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layout: default title: Mapping our data

nav\_order: 4

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*Before starting this section, make sure you've completed all tasks in the [Preparation](#) page and completed [lesson 1: Intro to GIS](#).*

# Introduction

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In this lesson, you will build on the skills gained during [lesson 1], to create a map that shows the outcome of our outdoor spaces assesment.

## Task 0: Download our data set

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- Download our `outdoor-space-data.csv` file (as a zip file) using [this link](#). This file is hosted on our [workshop GitHub repository](#).
- Download the data into the same working directory as the first exercise.
- **UNZIP THE FILE**. This is very important—otherwise, weird things are going to happen for you.

## Task 1: Open a new project, add a plugin and a web base map

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- Open a new project. Set the project CRS to `EPSG 3857: WGS84 - Pseudo Mercator` projection
- In this next step, we want to add a web map as a base map upon which to show our data. To do this, we need to install a plugin from the built-in plugin manager
  - As an open-source project QGIS has a lot of community-contributed Plugins that extend its functionality. Over time, many of these plugins find their way into the core software.
- Install the QuickMapServices plugin:
  - In the top menu bar, click on `Plugins > Manage and Install Plugins`.
  - In the Plugins dialog box, search for and install the **QuickMapServices** plugin.
  - To allow us to add additional web layers, on the top menu, click `Web > QuickMapServices > Settings`. Go to the **More Services** tab and click **Get contributed pack**. Close the window.
  - While the Plugin window is open, also install the **qgis2web** plugin.
  - Once the plugins are installed, close the plugins window.
- Add a web base map to your data frame:
  - In the top menu bar, click on `Web > QuickMapServices`.
  - Explore and add a base map of your liking. Choose a web map for your base map (e.g. check out the OSM, Stamen, and CartoDB maps)
  - Be sure to right-click and `Remove Layer` for any layer you don't want to use.

## Task 2: Add our data file, turn it into a spatial layer

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- In the top menu, click on `Layer > Add Layer > Add Delimited Text Layer...`
- Browse to the `outdoor-space-data.csv` file, select and Open it.
- Enter the following information:
  - **File Format**: CSV
  - **Geometry Definition**: X field : Longitude ; Y field : Latitude .
  - **Geometry CRS**: EPSG:4326 - WGS 84
- Click **Add**. When prompted about a transformation, just click OK.
- Our survey points should now show on the map in the expected locations (i.e. McMaster University).

## Task 3: Stylize symbols to communicate suitability score and size of plot

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- Ensure that the `outdoor-space-data` layer is above your web map in the **Layer panel**.
- Right click the `outdoor-space-data` layer and select **Properties**. Click on the **Symbology** tab
- In the top dropdown menu, change to **Graduated**
- In the **Value** dropdown, select a measure of interest (i.e. Suitability Score)
- In the **Symbol** area, click the current symbol to change it.
  - In the symbol dialog box, click the more options icon beside the **Size** setting.
  - Select **Edit**. In the Expression box, enter `"Num Seats" / 40` – this will scale the size of the marker to the number of

- seats that are available at the location.
  - Click OK
- Select a Color ramp from the dropdown menu. Be thoughtful with your colour selection: think about what kind of message/sentiment do your selected colours convey? Is it aligned with what you're communicating in your map?
- Click **Classify** and observe that 5 classes are created. Click **Apply** to see the changes on the map.
- Click OK on the Properties box.
- In the **Layer Rednering** box, edit the transparency of this layer so that the webmap beneath shows a bit.
- Click OK to exit the layer properties dialog box.

## Task 4: Add other layers (if desired)

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- If you would like to augment your map with other data, add Hamilton Open Data layers and style them appropriately.

## Task 5: Compose your map

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- Zoom the main data frame to the approximate desired extents for your map.
- Click on the **New Print Layout** button to open the map creation window.
  - Give your map a name when the dialog box comes up.
- In the map composer, add the critical elements of a map:
  - Click the **Add new map** button and then draw a box to specify your map's extent on the page. This will draw the contents of your data frame onto the map.
  - Use the **Move Item Content** button to change the extent and zoom. Click "Update Preview" in the "Main Properties" box to regenerate preview.
- With the map content selected, go to **Item Properties** and add a frame (if desired), a grid, or both.
- See [this video](#) for some examples of how to style the map.

## Task 6: Annotate the map

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- Use **Add New Labels** button to add any desired labels (Use "Item Properties" tab to control font size, colour, background)
- Use the **Add North Arrow** button to add a North arrow
  - With the north arrow selected, scale it to the right size
  - Go to **Item Properties** to select symbol different than the default.
- Use the **Add Label** button to add a title. Include the creator name and creation date
- Use the "Add legend" button to insert a legend, if desired.
  - With the legend selected, click the "Item Properties" tab, rename and rearrange the legend items
- Use the **Add Scale Bar** tool to insert a scale bar
  - Drag the bar to the desired location and size. Edit other details in the **Items Properties** box, if desired.
  - Set units to Meters, and Label to "m" (if not already done for your)
  - Select desired number of segments,

## Task 7: Export the map to an image file

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- In the map composer, use either the **Export as image** or **Export as PDF** buttons to export the map in the desired format to a desired directory.

## Task 8: Save your project

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- Save your project and close the map composer window. Keep your project open in the main QGIS interface.

**Are you ready for your final challenge?** Head to the [next lesson](#) to learn how to create and publish a webmap using QGIS and GitHub!