Morning-5 Team Project - Phase III

Website: politea.info (Note: only works in Chrome)
Github repo link -- https://github.com/malvarez0722/ee461l-team-project

Phase 3 Lead - Aidan
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Group: Morning-5

Project name: Politea

Motivation and Users:
Our motivation behind creating a database of politicians and information about them was to provide the general public with a one-stop reliable source of information to learn about the people they will vote for. Our database contains a plethora of information about candidates including party affiliation, bills they have voted on, issues they're involved with, from whom they are receiving funding, what industries they support, and more! Potential users include anybody with any level of interest in politics. Examples include people who want to ensure that the candidates they are voting for are "all-American", those who want to know how "corrupt" a politician is based on their funding sources, and someone who wants to know when the next political rally or event will be in his or her area.

User Stories:

Phase 3

1. As a Texan considering a move to either California or Florida, I want to easily see each state's details and learn of their party alignments through the current leading representatives, so that I can determine where I will best fit in based on my political ideologies.
   Estimated Completion Time: 20 hours. Actual Time: 30 hours
2. As a recent immigrant, I want to easily filter the events and only see upcoming events related to "immigration", so that I can quickly and accurately join any upcoming protests or meet fellow immigrants near me and build a community.
   Estimated Completion Time: 10 hours. Actual Time: 35 hours
3. As a dairy farmer, I want to see how much my representatives are contributing to the dairy industry and who is contributing the least, so that I know who to reach out to and convince to fundraise more.
   Estimated Completion Time: 20 hours. Actual Time: 20 hours
4. As a person who is pro-gun control, I want to see all politicians in my state who support gun ownership versus those who support gun control so I have a better idea of the agenda of my state representatives and whether to speak out against it.
   Estimated Completion Time: 20 hours. Actual Time: 25 hours
5. As a person invested in oil and gas industries, I want to see a list of all politicians who fundraise for that industry and their political party to know which politicians to support.
   Estimated Completion Time: 20 hours. Actual Time: 30 hours

From Customers:

6. As an animal rights activist, I want to see legislation relating to animal agriculture and view contact information of politicians who sponsor bills I disagree with, so that I can rally my friends to call and protest against these politicians.
   Estimated Completion Time: 20 hours. Actual Time: 30 hours
7. As an active voter, I want to see the class status of my representatives and senators, so I know who will be facing the upcoming election, so that I know which politicians to observe more closely and determine if I want to reelect or not.
   Estimated Completion Time: 10 hours. Actual Time: 20 hours
8. As an avid Republican and firm believer of partisan politics, I want to see Republican representatives in my state who have a relatively high percentage of voting against the Republican party, so I know who I need to kick out of office in the next election.
   Estimated Completion Time: 10 hours. Actual Time: 20 hours
9. As a grassroots organizer, I want to see contact information and party affiliation of my district representatives so that I can directly promote my community issues and effect real change.
   Estimated Completion Time: 20 hours. Actual Time: 20 hours
10. As a law and government double major who is also minoring in economics, I want to see the biography and financial information of politicians who sponsor certain bills, so I can get insights about how legislation, politics, and industries are inextricably linked.
    Estimated Completion Time: 30 hours. Actual Time: 35 hours

Phase 2

1. As a politically engaged citizen, I want to see the most recent voting history of my senator and representatives with a description of the legislation, so I know if I want to keep them in office or tell my like-minded friends to not support them.
   Estimated Completion Time: 20 hours, Actual:35
2. As a citizen of Texas who is concerned about recent legislation, I want to have easy access to the contact information of my legislators, so that I can send them a message about how I am being negatively affected by their voting decisions.
   Estimated Completion Time: 20 hours, Actual: 25
3. As a student writing a paper about civil rights, I want to see how civil rights legislation has evolved over time and what relevant bills entail, so that I can use these themes and information in my assignment.
   Estimated Completion Time: 20 hours, Actual: 30
4. As a freshman in college who likes to get involved in community politics, I want to know about events near me that are relevant to my political values, so I can find a group of like-minded people that support the causes I care about.
   Estimated Completion Time: 20 hours, Actual: 35
5. As a member of my electric company's PAC, I want to know which politicians are heavily supported by the electric power industry, so that I can know which politicians I should donate more money to.
   Estimated Completion Time: 20 hours, Actual: 30

