# UI User Guide

As a part of the Pinboard Consulting submission to the TigerGraph, graph for all challenge the team developed a user interface to present the data returned by the GSQL queries in a more user-friendly manner. The UI visualizes the returns from an API connected the graph built on TigerGraph so that anybody can immediately access and export the incredible data released by the United Nations (UN).

The UN makes an enormous range of data available to the public via their open website, but the data is both difficult to download in bulk and isolated - there are no connections between different datasets. Our project aims to create a TigerGraph solution for the way this data can be stored, analysed and visualised. The submitted data files are extracted from the UN website cleaned and loaded into the schema. A few standard queries are run so that the corelation between different metrics and different countries can be visualised. The aim of the submission was to clean and store the isolated data sets in a graph so that connections can be built.

The current graphical user interface (GUI) returns the outputs from the GSQL queries as plots and tables; a feature that makes the UN Data more flexible. Despite being isolated data, implementing graph analytics to the data sets shows the interdependency of the data – the dependencies may be random or due to a common cause, such as weather or recession. The simplicity of the GUI and easy access to clean data will benefit journalists, researchers and students showing them the variations in the relationships between certain metrics, countries, and years.

The speed and scalability of TigerGraph makes it the most appropriate tool to be used for the cosmic data released by the UN.

Features of the GUI
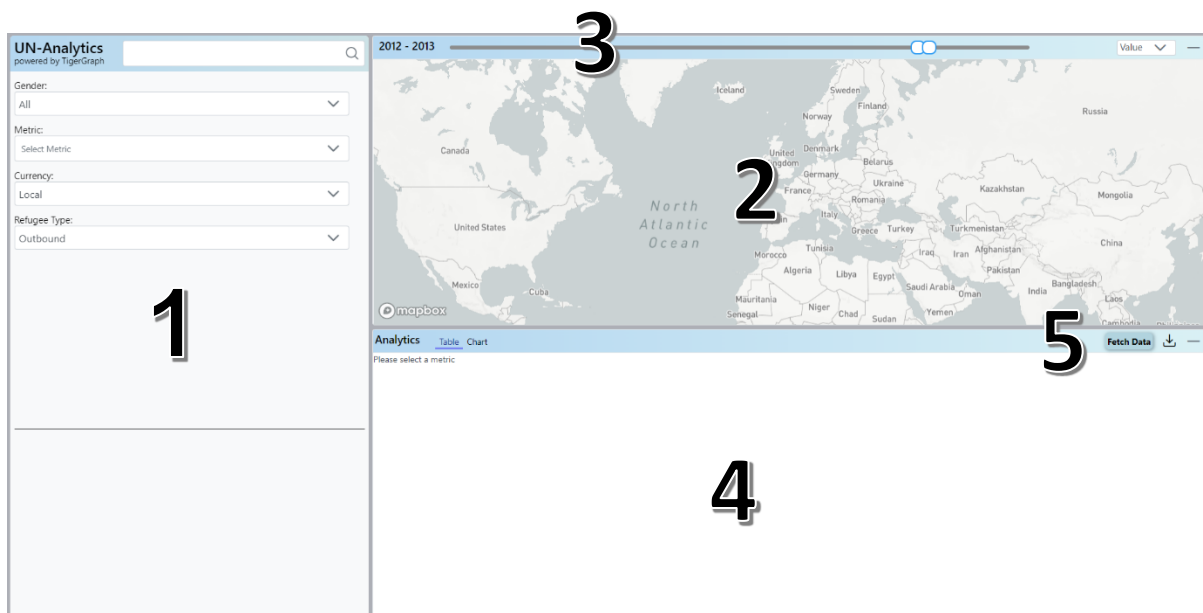
The functionality of the GUI is based on the GSQL queries run on the graph; all the outputs returned by the queries can be filtered according to the options selected in the window. Despite being built using GSQL, users will not need prior coding knowledge to use the interface.

Label 1

This section of the GUI gives the user the freedom to choose the metrics they want to compare. The choice of metrics is currently restricted to the datasets loaded in the graph but can be expanded in the future. Users have the option to read the raw data of a single metric, or a minimum of 2 metrics can be selected and compared in a table and as a scatter plot. These filters allow the user to decide which metrics they want returned. The UI shows the values of 730 Metrics for 8 different data sets; users may scroll through the drop-down menu or may type out the metrics they want values returned for.

