

# College Navigator: An Interactive R Shiny Application for Transparent and Evidence-Based Decision-Making

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## Motivation

The U.S. college application process is **complex** and **overwhelming**, with existing decision-support tools failing to adequately serve students.

Key limitations of traditional tools include:

- Ranking manipulation (Diver, 2022).
- Lack of data transparency (Readings, 1997).
- Fragmented information sources (Avery et al., 2014).
- Prestige > Fit (Sacks, 2010).
- Limited accessibility & financial barriers (Jeffrey & Gibbs, 2024).
- Cognitive overload (Tafesse, 2024).

## Data

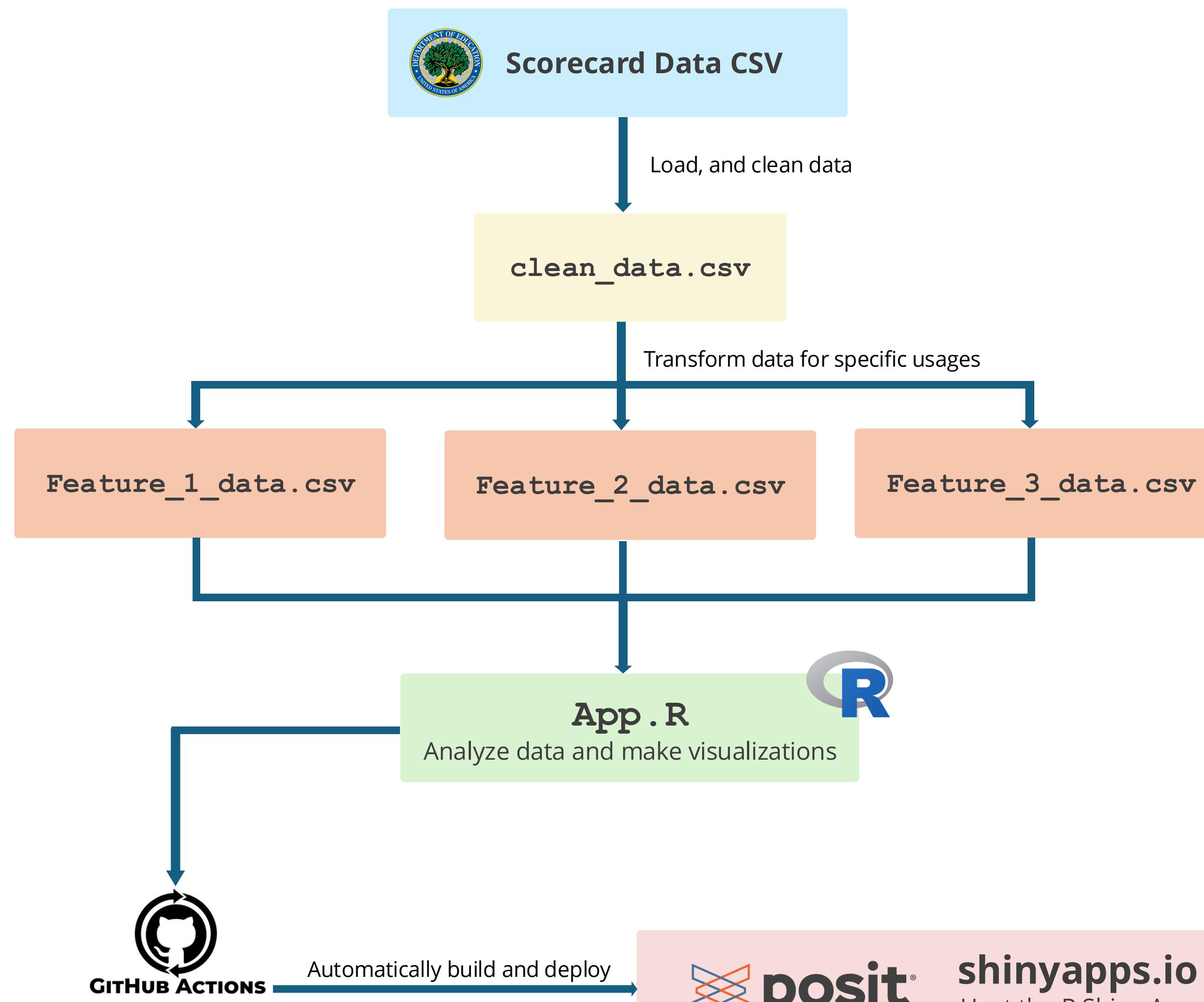


U.S. Department of Education's College Scorecard  
Publicly available and well-documented data

