Health, Nutrition, and Population Statistics Dashboard

Preliminary Analysis and Visualization

Zhuoya Wang

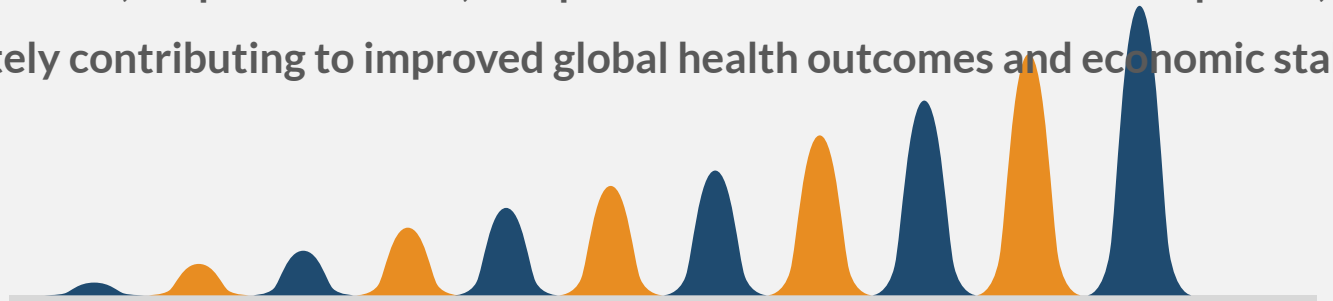
08/14/2024

Introduction

1. Purpose
2. Dataset Overview
3. Data Processing
4. Dashboard

World Bank

The World Bank reliases Health, Nutrition and Population (HNP) datasets to support global development by providing reliable data to inform decision-making, promote transparency and promote research. These datasets are important to understanding the links between health and economic growth, addressing inequalities, and monitoring progress towards international goals. By making this data public, the World Bank can help governments, researchers, and organizations develop targeted interventions, respond to crises, and plan for future sustainable development, ultimately contributing to improved global health outcomes and economic stability.



01 Purpose

Challenges Description

The Health, Nutrition, and Population (HNP) datasets released by the World Bank contain a vast amount of information across various themes. However, the complexity and huge volume of this data make it challenging to access and interpret

Goal:

Create a user-friendly dashboard that allows stakeholders to easily explore these datasets, identify key trends, and make informed decisions.

02

Dataset Overview

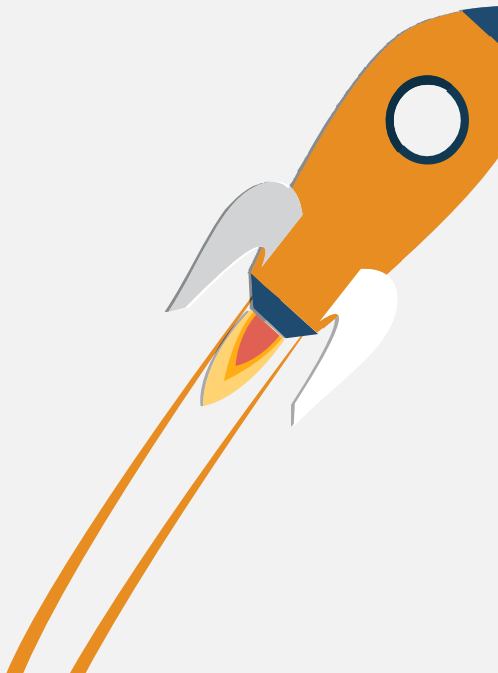
Introduction of Data

- **HNP_StatsData.csv:** This dataset contains detailed annual statistics on various health, nutrition, and population indicators for different countries.
- **HNP_StatsCountry.csv:** This dataset provides the country codes and corresponding regions, essential for grouping and comparing data across geographic areas.
- **HNP_StatsCountry-Series.csv:** This dataset includes metadata linking specific indicators to the countries they are associated with, helping to contextualize the data.
- **HNP_StatsFootNote.csv:** This dataset contains footnotes and additional context for certain data points, clarifying any special conditions or considerations.
- **HNP_StatsSeries.csv:** This dataset lists the different indicators available in the main data, along with their definitions and classifications.
- **HNP_StatsSeries-Time.csv:** This dataset tracks the time coverage for each indicator, detailing which years are available for analysis.

