# Transporting Structured Data

Today’s lab is all about transporting data from one system to another and from one format to another.

Other common terms for this process include:

* Data ingestion & conversion
* Data extraction and transformation

## Exercise 1: Cost of Living Comparison

### Cut and paste method

1. Go to <https://www.numbeo.com/cost-of-living/comparison.jsp> select two Canadian cities that you would like to compare on the cost of living. Leave the browser window open.
2. Create a new Google Sheet.
3. Highlight the data in your cost-of-living report on Numbeo then copy and paste the data into the Google Sheet.
4. Save the Google Sheet and leave it open.
5. Create a new Excel workbook.
6. Go back to your cost-of-living report on Numbeo.
7. Highlight the data in your cost-of-living report on Numbeo then copy and paste the data into sheet 1 of your Excel workbook.
8. Save the Excel workbook and leave it open.

Examine the data as displayed in Google and Excel. What is different? What is the same?

### Connection Method (website to Excel)

|  |  |
| --- | --- |
| **Step 1**  Choose a fresh sheet in your Excel workbook. Select the Data ribbon then Get Data then From Other Sources then From Web. | Graphical user interface, application, table, Excel  Description automatically generated |

**Step 2**

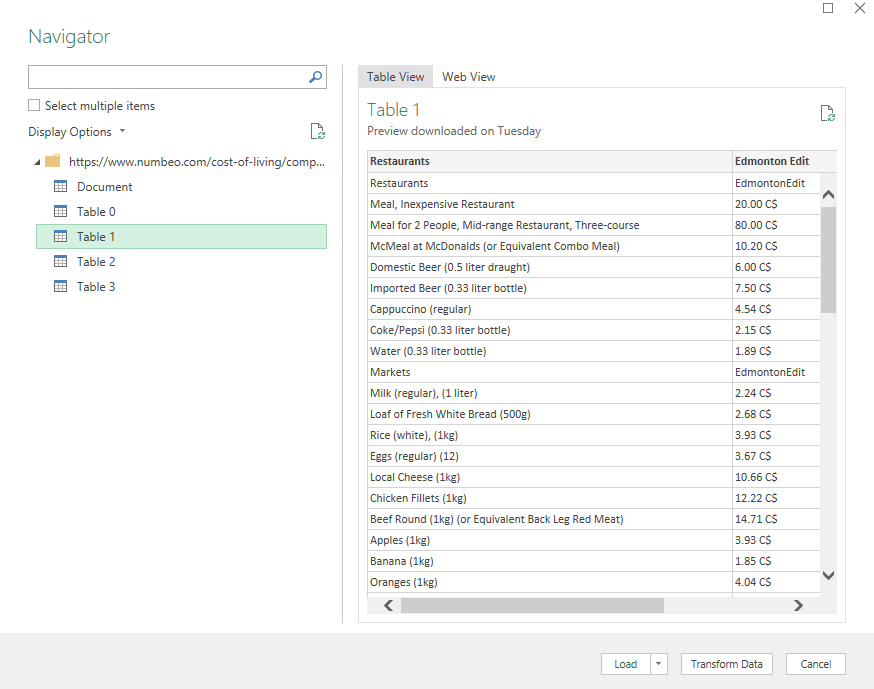
Copy the Numbeo.com website address for the comparison you created and paste it into the box marked URL. Click OK.

Graphical user interface, application, table

Description automatically generated

**Step 3**

Click on each table to find the one that contains your comparison data. Once you have found it, click Load. It might take a few minutes to load.



Your data looks quite different than it did when you cut and paste it into Excel. We will talk about some of the differences on another day.

**Step 4**

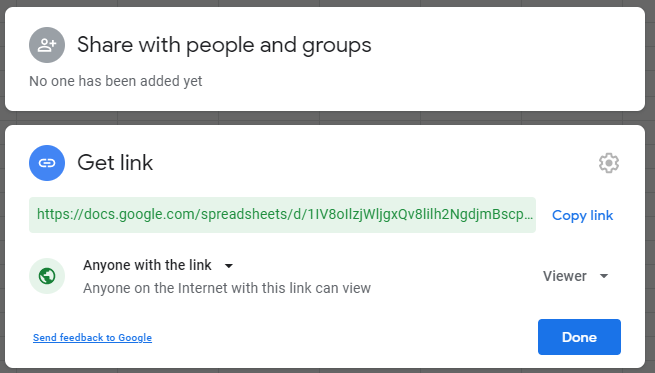
Save the Excel workbook and leave it open.

### Connection Method (Google Sheet to Excel)

**Step 1**

Choose a fresh sheet in your Excel workbook. You will use this new sheet to connect to your Google Sheet containing Numbeo data.

* Click the ‘Share’ button in the upper right corner of your Google Sheet.
* Then change the permission to “Anyone with the link”.
* Copy the link.



**Step 2**

* Return to your Excel Workbook
* Select the Data ribbon then Get Data then From Other Sources then From Web.
* Paste in the copied link but do not click OK yet. We need to edit the link to connect to Google Sheets.
* Change the highlighted part of the link from this:

https://docs.google.com/spreadsheets/d/1IV8oIlzjWljgxQv8lilh2NgdjmBscpqlVFAZkSADDic/edit?usp=sharing

To this:

https://docs.google.com/spreadsheets/d/1IV8oIlzjWljgxQv8lilh2NgdjmBscpqlVFAZkSADDic/export?=csv

* Click Load

**Step 3**

|  |  |
| --- | --- |
| * Once your Google Sheet data has loaded into Excel, go back to your original Google Sheet. * Hold the Ctrl key while typing H. * The search and replace menu will appear. Replace all mentions of the word ‘Taxi’ with ‘Spaceship’. * Click ‘Replace all’ then ‘Done’. |  |

Step 4

|  |  |
| --- | --- |
| * Return to the Excel worksheet containing your Google Numbeo data. * Refresh the data by selecting the down arrow under Refresh and then select Refresh.   What happened? | Graphical user interface, application, table, Excel  Description automatically generated |

**Step 5**

Save and close your Excel workbook.

## Exercise 2: Statistics Canada data

Create a new Google Sheet and Excel workbook. Transport the data using the methods you learned in exercise 1.

1. Cut and paste from website to Google Sheet.
2. Cut and paste from website to Excel.
3. Connect Excel to website.
4. Connect Google Sheet to Excel.

<https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1410001701>

What worked? What didn’t work?