Phase 1

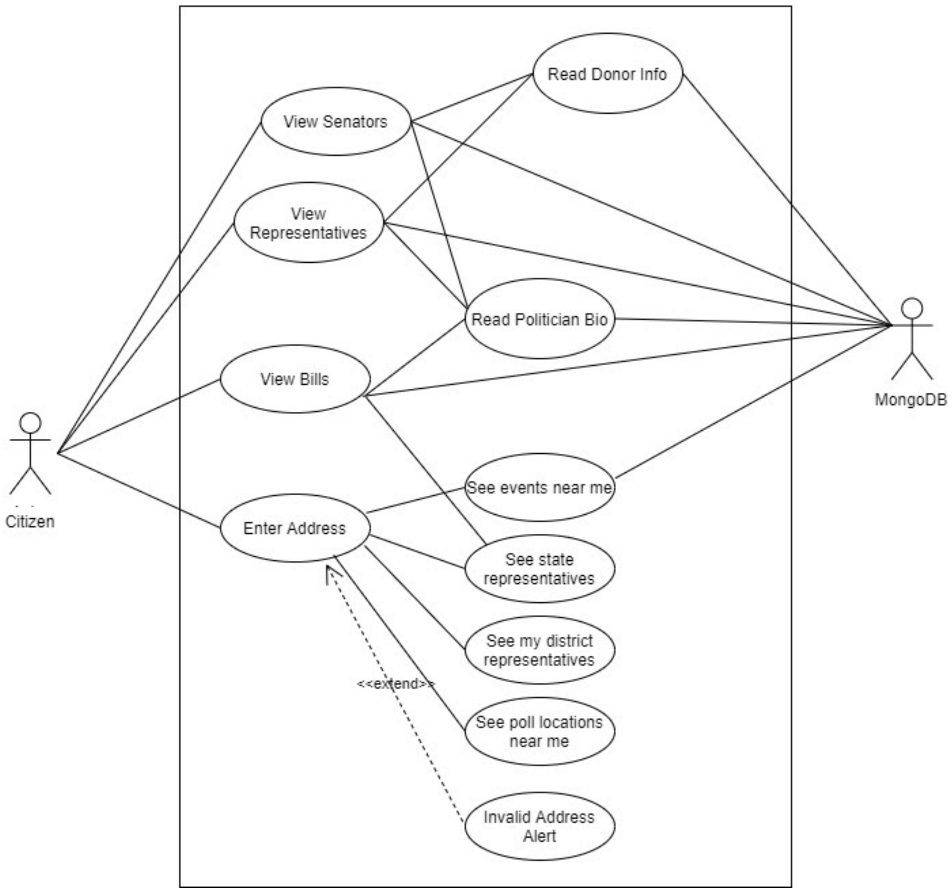
1. As a potential voter, I want to know the background of the politicians I will be voting for so I can make sure that only real Americans get elected.
2. As a responsible citizen, I want to know who is donating to my politicians and controlling them so I can know where they stand morally.
3. As a young Asian American, I want to find out the demographics of voters for certain politicians by age and race so I can know who people like me are voting for.
4. As a Bernie supporter, I want to be able to view his medical records to get an idea of whether or not he is healthy enough to assume the role of President.
5. As a citizen suspicious of my politician, I want to be able to access a specific politician’s tax returns to see if they make moral decisions.
6. As a person who wants to get involved, I want to see grassroots events near me affiliated with the parties I support.
7. As a student studying law, I want to view information about bills in certain topics.
8. As a student interested in knowing my district representatives, I want to be able to see all their information.
9. As a new citizen of the U.S., I want to know who the representatives in my district are and how they vote on bills.
10. As a student interested in hot topics, I want to see legislation relating to trending issues.