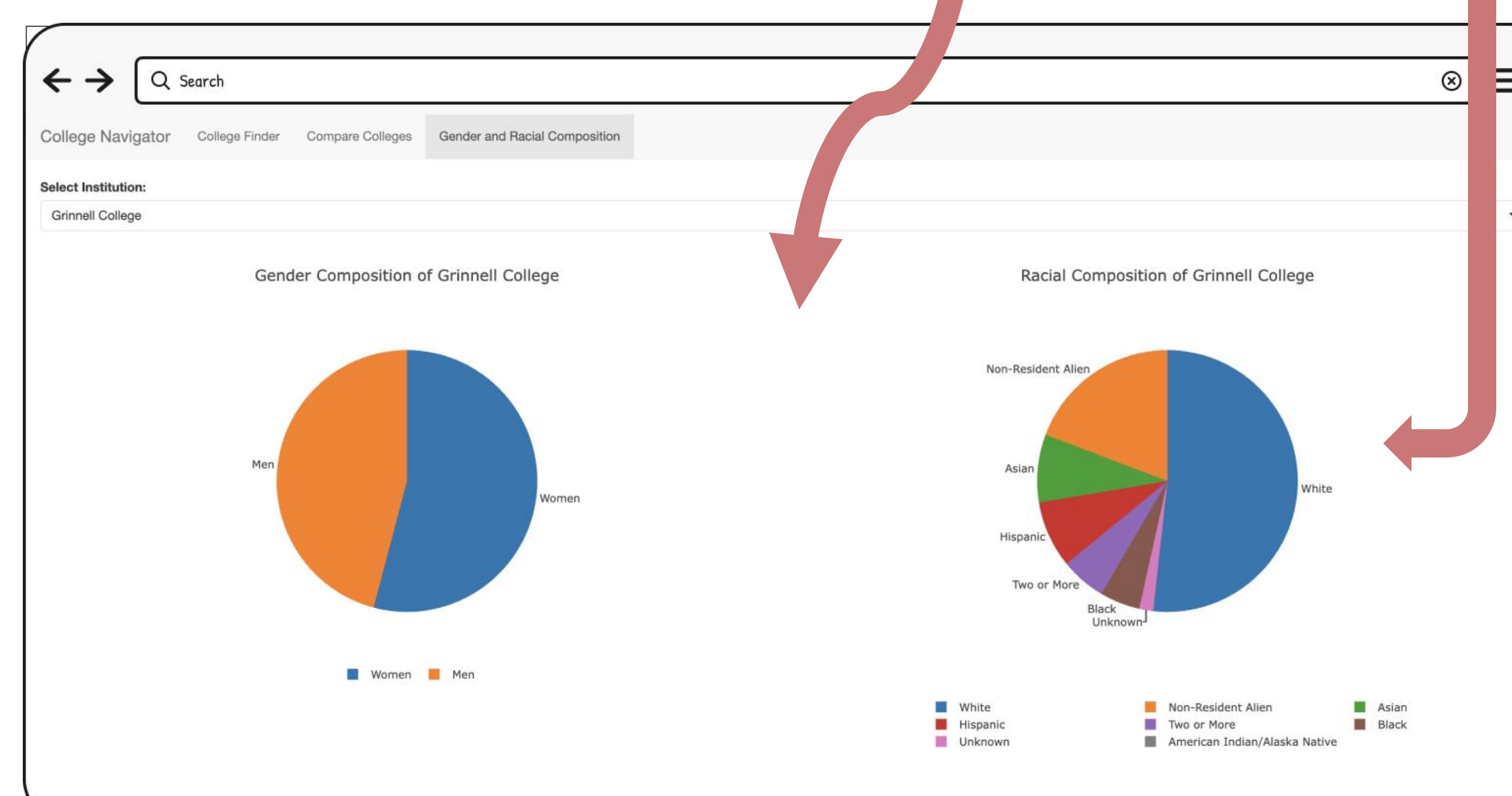
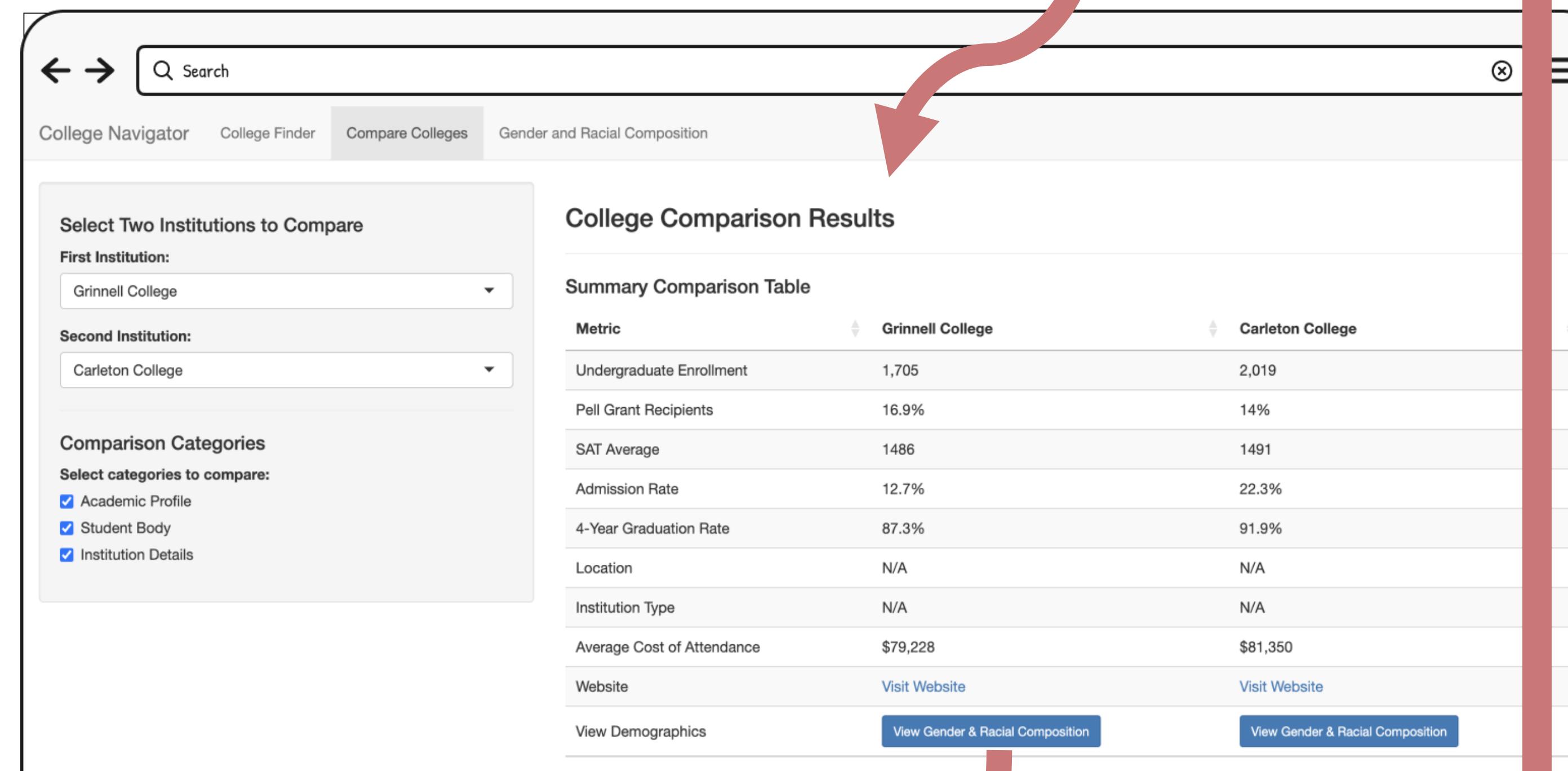
