Database Documentation

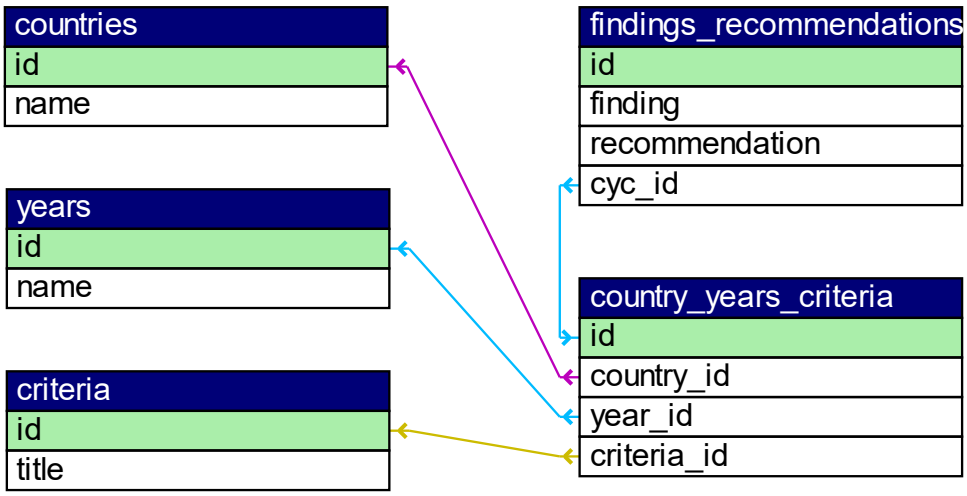

Fig. 1: Database Schema Diagram

Understating the Schema Diagram:

The database schema, depicted in **Fig. 1**, organizes and connects information about countries, years, criteria, and the related findings and recommendations. Here's a detailed look at how each table functions and how they interrelate:

1. **Countries Table:** `countries`

   Purpose: This table is like a directory of all the countries relevant to your data. It helps you keep track of which countries are being analyzed and ensures that each country is uniquely identifiable.

   Columns:

   - `id` This is a unique number assigned to each country. Think of it as a personal ID for each country, ensuring no two countries have the same identifier.

   - `name` This column contains the name of the country (e.g., "United States", "France"). It's the friendly label you use to refer to each country.

2. **Years Table:** `years`

   Purpose: This table acts as a timeline, storing different years for reference. It helps in organizing data according to specific time periods and facilitates trend analysis over the years.

   Columns:

   - `id` A unique number assigned to each year. This ensures that every year is individually identifiable, even if the year value itself is the same (e.g., data from 2021).

   - `name` This column holds the actual year value (e.g., "2021", "2022"). It represents the specific time period you're analyzing.

3. **Criteria Table:** `criteria`

   Purpose: This table serves as the primary categorization system for the findings and recommendations stored in the Findings Recommendations Table. Essentially, it defines the main categories or factors under which the findings and recommendations are organized. Each criterion represents a specific aspect or dimension that is evaluated and assessed in the context of the data.

   Columns:

   - `id` A unique identifier assigned to each criterion. This ID is crucial for linking the criteria with corresponding findings and recommendations, ensuring that each criterion is distinctly recognized.

   - `title` The descriptive name or title of the criterion (e.g., "Economic Growth", "Environmental Impact"). This provides a clear and understandable label for the

criterion, making it easy to categorize and interpret the associated findings and recommendations.

4. **Findings and Recommendations Table:** `findings_recommendations`

   Purpose: This table stores the actual observations (findings) and suggested actions (recommendations) based on the criteria applied. It provides insights and guidance related to specific country-year-criteria combinations.

   Columns:

   - `id` A unique identifier for each finding and recommendation pair. It ensures that each record can be distinctly recognized.

   - `finding` This column contains the detailed description of the finding. It explains what was observed or discovered in the analysis.

   - `recommendation` Here, you'll find the proposed actions or suggestions based on the finding. It provides guidance on what steps should be taken.

   - `cyc_id` This is a reference number that links the finding and recommendation to a specific entry in the `country_years_criteria` table. It connects the finding and recommendation to the relevant country, year, and criterion.