Design:

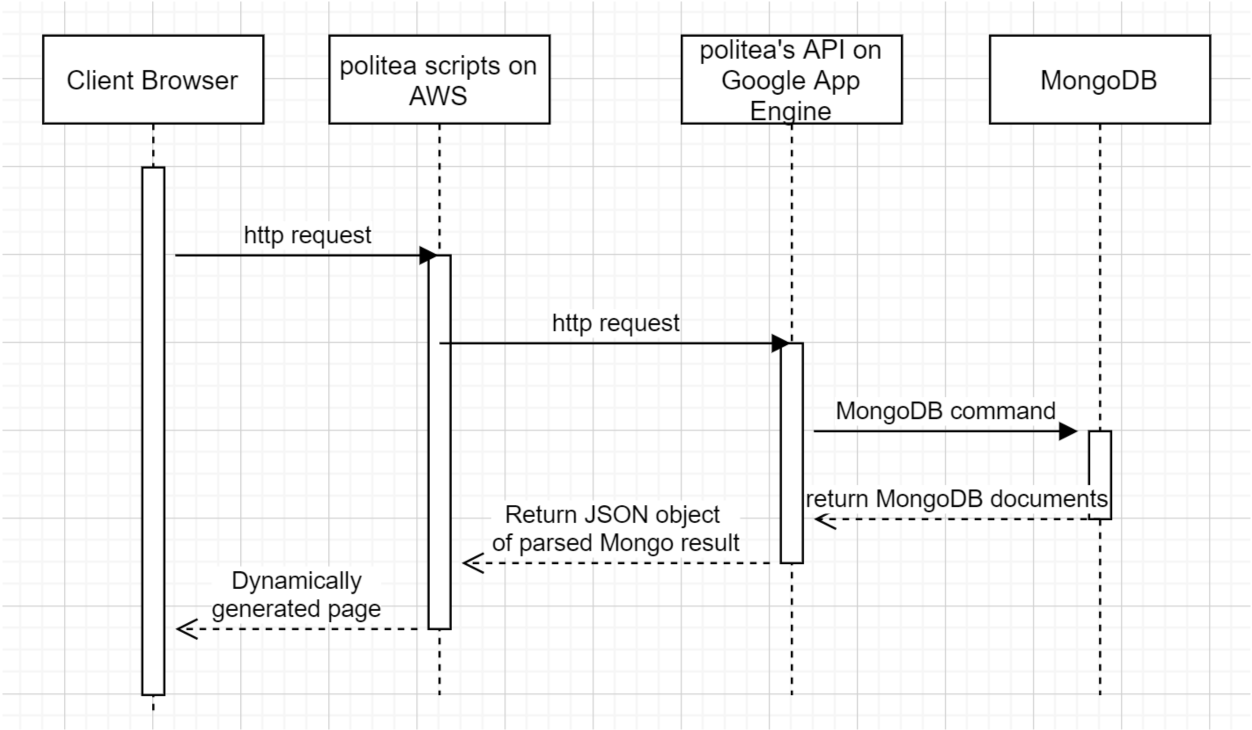
For the design of our project, we had a central splash page, along with politicians, location, legislation, industries, and about pages. Users can access all pages from the navigation bar placed on each page. From the politicians page we had the page for each bio, bills they voted for, and donors and affiliated organizations. From the locations page, we allowed people to enter their address to find events near them, find out their district and voting locations near them, and view information about their state's representatives. The legislation page allows the user to read more about specific issues and see which politicians sponsored certain bills. The industries page allows users to view all politicians who contributed to certain industries.

We implemented our design by creating our own API that we deployed on Google App Engine as well as directly retrieving info from the Google Civic API. Our politea API references information stored in a MongoDB cluster and returns relevant data to be displayed properly for the user. Our MongoDB cluster contains all information needed for events, legislation, and politicians. The database was populated using OpenSecrets, ProPublica, and Eventful APIs.

Use Case Diagram:



Sequence Diagram:
(For pages that use MongoDB and not Google Civic API)



