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1. INTRODUCTION

1.1 Objectives

The objective of this specification document is to define and elaborate the software requirements and design specifications for the IOS mobile application 'Know & Vote'. Based on the client's requirement, this document aims to explain and present the details of this project from dev team's perspective. Hopefully by the end of this document, we could reach the same understanding and development goals with our client Julian Rubalcaba. This version of the SRS is for the iOS version of the app. Our team in CSE 455 Spring 2020 will be continuing the project that was started by the CSE455 Spring 2019 team.

1.2 SCOPE

This project "*Know & Vote*" is an iOS exclusive application designed to make voting easier & unbiased. A place to learn about candidates, track their voting records, & learn which corporation are contributing to them. Know what is on the ballot in local, state, national elections... The initial focus will be for local races in California, with the intent to cover National races and news in the future. Prototype 0 will focus on the development of the Contests Fragment. This includes displaying candidate, ballot, and other key information regarding local elections. The app will retrieve relevant data based on your location and preferences and provide it in an easy to read user interface, however, Prototype 0 will be confined to the Los Angeles area. In later versions, the set of data will differ from ZIP to ZIP as each city is unique in its legislation and politics. Users can browse local news and see posts from local users and politicians. *Know & Vote* acts like a social media app in the way users can also post petitions and announcements. These posts can be rated with a preference system. Posts with a higher like count will be more likely to be seen. Users will also have a profile to describe themselves and tailor their news experience towards specific topics. These features should be considered after the functions in Prototype 0 are refined. However, for the latest prototype, as our client suggested, we will be focus more on the current presidential election.

The software components for **Iteration 1** are as follows:

- Update User Interface
 - Scroll Feed
 - Be able to scroll up and down the feed in each category
 - Home Screen
 - Toggle between News, Petitions, Location, and Representatives
 - Navigation bar
 - Colors that meet Julian's specifications

The software components for **Iteration 2** are as follows

- Improve and Implement APIs with free "keys".
 - News
 - RSS feeder APIs
 - Searching and Retrieving live articles from all over the web regarding political news articles
 - Get rid of the generic API which pulls news about celebrities, sports, etc.
 - Ballots
 - Ballotpedia API
 - Enters content, project or data collaborations with other nonpartisan organizations in order to share their content, data and especially ballot information with users.
 - