

Assignment 2
A MOCK ELECTION
Due Wednesday, October 27, 2010
at the beginning of class

For this assignment, you are going to make a user interface form that allows election analysts to make predictions about the voter party preferences in three different states and view the outcome of a presidential election. They will be able to view the simulated vote and the resulting electoral votes for the three states.

In your design for this project, you may choose the three states that you want to put on your mock election form. For each of these three states, we will assume that the voter turnout rate will be 10%, so the number of voters will be 10% of the state's population. There is a Wikipedia page that you can consult to get state populations and electoral votes:

http://en.wikipedia.org/wiki/List_of_U.S._states_and_territories_by_population

The user interface should allow the user to give predicted percentages for each of the two major parties for the three states that you have selected. They should be able to type in a percentage number for the Democratic party and the Republican party in each state. The instructions should specify that the sum of the percentages should not exceed 100. Any percentage left over from 100 will be assumed to represent any third party voting.

The user can first press a button to simulate voting and receive overall election results. The overall results should include the total electoral vote for each of the two major parties and the overall winner of those three states. The popular vote for each state is given by simulation, using a method provided for you called `getVotes`. The electoral vote for each state is “winner takes all”; that is, whichever party receives more votes than the other will be awarded all the electoral votes for that state. The winner is declared to be the major party that receives the most electoral votes over the three states.

Then a second part of the form will allow the user to view details of the simulated election. They should be able to select a state for viewing and select whether to view the electoral vote, the popular vote, or both. Then there will be a button for them to view what they have selected.

Computation for the form:

This application will require global variables in the class to keep information about the simulated election. In these variables, you should keep all the information that is needed in more than one button. In particular, note that you must save all the information that must be displayed in the second part of the form.

There is also a programming requirement for this assignment, which is that you are required to write and use a method to compute the winner of a state in the simulated election. This method should take an array of simulated votes, which is the result of the `getVotes` method given to you, and return a String representing either that the Democrats or the Republicans have won that state.

The computation for the first button will need to read the major party vote percentages for each state from the form and should check that the percentages are within “bounds”, that is, that they

are between 0 and 100 and that the sum does not exceed 100. It then will generate the simulated election results by calling the supplied `getVotes` method for each of the three states. Then it will use the method that you are required to write to decide which party wins in each state. Finally, it can use the state winner information to compute how many electoral votes each party is given in each state and use the sum to give total electoral votes and to give the overall winner in the three states.

The computation for the second button will see which state and what results the user has selected to view. Note that the electoral vote was already computed for each state, but that the popular vote was only computed in the method and may need to be recomputed here. The selected results will then be displayed on the form.

To finish this assignment

- Design the layout of the form and make it. Give meaningful names to the components.
- Choose three states and obtain the number of voters (10% of the population) and number of electoral votes
- Write the programs
 - Write comments on the top of each program, including **your name** and what the program is for
 - Write (simple) comments before each button actionPerformed method with the description of what it does
 - Write the code, including the procedure, design variables as appropriate and add any additional comments that will make the code clear to read

Program design for this assignment will be discussed in class on Monday, October 18.

For this assignment, you will be graded on:

- Whether the programs runs and computes election results correctly
- Bounds checking for user input of percentages from textboxes
- Use of radiobuttons and checkboxes
- Format, clarity and appearance of user interface
- Design of variables and variable names
- Design and use of a method
- Documentation
- Clarity and overall design of the program

How to Submit your Homework:

In your project directory, create a **zip file** of the sub-directory that has your homework project in it and submit it to the assignment 2 dropbox on the iLMS system.