

Visualizing Sustainability: A Cognos-Based Analysis Of Global Trends (2000-2023)

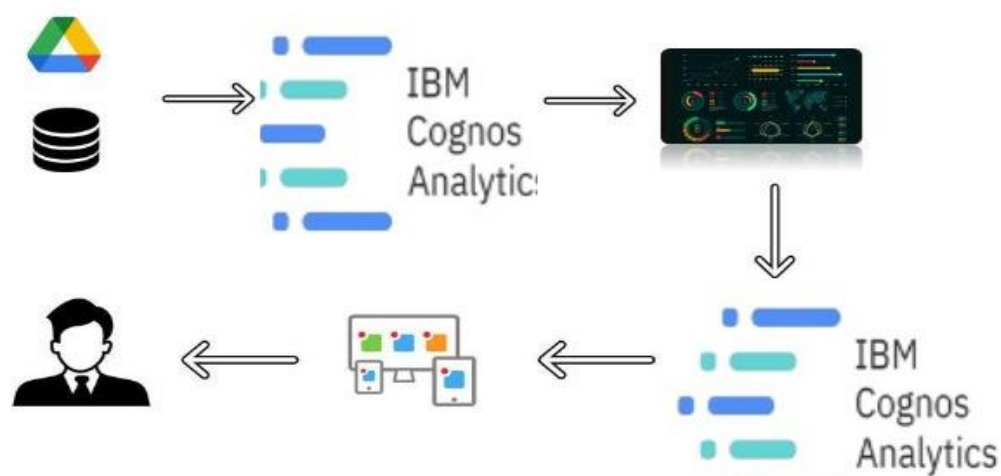
Category: Data Analytics

Project Description:

The Sustainable Development Report (SDR) reviews progress made each year on the Sustainable Development Goals since their adoption by the 193 UN Member States in 2015. At the halfway mark to 2030, the Sustainable Development Report 2023 takes stock of progress made and discusses priorities to restore and accelerate SDG progress. Published on the eve of the 2023 Paris Summit for a New Global Financial Pact, this year's edition focuses specifically on the need to scale up development finance and to reform the global financial architecture to support the SDGs.

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Technical Architecture :



To accomplish this, we have to complete all the activities listed below,

- **Define Problem / Problem Understanding**

- **Specify the business problem**

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- **Business requirements**

To develop a user-friendly dashboard that leverages the Sustainable Development Report 2023 dataset to provide a comprehensive and insightful analysis of countries' progress towards achieving Sustainable Development Goals (SDGs).

Display a ranking of countries based on their overall sustainability scores. Allow users to filter the rankings by region, income group, or specific SDGs. Provide detailed profiles for each country, including its sustainability score, regional classification, and performance on individual SDGs.

Users should be able to access historical data to track a country's progress over time. Enable users to compare the sustainability scores and SDG achievements of countries within a specific region. This feature should allow for visual comparisons and trend analysis. Offer in-depth analysis for each SDG, showing how countries are performing in areas such as poverty reduction, healthcare access, gender equality, climate action, etc.

- **Literature Survey**

A literature survey on the Sustainable Development Report 2023 dataset reveals a growing body of research and analysis centered around sustainability and the progress of countries toward achieving the United Nations' Sustainable Development Goals (SDGs). Scholars, policymakers, and organizations have recognized the significance of this dataset in assessing and advancing sustainability efforts on a global scale. The dataset has become a critical resource for policymakers, guiding the development and adjustment of policies and strategies to address specific SDGs. It assists in identifying areas requiring improvement and highlighting successful strategies. Some studies critically evaluate the dataset itself, discussing data accuracy, sources,

and limitations. Researchers emphasize the importance of transparent and reliable data for meaningful sustainability assessments

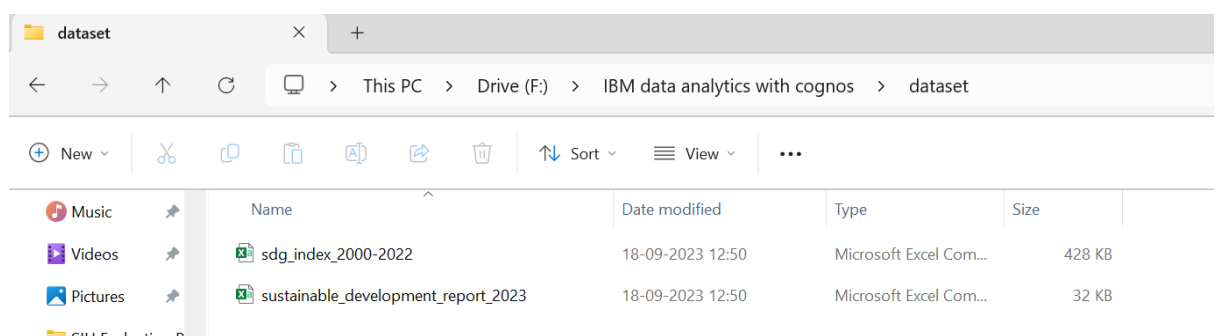
- **Social or Business Impact.**

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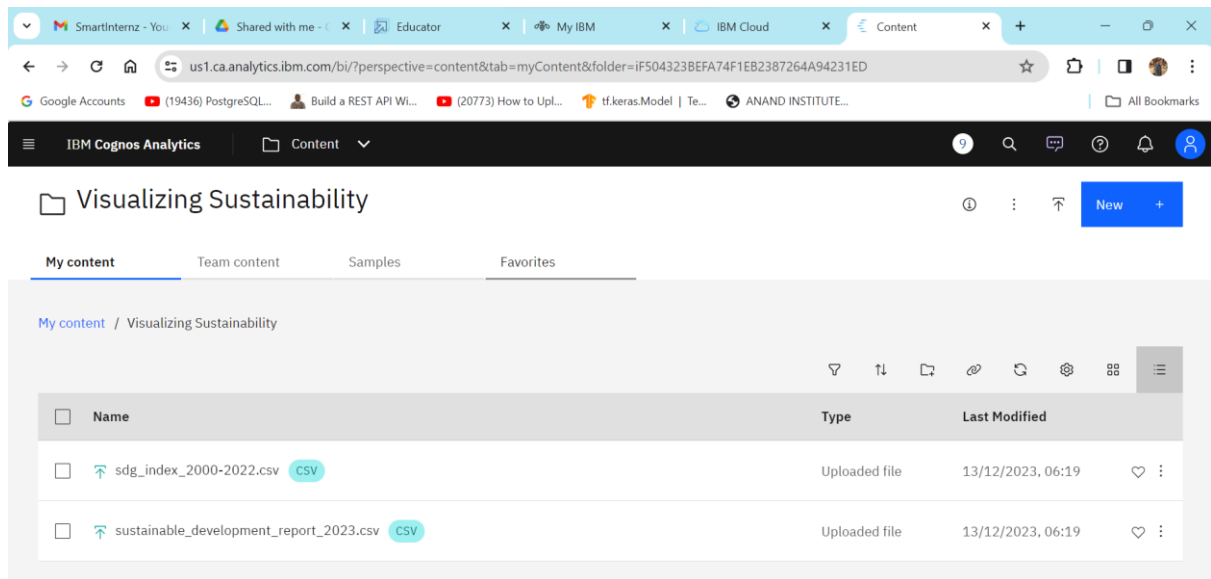
- **Data Collection & Extraction from Database**

- **Collect the dataset**

Data collection is the process of gathering and measuring information on variables of interest, in an established systematic fashion that enables one to answer stated research questions, test hypotheses, and evaluate outcomes and generate insights from the data.



