



Infrastructure Mapper - Culinary Facilities

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About Me

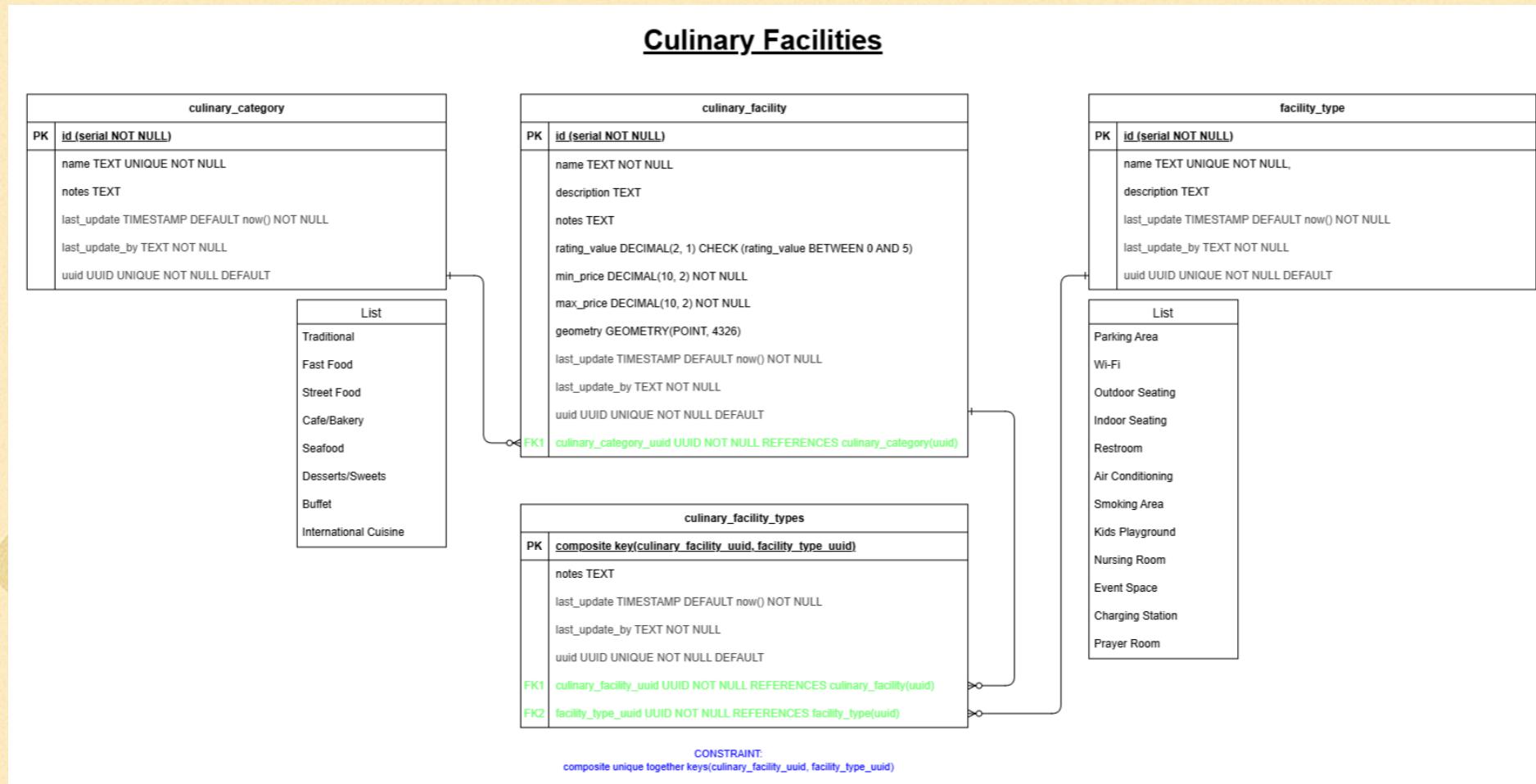
- Intern at **Kartoza**
- Bachelor of Engineering, majored in Geodetic Engineering
- Currently exploring GIS with a growing interest in open-source GIS. Passionate about GIS and map styling.

