Assignment 3

Data: Data
You have two tables: Expenditure and Data

Datasets Overview:

1. **Expenditure Dataset:**
    - **Columns:**
        - `country`: The name of the country.
        - `institute_type`: Type of institution (e.g., all institutions).
        - `direct_expenditure_type`: The type of expenditure (e.g., public).
        - `1995, 2000, 2005, 2009, 2010, 2011`: Direct expenditure values for respective years.
    - **Usage:** This dataset provides insights into the public expenditures of various countries over different years.
2. **Data Dataset:**
    - **Columns:**
        - `world_rank`: Global ranking of the institution.
        - `institution`: Name of the institution.
        - `country`: Country where the institution is located.
        - `national_rank`: National ranking of the institution.
        - `quality_of_education`: Quality score of education.
        - `alumni_employment`: Alumni employment rank.
        - `quality_of_faculty`: Quality rank of faculty.
        - `publications, influence, citations, broad_impact, patents`: Various impact and research-related metrics.
        - `score`: Overall score.
        - `year`: The year of the ranking.
    - **Usage:** This dataset can be used to analyze the performance and global standing of educational institutions over the years.

General Instruction:

For each of the following tasks, create an appropriate visualization to represent your findings. The type of visualization you select should best suit the data and analysis you are performing.

Assignment Tasks:

1. Calculate the average public expenditure for the year 2005 across all countries.
2. Calculate the total publications for institutions in the UK.
3. Filter the dataset to show only institutions with a world rank below 100.
4. Calculate the total expenditure for all years for each country.
5. Write a DAX formula to ignore any filters on the year column and calculate the total score across all years.
6. Calculate the growth in expenditure for Austria from 1995 to 2000.
7. Format the expenditure values to include a currency symbol and zero decimal places.
8. Calculate the total expenditure for each country.
9. Create a report showing each visual in different sheets:
    - (a) Break down the total patents of institutions by country and then by quality of faculty. Analyze which factors contribute most to the number of patents across different countries.
    - (b) Use the Q&A feature in Power BI to answer the question: "What is the total publications and citations for institutions in the USA?" and display the results in a table and bar chart format.
    - (c) Display key metrics for the top 5 institutions by world rank, including fields such as institution, country, score, and national rank.
    - (d) Represent the distribution of direct_expenditure_type (e.g., public vs. private) for the year 2011 across all countries. Highlight the OECD Average as a separate segment.
10. Create a workspace "Institution Analysis" and set up a schedule to refresh the datasets every day at 6 AM.

Submission Instructions:

- Submit by creating a word file consisting of a screenshot for each task, write the steps taken for each task and then save that word file as a PDF.
- Create a zip file of the PDF and then submit.
- The Word file should contain screenshots for each and every task you completed.
    - For each task, do it in a new page in Power BI, include a screenshot showing:
        - The visualization you created.
        - The relevant data and/or results.
- For tasks involving DAX formulas, write the formulas clearly in the Word file instead of sharing screenshots. Ensure proper formatting for clarity.
- Ensure that all screenshots and written content are clear and legible.