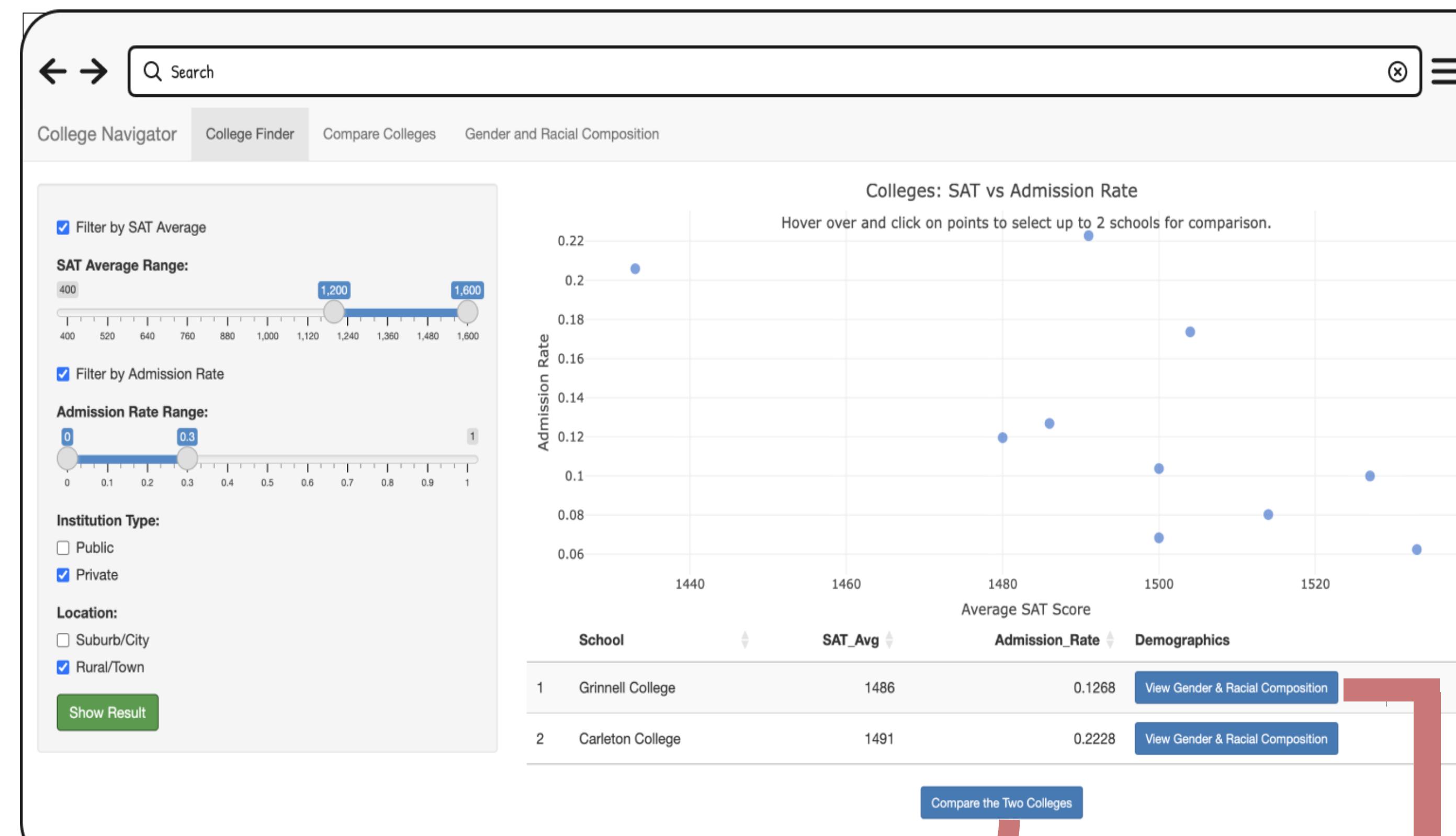
**~6,600**  
Institutions      **~3,300**  
Features

