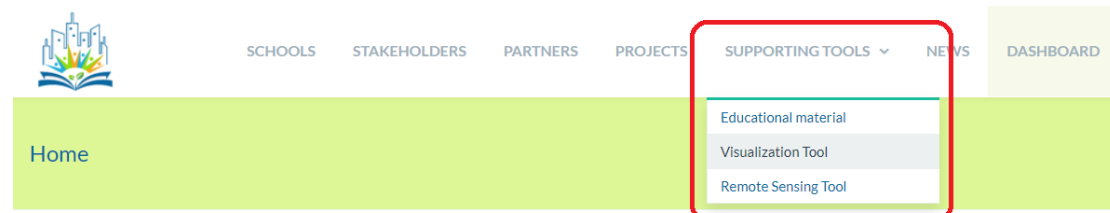# User guide for the Visualization Tool

This is a step-by-step user guide for the Visualization Tool of the PULCHRA City Challenges Platform. This easy to use tool will help you visualize your measurements or data from external sources.

1. Find the tool in the "Supporting Tools" menu.

You will be directed to the Visualization tool.

3. There are two options to visualize data

a) Import the data in an appropriate format (csv file)

b) Manual entry of the data

Detailed instructions for these two options follow.

3.1 Importing data to the Visualization tool

In order to import data to the Visualization Tool you need to you need to create a csv file (Comma Separated Values file).

A CSV file has a fairly simple structure. It's a list of data separated by commas. For example, let's say you have a few air temperature and relative humidity measurements from a weather station, and you want to structure them as a CSV file. You'd get a file containing text like this:

Time,Temperature,Humidity

09.00,25,45

10.00,26,45

11.00,26.5,42.3

12.00,27,41.5

13.00,27,40

14.00,27.8,39.5

That's all a CSV file really is. They can be more complicated than that, and can contain thousands of lines, more entries on each line, or long strings of text.

-To view the contents of a CSV file in Notepad, right-click it, and then select the "Open with" command. (You can select Wordpad, Notepad or any other text editor. You can use THIS file as an example).
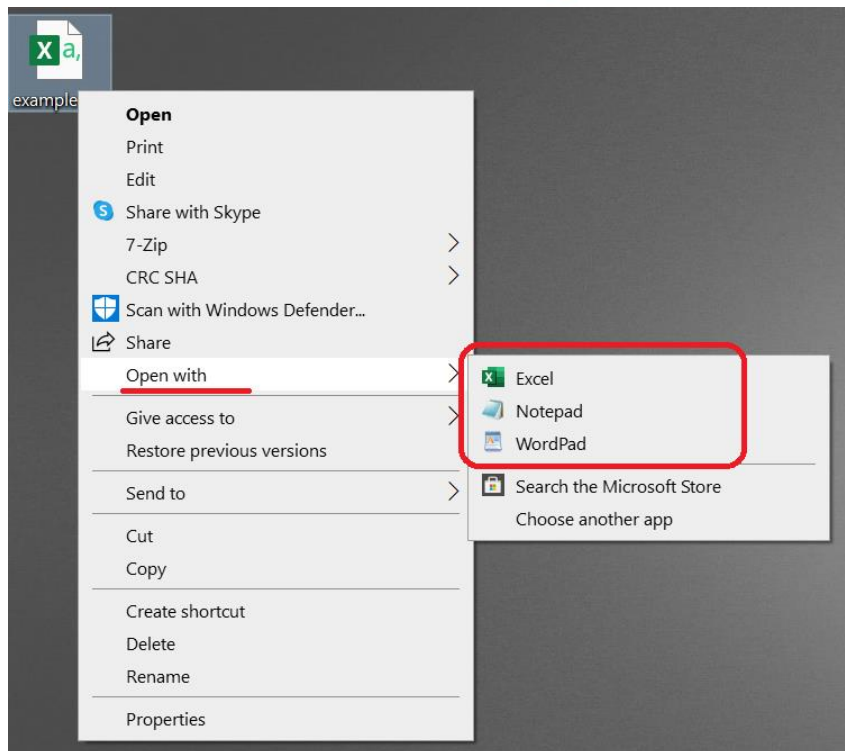
-To create a csv file Open Notepad, structure your data as shown above and save it as a csv file.

