Assignment #3

Introduction and The Data Domain

US Presidential Election of 2016 has perhaps been one of the most talked about and controversial political events of the 21st century. For this assignment, we have taken the 2016 presidential election data with an aim to gain insights into the demographics and it's relations to the winning party (Democrat vs Republican) in each US state. This data has been sourced from Kaggle. The data for our visualization contains the following attributes (columns):

Column Name	Description
stateName	State Name
stateAbbr	State Abbreviation
winner	Winner
population	Population
popBelow5	Number of Persons under 5 years
popBelow18	Number of Persons under 18 years
popAbove65	Number of Persons 65 years and over
popFemale	Number of Female persons, percent
popWhite	Number of White alone, percent
popBlack	Number of Black or African American alone
popNative	Number of American Indian and Alaska Native alone
popAsian	Number of Asian alone
popHawaiian	Number of Native Hawaiian and Other Pacific Islander alone
popLatino	Number of Hispanic or Latino
popForeignBorn	Number of Foreign born persons
highSchoolHigher	Number of High school graduate or higher, percent of persons age 25+
bachelorHigher	Number of Bachelor's degree or higher, percent of persons age 25+
housingUnits	Number of Housing units
homeownRate	Number of Homeownership rate
households	Number of Households
personsPerHousehold	Number of Persons per household
perCapita	Per capita money income in past 12 months (2013 dollars)
medianHouseholdIncome	Median household income
personsBelowPoverty	Persons below poverty level
landArea	Land area in square miles
popPerSqMile	Population per square mile

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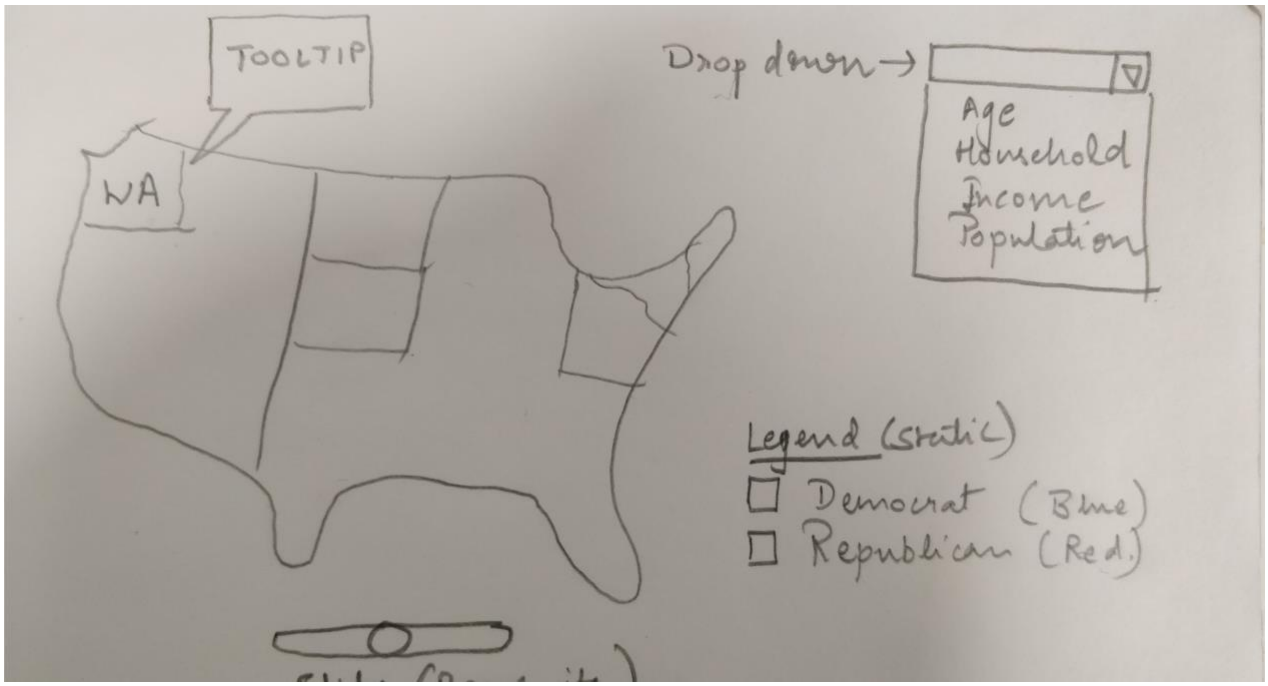
The Storyboard