- **Connect IBM DB2 with IBM Cognos**



https://us1.ca.analytics.ibm.com/bi/?perspective=ca-modeller&id=i778AC52A894A4E42A85024886DFD5553&objRef=i778AC52A894A4E42A85024886DFD5553&tid=1443936845_1010de6ea9fd420ba91ffb7f235fb485_sessionTemp

- **Data Preparation**
 - Prepare the Data for Visualization

SDG_INDEX .CSV

The screenshot shows the IBM Cognos Analytics web interface with the 'Visualizing Sustainability' data module selected. The left sidebar shows the 'Data module' list with 'sdg_index_...0-2022.csv' highlighted. The main area displays a table with the following data:

| Row Id | country_code | country | year | sdg_index_score | goal |
|--------|--------------|-------------|------|-----------------|------|
| 1 | AFG | Afghanistan | 2000 | 36 | 28 |
| 2 | AFG | Afghanistan | 2001 | 36.3 | 28 |
| 3 | AFG | Afghanistan | 2002 | 36.3 | 28 |
| 4 | AFG | Afghanistan | 2003 | 36.7 | 28 |
| 5 | AFG | Afghanistan | 2004 | 37.1 | 28 |
| 6 | AFG | Afghanistan | 2005 | 37.5 | 28 |
| 7 | AFG | Afghanistan | 2006 | 37.6 | 28 |
| 8 | AFG | Afghanistan | 2007 | 38 | 28 |
| 9 | AFG | Afghanistan | 2008 | 37.3 | 28 |

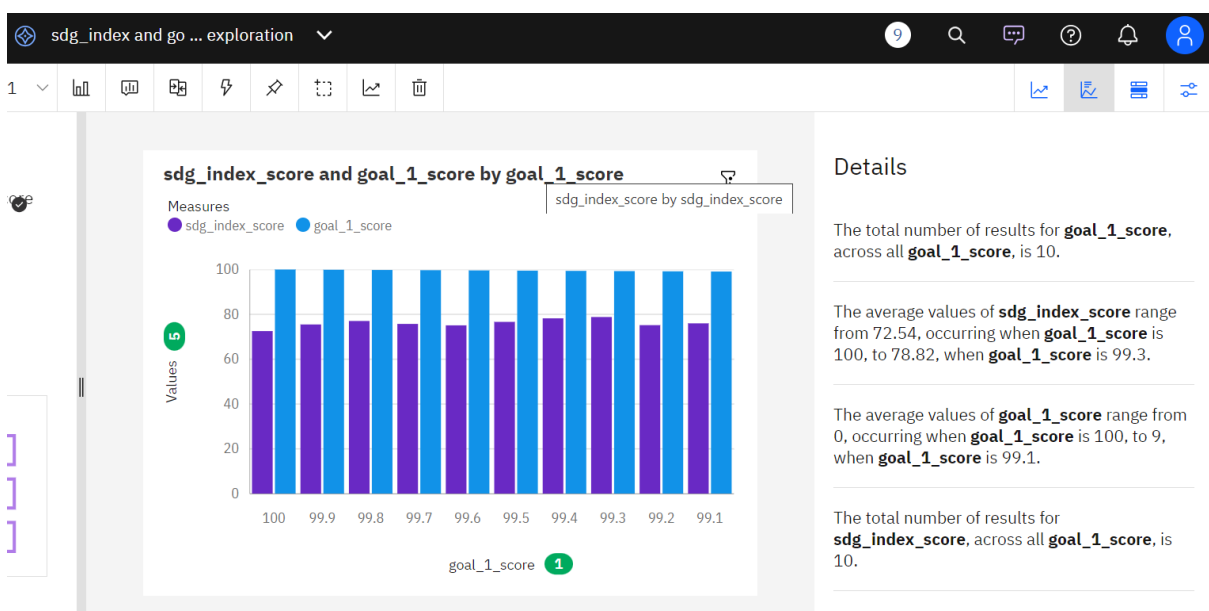
SUSTAINABILITY_DEVELOPMENT REPORT.CSV

| Row Id | country_code | country | region | overall_score | goal |
|--------|--------------|---------|--------|---------------|------|
| 1 | FIN | Finland | OECD | 86.76059478 | 99.3 |
| 2 | SWE | Sweden | OECD | 85.98139698 | 98.8 |
| 3 | DNK | Denmark | OECD | 85.68363681 | 99.3 |
| 4 | DEU | Germany | OECD | 83.35844651 | 99.3 |
| 5 | AUT | Austria | OECD | 82.28018933 | 99.3 |
| 6 | FRA | France | OECD | 82.04834271 | 99.3 |
| 7 | NOR | Norway | OECD | 82.00448915 | 99.3 |
| 8 | CZE | Czechia | OECD | 81.87455223 | 99.3 |
| 9 | POL | Poland | OECD | 81.80017556 | 99.3 |

- Data Visualizations
 - No of Unique Visualizations used 7(seven)

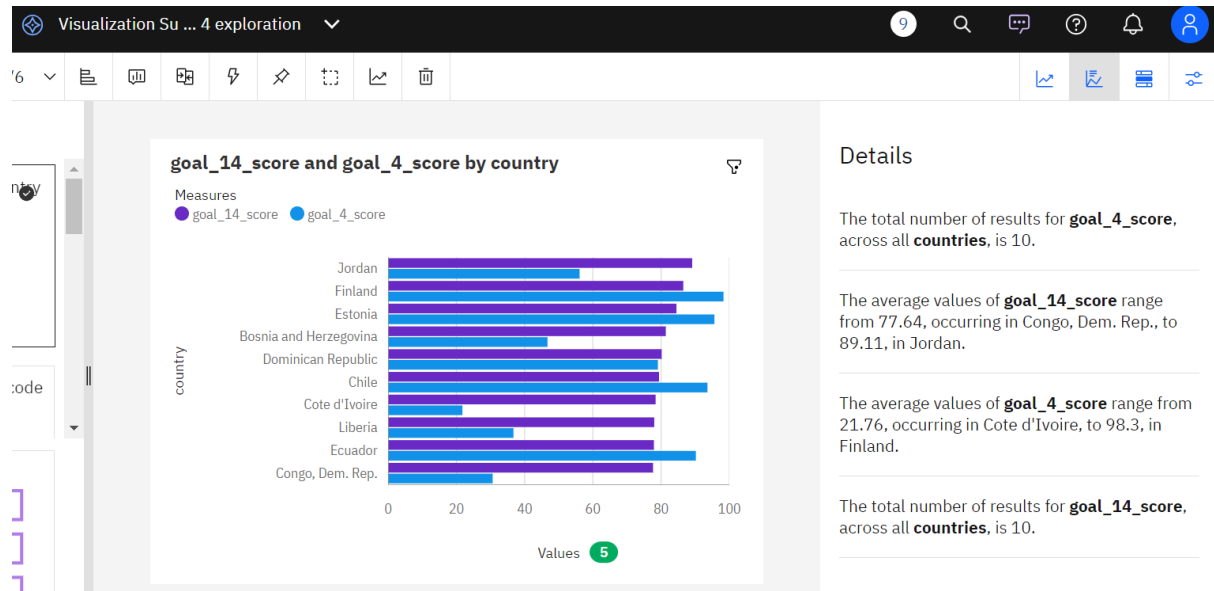
Analysis of Overall Sustainability on No Poverty

https://us1.ca.analytics.ibm.com/bi/?perspective=explore&pathRef=.my_folders%2Fsdg_index%2Band%2Bgoal-1%2Bexploration&subView=model0000018c633c868e_00000000



