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Professor Xiao
CSC-148
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Final Project

Purpose of Project

The purpose of the project is to utilize the various computational tools in Python to analyze election data from 1976 to 2016. Using the Pandas library, we were able to perform an insightful analysis on election results as well as observe broad trends across the entire time interval.

Computational Tools

We structured our script so that each function could build off of each other in calculating the necessary results. Our first function, *voteComparison(interestedState)*, uses lists and Boolean expressions to filter the data and iterate through the candidate votes to declare a winner for the *interestedState* parameter as well as provide the supportive rates for each party, fulfilling Question 2 of the final project.

voteComparison2(interestedState, year) provides the option to narrow the time interval to 2012-2016 with the commented-out redefined year of 2012. It performs a similar looping process as *voteComparison(interestedState)*, and rounds the final supportive rates for each party. The input requesting an interested state performs the calculation for a single state over the 1976-2016 time interval, outputting the function described in Question 4.

topfiveStates2() requests the user to input either 2012 or 2016 to find the supportive rate for each state by following an algorithm initially used in *topfiveStates()*, but it was later edited and now has a 2 on the end. We got this to work by using the function *voteComparison()*, but also adding the the list “states” of all of the states alphabetized, which calculates the candidate votes and generates the supportive rate, across all 50 states. We then segregate the lists based on party using the zip tool and sort each list in reverse order in preparation for identifying the highest supportive rates for each party. We then loop through the first five elements of the list which provides only the top five most supportive states with the associated supportive rate. The result addresses Question 5 by returning in a single tuple of 2 lists—the first for the republican states, and the second for democratic states.

voteComparison3(interestedState) again follows a similar procedure to *voteComparison()* but returns a sum of all votes for each state for the interval 2000-2016. This is assisted by the function, *findtotalVotes()* to perform the procedure for every state and aggregating them to accomplish the task asked by Question 1.

voteComparison4(interestedState) emulates the procedure from *voteComparison(interestedState)* and returns the sum of democrat and republican votes

between 2000 and 2016 as well as share of votes for each across the entire interval; *voteComparison5(interestedState)* follows the same steps as *voteComparison()*, but can be called separately to answer Question 4.

Insights

Our *flipCounter(interestedState)* function uses a for loop and Boolean expressions to count the number of times a state changed parties. The state in question is given through the input statement.

votedCorrectly(interestedState) evaluates the number of time a given state (denoted by the input expression) voted for the candidate who won the popular vote by comparing the candidate of the state with the output of *voteComparison(interestedState)*

Data Visualization

```
/Users/ethanroyce/.conda/envs/pythonProject3/bin/python "/Users/ethanroyce/Desktop/FINAL PROJECT/datasetAnalysisFinal.py"
The total votes for the presidential election from 2000-2016 were: 617360820
Question 3 requires data from 2012 or 2016, which one would you like to find data for?2012
  Top Democratic States  Percentage of Votes
1  District of Columbia                   91
2                Hawaii                   70
3               Vermont                   67
4          Rhode Island                   63
5              Maryland                   62
  Top Republican States  Percentage of Votes
1                  Utah                   73
2               Wyoming                   68
3              Oklahoma                   67
4                 Idaho                   65
5         West Virginia                   62
usage: ./datasetAnalysis.py {--count | --topcount}

Process finished with exit code 1
```

Figure 1.1

The data frame which is based on the results pertaining to question 3, illustrates the top 5 most democratic and republican states for 2012 and 2016. The data frame pictured here is the output from the year 2012.

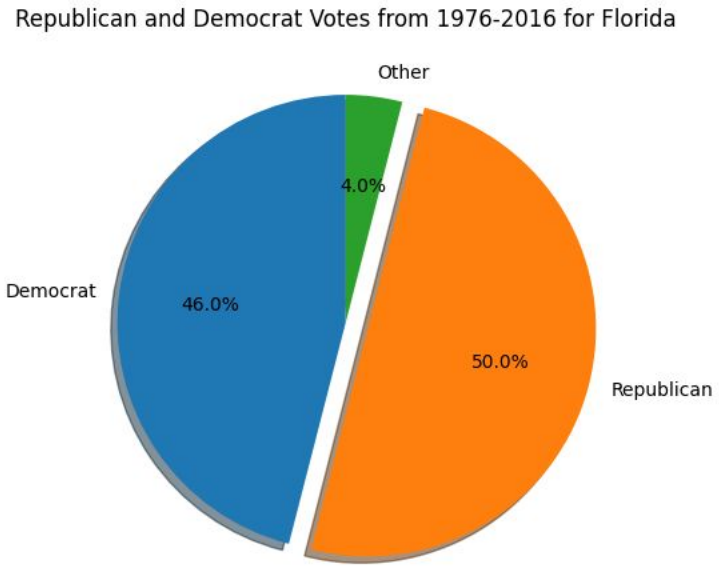

Figure 1.2
The pie chart illustrates the share of votes captured by each party over the entire interval.

