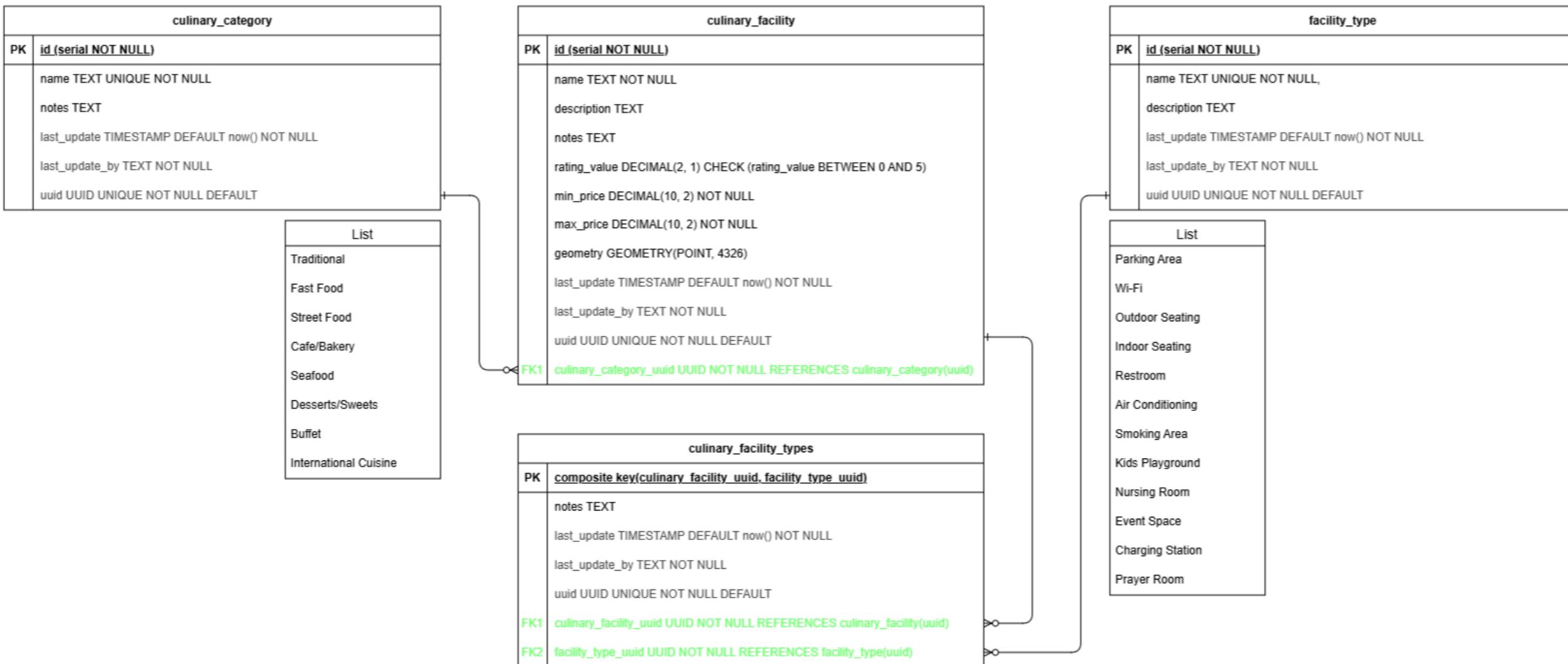


# The Model

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# Culinary Facilities





# 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

✓ 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

Kartoza ❤️ 2025



# Field Collection

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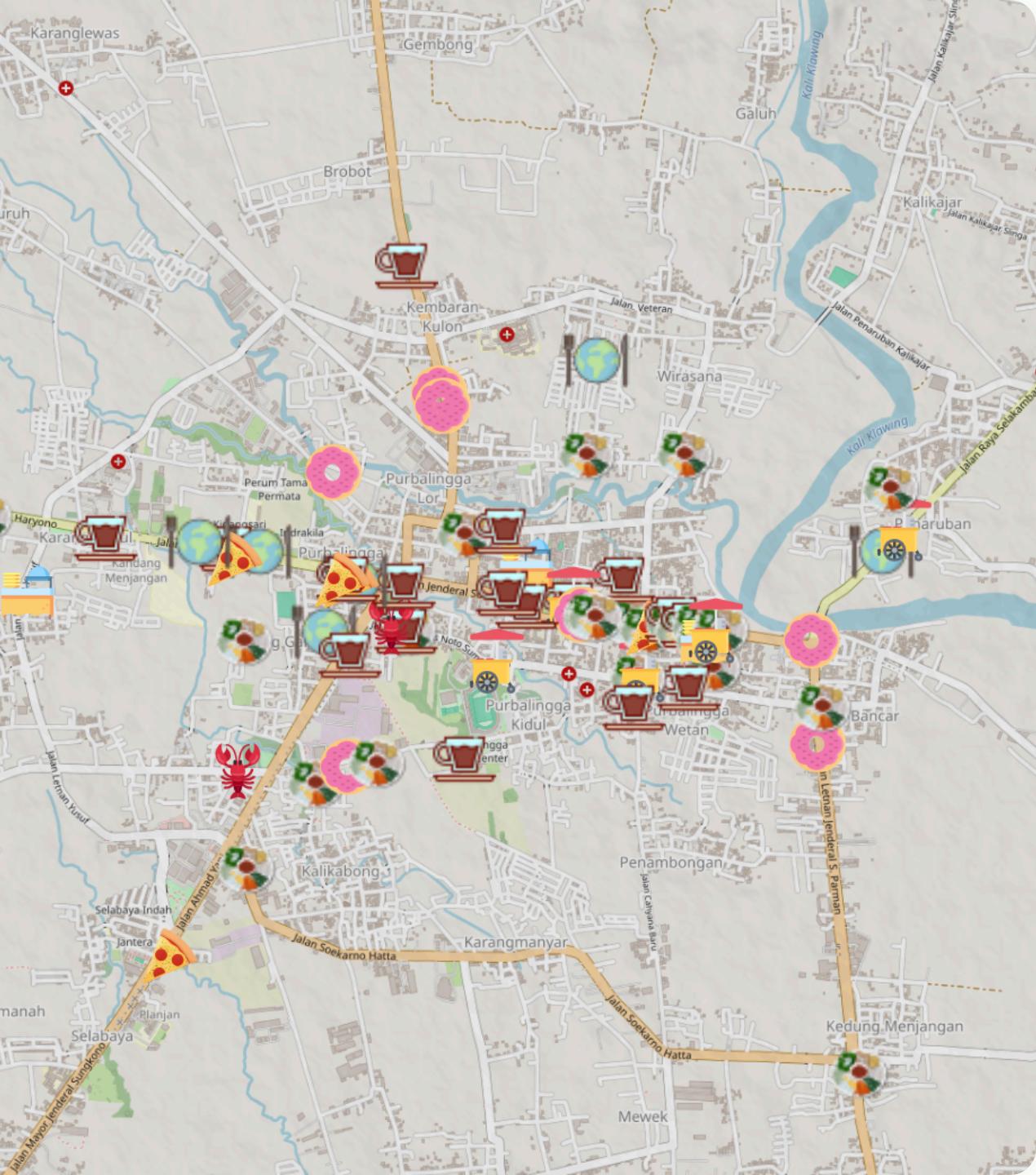
Data collected in the field using mobile GIS apps and GPS-enabled devices.





# Collection Results

- Total features collected:
  - Points: 80
- Area covered: 15 km<sup>2</sup>



# ? Analysis Problem

- How can we determine culinary facilities that are reachable within a specific travel time from a starting point?
- Which culinary facilities that can be reached within 8 minutes and offer the best combination of **low price, high ratings, specific facilities** like Wi-Fi and indoor seating, and specific **category** like Cafe/Bakery?