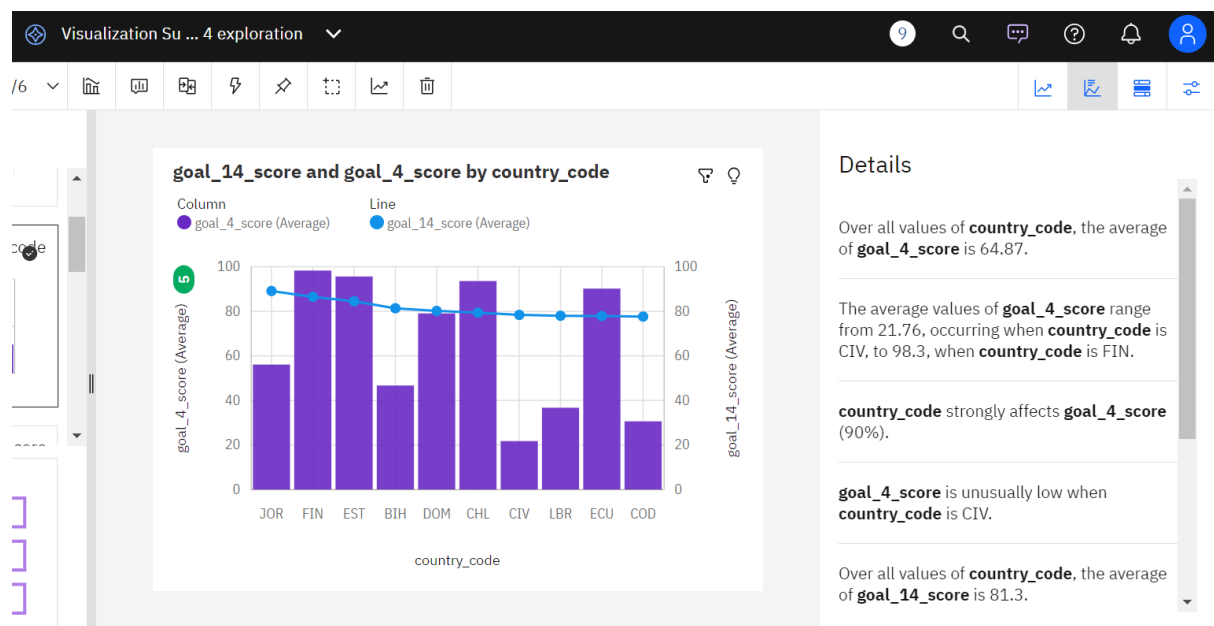
Analysis on Overall Sustainability on Quality of Education

https://us1.ca.analytics.ibm.com/bi/?perspective=explore&pathRef=.my_folders%2FVisualization%2BSustainability%2Bscore%2B14%2Band%2Bscore%2B4%2Bexploration&subView=model0000018c669ae69a_00000004



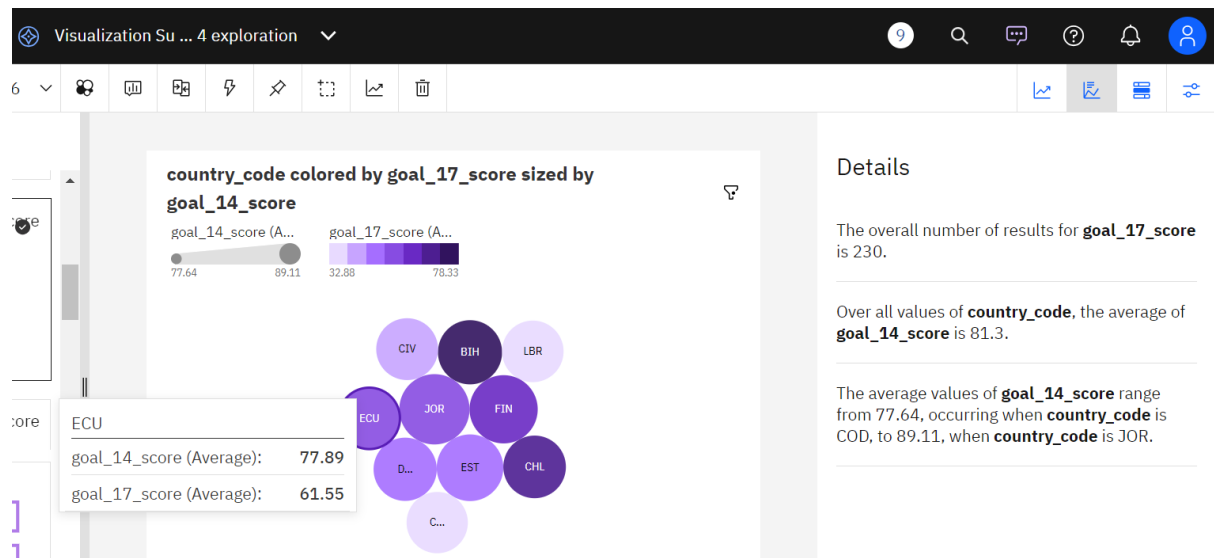
Analysis on Overall Sustainability Life Below Water

https://us1.ca.analytics.ibm.com/bi/?perspective=explore&pathRef=.my_folders%2FVisualization%2BSustainability%2Bscore%2B14%2Band%2Bscore%2B4%2Bexploration&subView=model0000018c669ae69a_00000004



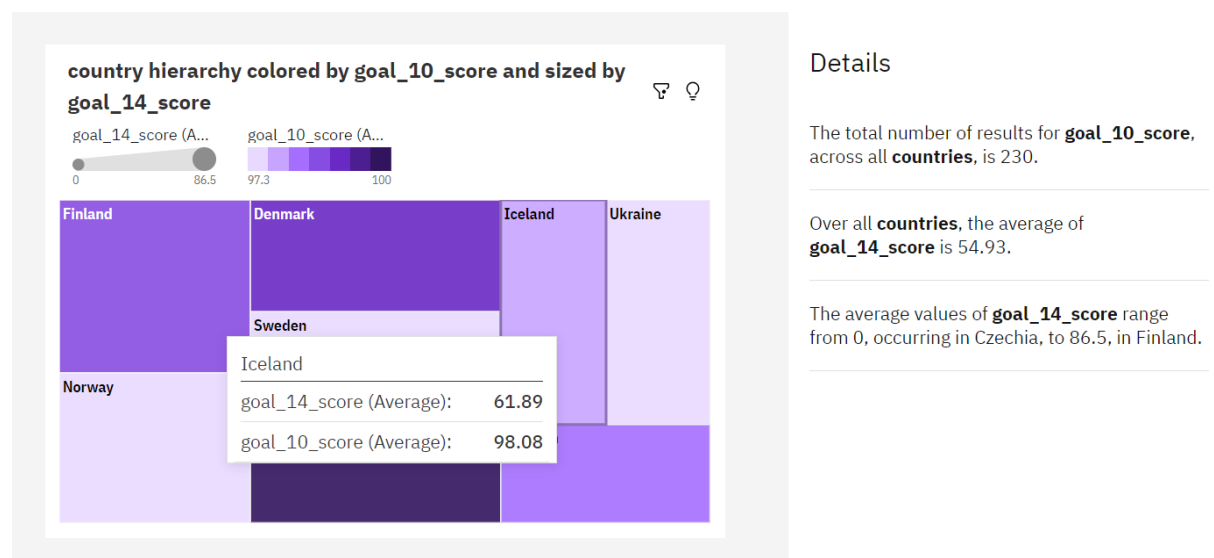
Analysis on Overall Sustainability Partnerships for the Goals

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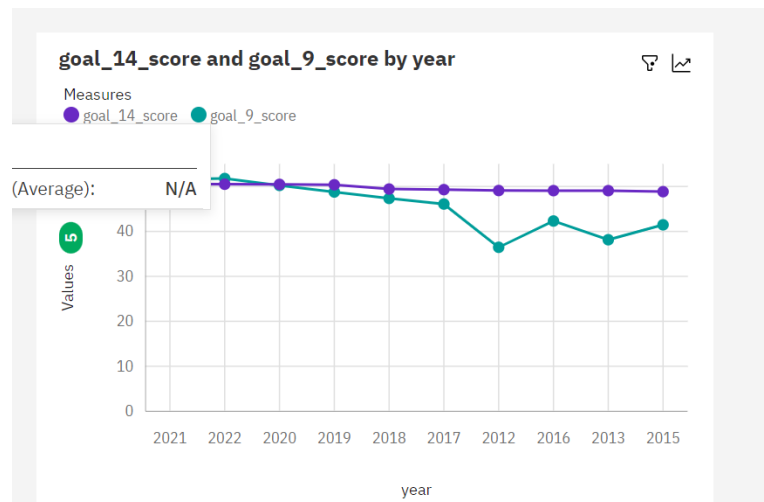
Analysis on Overall Sustainability Reduced Inequalities

https://us1.ca.analytics.ibm.com/bi/?perspective=explore&pathRef=.my_folders%2FVisualization%2BSustainability%2Bscore%2B14%2Band%2Bscore%2B4%2Bexploration&subView=model0000018c669ae69a_00000004



Analysis on Overall Sustainability Industry, Innovation and Infrastructure

https://us1.ca.analytics.ibm.com/bi/?perspective=explore&pathRef=.my_folders%2FVisualization%2BSustainability%2Bscore%2B14%2Band%2Bscore%2B4%2Be%2Fexploration&subView=model0000018c669ae69a_00000004



Details

The total number of results for **goal_9_score**, across all **years**, is 10.