03 Data Processing

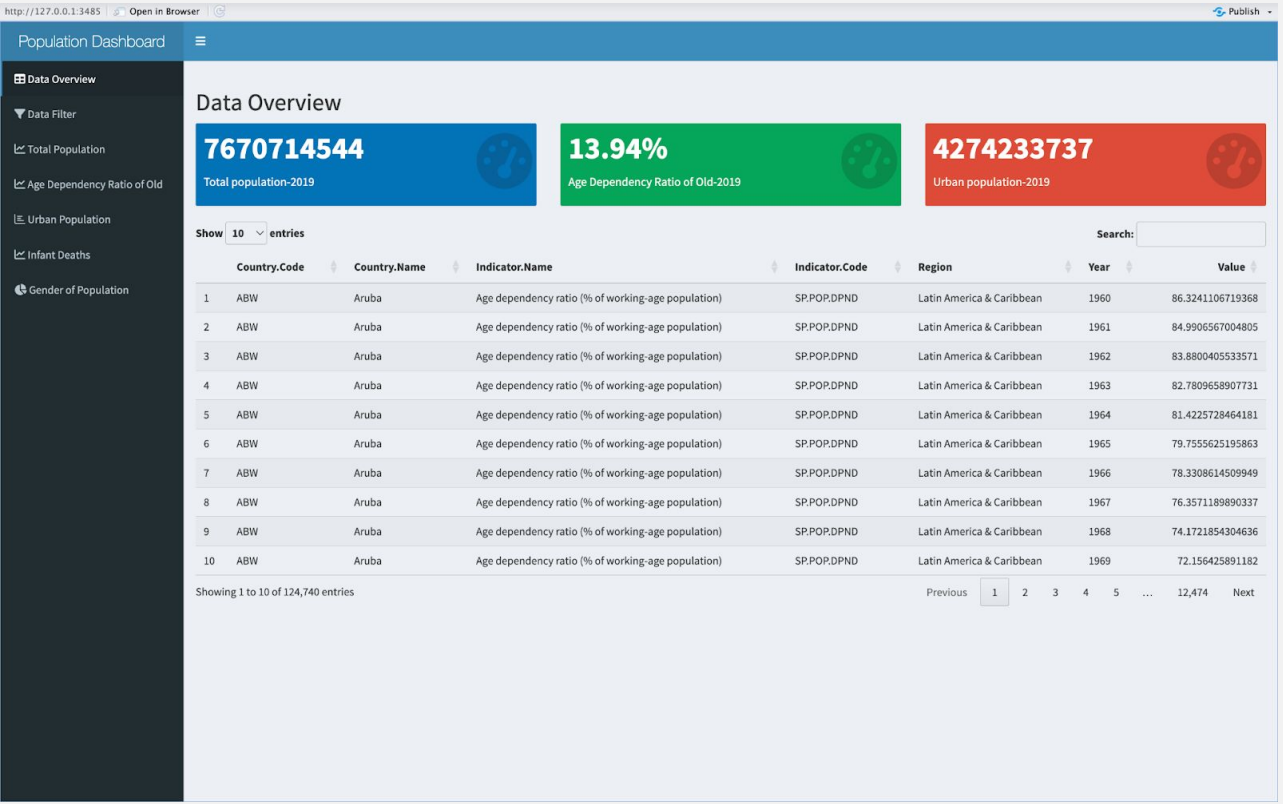
Preprocessing of Data

- HNP_StatsData.csv and HNP_StatsCountry.csv were chose to be the maindataset of the visulization.
- Removed unnecessary columns from the main dataset (HNP_StatsData.csv), specifically columns ‘X’ and ‘X2020’, to streamline the data.
- Removed NA on HNP_StatsData.csv to ensure cleaner analysis.
- Merged HNP_StatsData.csv with HNP_StatsCountry.csv to add region information based on the Country.Code, facilitating regional comparisons.
- Transformed the data from wide to long format using pivot_longer, converting year columns into a single Year column to facilitate time series analysis.