⚙️ Tools Used

- QGIS
- QFieldCloud
- PostgreSQL and PostGIS
- pgAdmin
- VS Code
- Marp
- Git and GitHub

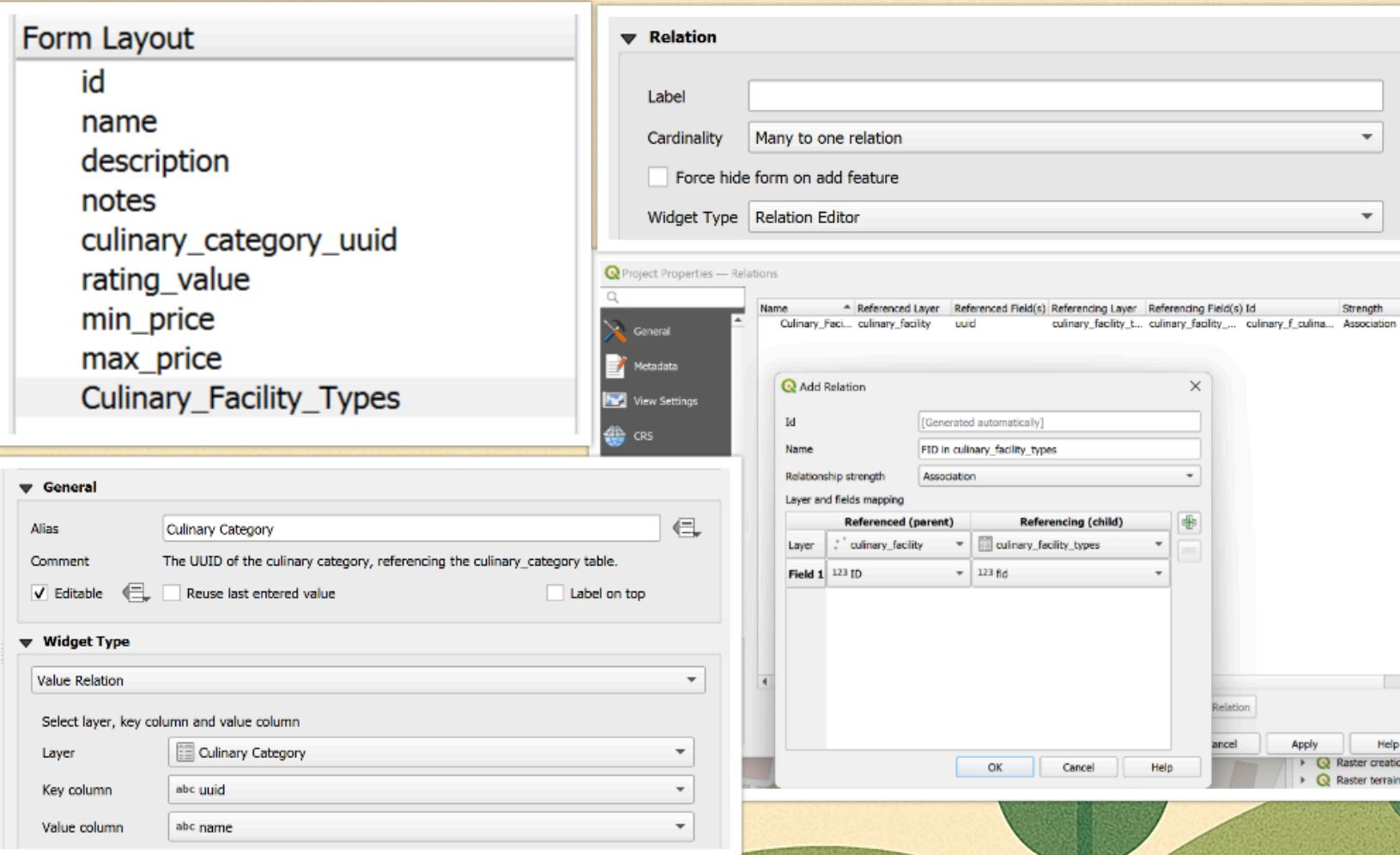


The Model





The Forms



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)	Strength
Culinary_Faci...	culinary_facility	uuid	culinary_facility_t...	culinary_facility_...	culinary_f_culina...