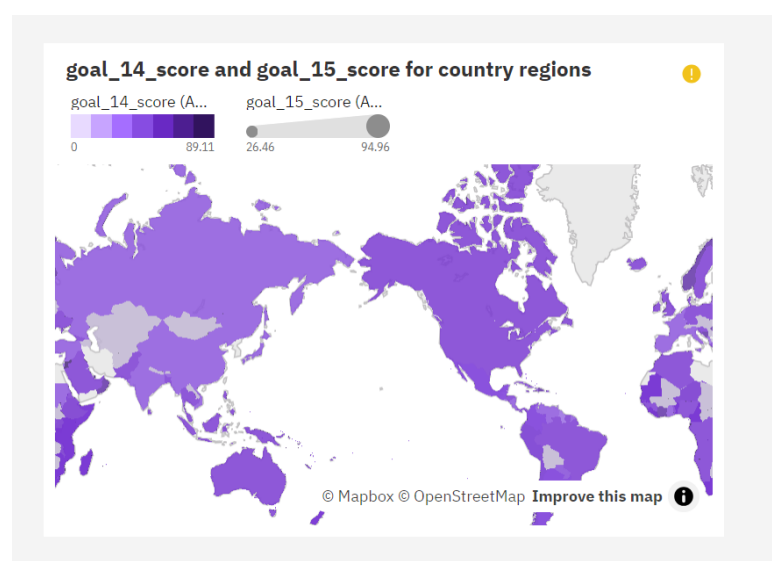
The total number of results for **goal_14_score**, across all **years**, is 10.

The average values of **goal_14_score** range from 48.85, occurring in 2015, to 50.51, in 2021.

The average values of **goal_9_score** range from 36.47, occurring in 2012, to 51.77, in 2022.

Analysis on Overall Sustainability Life On Land

https://us1.ca.analytics.ibm.com/bi/?perspective=explore&pathRef=.my_folders%2FVisualization%2BSustainability%2Bscore%2B14%2Band%2Bscore%2B4%2Be%2Fexploration&subView=model0000018c669ae69a_00000004



Details

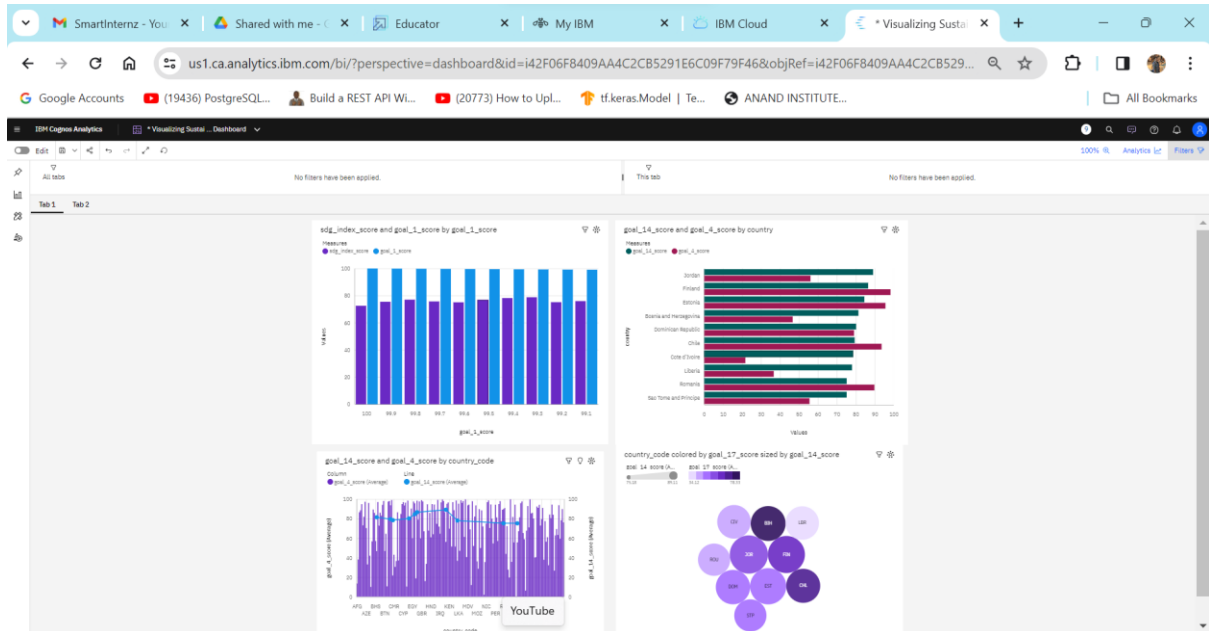
The total number of results for **goal_15_score**, across all **countries**, is over four thousand.

Over all **countries**, the average of **goal_14_score** is 48.57.

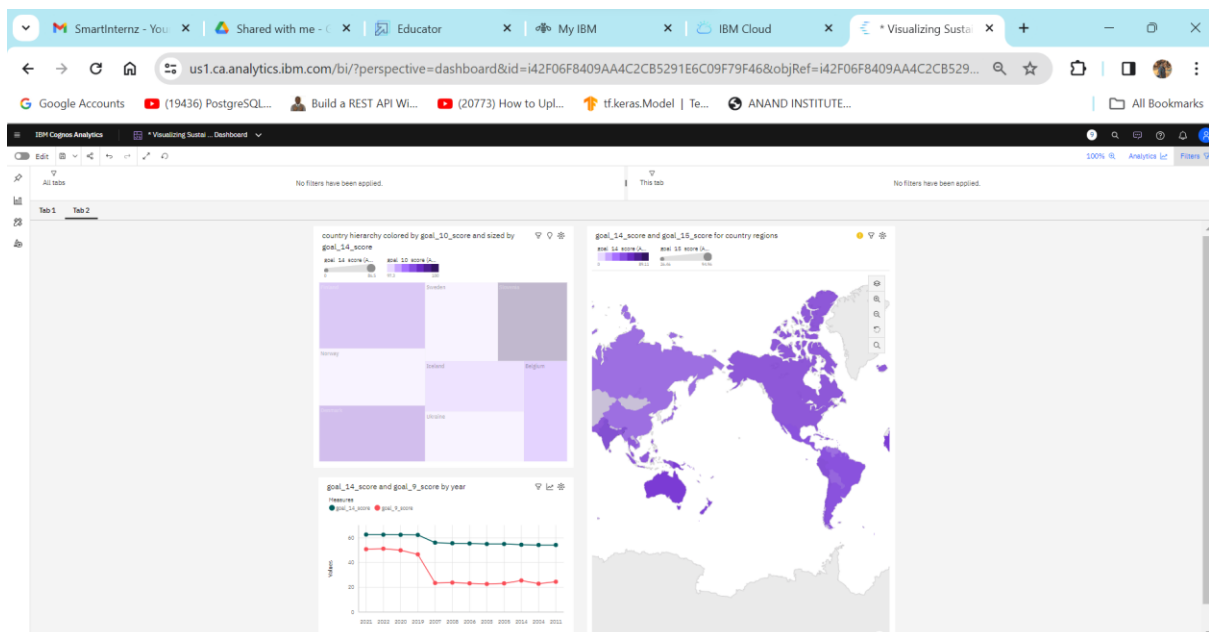
The average values of **goal_14_score** range from 0, occurring in Austria, to 89.11, in Jordan.