When your file is ready you can upload it in the dedicated field of the Visualization tool.
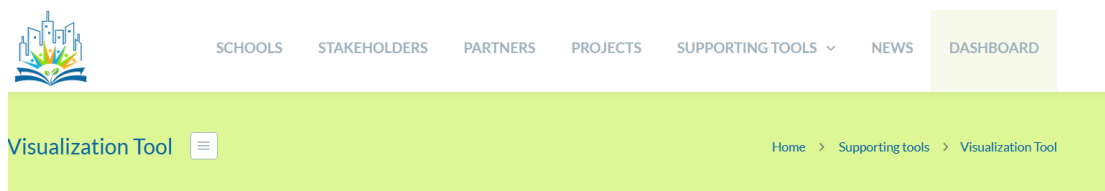
	System Use		B	C	D
1	label		x	y	z
2	value		1	21	11
3	value		2	30	34
4	value		3	10	44
5	value		4	10	4
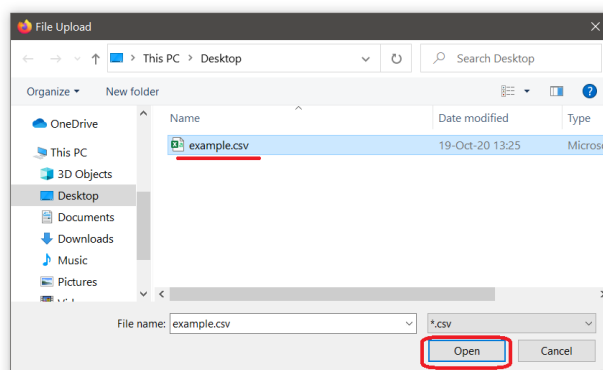
The data will then appear and the graph will be created.
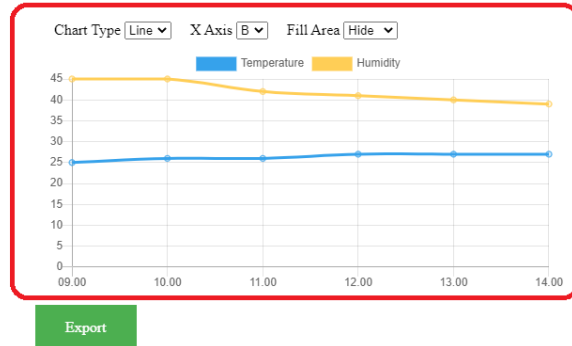
You can customize the table of the data and/or the graph depending on your needs. You can:

- expand the width of the columns of the table so as the full name of the variables to be visible

	System Use		B	C	D
1	label	▾	Time	Temperature	Humidity
2	value	▾	09.00	25	45
3	value	▾	10.00	26	45
4	value	▾	11.00	26.5	42.3
5	value	▾	12.00	27	41.5
6	value	▾	13.00	27	40
7	value	▾	14.00	27.8	39.5

- Add a new row or delete a selected one

System Use		B	C	D
1	label ▼	Time	Temperature	Humidity
2	value ▼	09.00	25	45
3	value ▼	10.00	26	45
4	value ▼	11.00	26.5	42.3
5	value ▼	12.00	27	41.5
6	value ▼	13.00	27	40
7	value ▼	14.00	27.8	39.5

Insert a new row before

Insert a new row after

Delete selected rows

Copy...   Ctrl + C

Paste...   Ctrl + V

Save as...   Ctrl + S

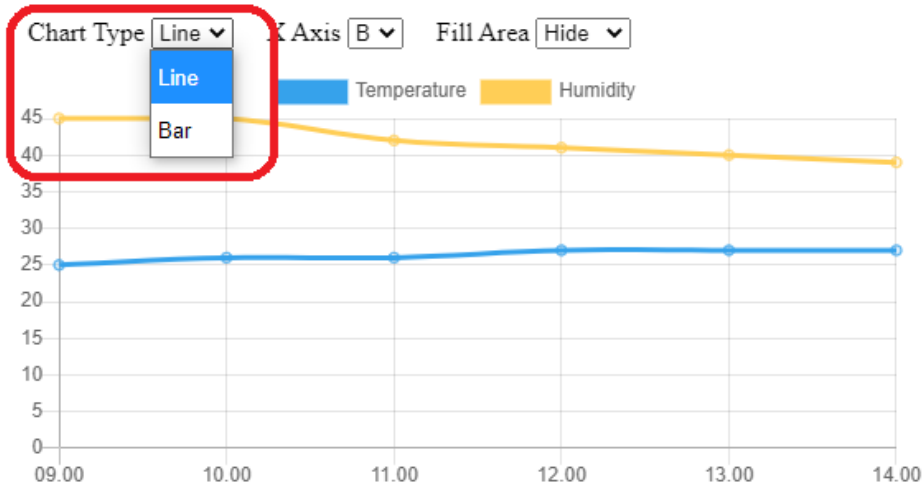-Add a new or delete a selected column.

System Use				
1	label			ity
2	value			
3	value			
4	value			
5	value			
6	value			
7	value			

