



POLYTECHNIQUE  
MONTRÉAL

LE GÉNIE  
EN PREMIÈRE CLASSE

# Guide TP5

INF8808 | Summer 2022

Version Python

# Objectives

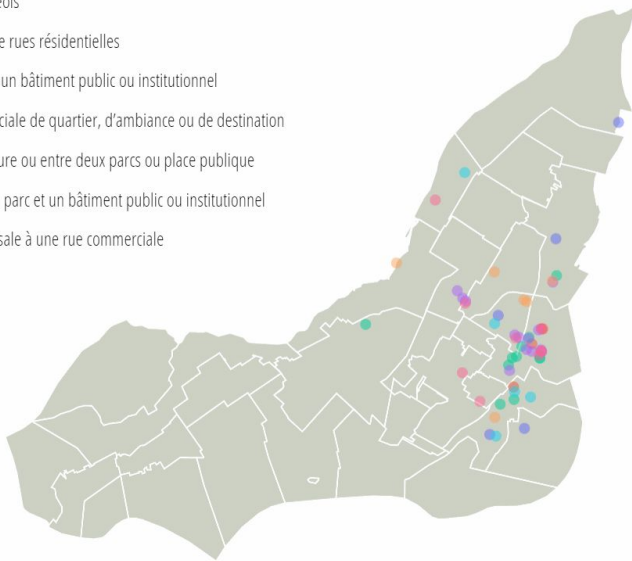
- The goal of this lab is to create an interactive scatter map using open data in JSON and GeoJSON format

## Explorez les rues piétonnes de Montréal

Cliquez sur un marqueur pour plus d'information.

### Légende

- Noyau villageois
- Passage entre rues résidentielles
- Rue bordant un bâtiment public ou institutionnel
- Rue commerciale de quartier, d'ambiance ou de destination
- Rue en bordure ou entre deux parcs ou place publique
- Rue entre un parc et un bâtiment public ou institutionnel
- Rue transversale à une rue commerciale



# Data

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*You are going to use 2 datasets*

- The first dataset, representing data on pedestrian paths
  - The dataset contains many properties. The following properties may be useful for this lab :
- **MODE\_IMPLANTATION** : How long the pedestrian street will be implanted (e.g. permanent, temporary, etc.)
- **NOM\_PROJET**: Name of the project which led to the pedestrian street
- **OBJECTIF\_THEMATIQUE** : The intention behind the pedestrian street project (reading, taking photos, etc.)
- **TYPE\_SITE\_INTERVENTION** : The type of site where the pedestrian street project is located

# Data

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*You are going to use 2 datasets*

- The second dataset, representing data on contains all the geometries necessary to display the boroughs on a map.
  - The dataset contains many properties. The following properties may be useful for this lab:
    - **NOM** : Name of the borough
    - **CODEID** : Unique identifier of the borough

# Data preprocessing

*Preprocess the data we provide you about the pedestrian streets and about Montreal's geography*

- The data contained in the GeoJSON and JSON files is raw, so it is necessary to process certain parts of it so they can be properly used by the Plotly library. You will have to complete these steps:
  - Convert the data to a pandas dataframe - function **'to\_df'**
  - Simplify the names which will later be displayed in the legend - function **'update\_titles'**
  - Sort the data for the display - function **'sort\_df'**
  - Complete a utility function to get the neighborhood names - function **'get\_neighborhoods'**

```
type properties.ID_PROJET properties.TYPE_AXE ... properties.Y geometry.type geometry.coordinates
Feature RP0053 Rue ... 5.035836e+06 Point [-73.567061, 45.462431]
Feature RP0024 Rue ... 5.035440e+06 Point [-73.595713, 45.458851]
Feature RP0006 Rues ... 5.048047e+06 Point [-73.54094, 45.572326]
```