- Dashboard
 - Responsive and Design of Dashboard

https://us1.ca.analytics.ibm.com/bi/?perspective=dashboard&pathRef=.my_folders%2FVisualizing%2BSustainability%2BDashboard&action=view&mode=dashboard&subView=model0000018c66ea0236_00000002

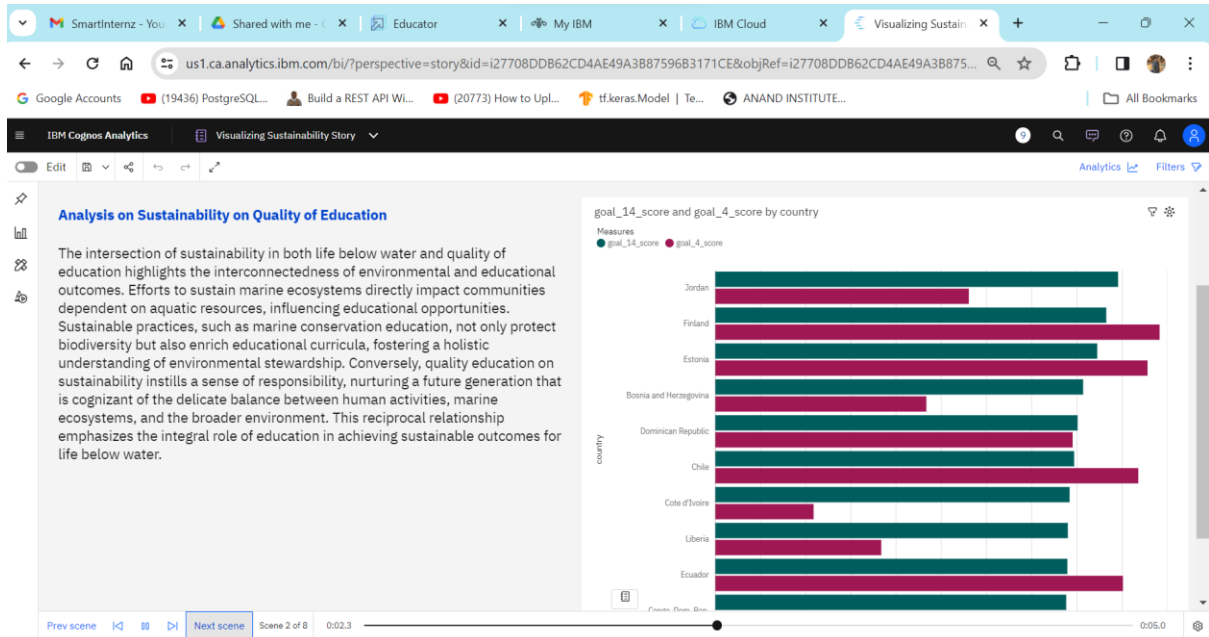
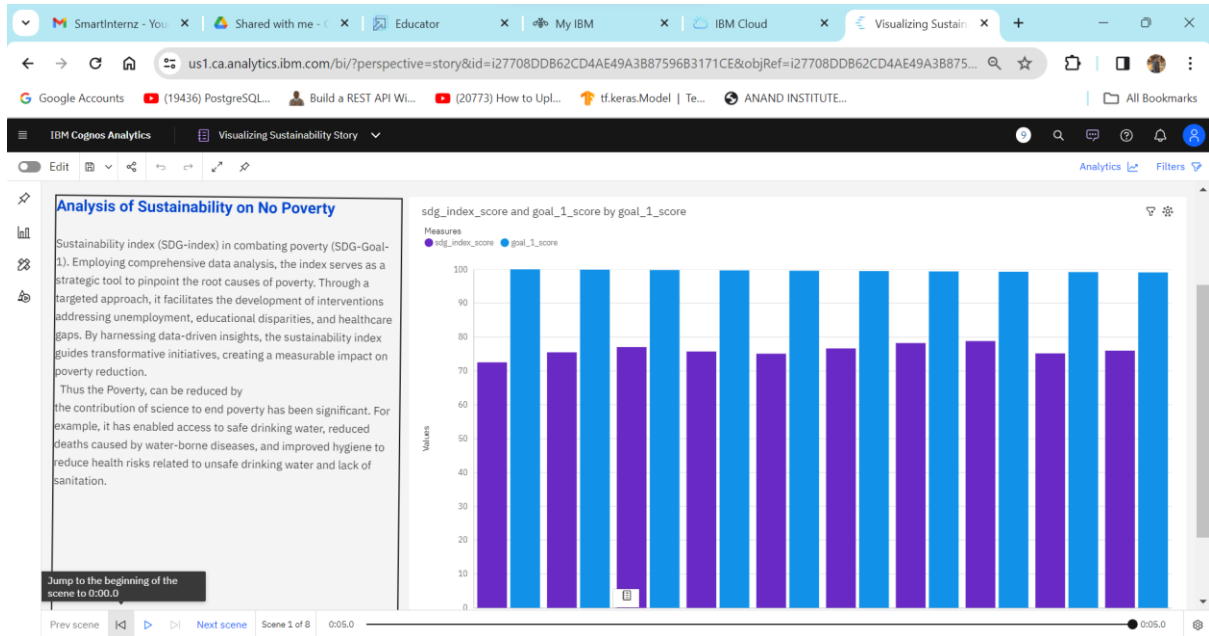


