

Income Inequality Dashboard Report

Project Overview

This interactive Shiny for Python dashboard analyzes the income disparities using the Adult income Dataset gotten from kaggle. It enables users to explore how demographics, education, and occupation affect income levels ($>50K$ or $\leq 50K$). Designed for researchers and policymakers, the tool reveals key socioeconomic patterns through dynamic visualizations.

Development Process

The project combines static analyses with real-time interactive filtering and cross-linked visualizations. I preprocessed the dataset (48,842 records) by handling missing values and building age ranges by grouping them. The app consolidates Plotly and Seaborn visuals in a modular layout, though mobile optimization is ongoing.

Key Feature

- Interactive sunburst and box plot visualizations
- Demographic filtering by the age, gender, and by race of the adults
- Responsive design with efficient data handling
- Open-source code for reproducibility
- Dark mode interface

Challenges & Solutions

The early deployment issues on Shinyapps.io were as well addressed through the dependency management. User testing led to enhanced interfaces like fewer filters. Performance optimisation was performed for long queries.

Access & Future Work

The dashboard is made available on the web and will include predictive analytics and increased mobile support. The tool is able to bring together academic research and applied policy analysis, showcasing how interactive visualization can shed light on complex socioeconomic information.