# Lab3: Data Visualization

| Name | ID |
| --- | --- |
| Weida Wang | 2151300 |

## Data Analysis Task

The task at hand is to perform a data analysis on three different datasets:

1. Salaries by Region
2. Salaries by College Type
3. Degrees that Pay Back

The primary focus of this task is to visualize various aspects of these datasets using Plotly and Dash. The primary objectives are:

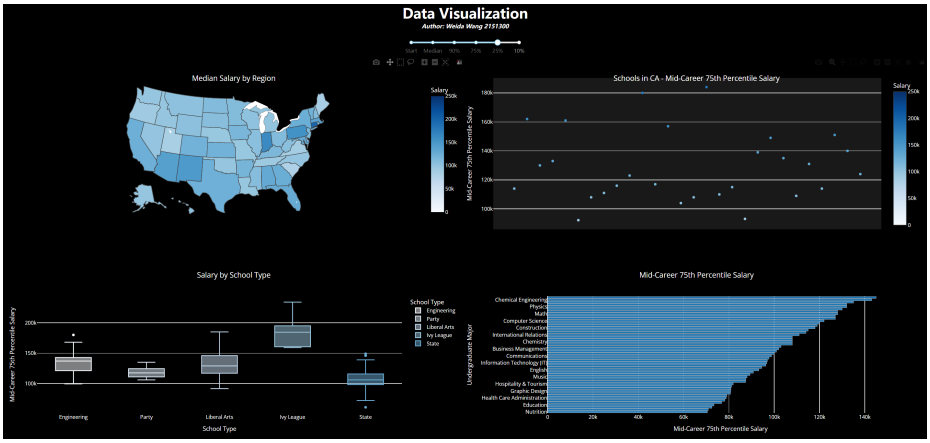
- To analyze and visualize the relationship between region, college type, and major to the corresponding starting, median, and late-career salaries.
- To provide interactive dashboards for easy data exploration and understanding.

The chosen datasets have the following characteristics:

- The '*salaries-by-region.csv*' dataset contains information about different colleges in various regions, including their school names and the salaries of their graduates at different stages of their careers. It is worth mentioning that the original csv file only covered the larger scope of Region and not State, which I will add to the csv file for better visualisation.
- The '*salaries-by-college-type.csv*' dataset includes information about different colleges, their types (Engineering, Party, Liberal Arts, etc.), and the salaries of their graduates at different career stages.
- The '*degrees-that-pay-back.csv*' dataset provides information about different undergraduate majors and the corresponding salaries at various career stages.

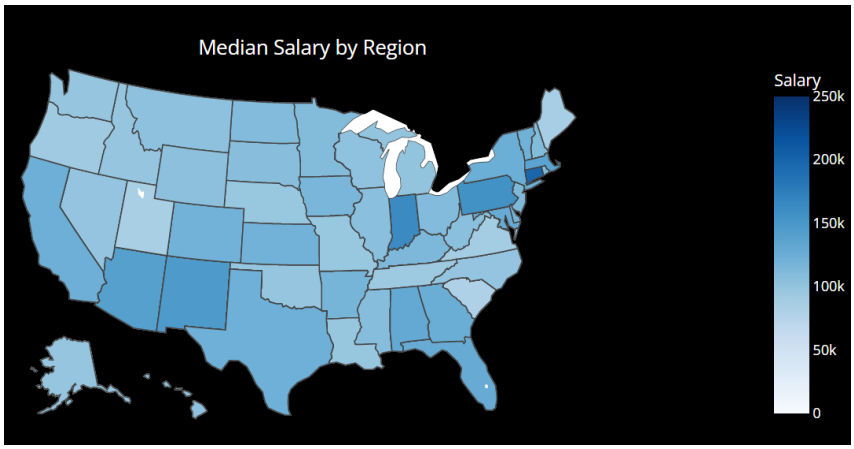
## Dashboard Layout and Patterns in the Figures

The dashboard designed for this task consists of a total of four sections, each displaying a different type of visualization.