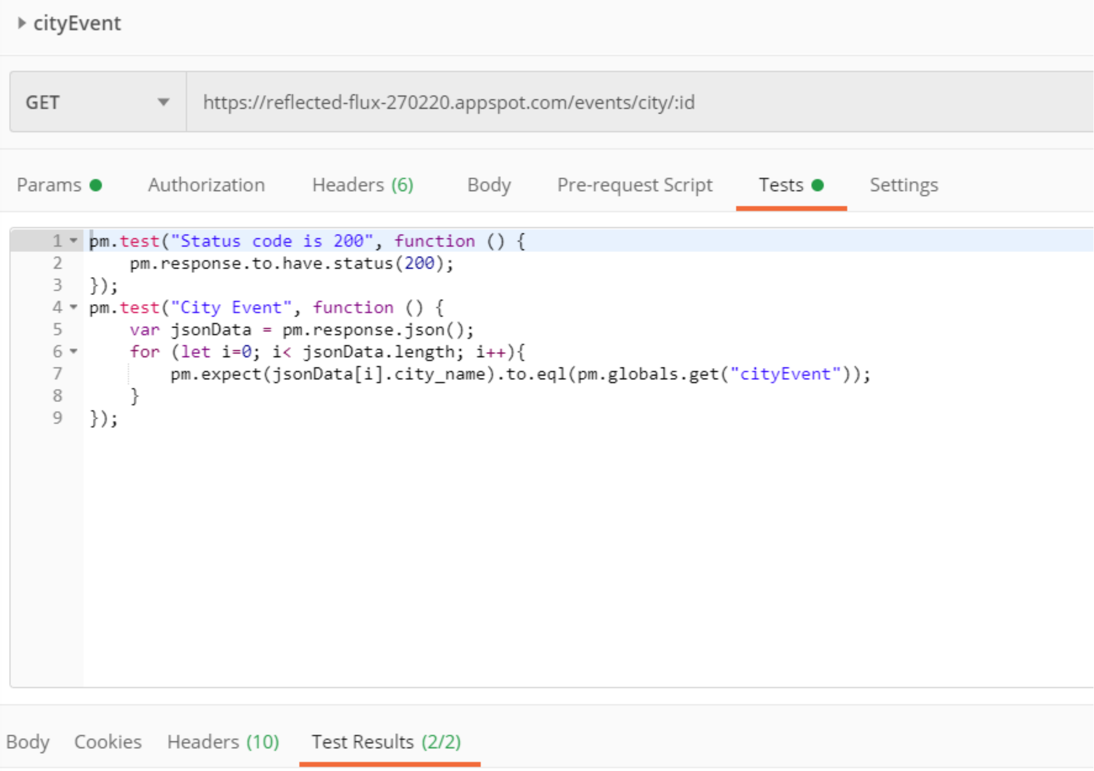
Testing:
We tested the assignment incrementally, by working on specific parts of it and displaying them in the browser individually. We split up the web pages into different sections according to our models and then started by trying to set up our api calls in the html file using javascripts. We tested our api calls by printing on the console and making sure we could index the object be it xml or json. Then we moved on to making sure we could create html objects in the DOM. Our testing was done on the browser in our localhost. Along with bootstrap and formatting that was also done using the console and browser. Testing links happened over github and then eventually in AWS when we finally hosted our website.

All tests are found here: https://github.com/malvarez0722/ee461l-team-project/tree/master/tests

Unit Tests

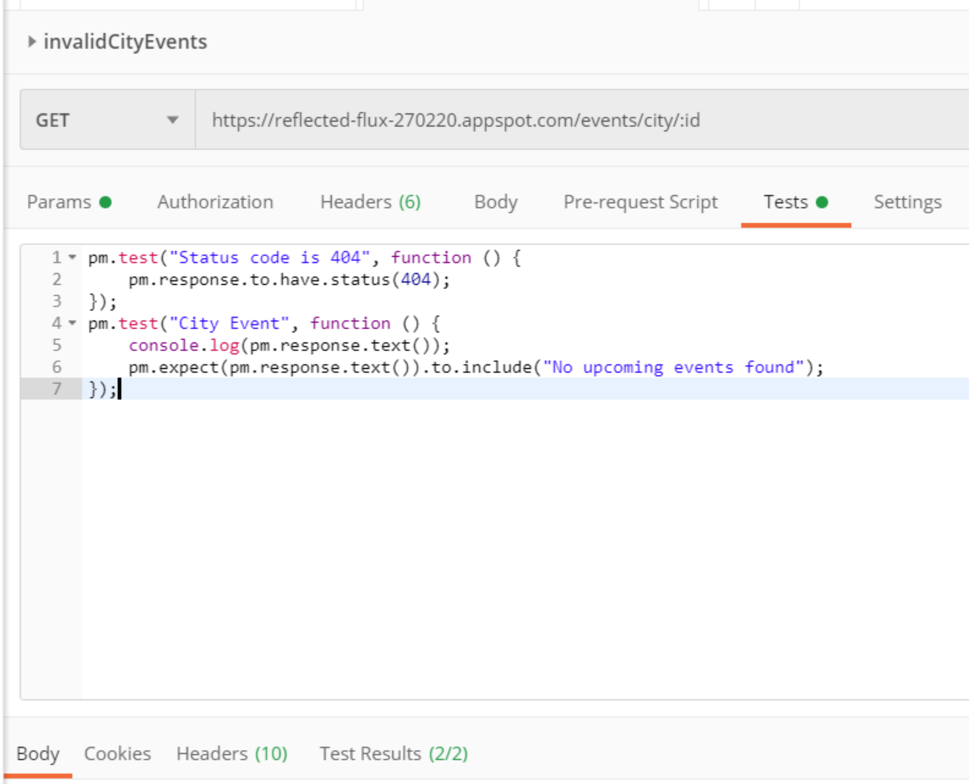
For the backend, we used mocha to check the functionality of our basic functions such as the one that checked if our input on a specific page was a valid input.