5. **Country, Year and Criteria Table:** `country_years_criteria`

   Purpose: This table serves as the connective tissue, linking countries, years, and criteria. It forms the basis for associating specific criteria with particular countries and years, enabling detailed analysis and reporting.

   If you want to analyze findings and recommendations for a

specific country in a specific year, the schema allows you to pull together information from the `countries`, `years`, `criteria`, and `findings_recommendations` tables. The `country_years_criteria` table acts as a bridge, connecting these elements and enabling comprehensive data analysis.

Columns:

- `id` A unique identifier for each record in this table. It ensures that each combination of country, year, and criterion is uniquely recognized.
- `country_id` Links to the id in the countries table. This column tells you which country the record pertains to.
- `year_id` Links to the id in the years table. It indicates the specific year associated with the record.
- `criteria_id` Links to the id in the criteria table. It specifies the criterion being used for the record.

Understanding Database Table Relationships:
The database schema is designed to interconnect various tables to support comprehensive data management and analysis.

Linking Countries, Years, and Criteria:

The country_years_criteria Table plays a pivotal role in connecting information from various tables within the database schema. This table effectively acts as a bridge between the countries table, years table, and criteria table. By linking these tables, it allows for a detailed association of criteria with specific countries and years.

In the country_years_criteria table, the country_id links to the Countries Table, year_id links to the Years Table, and criteria_id links to the Criteria Table.

Imagine you want to analyze how the country "Australia" has been assessed in the year "2017" based on different criteria. Our goal is to understand the findings and recommendations provided for Germany within that specific year:

SQL:

```
SELECT
  `c`.`title` AS `criterion`,
  `frc`.`finding`,
  `frc`.`recommendation`,
  `y`.`name` AS `year`
FROM
  `findings_recommendations` `frc`
JOIN
  `country_years_criteria` `cyc` ON `frc`.`cyc_id` = `cyc`.`id`
JOIN
  `criteria` `c` ON `cyc`.`criteria_id` = `c`.`id`
JOIN
  `countries` `co` ON `cyc`.`country_id` = `co`.`id`
JOIN
  `years` `y` ON `cyc`.`year_id` = `y`.`id`
WHERE
  `co`.`name` = 'Australia' AND `y`.`name` = '2017';
```

Explanation of the Code:

- **FROM `findings_recommendations` `frc`**: This specifies the starting table from which we will retrieve the findings and recommendations. Here `frc` is shadow name of `findings_recommendations` table. By this code fragment `findings_recommendations` `frc` we are giving a shadow name of the table. You can skip shadow naming convention. If you

skip shadow name, you’ve to use full table name for each column used from this table like `findings_recommendations`.`finding` instead of `frc`.`findings`

- **JOIN `country_years_criteria` `cyc` ON `frc`.`cyc_id` = cyc.id`**: We join the findings_recommendations Table with the country_years_criteria Table to link each finding and recommendation with its associated criteria. Here `cyc` and `frc` is the shadow name of `country_years_criteria` and `findings_recommendations` table.

- **JOIN `criteria` `c` ON `cyc`.`criteria_id` = `c`.`id`**: This joins the Country_Year_Criteria Table with the Criteria Table to get the names of the criteria related to each finding and recommendation. Here `c` and `cyc` is the shadow name of `criteria` and `country_years_criteria` table.

- **JOIN `countries` `co` ON `cyc`.`country_id` = `co`.`id`**: This joins the country_years_criteria Table with the countries Table to get the country names. We use this to filter for "Australia". Here `co` and `cyc` is the shadow name of the respective table.

- **JOIN `years` `y` ON `cyc`.`year_id` = `y`.`id`**: This joins the country_years_criteria Table with the years Table to get the year names. We use this to filter for "2017".

- **WHERE `co`.`name` = 'Australia' AND `y`.`name` = '2017'**: This filter ensures that we only retrieve findings and recommendations for the country "Australia" in the year "2017". If you want to get finding and recommendation from all country of year "2017" you need to remove this code fragment **`co`.`name` = 'Australia' AND** . keep only year part. If you want to see all the years result from country "Australia" remove the code fragment **AND `y`.`name` = '2017'**