# Scatter map

## *Implement the main part of the data visualization*

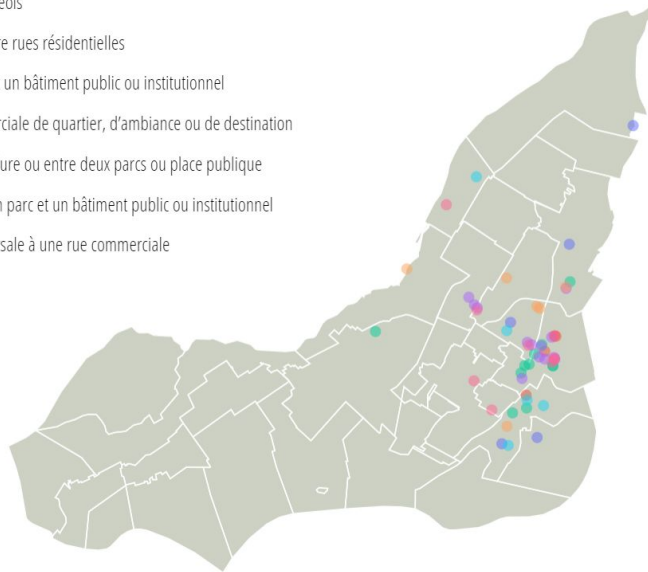
- You will draw the map base, including the polygons that represent Montreal's neighborhoods:
  - You may use Plotly's choropleth tracing features,
  - We provide you with a **z\_vals** parameter in the **add\_choro\_trace**, which is a table containing always the same value for z.
  - We also provided you with the color scale to use, containing only one color
- Once the map base is drawn, you will have to add traces representing each type of pedestrian street to the map figure:
  - Add the trace for the modified one color choropleth map showing the neighborhoods - function **'add\_choro\_trace'**
  - Add the markers to the map - function **'add\_scatter\_traces'**

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#### Légende

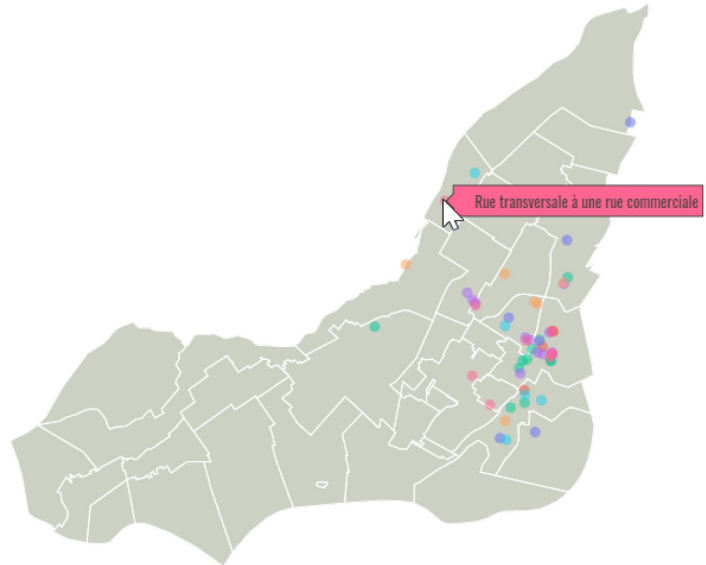
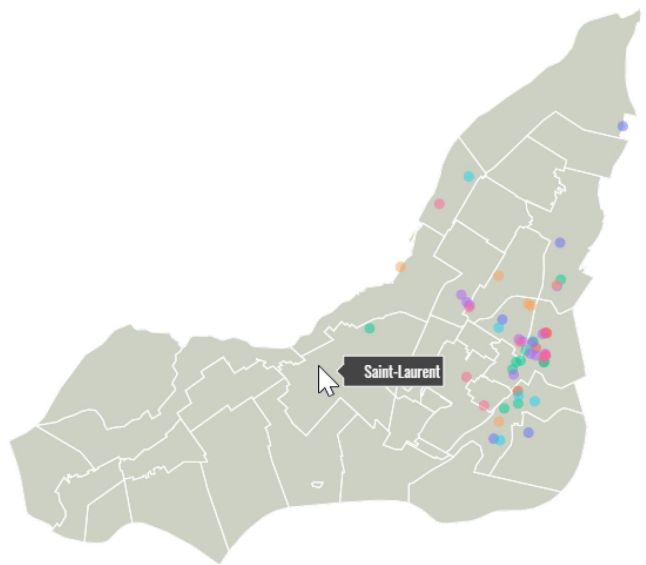
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# Tooltips