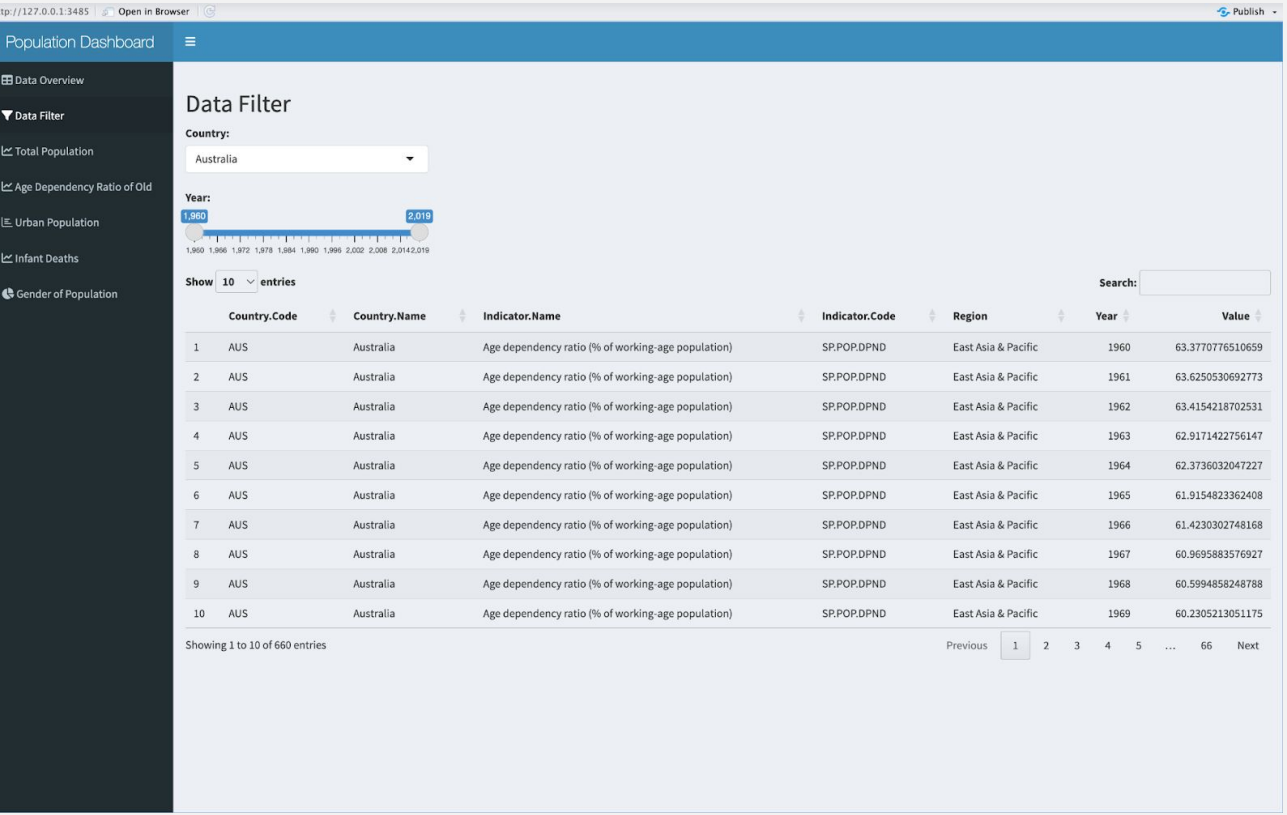
04 Dashboard

Dashboard - Data Overview



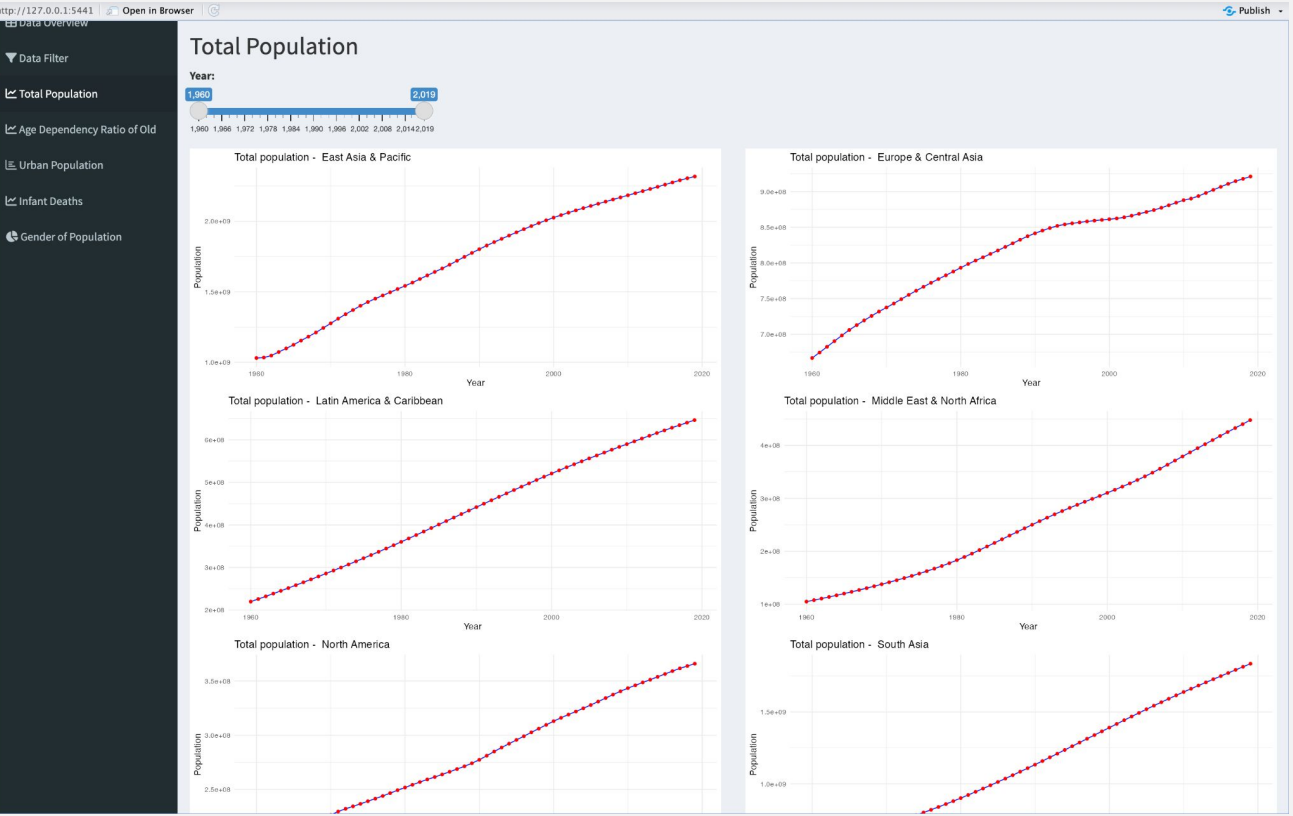
- **Summary Board:** presents global population metrics for 2019
- **Detailed Data Table:** Provides country-level statistics with the ability to explore and compare demographic data by year and region.
- **Search Function:** Allows users to quickly locate specific countries or indicators within the dataset.
- **Purpose:** a quick reference to understand global population trends before exploring more detailed analysis in the dashboard.