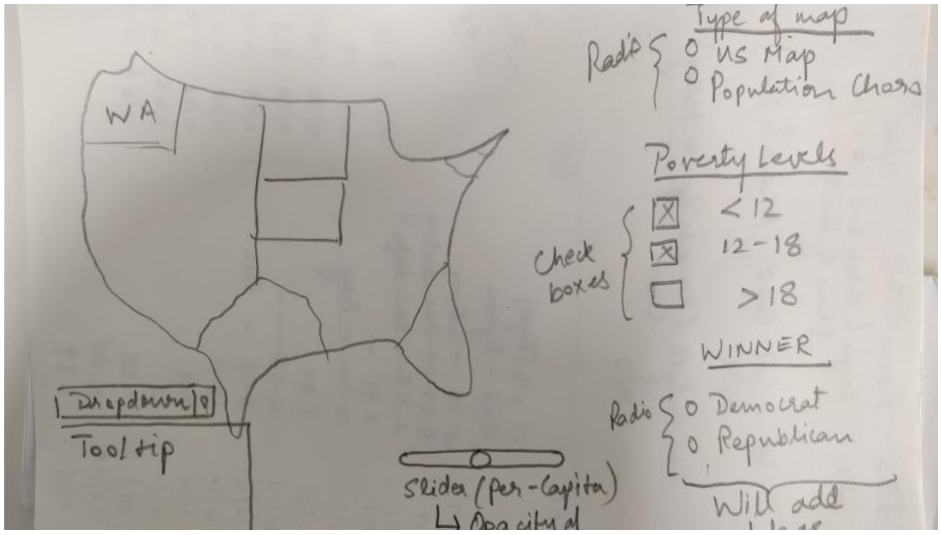
We aim to represent the above data through an interactive map of continental US (and Alaska and Hawaii). The user will be able to use interactive features of the map like a slider, a dropdown menu, radio buttons and check boxes.



1 Storyboard #1

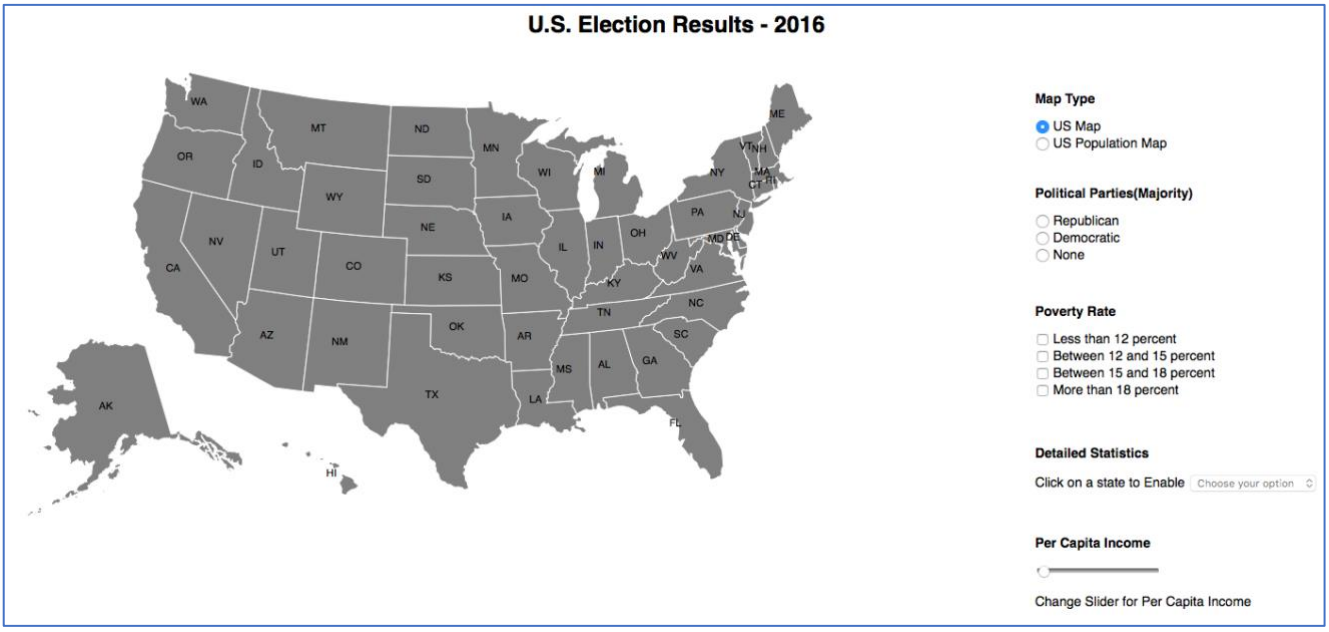
We started with the US Map depicting various states and the corresponding winning party in each state. The sates will be colored in Red and Blue signifying the winning party.

Soon we realized that we can only change a few properties of the map like the color fill and the opacity of the map. In our previous story-board, we were unable to represent the population and poverty levels properly. For this purpose, we changed our approach and decided to include a population choropleth for our visualization. The winning party in each state can be depicted using flags on the map corresponding to each state. Our main variables of per capita income, poverty levels and the detailed demography of the a particular state will be depicted using a slider, check-boxes and a drop-down menu respectively.