# ⚙️ Methodology

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**Isochrones - Isochrones from Point-Layer**

**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

**Vector general - Join attributes by location**

**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]

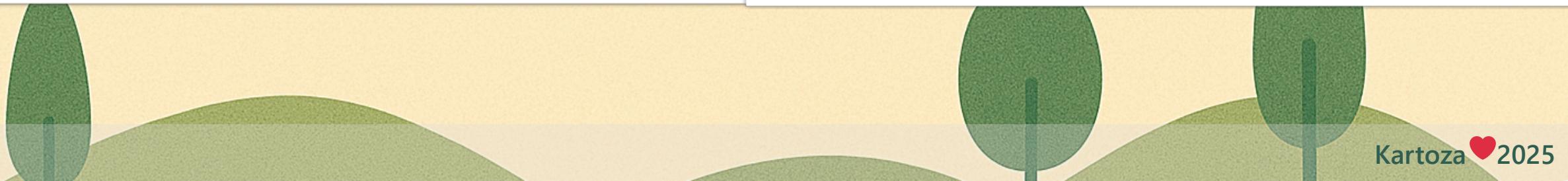
123 ogr:dbname='C:/Users/ACER/QField/cloud/KartozaInterns\_\_KartozaInterns2025/InfrastructureMapper.gpkg' table='Selected Features by Travel Time' (geom)

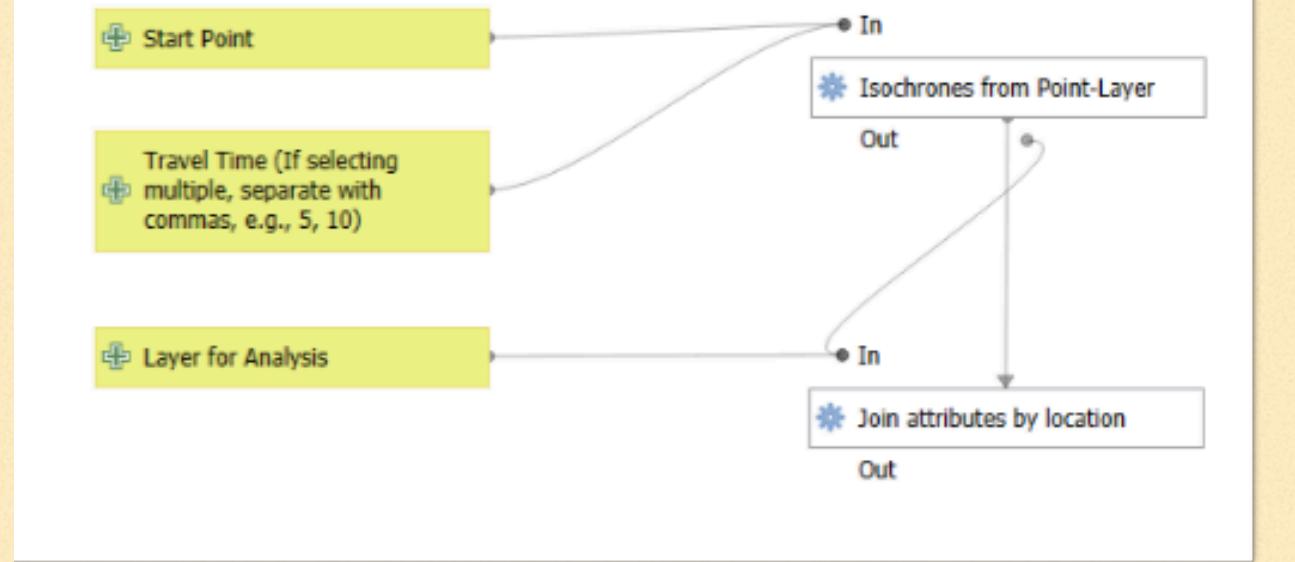
Unjoinable features from first layer [optional]

[Enter name if this is a final result]

Dependencies

1 dependency selected





### Isochrones

Parameters Log

Layer for Analysis  
Culinary Points [EPSG:4326]

Start Point  
Start Point [EPSG:4326]