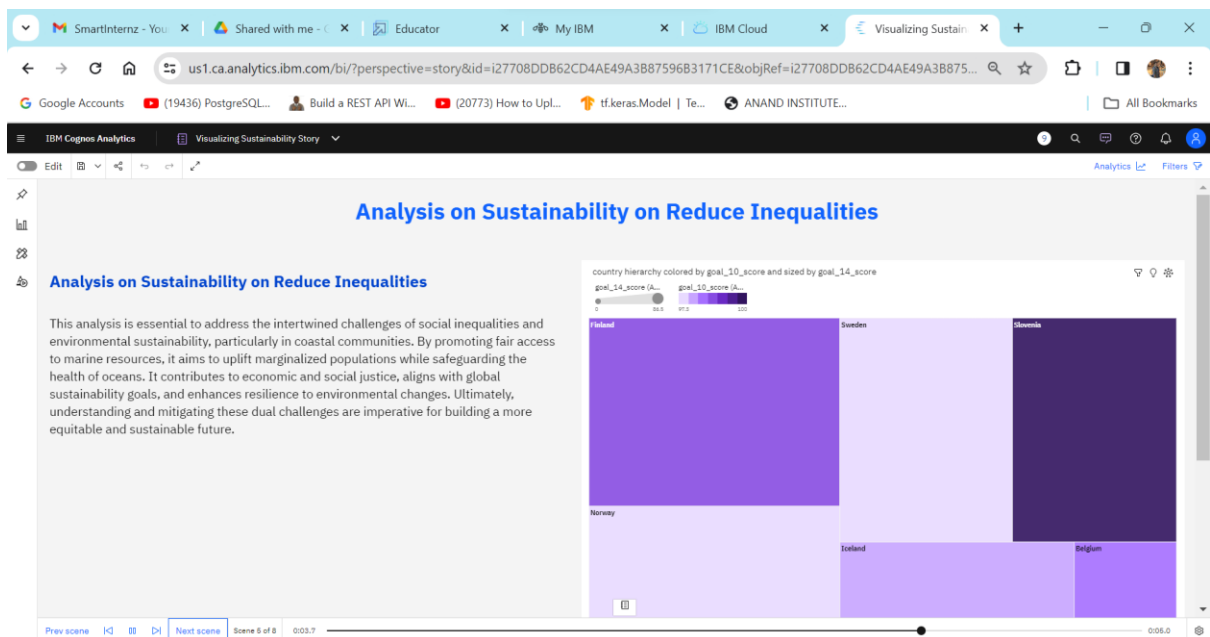
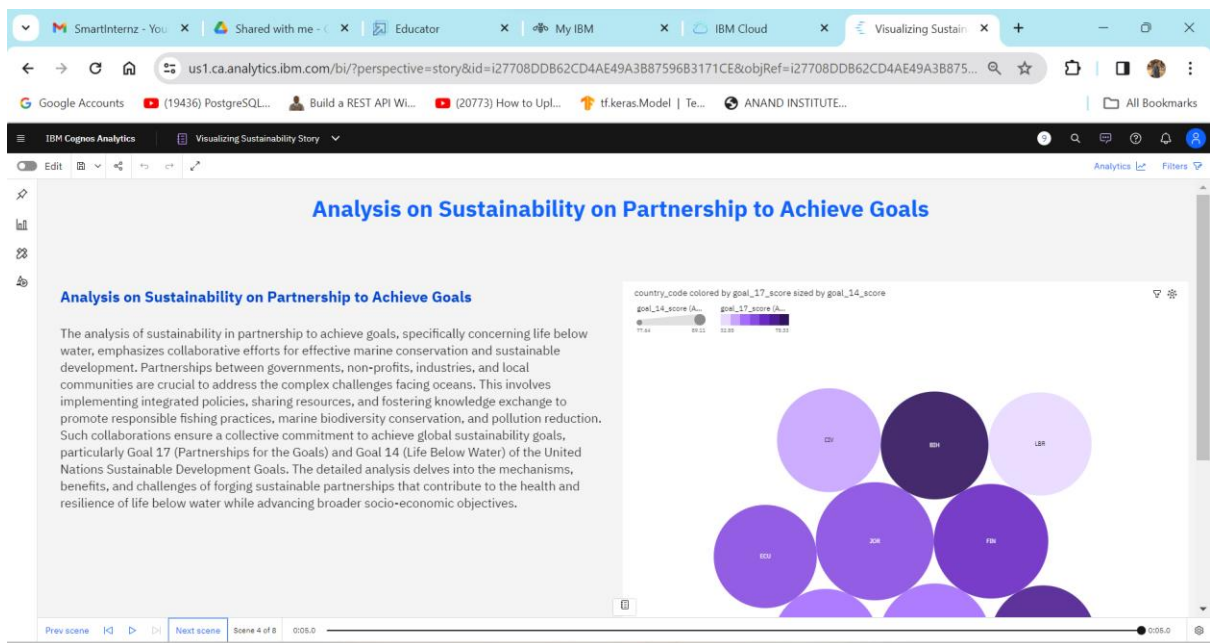
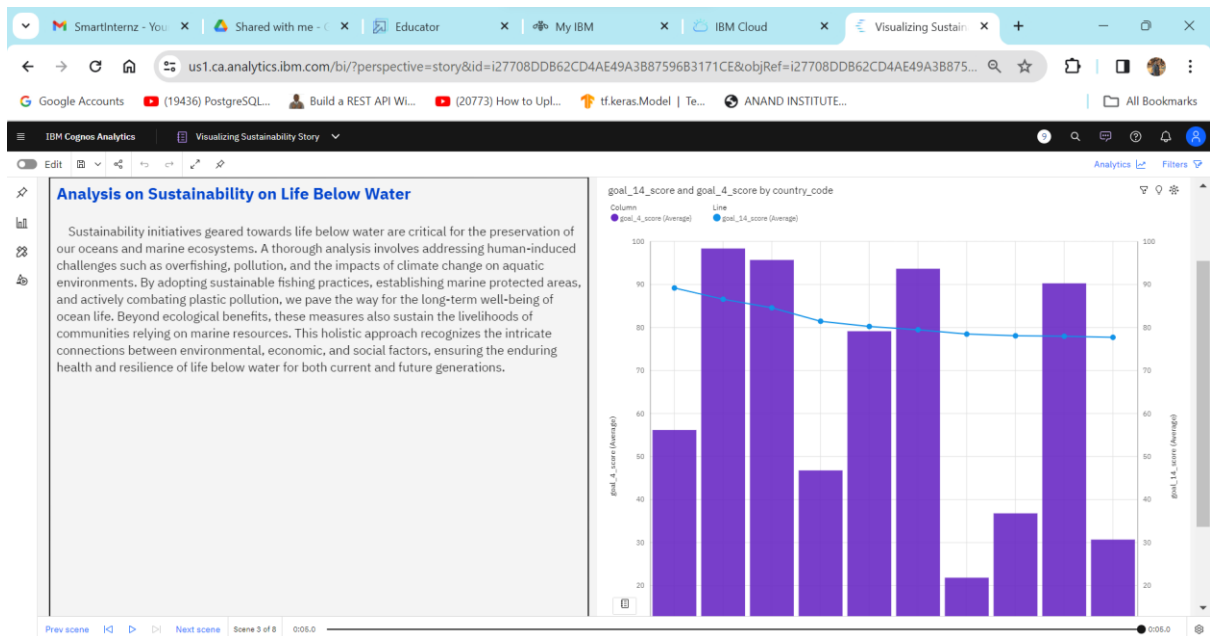
https://us1.ca.analytics.ibm.com/bi/?perspective=dashboard&pathRef=.my_folders%2FVisualizing%2BSustainability%2BDashboard&action=view&mode=dashboard&subView=model0000018c671337bd_00000000

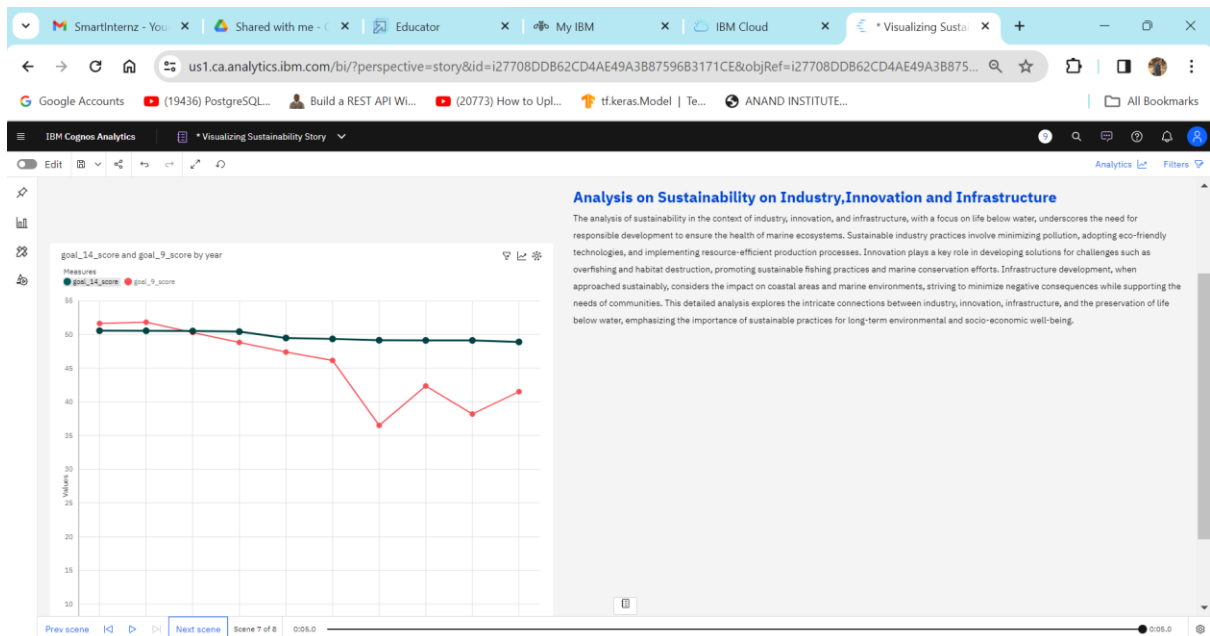
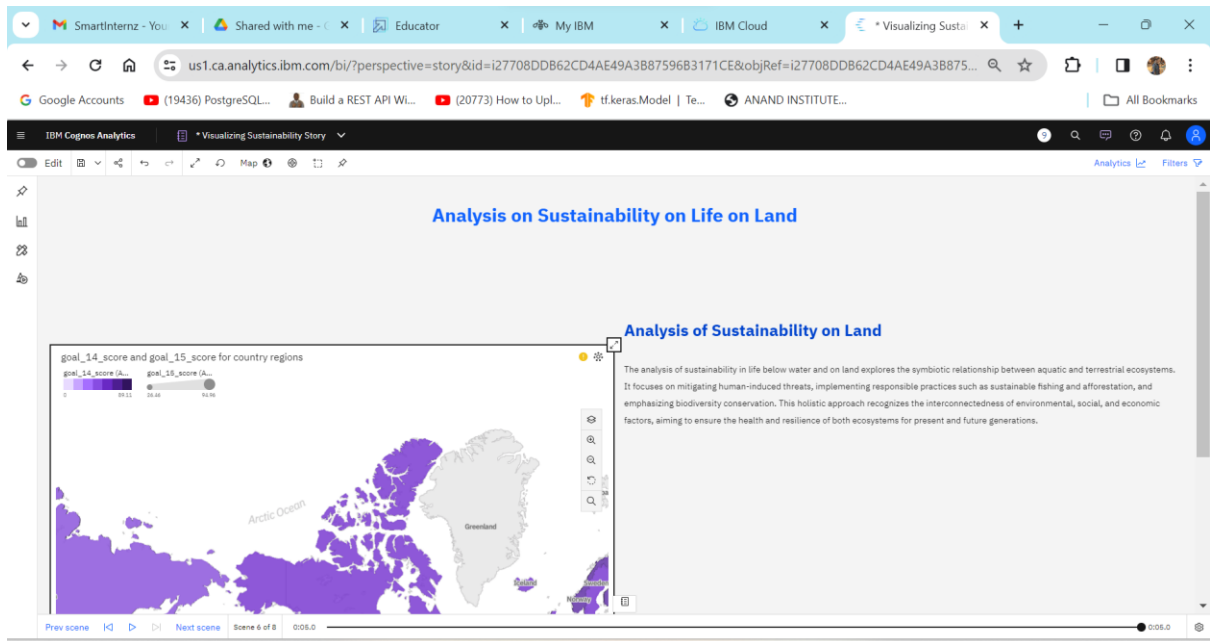


