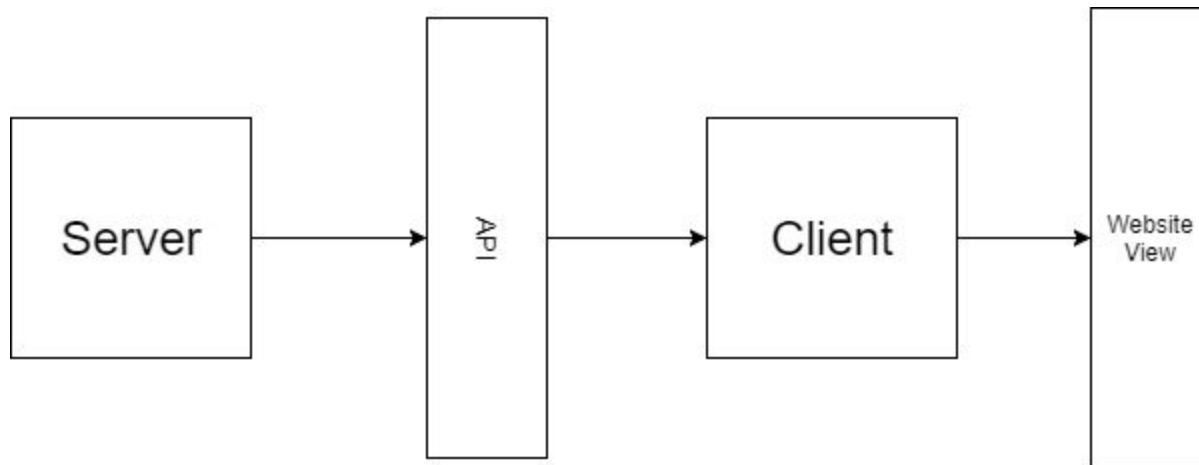


# Gerrymander Project

## Architecture



## Decomposition

### Modules

We've decided to use Carolina Cloudapps to host our website. We will be using Node.js to host our server, but will be using R as our primary language to analyze the shapefile, perform Markov Chain Monte Carlo analyses, and aggregate metrics. We will be using r-script to communicate between Node.js and R. The API, also will be built using Node.js, will have an http endpoint to get metrics like Reock score, compactness, and Polsby-Pepper scores. The client will be a thin client written with D3.js, Dc.js, and JavaScript to provide the data visualizations to the Website view.

## Design Decisions

We decided to use Node.js because of it being lightweight and scalable and something we've talked about is allowing the service to be scalable and for other people to use it through the API. We've decided to use R to analyze the shapefile maps because R provides convenient access to the Geospatial Data Abstraction Library (gdal) for translating a number of common raster and vector geospatial data formats used in redistricting applications. Because we want dynamic data visualizations, we're using D3.js, Dc.js, and JavaScript for the front-end to populate the website.