Add Relation

Id: [Generated automatically]
Name: FID in culinary_facility_types
Relationship strength: Association

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

✓ Add feature on culinary_facility

81

Name

Description

Notes

Culinary Category

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.uid
12c325e0-0704-4a98-a8de-b5c2de2e785e

facility_type.uid

Parking Area

Wi-Fi

Outdoor Seating

Indoor Seating

Restroom

Air Conditioning

Smoking Area

Kids Playground

Nursing Room

Event Space

Charging Station

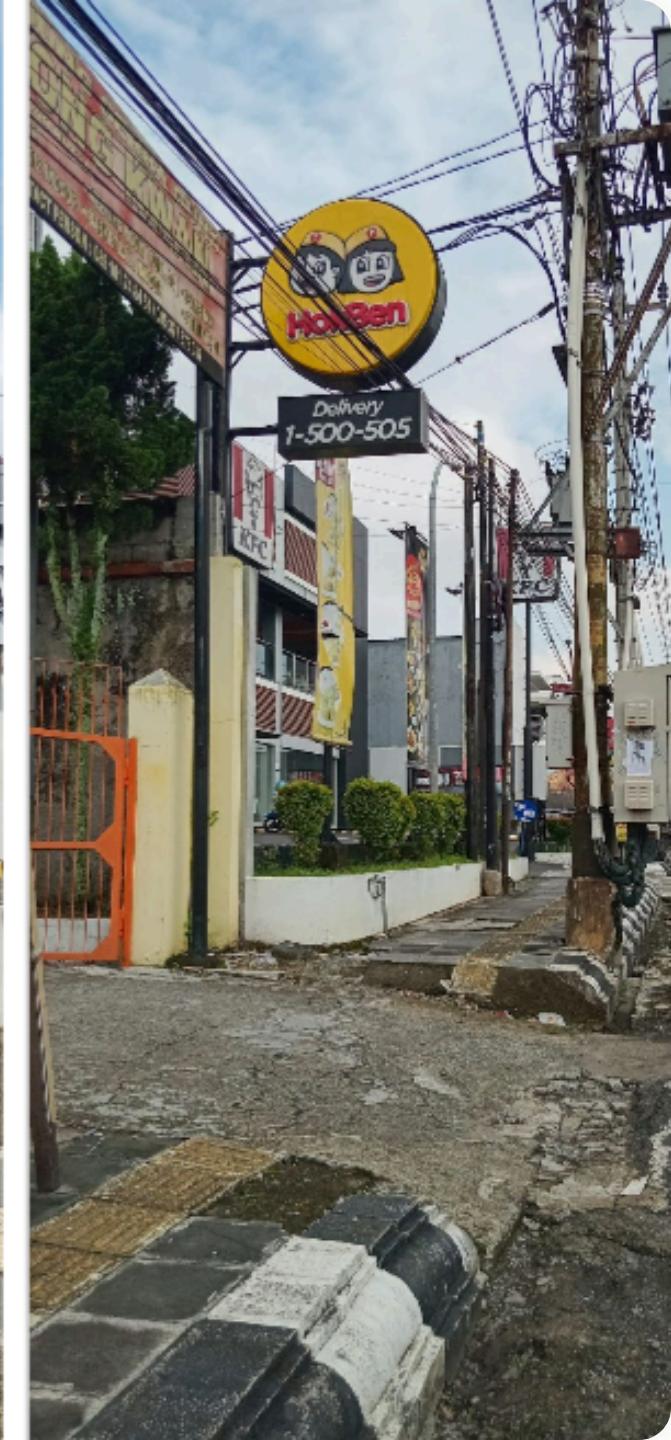
Prayer Room

The screenshot displays a user interface for managing culinary facilities. On the left, there's a form with fields for Name, Description, Notes, Culinary Category, Rating Value, Minimum Price, Maximum Price, and Culinary_Facility_Types. On the right, there are two dropdown menus: one for Culinary Category (with options Traditional and Fast Food) and another for Culinary_Facility_Types (with a long list including Parking Area, Wi-Fi, Outdoor Seating, Indoor Seating, Restroom, Air Conditioning, Smoking Area, Kids Playground, Nursing Room, Event Space, Charging Station, and Prayer Room). Two red arrows point from the 'Culinary Category' and 'Culinary_Facility_Types' sections in the left panel to their respective dropdown menus in the right panel.