The default values for the labels are as follow:

Gender: All
Currency: Local
Refugee_Type: Outbound

Label 2

Label 2 is an interactive world map, countries that the users want to consider can be selected and unselected in this window. If no countries are selected the default is to return the selected metrics for all countries in the chosen years. Figure 2 shows the raw data for the CO2 metric for all countries with default values for the other labels.
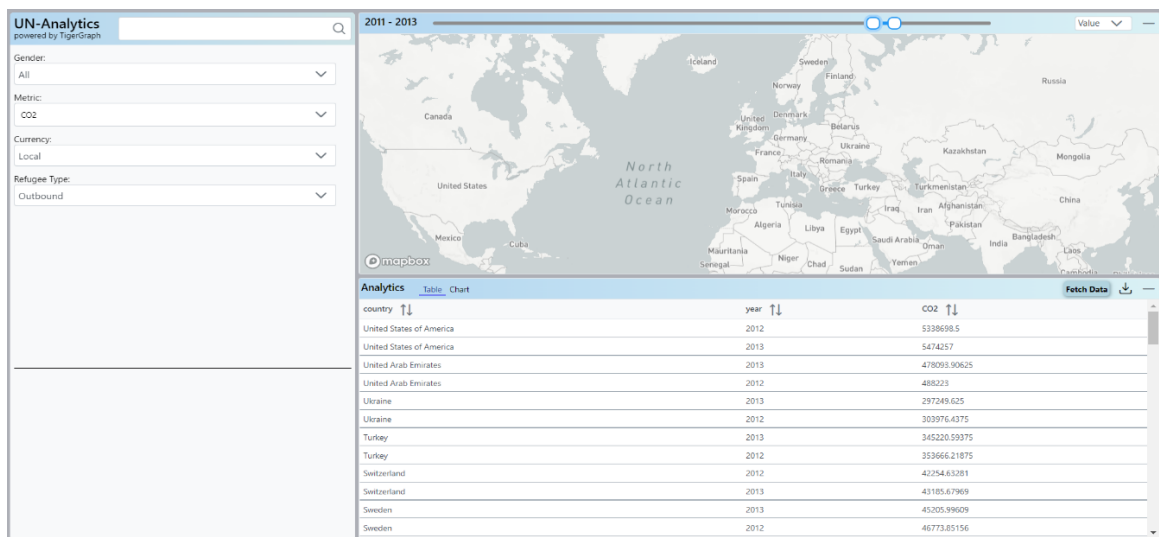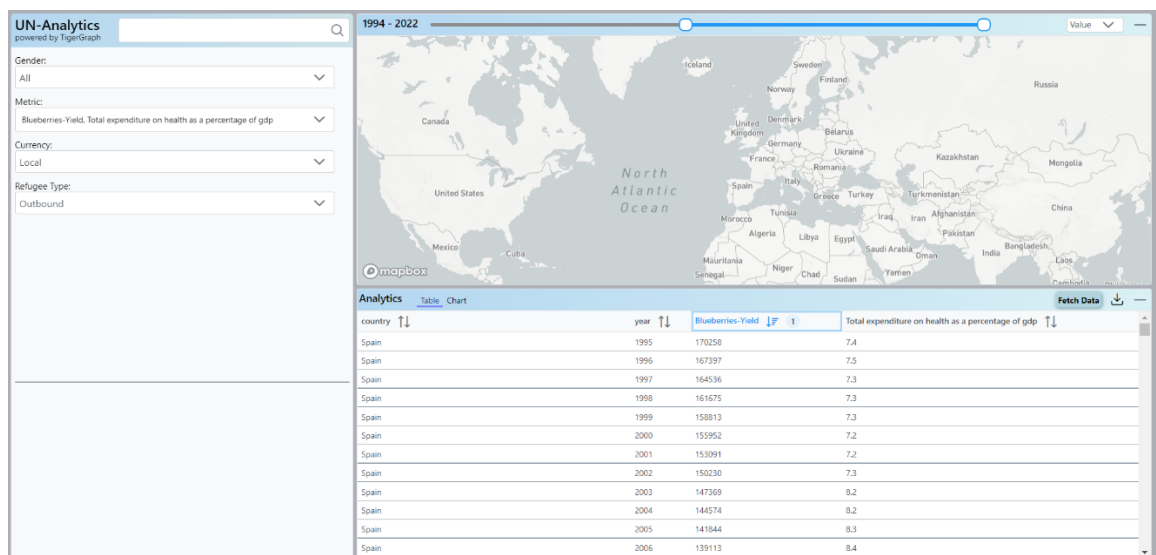