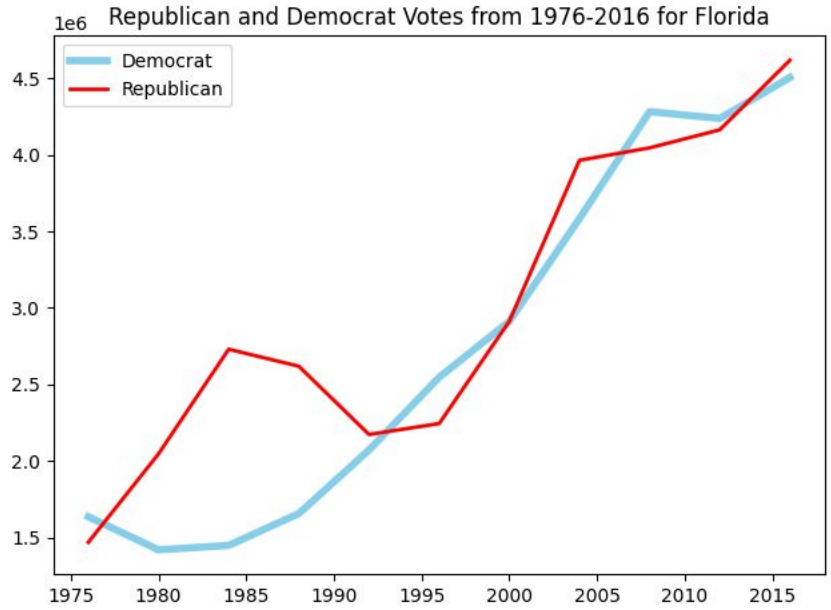

Figure 1.3
The line graph displays the number votes of Democrats and Republicans from 1976 to 2016.

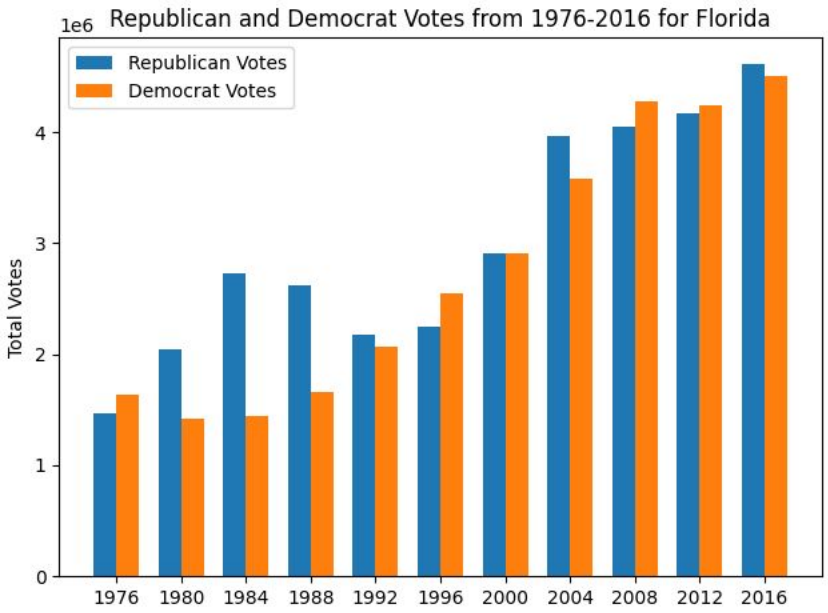

Figure 1.4
The bar graph shows the number of votes cast for each party.

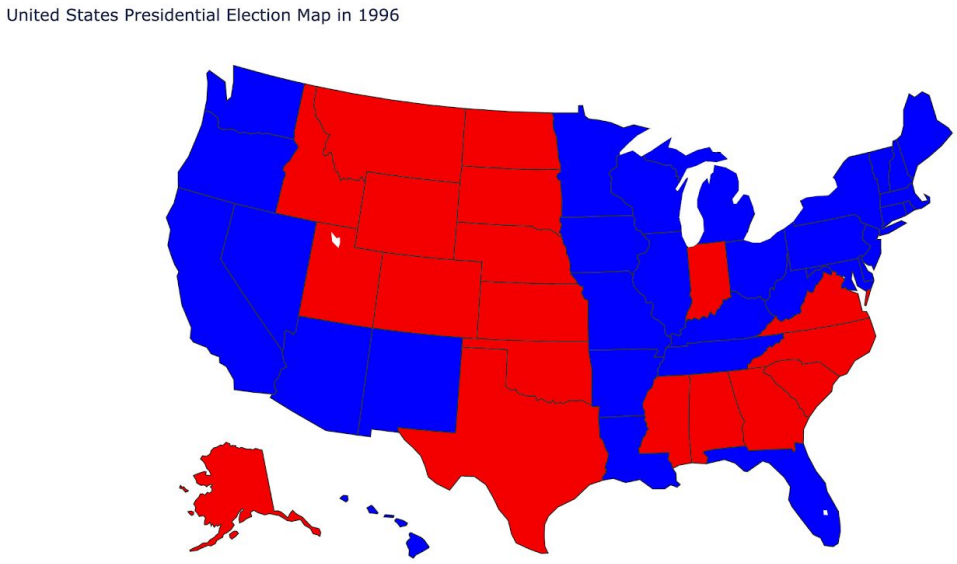

Figure 1.5
Our map represents the winner of each state for a given year (denoted by an input function).