This dataset provides reliable, comprehensive, and impartial coverage, enabling robust comparisons across institutions.

## Data Pipeline



## How It Works



## Future Work

Create a dynamic data pipeline to ensure students access the most recent data.

Conduct experiment with students currently applying to colleges.

## The System

Built with **R Shiny** to support interactive, user-driven exploration of higher education data.

The 3 features are fully interconnected, with each feeding into the next to create a seamless, continuous exploration loop.

<https://khanhdo05.shinyapps.io/college-navigator-1/>



## Feature 1: College Finder

Students often feel overwhelmed by the abundance of schools and irrelevant options. This feature helps students **narrow down choices** by filtering on:

SAT Average (Range Slider)      Admissions Rate (Range Slider)      Institution Type (Public/Private)      Location (Suburb/Rural)

The feature includes interactive sliders and checkboxes with **scatter plots** that update in real-time. Hovering and clicking also provide instant school info and website links, making exploration seamless.

## Feature 2: College Comparison

Choosing between colleges requires side-by-side evaluation of multiple factors. This feature provides a comparison **table** between:

Academic Profile      Student Body      Tuition & Costs      Key Student Outcomes

The table updates interactively based on user selections, integrating multiple variables into a clean format without overwhelming the user.

## Feature 3: Demographic Charts

Diversity and inclusivity are important considerations when evaluating campus culture. This feature provides **interactive pie charts** of gender and racial composition for any selected institution.

Offers **quick, visual insights** into campus demographics.

## Acknowledgements

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