

PROJECT 1

“Georgia's House of Representatives has approved a bill that could end the state's tradition of springing forward and falling back the clock twice every year.”

<https://www.ajc.com/politics/hate-the-time-switch-here-is-why-georgia-will-probably-keep-daylight-saving-time-for-now/YZTWT2BTKNCGNEJA5LQRNVHRXE/>

Overview: Not every state in America participates in Daylight Savings, such as AZ and HI. We want to find out if there is a correlation between the effects of Daylight Savings (ie. time change, lighting, ect) and the amount of fatalities due to car crashes that occur in the other 48 states.

Questions for our data:

1. Are there more car accidents during daylight savings?
2. Does daylight savings have an effect on the increase of car crashes?
3. Are there more car accidents in a state that has daylight savings compared to the week before it occurs?
4. How many more car accidents occur during daylight savings?

Hypothesis:

Null Hypothesis (Ho): There is no significant relationship between fatal car accidents and Daylight Saving in the 48 states that participate in Daylight Savings.

Alternative Hypothesis (H1): There is a significant relationship between fatal car accidents and Daylight Savings.

Data Source: The study relied on data obtained from The Fatality Analysis Reporting System (FARS) National Highway Traffic Safety Administration.

Dates to focus our data on: The week before Daylight Savings: March 2nd-March 9th 2019 and October 26th -November 2nd

The week of Daylight Savings: Sunday March 10th, 2019-March 17th, 2019 and Sunday November 3rd, 2019- November 10th, 2019

Regression Analysis:

1. Scatter plot showing the relationship between the days of daylight savings and the increase in the number of fatalities due to car crashes for each state
2. Scatter plot showing the relationship between the days of daylight savings and the increase in the number of fatalities due to car crashes comparing the two states (DLS vs. no DLS)

3. Bar graph for amount of lighting during DLS and amount of fatalities due to car crashes that occur (for each state)
4. Line graph for total amount of fatalities due to car crashes over time for both states

Potential conclusions:

- 1.
2. From the bar graph, we can conclude if the amount of lighting during daylight savings affects the increase of fatalities due to car crashes and one for weather.
3. From bar graph, showing total fatalities during certain hours
4. From the line graph, we can conclude if there is an overall increase in fatalities during daylight savings compared to the week before daylight savings.
5. Conclude if the fatalities are due to daylight savings or not.

Limitations:

1. A holiday occurs on Halloween

(How to clean the data)

- Eliminate drunk drivers DRUNK_DR [1, 2]
- Keep the times as it is
- Columns to Keep (STATENAME, DAY, MONTH, LGT_CONDDNAME, DRUNK_DR, FATALS, WEATHER1NAME,)
- Keep states other than Hawaii and Arizona

Rubric:

Students will be able to articulate the requirements for Project 1.

Students will be able to draw and interpret diagrams of Git branching workflows.

Students will be able to create new branches with Git.

Students will be able to push local branches to GitHub.

Students will be able to **pull a branch from GitHub**.

Students will be able to **merge branches with Git**.

Students will be able to **open, review, and merge PRs with GitHub**.

Students will resolve merge conflicts in their working copy.

Students will push branches to GitHub.

Students will be able to open a PR against a given branch.

Students will be able to use Git's stash feature to save "dirty" work.



Use Pandas to clean and format your dataset(s).



Create a Jupyter Notebook **describing the data exploration and cleanup** process.



Create a Jupyter Notebook **illustrating the final data analysis**.



Use Matplotlib to create a total of 6–8 visualizations of your data (ideally, at least 2 per “question” you ask of your data).



Save PNG images of your visualizations to distribute to the class and instructional team, and for inclusion in your presentation.



(Optional) Use at least one API, if you can find an API with data pertinent to your primary research questions.



Create a write-up summarizing your major findings. This should include a heading for each “question” you asked of your data and a short description of your findings and any relevant plots.

Presentation Requirements

You will also be responsible for preparing a formal, 10-minute presentation that covers:



Questions you found interesting and what motivated you to answer them



Where and how you found the data you used to answer these questions



The data exploration and cleanup process (accompanied by your Jupyter Notebook)



The analysis process (accompanied by your Jupyter Notebook)



Your conclusions including a numerical summary and visualizations of the summary



The implications of your findings: what do your findings mean?

