

Data Technician Scenario

Demonstration - M-SD-DT3001

Level 3

Assessment Brief

You are required to complete a scenario demonstration to evidence your knowledge, skills and behaviours. The scenario will take 90 minutes to complete.

Scenario and instructions

A government body has requested a global carbon footprint analysis. They are interested in finding out which continents have been producing the highest carbon emissions over the past two decades, what the per capita carbon emissions figures are for each region and whether there are any trends in the types of sectors responsible for carbon emissions. The data has been collected between 2005 and 2025.

1	Create a new folder called 'Evidence' on your desktop.
2	Download the source files and save them to your new 'Evidence' folder.
3	Create a new spreadsheet and name it 'carbon_emissions_analysis'. Save it to your 'Evidence' folder.
4	Import the 'carbon_emissions_countries.xlsx' dataset from the 'Evidence' folder into your 'carbon_emissions_analysis' spreadsheet. Name the worksheet 'carbon_emissions_countries'.
5	Import the 'carbon_emissions_population.docx' dataset from the 'Evidence' folder into a new worksheet in your 'carbon_emissions_analysis' spreadsheet. Name the worksheet 'carbon_emissions_population'.
6	Create an audit report in a Word document or in a new tab in your Excel spreadsheet and save this in your 'Evidence' folder.
7	In the 'carbon_emissions_countries' worksheet, format the data in the 'region code' column to ensure consistency.
8	Filter the rows in the 'carbon_emissions_mt' column into ascending order and highlight the top 10 results in green. Take a screenshot for your audit report. Clear the filter when done.
9	In the 'carbon_emissions_population' worksheet, format the data in the 'population_millions' column into the full number format.
10	Identify and fix any obvious data quality errors in both worksheets and record these errors and actions in your audit report.
11	Combine the data from both worksheets by blending the 'population_millions' column/field from the 'carbon_emissions_population' worksheet into the 'carbon_emissions_countries' worksheet.
12	Describe the relationship between the datasets in your audit report.
13	Using the 'carbon_emissions_countries' worksheet as your master sheet, concatenate the data in the region column with the data in the 'region_code' column to read country and code in the same column.
14	Check and validate the dataset for any further data quality issues and add in any missing data where possible. Take a screenshot and add this to your audit report.
15	Use a simple statistical approach to calculate the per capita carbon emissions from the 'carbon_emissions_mt' and population columns.
16	Sort this new 'per_capita_emission_column' to show the highest per capita values in 2024.
17	Analyse the data to show which regions are producing the highest carbon emissions across all years and use an appropriate graph to show your findings.
18	Summarise any findings in your audit report.
19	Note any recommendations on how you would set up and automate the data manipulation process if this were a repeatable report.
20	Provide a short evaluation of your chosen data transformation process today.