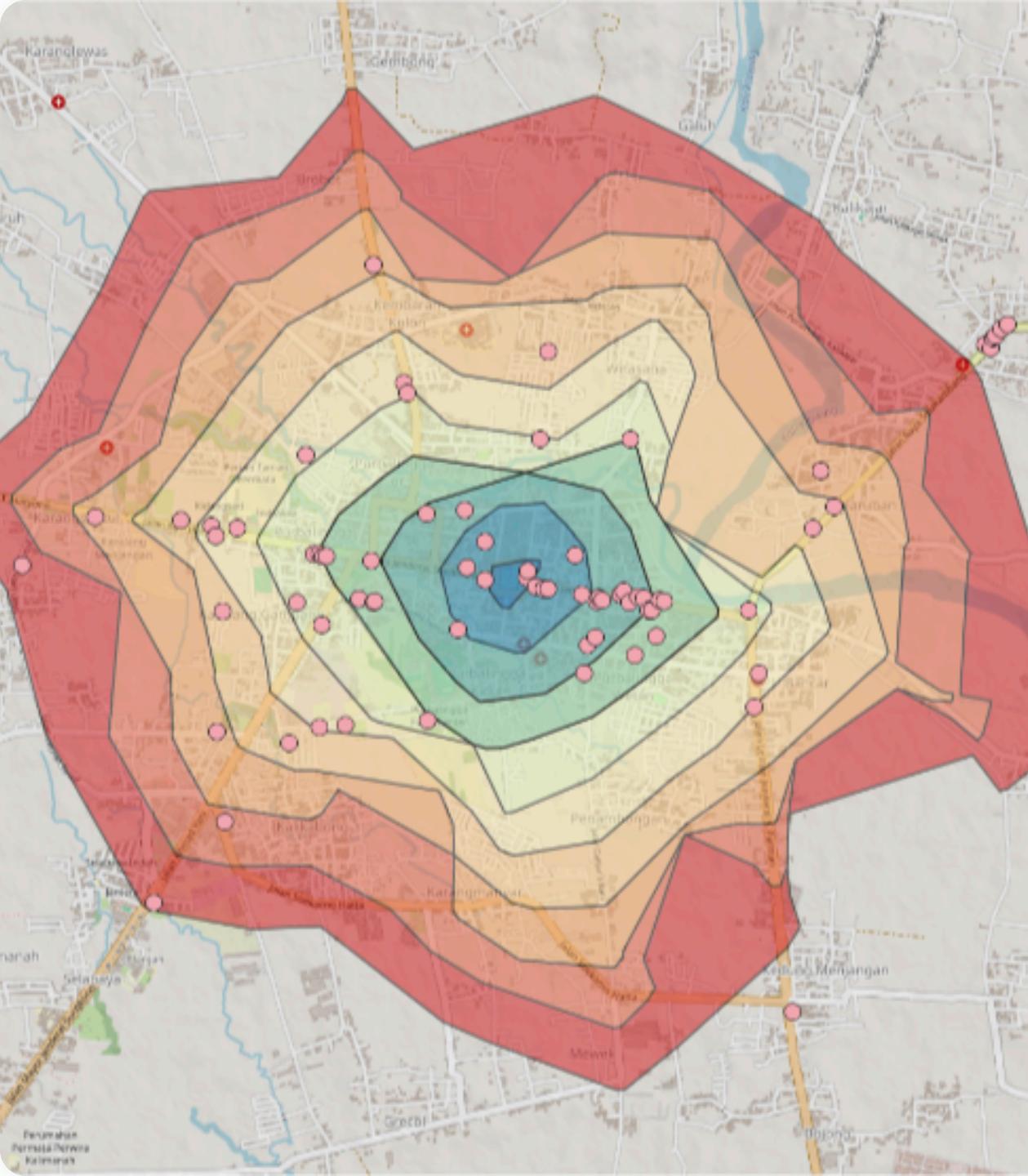
Travel Time (If selecting multiple, separate with commas, e.g., 5, 10)

0%

Cancel

Advanced Run as Batch Process... Run Close

This screenshot shows the 'Isochrones' dialog box. It has tabs for 'Parameters' and 'Log', with 'Parameters' selected. Under 'Layer for Analysis', 'Culinary Points [EPSG:4326]' is listed. Under 'Start Point', 'Start Point [EPSG:4326]' is listed. There is a field for 'Travel Time' with a placeholder 'If selecting multiple, separate with commas, e.g., 5, 10'. At the bottom, there are buttons for 'Advanced', 'Run as Batch Process...', 'Run' (which is highlighted in blue), and 'Close'.



## Results - 1

Isochrones showing location of culinary spots relative to travel time from the center.