Figure 3 shows a sample table returned for 2 metrics chosen at random, if there is no data for a country for a year for a metric the table returns blank. Figure 3 also shows how the tabular columns can be sorted to show increasing or decreasing values.
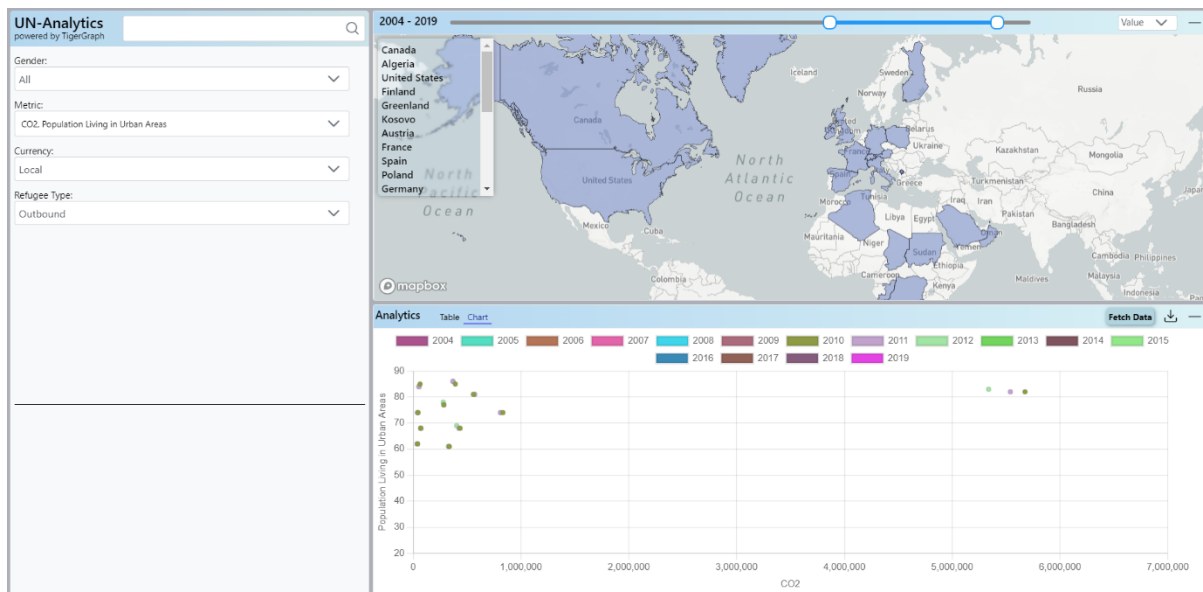
Label 3

The slider on the top allows the user to pick the year range or year values they want data to be returned for. The same ribbon also hosts a drop-down menu that allows the user to decide the type of data they want returned value/sum/mean, this functionality is temporarily disabled. On the extreme right of the ribbon there is a button that can minimize the view and expands the analytics section that contains data and the respective plots.

Label 4

The analytics pane displays data according to the metrics, countries and years selected as tables and plots. Data for the following metrics can be selected and compared:

1) Tourism Data: 2 Metrics
2) Pollution Data: 6 Metrics
3) Crime Data: 1 Metric
4) Refugee Data: 4 Metrics
5) WHO Data: 117 Metrics
6) Crop Data: 520 Metrics
7) GDP Data: 10 Metrics
8) Death Statistics: 70 Metrics

The pane can show the data for individual metrics and a maximum of 2 metrics can be compared. As Figure 4 shows, selecting 2 metrics immediately generates a scatter plot that shows the correlation between them. This visual feature powered by TigerGraph embellishes the UN Data by unlocking the isolated nature of the datasets.

Label 5

Once the required metrics, labels, years, and countries are selected the user must click the "Fetch Data" button. The rapid querying power of TigerGraph means that within seconds the UI will display the data generated from the graph.

Export button: the tables stored on the data marts are isolated – by transforming the data into a graph database it is possible to export a csv that combines data for multiple metrics for multiple years and countries. The ability of the Pinboard UI to combine data sets makes the data more flexible to be used in wider studies.

Loading bar

TigerGraph is one of the few platforms that can store the enormous quantity of data loaded into the schema and because of the massive quantity of data being stored and exported there is naturally a small lag in the tables and scatter plots being generated. Once all the required fields are selected users will see a small loading icon in the bottom right corner of the screen.

Scatter Plot Analysis

The UI gives the users the freedom to choose 2 metrics to be compared via a scatter plot generated. In the analytics pane (label 6) has the functionality chart – the chart shows all the values for the selected metrics for the selected years for the selected countries. Figure 5 shows the effect of deleting years from the chart window. If years are selected within the chart window they are dropped from the chart as seen below