Dashboard - Data Filter



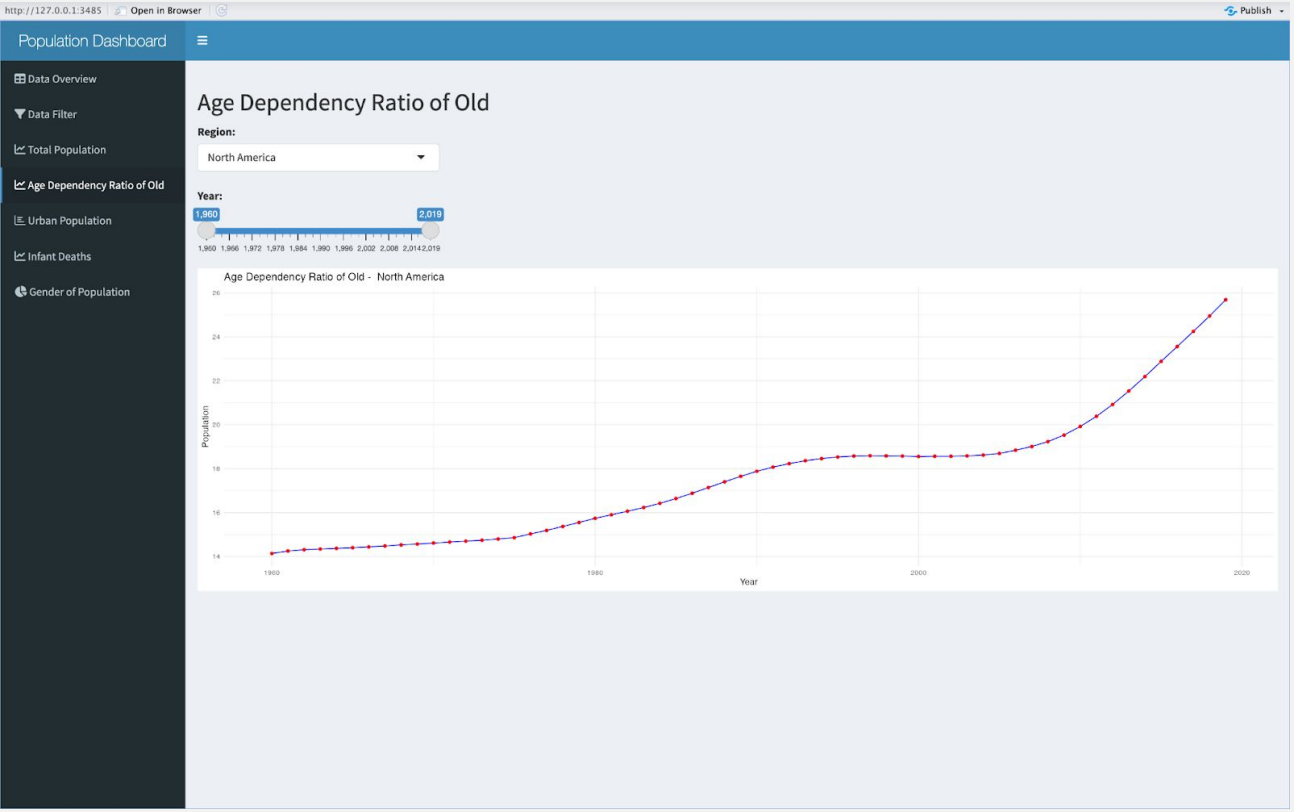
- **Interactive Filter:** Users can easily adjust the year range using a slider and select a specific country.
- **Detailed Table:** The data is displayed in a table format, showing relevant information such as country code, indicator name, region, year, and value. This table helps users to scrutinize specific data points and observe how they change over time.
- **Search Function:** this tab enhances usability by allowing users to quickly locate specific entries within the filtered data.

Dashboard - Total Population



- **Population Growth Visualization:** presents a line chart that tracks the total population for all region over a specified time range.
- **Interactive Region and Year Selection:** Users can compare the total population of seven regions over years by adjust the year range using a slider, making it easy to focus on particular time periods or geographic areas.

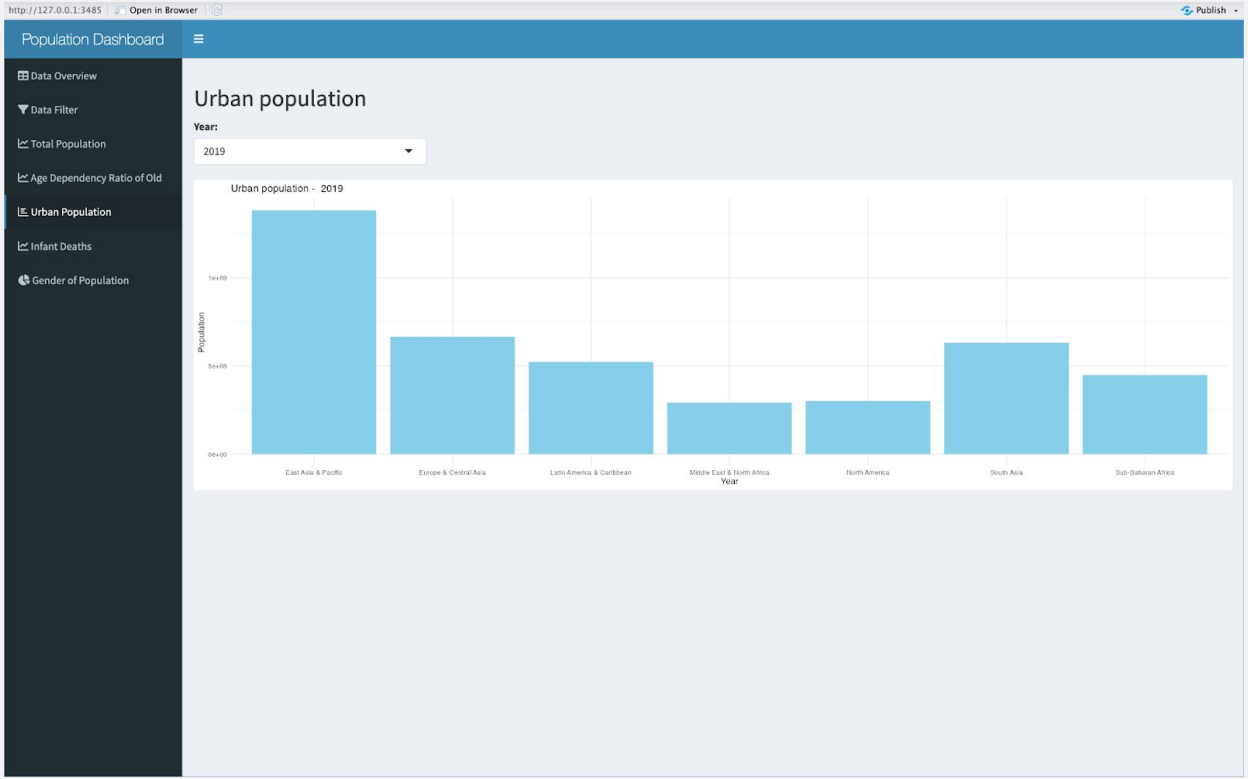
Dashboard - Age Dependency OR



- **Aging Population Analysis:** this tab visualizes the ratio of elderly dependents (aged 65 and above) to the working-age population (aged 15-64) in a selected region over time(ex:North America).

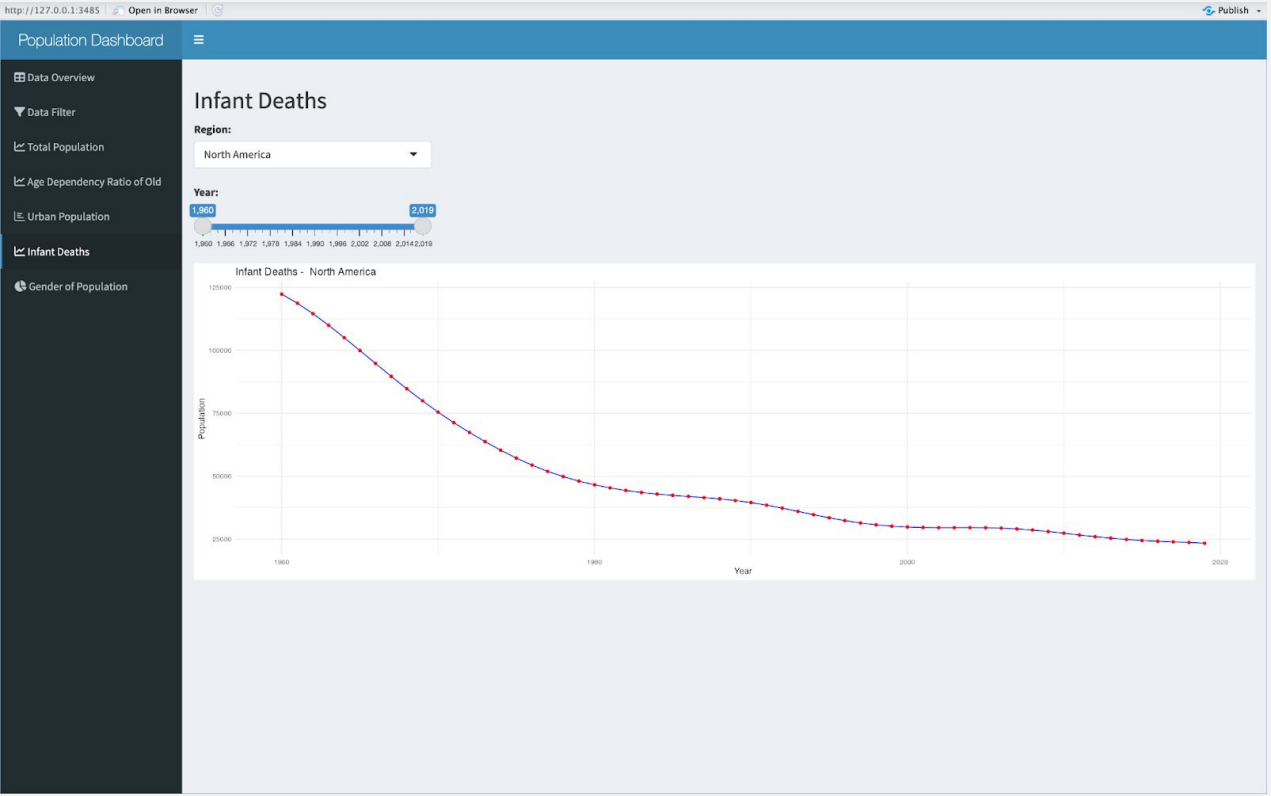
- **Interactive Region and Year Selection:** Users can select a specific region and adjust the time range, making it easy to analyze trends of the ratio in different geographic areas and time periods.

Dashboard - Urban Population



- **Urbanization Analysis:** this bar charts display the urban population across different regions for a selected year. This visualization helps users understand the distribution of urban populations globally and compare the level of urbanization between regions.

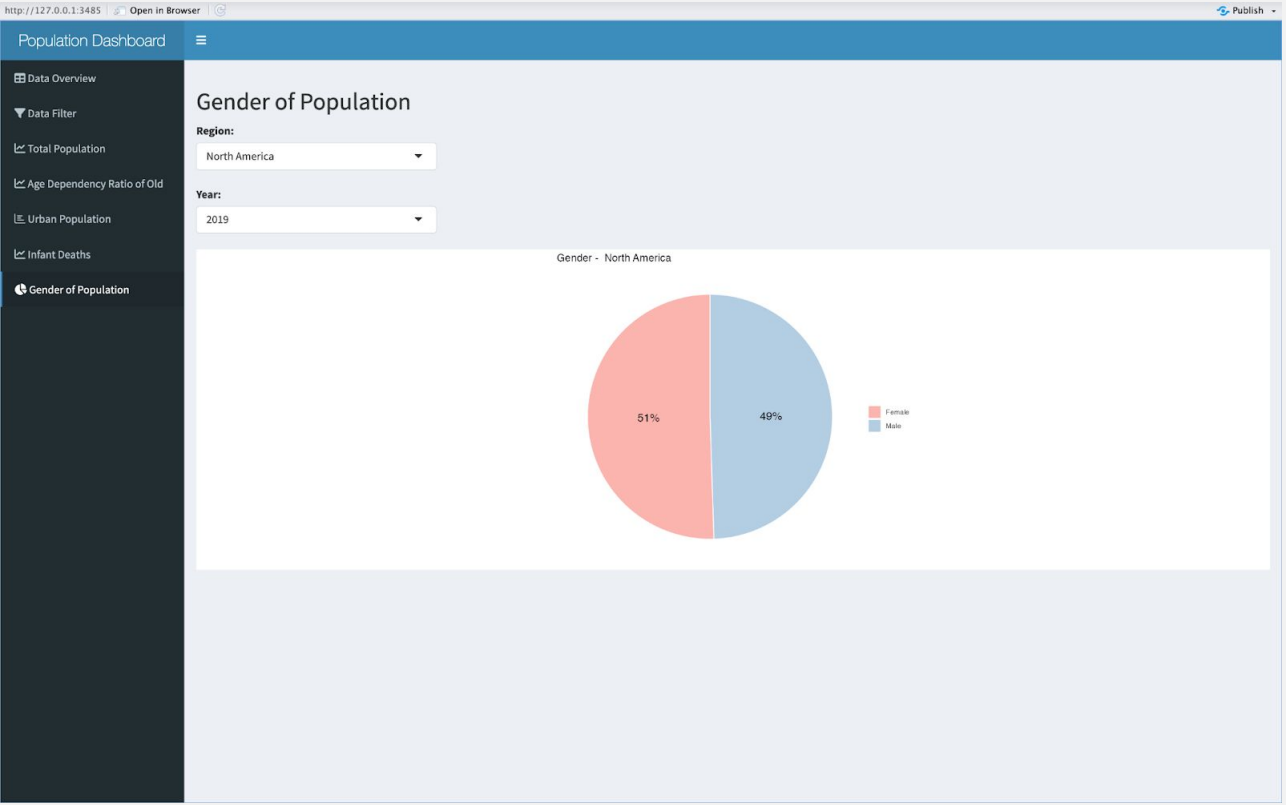
Dashboard - Infant Death



- **Monitoring Infant Mortality:** a line chart that tracks the number of infant deaths in a selected region over a specified time period. This visualization is crucial for monitoring trends in infant mortality, which is a key indicator of public health and the effectiveness of healthcare systems.

- **Interactive Region and Year Selection:** Users can select a region and adjust the time range, helping in analyzing how infant mortality rates have changed over time and across different regions

Dashboard - Gender of Population



- **Gender Distribution**: this pie chart shows the gender distribution (male vs. female) within a selected region for a specific year. This visualization helps users understand the gender balance in the population in a specific year, which can be crucial for assessing social dynamics and planning gender-specific policies.

Conclusion:

Global Population Growth:

- The dashboard shows a steady increase in global population across all regions, pointing out the need for sustainable resource management and infrastructure development to accommodate this growth.

Rising Age Dependency Ratios:

- Many regions, particularly in developed areas, are experiencing a significant rise in the age dependency ratio of the elderly, indicating an increasing economic burden on the working-age population.

Declining Infant Mortality:

- The data shows a great decline in infant mortality rates over time, reflecting improvements in healthcare systems and public health initiatives globally (Excluding sub-saharan Africa).

Discussion:

Insights:

- The dashboard highlights significant urban population growth, particularly in developing regions like East Asia & Pacific. This underscores the need for proactive urban planning to address the challenges of rapid urbanization.
- The rising age dependency ratio in many regions causes impending challenge for social services and economic systems.
- The bell-shaped infant mortality in sub-saharan Africa Reflects initial healthcare improvements, setbacks due to health crises.

Limitations:

- **Data Coverage Gaps:** Some regions or countries may have incomplete or missing data for certain years or indicators, which could limit the accuracy and comprehensiveness of the analysis.

Recommendations:

- **Expand Data Source to fill in gaps**

Thank you!

Zhuoya Wang 08/14/2024