- Story
 - No of Scenes of Story (7 scenes)

https://us1.ca.analytics.ibm.com/bi/?perspective=story&pathRef=.my_folders%2FVisualizing%2BSustainability%2BStory&action=view&sceneId=model0000018cb6ccc693_00000002&sceneTime=0

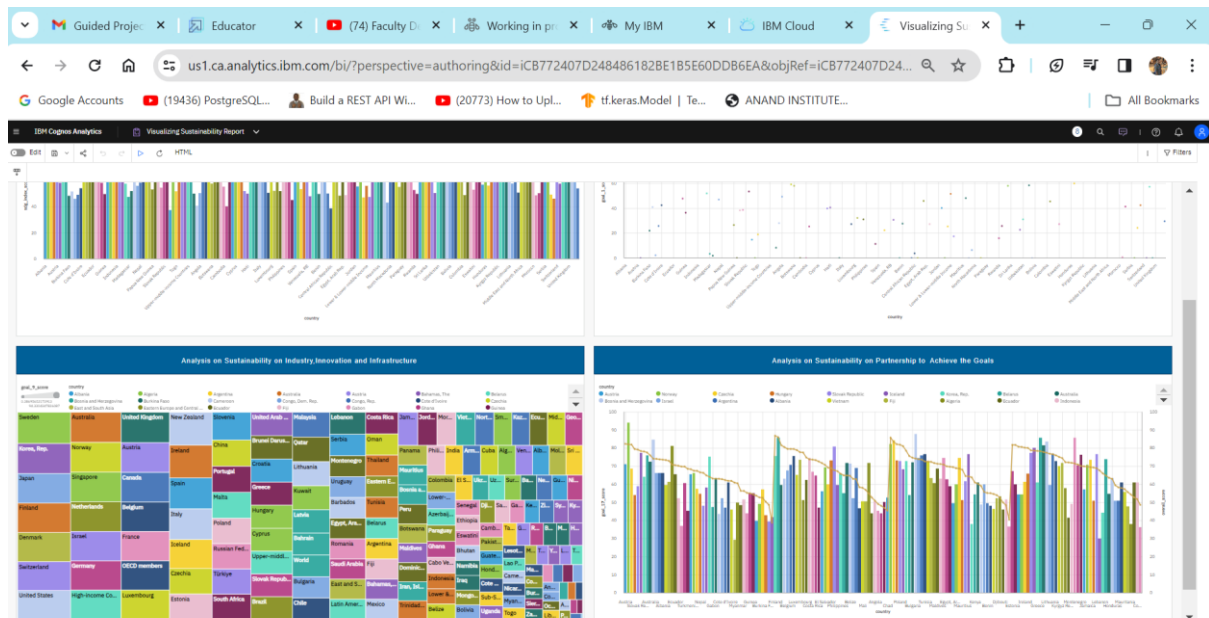






- Report
- Creating a report

https://us1.ca.analytics.ibm.com/bi/?pathRef=.my_folders%2FVisualizing%2BSustainability%2BReport&action=run&format=HTML&prompt=false



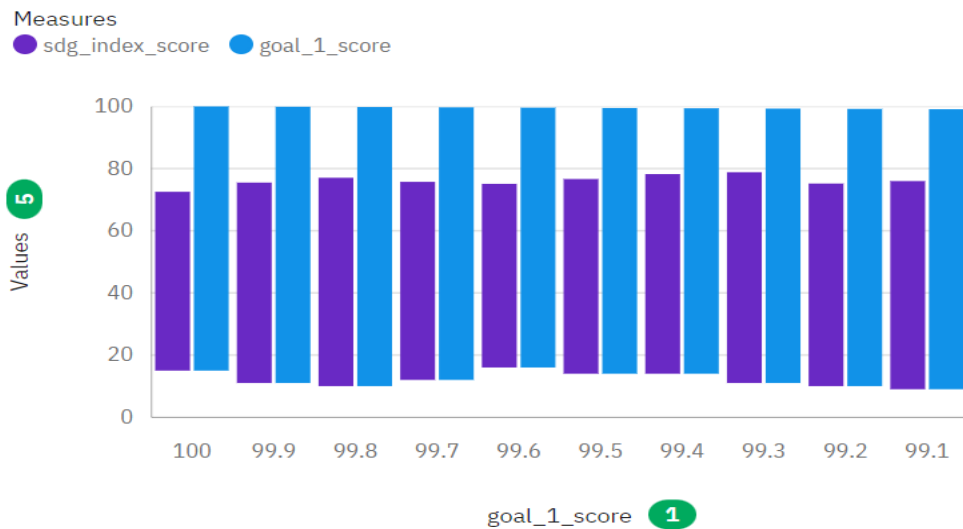
- **Performance Testing**

Performance testing is a non-functional software testing technique that determines how the stability, speed, scalability, and responsiveness of an application holds up under a given workload.

