Program 4 : Demonstration of Open refine: Task : Write a simple exercise to use a publicly available dataset "World Happiness Report 2021" dataset available at https://worldhappiness.report/ed/2021/. for data wrangling using openrefine. write all the steps including the GREL code.

1. Download the dataset: For this exercise, we will use the "World Happiness Report 2021" dataset available at https://worldhappiness.report/ed/2021/.
2. Open OpenRefine: Launch OpenRefine and create a new project.
3. Import the dataset: Click on the "Create Project" button and select "From Clipboard" or "From a Google Sheet". Paste the dataset into the text box and click "Next".
4. Clean the dataset: Once the data is imported, we need to clean and transform it. Here are the steps: a. Remove unnecessary columns: If there are any columns that are not required for the analysis, remove them by selecting the column header and clicking on the "Remove this column" button. b. Rename columns: Rename the columns to more meaningful names. For example, rename the "Country" column to "Country Name". c. Remove duplicate rows: If there are any duplicate rows, remove them by selecting the rows and clicking on the "Remove duplicates" button. d. Transform data: Use GREL (General Refine Expression Language) code to transform the data. For example, to convert the "Happiness Score" column to a numerical format, use the following GREL code: value.toNumber() e. Filter rows: Use GREL code to filter rows based on certain conditions. For example, to filter rows where the "Happiness Score" is greater than 7, use the following GREL code: value > 7
5. Export the dataset: Once the dataset is cleaned and transformed, export it in a format that is suitable for further analysis. For example, export it as a CSV file.

Conclusion: This exercise provides a hands-on approach to utilizing OpenRefine for data wrangling tasks. It covers essential operations such as cleaning, transforming, and filtering data using both manual and GREL-based techniques. By following these steps, users can effectively prepare the dataset for subsequent analysis or visualization tasks. OpenRefine's intuitive interface and powerful functionalities make it a valuable tool for data cleaning and preprocessing tasks in data science workflows.