2 Storyboard #2

Final Visualization



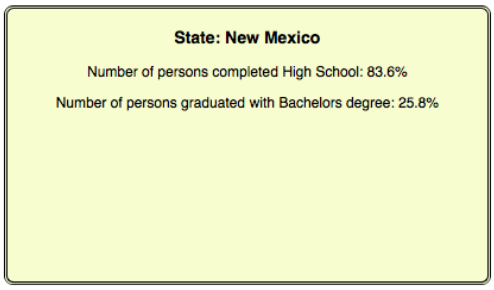
3 FInal Visualisation

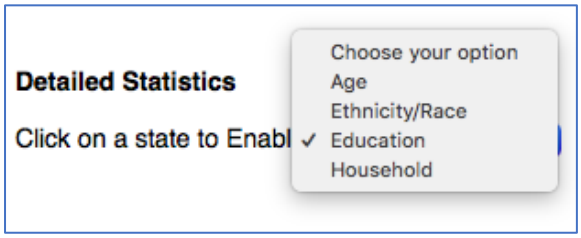
Our storyboards helped us in giving a shape to our final visualization. The tools used for the development of this visualization include:

- Javascript as the primary scripting language along with an extensive use of its library: D3. D3 was primarily used owing to the functionalities it offers for drawing data driven visualizations.
- HTML as the primary scripting language for the development of the web page.
- CSS rules for overall aesthetics of the visualization
- JSON file for the geographical coordinate location of each of the US States.
- CSV File as the primary data file
- Web Storm text editor for writing the code. This was chosen because it automatically creates a local server on the user machine, eliminating the need to manually build one.

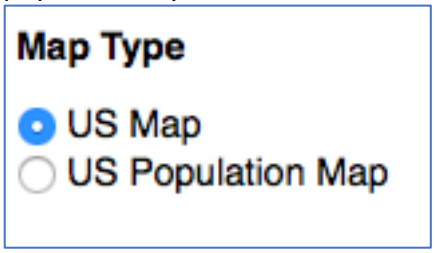
The interactions offered in this visualization are:

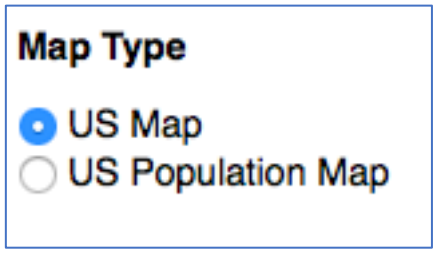
- **Drop-down Menu** for the detailed demographics of the state. User has an option of selecting carious demographic properties like Age, Race/Ethnicity, Education and Household. This drop-down menu is disabled by default. It can be enabled by clicking on a state. The output is shown towards the bottom right of the webpage.



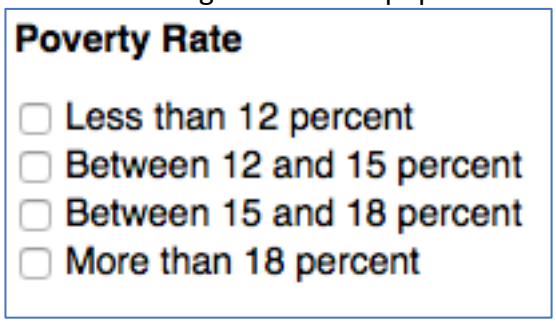


- **Radio Buttons** for two purposes. *Firstly,* to identify the winning party in each state. By clicking on either of the options, each state is flagged by a colored circle depicting the winning party in that state. *Secondly*, the second set of radio buttons can be clicked by the user to choose between 2 maps: A regular US Map and a Choropleth Map of population by the state.

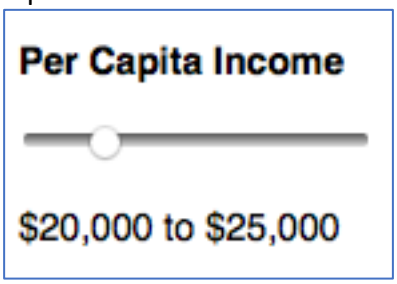




- **Checkboxes** to depict the state falling under three population categories.



- **Slider** visualize the per-capita income variation in each state.



Time taken for this project is varied for both the team members. Soundari has prior experience in web development so she was familiar with concepts of HTML, JavaScript and CSS. While Akshay, having no prior experience of web development undertook online courses in HTML, CSS and JavaScript from EdX and he learned D3 through a course from Udemy. The actual time taken for development of the project was about 5 days.

Division of work:

- **Akshay:** Development of the code for US Map, Choropleth Map and the Slider; link to JSON file; Data Cleaning and final documentation.

- **Soundari:** Overall scope of the project; development of code for dropdown menu, radio buttons and check-boxes; linking and filtering data according to the filters and styling using CSS.