Field Collection

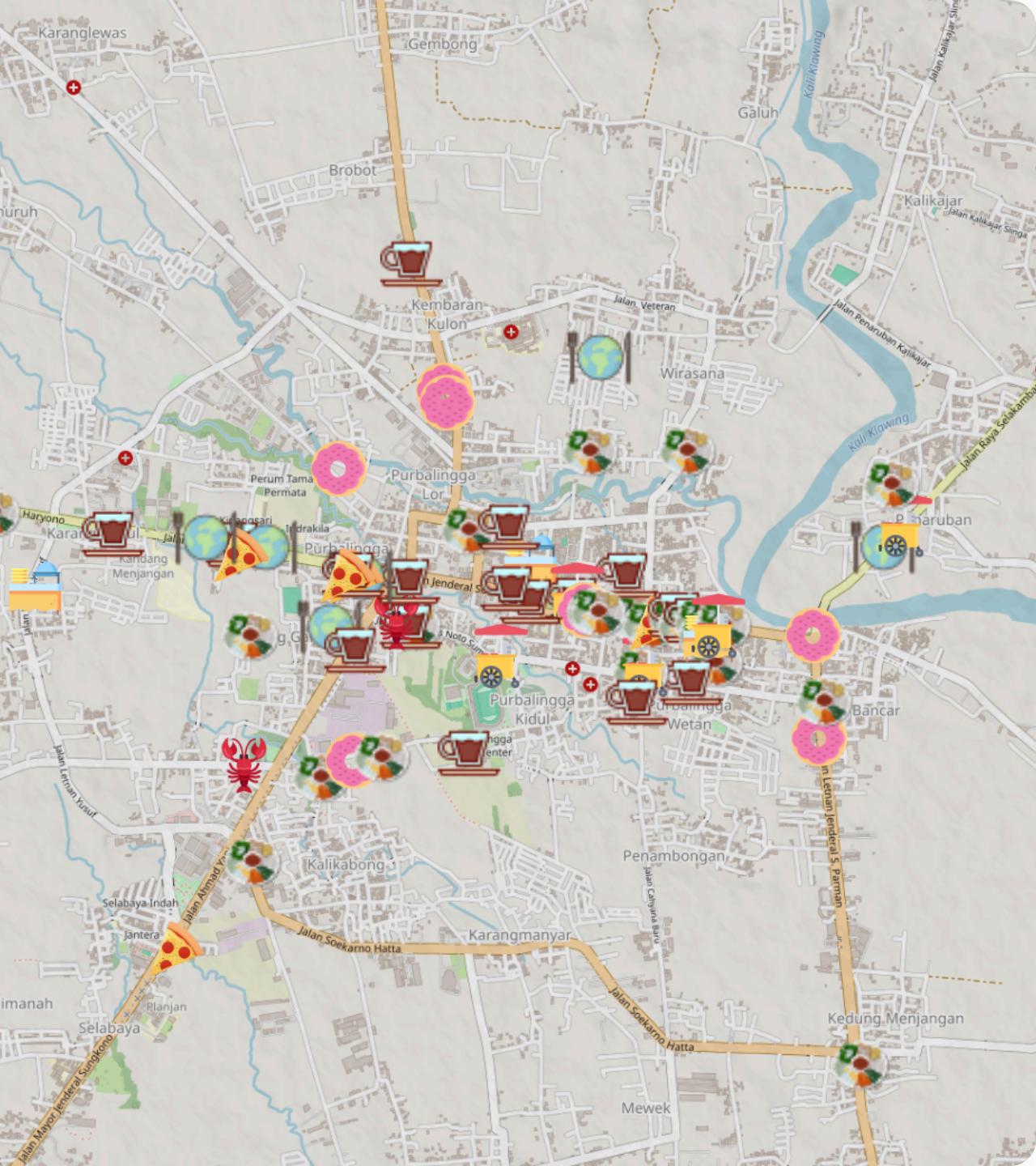
Data collected in the field using mobile GIS apps and GPS-enabled devices.





