

Algonquin College

CST 2213_300: Business Intelligence Programming 2: Advanced Concepts

Project Phase 1

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Project Goals & Objectives

Title

Comparing Global Warming Rates Across Countries

Business Question

Have high, upper-middle, lower-middle and low-income countries warmed at different rates since 1960?

Objectives

- Build a 1960-2013 annual-mean-temperature table for every country and tag each country with its World-Bank income group (high or upper-middle or lower-middle or low-income).
- Visualise and quantify the warming trend for each group.
- Identify and highlight which income tier shows the steepest rise.

Data Collection (Sources & Strategies)

- Global Land Temperatures by Country – Kaggle
- World Bank Country & Lending Groups – Kaggle

Collection Steps

- Save both CSVs and load into pandas dataframe.
- In Python, parse dates in the temperature file, filter years ≥ 1960 , and left join on Country with the worldbank_classification.csv (World Bank Country & Lending Groups dataset).
- Export the cleaned, merged table for analysis and Power BI import if needed.

Data Exploration Report

- Missing temperatures: for AverageTemperature, AverageTemperatureUncertainty features it is 6% (Global Land Temperatures by Country dataset).
- Countries matched to an income group: 176 out of 243.
- Everything is warming. Every income group shows higher average temperatures in 2013 than in 1960.
- Total change: about +1 °C on average from 1960 to 2013.

Data issues

- Unmatched areas: 67 rows are regions/territories without an income tag.
- Some countries moved up/down a tier over the years.
- Data ends in 2013.

Tech stack

- Python + pandas
- Jupyter Notebook
- Matplotlib
- Power BI (if needed)

References

Global land temperatures by country. (2021b, July 1). Kaggle.

<https://www.kaggle.com/datasets/vijayvenkitesh/global-land-temperatures-by-country>

World Bank Country and lending groups. (2019, November 17). Kaggle.

<https://www.kaggle.com/datasets/taniaj/world-bank-country-and-lending-groups>