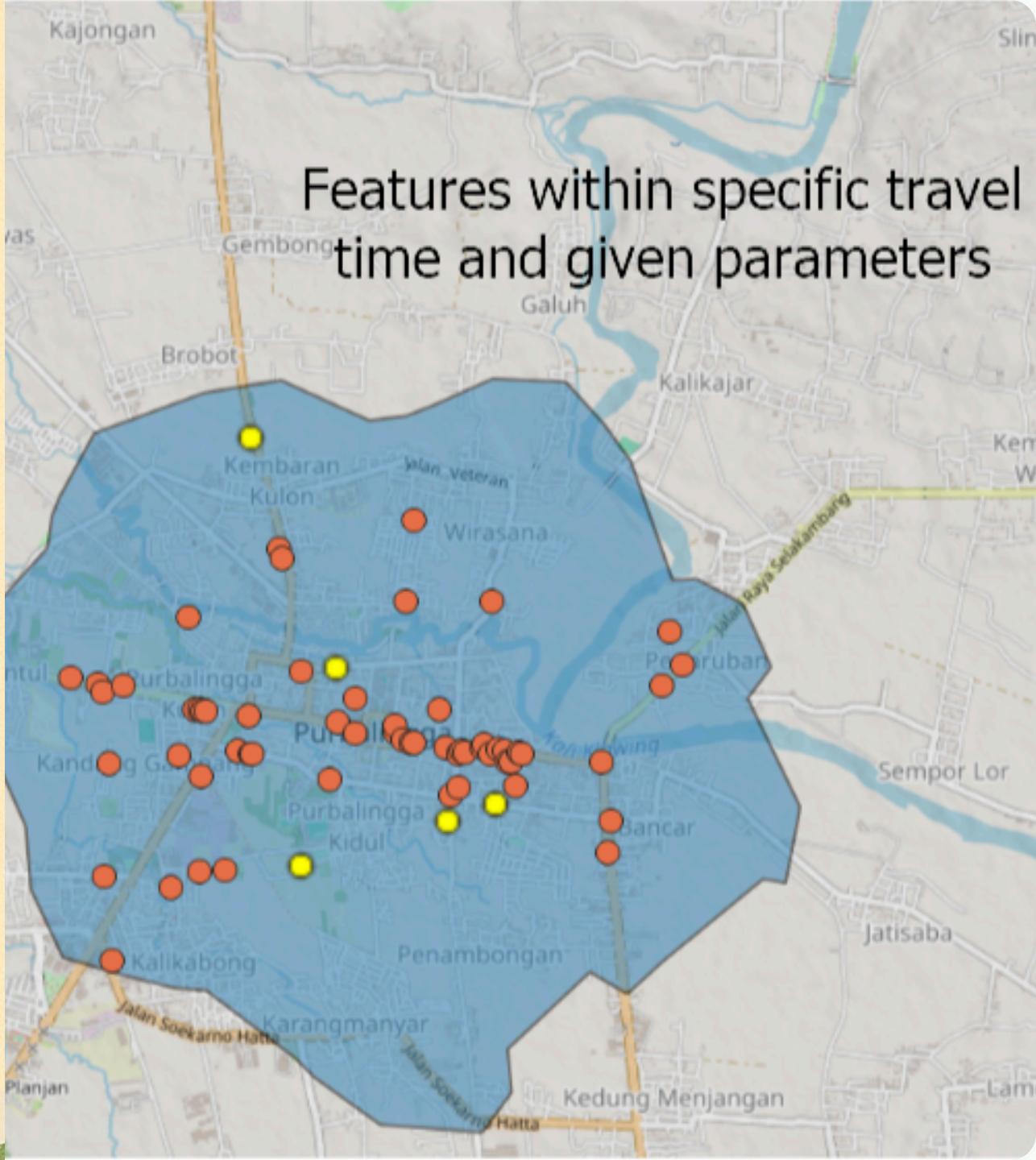




# Results - 2

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

Features within specific travel time and given parameters





# 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

<b>fid</b>	<b>category name</b>	<b>average rating</b>
1	Desserts/Sweets	4.61 / 5
2	International Cuisine	4.58 / 5
3	Buffet	4.55 / 5

- 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 model
- Increase the study area and collect more data



# My Internship Experience

## Highlights

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





## Contact Me

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