Insert a new column before

Insert a new column after

Delete selected columns

Rename this column

Order ascending

Order descending

Copy...   Ctrl + C

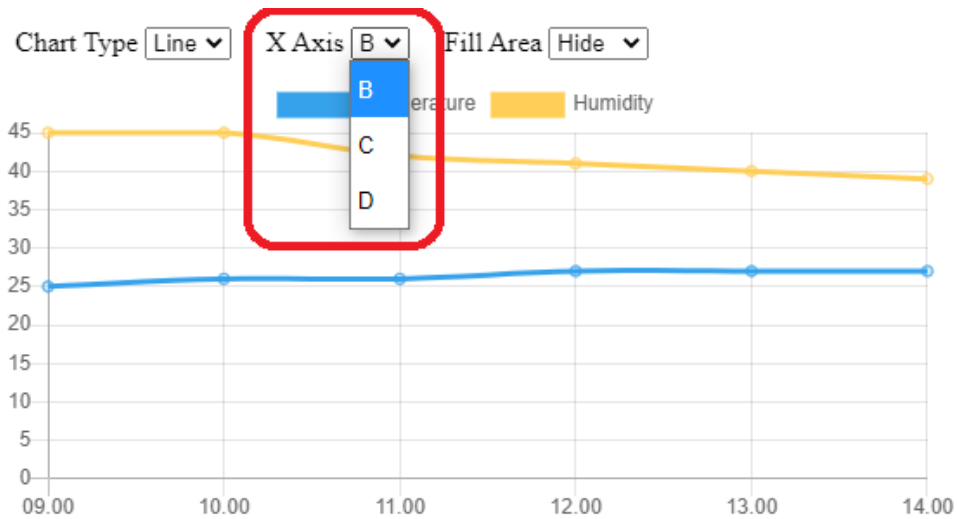Paste...   Ctrl + V

Save as...   Ctrl + S

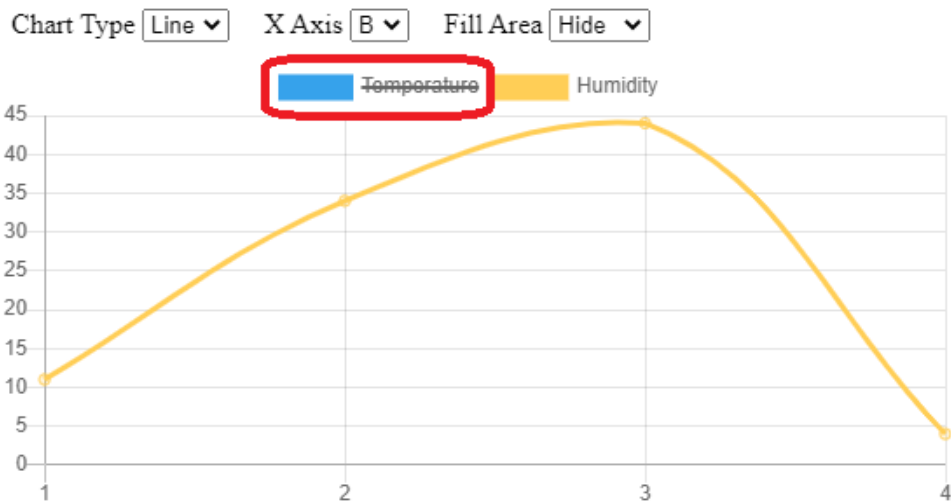-select your preferred chart type between Line or Bar

-Select the variable for the X-axis. The rest will appear in the y-axis.

-Select to visualize only the parameters you want. To do this, simply select the parameter you want to remove from the graph.

3.2 Manual entry of the data.

The second option to visualize data in the tool is to manual input the data to the table. As an example we will use the previous' example data. Begin with labeling the parameters in the first row of the table. In the first column write "Time", in the second write "Temperature" and in the third write "Humidity".

	System Use		B	C	D
1	label	▾	Time	Temperature	Humidity
2	value	▾	1	21	11
3	value	▾	2	30	34
4	value	▾	3	10	44
5	value	▾	4	10	4

Since in our example we have six measurements, we need to add two rows at the bottom of the table. Select the last row, right-click on it and select "Insert a new row after". Repeat this step one more time to add the second row.

	System Use		B	C	D
1	label	▾	Time	Temperature	Humidity
2	value	▾	1	21	11
3	value	▾	2	30	34
4	value	▾	3	10	44
5	value	▾	4	10	4

Insert a new row before

Insert a new row after

Delete selected rows

Copy...   Ctrl + C

Paste...   Ctrl + V

Save as...   Ctrl + S

You need to indicate the type of the new row "label" or "value". Select value for both rows.

	System Use		B	C	D
1	label	▼	Time	Temperature	Humidity
2	value	▼	1	21	11
3	value	▼	2	30	34
4	value	▼	3	10	44
5	value	▼	4	10	4
6	value	▼			
7	value	▼			

The table is now ready to accept the data entry. Complete all cells with the values you have.

	System Use		B	C	D
1	label	▼	Time	Temperature	Humidity
2	value	▼	09.00	25	45
3	value	▼	10.00	26	45
4	value	▼	11.00	26.5	42.3
5	value	▼	12.00	27	41.5
6	value	▼	13.00	27	40
7	value	▼	14.00	27.8	39.5

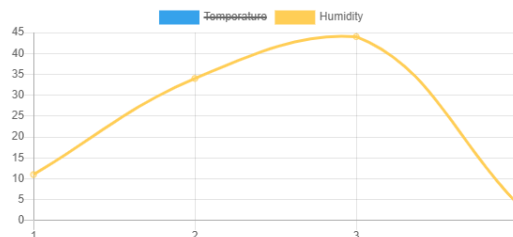The visualized data will appear in the graph. You can customize the graph as described previously.

4. Export the graphs

To export your graph as an image, simply select the "Export" button. The image will be saved in your computer.