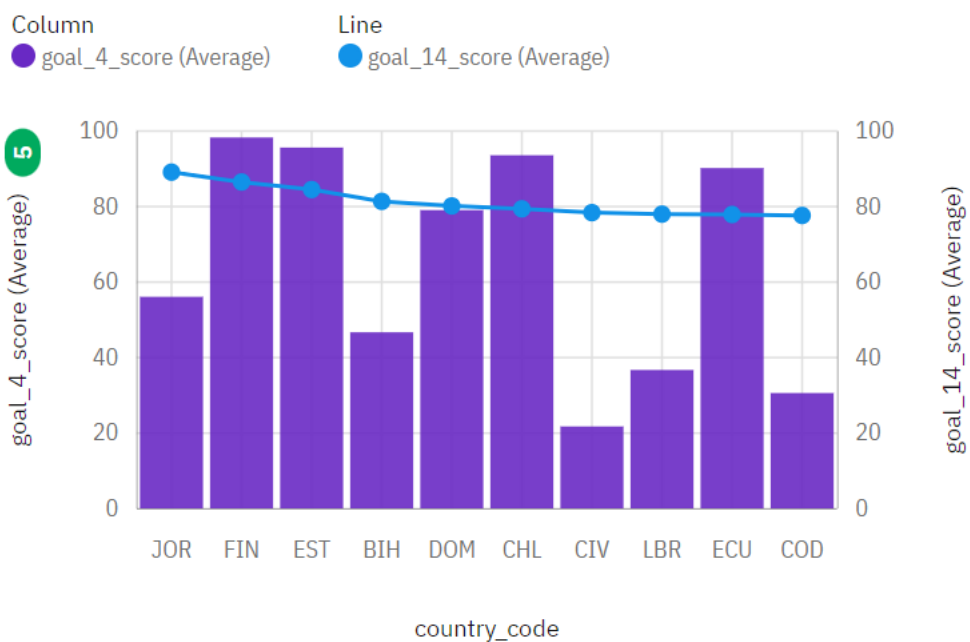
- Amount of Data Rendered to DB ‘

- **Utilization of Data Filters**

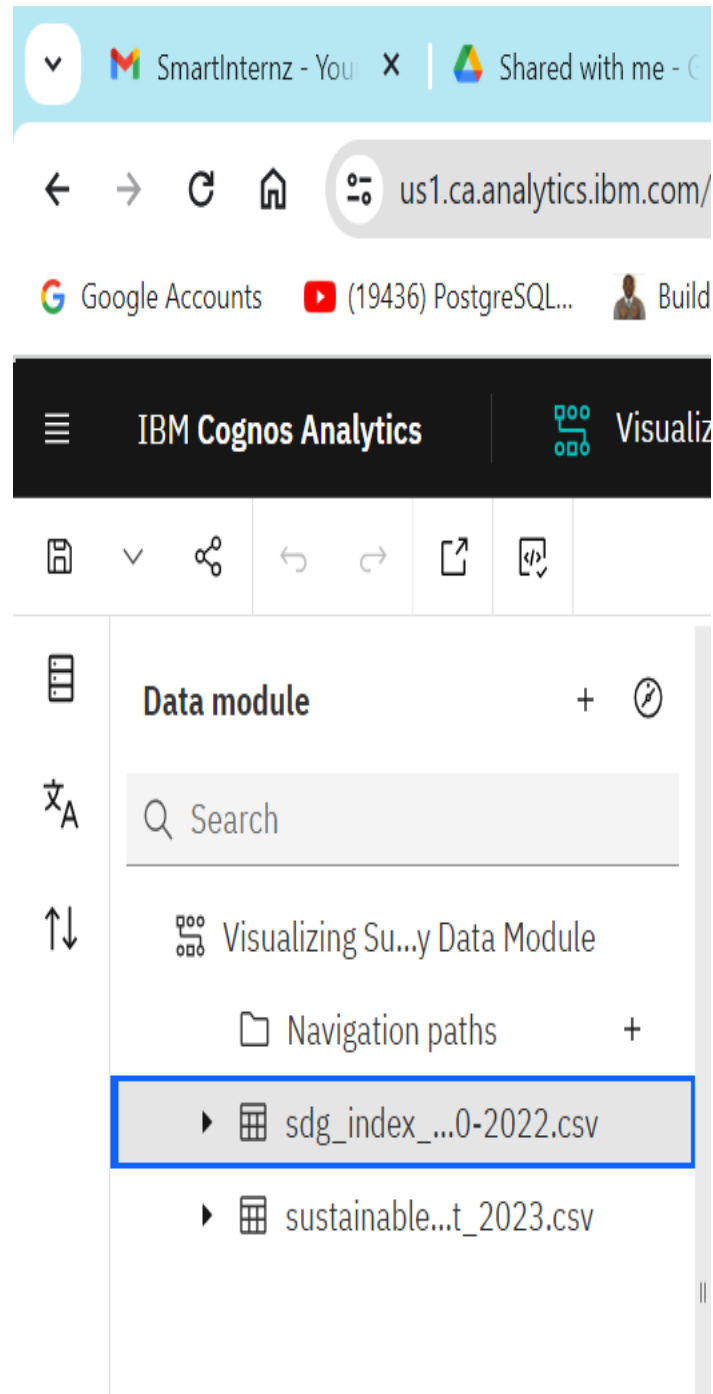
sdg_index_score and goal_1_score by goal_1_score

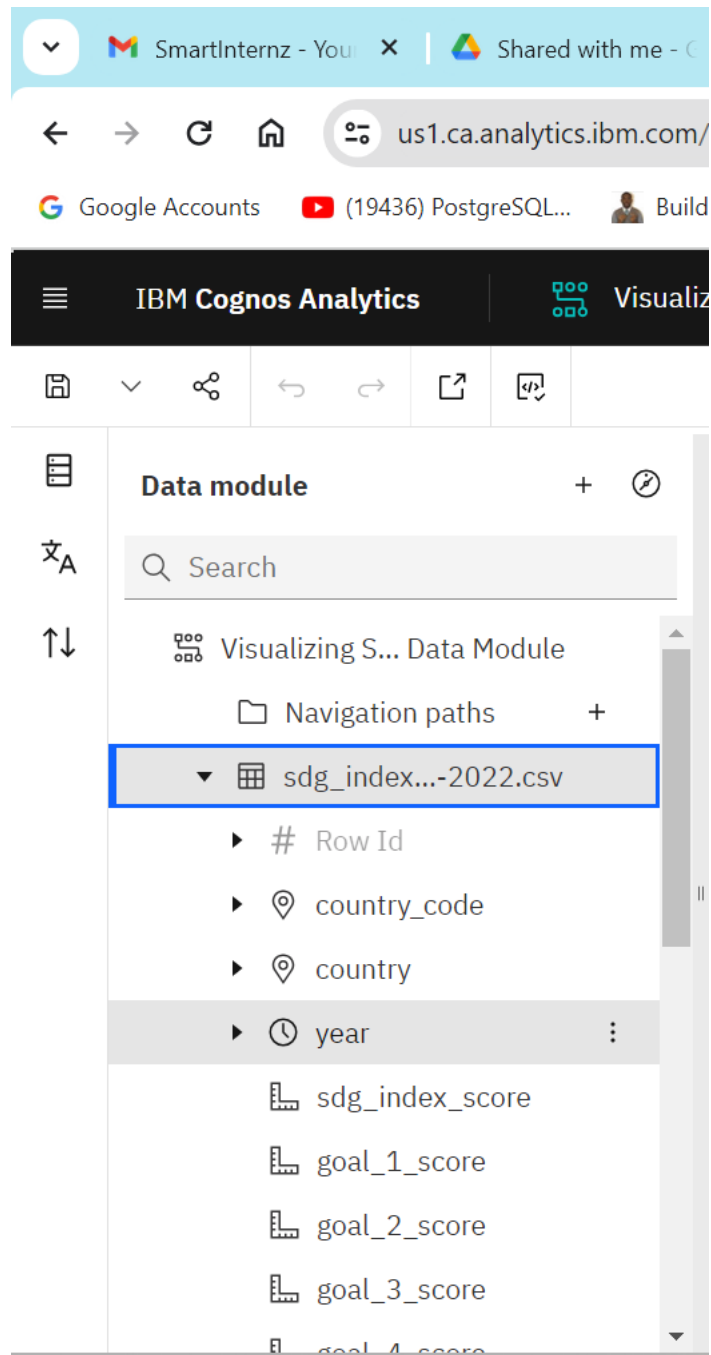


goal_14_score and goal_4_score by country_code



- **No of Calculation Fields**





• No of Visualizations/ Graphs

- Analysis on overall sustainability on No Poverty
- Analysis overall sustainability on Quality Education
- Analysis on overall sustainability Life Below Water
- Analysis on over all sustainability Partnerships for the Goals
- Analysis on overall sustainability Reduced Inequalities.
- Analysis on overall sustainability Industry, Innovation and Infrastructure.
- Analysis on overall sustainability Life on Land

- **Web Integration**
 - Dashboard and Story embed with UI With Flask
- **Project Demonstration & Documentation**
 - Record explanation Video for project end to end solution
 - Project Documentation-Step by step project development procedure