## Problem Statement

The visualization aims at presenting a quantitative representation of Rape cases for a particular year, state-wise from 2001 to 2012 and a side by side comparison of Rape cases for the latest available data, i.e. of 2018.

## Why this representation?

1. **Choropleth map** seemed appropriate as it displays the geographical areas and regions with a particular color scheme in proportion to a statistical variable which represents the rape cases for each state. This helps to visualize the variations and patterns across the states in a clear way. Thus it was a perfect map to show the relation between spatial data and quantitative data.
2. **Bar Chart** is used to show a relationship between the states and their respective percent change in two chosen years. We used a diverging bar chart to emphasize the positive and negative change. Bar chart is an effective representation to show the relation between categorical data and quantitative data.

## Strengths

1. Choropleth map makes for an easy perception for the user. The user can get a clear understanding of the data from different states of India without putting extra efforts.
2. The user can compare the data of different years(2001-2012) to the latest available scenario (2018) by selecting the year from the drop down list provided using the submit button.
3. Hovering over the bars and the states in both the types of maps gives the information about the number of rape cases in a particular state in a textual form.
4. Diverging bar graph emphasizes the positive and negative change in the percentage of rape cases.
5. We have used colorblind-friendly colors, namely red and blue together to make the perception of visualizations available for maximum possible users.
6. We used a single hue sequential scale for the choropleth map.
7. We used a higher ranked channel, that is length, as we used a bar graph to increase the effectiveness of visualization.
8. We also used the color convention of red for representing bad/danger and blue for representing good/ok data (didn’t use green as it was not colorblind-friendly with the red color).

9. Grids are used to facilitate easier readability of quantitative data in the bar graph.

## Weaknesses

1. Contextual components like annotation can be added in order to make the visualization more insightful.
2. The maximum value in the legend is missing from the choropleth map because of some code limitations.
3. This visualization can be made responsive for different screen sizes.
4. Because of the presence of wide variation in the data for each state, little percent change becomes hard to perceive.
5. The mouse hover functionality over the sections is not quick and takes a little while to show the required information.

## References

**https://d3js.org/**
**https://un-mapped.carto.com/viz/dca2b47c-934c-11e6-be7e-0e3ff518bd15/public_map**
**https://bl.ocks.org/martgnz/56664c7ea8efef56f93ca948ef855d06**
**https://www.essycode.com/posts/adding-gridlines-chart-d3/**