We also created postman tests to test the api calls and each endpoint. For example, when testing our GET function to retrieve events within “Chicago,” we made sure that it was successfully returning a list of events, each with the city_name attribute set to only “Chicago.” For reference here’s a screenshot of this test:



```
pm.test("Status code is 200", function () {
    pm.response.to.have.status(200);
});
pm.test("City Event", function () {
    var jsonData = pm.response.json();
    for (let i=0; i< jsonData.length; i++){
        pm.expect(jsonData[i].city_name).to.eql(pm.globals.get("cityEvent"));
    }
});
```

We also tested for when the :id passed in the endpoints were invalid. That is, in the previous example, if /events/city/ABCD was called, no events would be returned. Thus, we checked that the response status was 404 and the response message was a string detailing the error.



```
pm.test("Status code is 404", function () {
    pm.response.to.have.status(404);
});
pm.test("City Event", function () {
    console.log(pm.response.text());
    pm.expect(pm.response.text()).to.include("No upcoming events found");
});
```

We continued like this for several types of inputs and for many endpoints, and all postman tests can be found in within https://github.com/malvarez0722/ee461l-team-project/tree/master/tests

Lastly, we used Selenium and the GUI interface to create test cases for the front end regarding user inputs and general button presses. For example, we tested to see if when we tried to find a specific politician the correct name appeared on the screen. We then added tests to check if the clickable map on our splash page redirected to the correct page.

Tools:

The tools we used to develop and deploy our own API are nodeJS, express, Google App Engine, and MongoDB. For testing, we used mocha, postman, and selenium to test our frontend, backend, and GUI.

We accomplished pagination on the client-side by retrieving X amount of objects from a start index that depended on the current page that was being displayed. No special tools were required for our pagination implementation. We also implemented sorting, sear

Other tools we used are Google Civic API, ProPublic API, Eventful API, github API, and Open Secrets API to populate our database. We also used AWS, VS Code, IntellJi, Eclipse, Atom, Slack, Git Bash, Github Desktop, Bootstrap, different bootstrap add-ons, and the Command Prompt.

Models:

Our three main models are politicians, legislation, and locations. For politicians, we display a list of politicians in the House of Representatives and Senate separated in two tabs. Users can then view the politician's biography, and voting history from the paginated list of politicians. The voting history page contains politician's votes on recent bills and is accessed by clicking the bio on the list of representatives and senators. Users can view top donors by organization and industry as well as personal financial information, including net worth and assets.

Users can view legislation by topic and see recent bills passed for that topic. The legislation model is linked to politicians by providing a link to the biography of the politician who sponsored the bill.

The location model allows users to input their address to view their state and district representatives, events near them, and polling places. Once the user gets the list of representatives in their state from the locations model, the biography of state representatives will be accessible, which links the location and politician models. We have a map where users can click the state they want to see with this information in the splash page.

Reflections:

We continued dividing the tasks so each person could show their strengths and take charge on what they were experienced in, but also let the other members develop their own skills. For example, while Jireh had backend web development experience from her internship, her tasks did not directly require creating and calling from our own API. However, she was still very much involved with the entire procedure and led the rest of the team through confusing topics and provided debug support. Writing modular code was another strength; once a team member successfully solved something, other members could easily reference and apply this code. We learned about how databases are used, how to develop our own API, and how to best apply different tools for web design. We could improve on coordination amongst ourselves, as working remotely was difficult to get used to. Since this was a difficult time for many, where the team had limited internet access and/or schedules, our communication was not ideal.