Collection Results

- **Total features collected:**
 - Points: 80
- **Area covered:** 15 km²



? 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

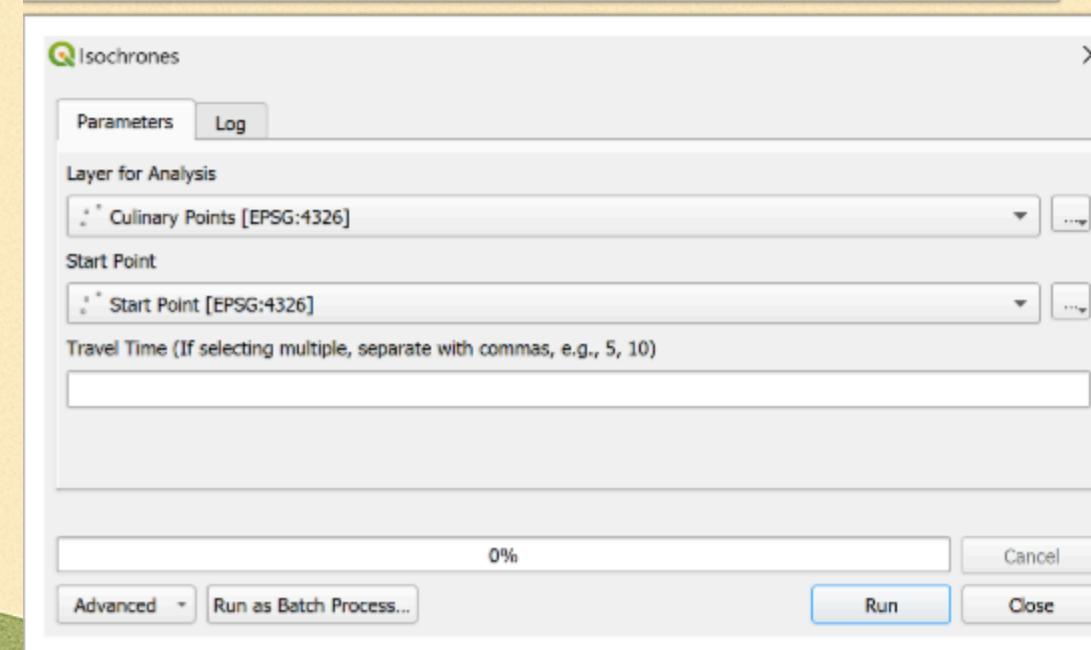
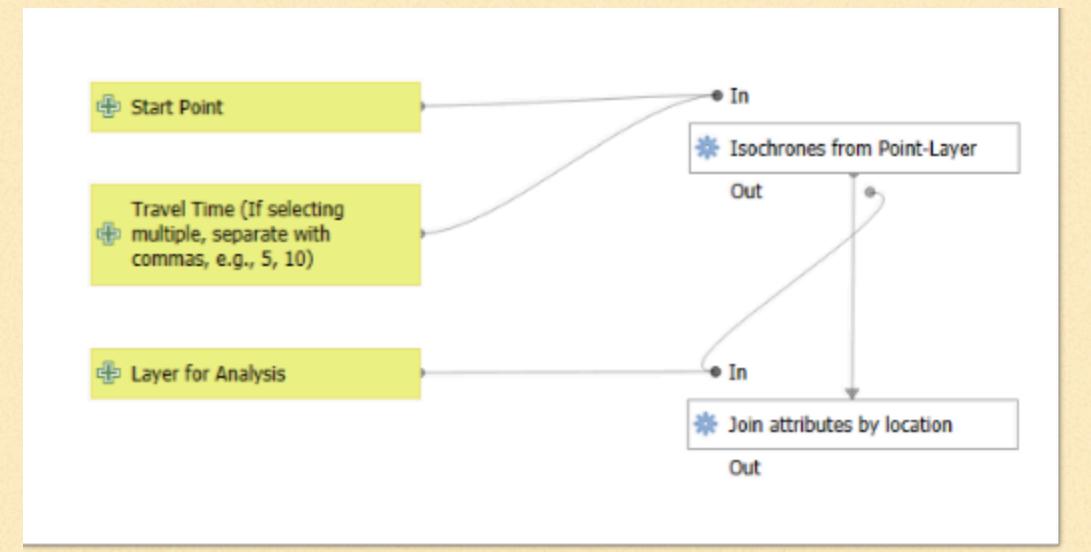
The image shows two QGIS dialog boxes side-by-side:

Isochrones - Isochrones from Point-Layer

- Description: Isochrones from Point-Layer
- Show advanced parameters
- Provider: openrouteservice
- Travel mode: 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: start
- Isochrones_Layer_2025-06-27_12:12:50
- ogr:dbname='C:/Users/ACER/QField/cloud/KartozaInterns_KartozaInterns2025/InfrastructureMapper.gpkg' table="Isochrones" (geom)
- Dependencies: 0 dependencies selected