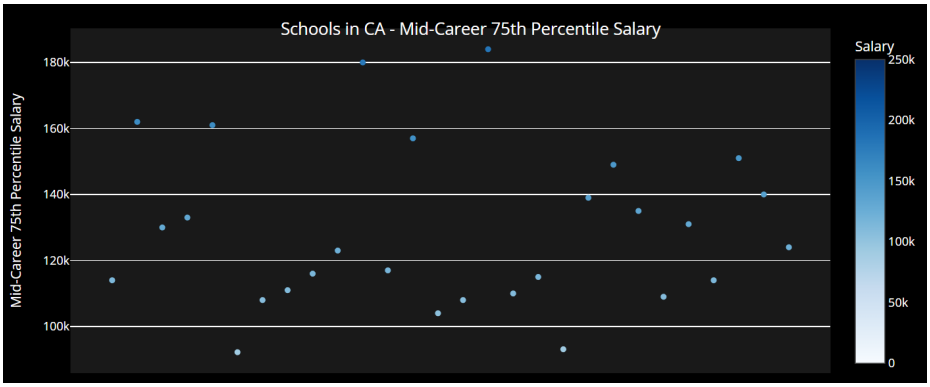



Dashboard Overview

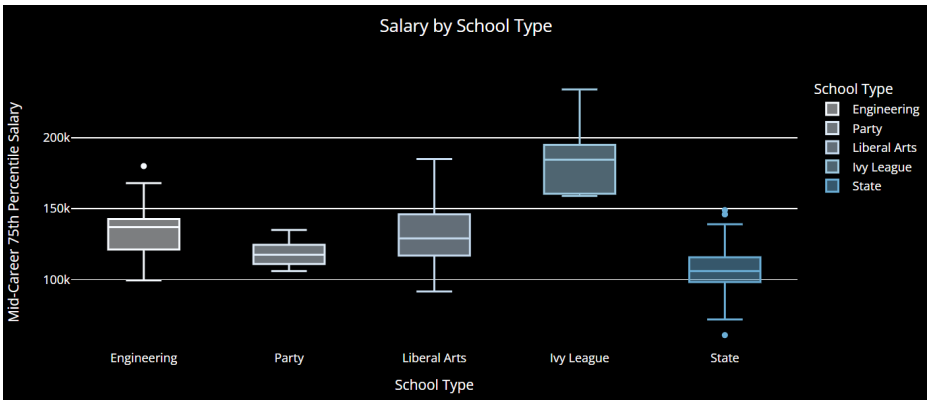
1. **Choropleth Map:** The first part of the dashboard displays a choropleth map of the United States, with each state's color indicating the median salary level of that region. The darker the color, the higher the salary. A slider is provided to select different career stages, and the map will update accordingly. This map provides a geographical overview of salary distribution across the U.S.



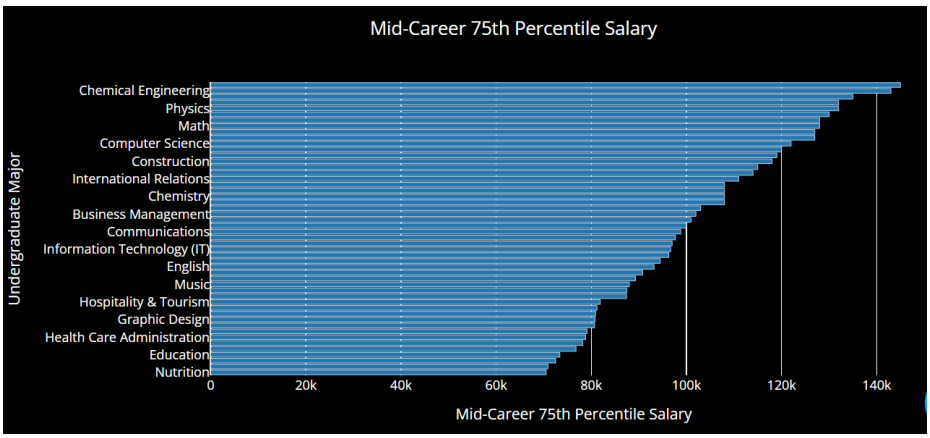

2. **Scatter Plot:** The second part of the dashboard displays a scatter plot showing the salaries of all colleges in the selected state from the choropleth map. This plot updates based on the selected state in the map and the career stage from the slider. It allows users to compare salary levels among different colleges in a specific region.



3. **Box Plot:** The third part of the dashboard presents a box plot that illustrates the salary distribution of different college types. It also updates according to the chosen career stage (on the slider). It's a useful tool to compare salary distributions among different types of colleges, such as Engineering, Liberal Arts, etc.




4. **Bar Plot:** The fourth and final part of the dashboard displays a bar plot of different undergraduate majors and their corresponding salaries. This plot also updates based on the selected career stage(on the slider). This visualization provides a clear comparison of salary levels across different majors.




Of course the dashboard also includes a header and a slider used to select the salary type.

Through these visualizations, users can gain insights into how region, college type, and major affect salary levels at different career stages.