Donia Zaheri– CS 416 NARRATIVE VISUALIZATION PROJECT ESSAY

- **Messaging**: This visualization compares different automobiles fuel efficiency based on fuel type (fossil vs electric) through different illustrations including comparing different brands and different fuel types while providing a brief description on the significance of the charts.

- **Narrative Structure:** This visualization utilizes the Interactive Slideshow technique. The reader is able to explore through the story of fuel efficiency of different vehicles interactively with the provided interaction guidance in each slide. The structures of the slides guides users from one idea to the next with individual exploration on each page. The scatterplots have tooltips and explanations for further details at user demand (mouse over). Visual consistency is accomplished by maintaining uniform scenes elements throughout the story providing a mixture of text, image and chart elements with meaningful colors.

- **Visual Structure:** A combination of annotated chart and slide show is used as visual structure for the scenes. The scenes help the viewer navigate the scene and understand the data with providing explanation to the viewer that extra information on request is available with the tooltip feature and annotation assistance. Also, the consistency of the button color and bar graphs bar for each category, consistency between the colors of the two scatter plots and the whole consistent theme of the narrative visualization helps the viewer transition smoothly and effortlessly between the scenes.

- **Scenes:** Each page represents a scene with visual information about a specific variable of the vehicle's fuel efficiency information. The visual information in each scene is conveyed through a unique chart highlighting its distinct message. Each scene has a unique HTML id tag that is linked via the buttons to navigate back and forth. The "Next" and "Previous" buttons allow viewers navigating from one scene (page) to the other. The first scene provides information on different vehicle brands MPG and allows the user to interactively analyze the difference between city and highway MPG by providing separate buttons for them. The second and third scenes provide further information on highway and city MPG by providing scatter plots of highway-city MPGs for electric and gas/diesel vehicles separately distinguishing them with different colors. The viewer follows the narrative in linear order ("Next" and "Previous" buttons) that is intended by the narrative writer.

- **Annotation:** Each chart uses text message as consistent annotation providing further information on request. This allows the viewer keep constant comprehension on the overall message the narrative visualization conveys. This consistency for example helps the viewer better understand which vehicles have good mileage across all scenes.

- **Parameters:** The viewer input for highway or city button selection is used as a parameter controlling what information the visualization portrays and is used to set the state of the visualization for the two bar graphs in the first scene. These parameters help the user explore the data in more detail. JavaScript input features such as the toggle buttons provides opportunity for the reader to view the data about a specific category.

- **Triggers:** The triggers are implemented via events and callbacks, such as "mouseover", "mouseout" and "click" and connect the user's actions indicated by triggers to the visualization state change. The callback function is invoked when specific html elements experience. Buttons for the bar chart and hovering over circles in the scatter plots are examples of the triggers in this visualization.