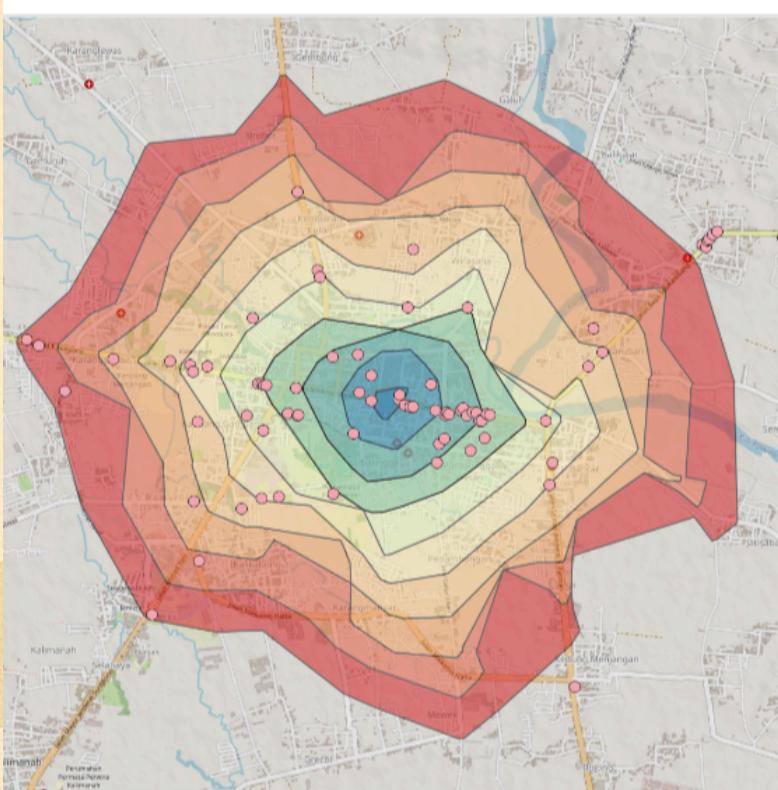
Vector general - Join attributes by location

- 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]: 123 [Enter name if this is a final result]
- Dependencies: 1 dependency selected