## *Implement the Tooltips*

- When a neighborhood is displayed, simply its name should be displayed in the tooltip
  - fonction **'map\_base\_hover\_template'**
- When a marker is displayed, simply its type of site should be displayed in the tooltip
  - Fonction **'map\_marker\_hover\_template'**



# Information panel

*Generate an informational panel which appears to the left of the map when a marker is clicked*

- You will have to complete the functions in the file ***callback.py***.
- Title : The panel should contain as title the name of the project, written in the same color as its associated marker
- Subtitle : indicates the intended duration of the site (permanent, temporary, etc.).
- When available, the panel should also list the intended themes for the site, presented in the format of an unordered list.
- The steps to follow for this part are:
  - Handle the default behavior for the map before any click events have been registered - fonction '**no\_clicks**'. *The panel should not be displayed until a marker is clicked*
  - Handle the behavior for the map when the map base is clicked instead of a marker. If the panel is displayed, its information should stay the same. If the panel is not displayed, it should stay hidden from view - fonction '**map\_marker\_clicked**'
  - Handle the behavior when a marker is clicked, so the panel is displayed with the appropriate information - fonction '**map\_marker\_clicked**'



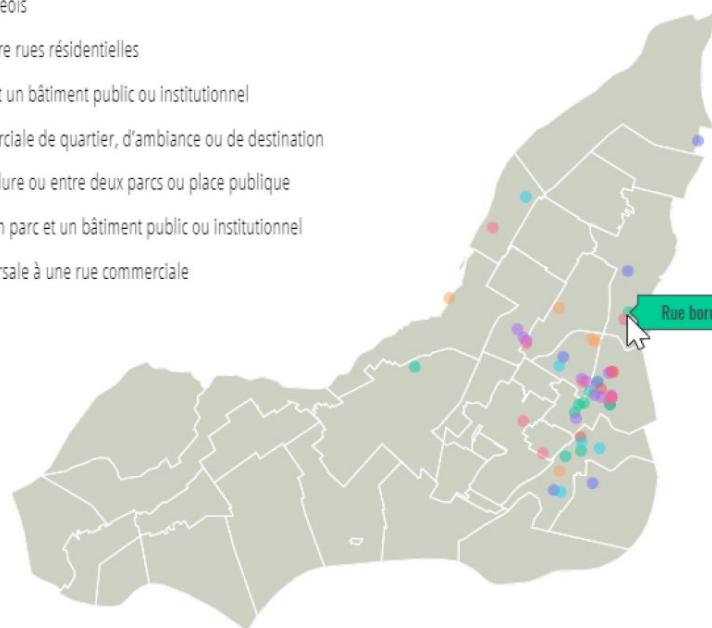
# Information panel

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### Patio Culturel

Temporaire saisonnière

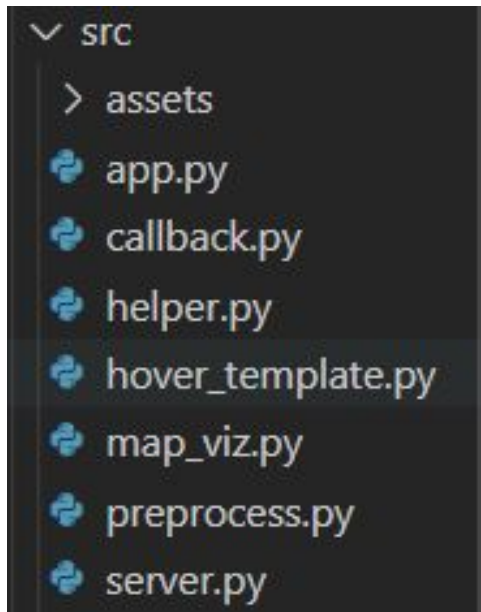
Thématique :

- Photo
- Jeu/exercice
- Insolite
- Lecture

Rue bordant un bâtiment public ou institutionnel

# General Info

## *File Structure*



- Create *venv* and install *requirements.txt*
- You don't need to modify ***app.py*** et ***server.py***
- You must fill all the **TODO** parts on the other files .py

Reminder

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**Due Date: June 12th 23h59**