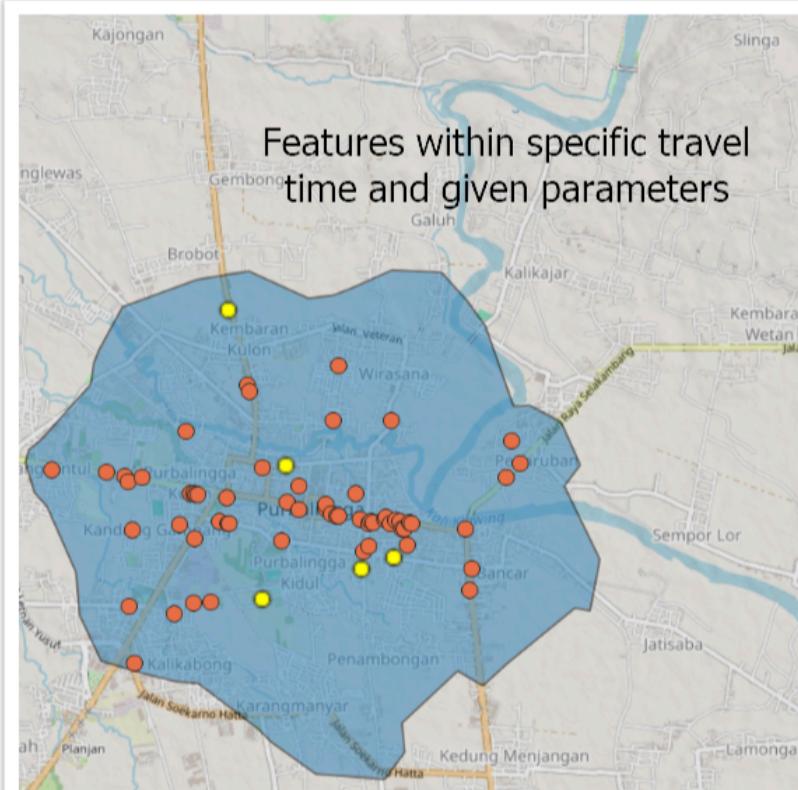




Results



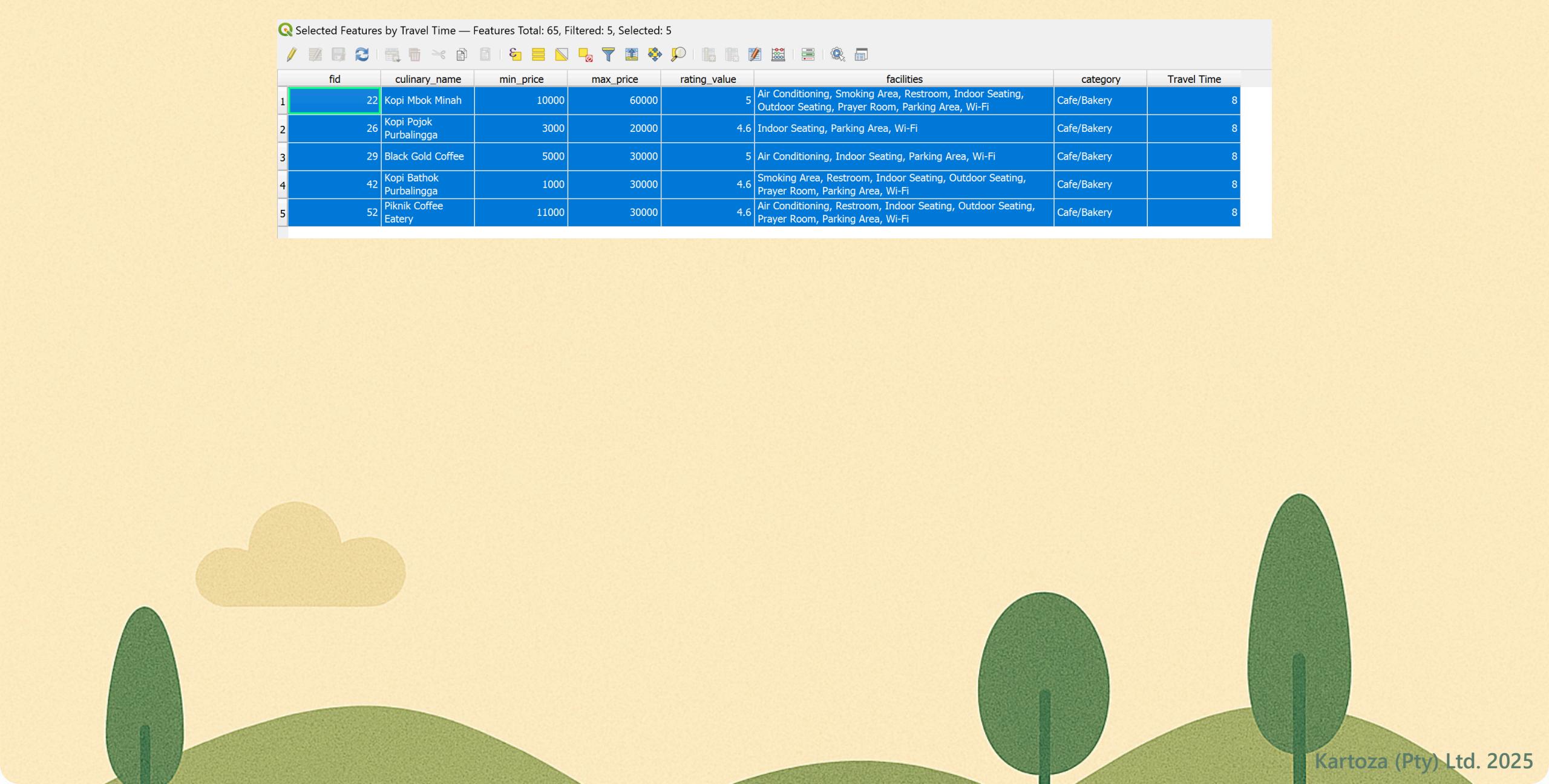
Isochrones Result



Features within specific travel time and given parameters

Price Range: 1.000-50.000
Rating: above 4.5
Facilities: Indoor Seating, Wi-Fi
Category: Cafe/Bakery
Travel Time: 8 minutes

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

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

- 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 to better represent real conditions, possibly using custom routing technology.
- Improve the model so users can select facilities and categories using dropdowns connected to the lookup table, ensuring updates are reflected automatically.
- Increase the study area and collect more data to improve the analysis.



My Internship Experience

Highlights

- Mastered QGIS and explored various GIS tools and workflows
- Contributed to impactful projects
- Improved problem-solving, adaptability, and critical thinking
- Enhanced time management while balancing multiple tasks and responsibilities
- Improved English communication skills through professional and collaborative engagements



Contact Me

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Prompt: Create a GIS related image for the Analysis Problem slide

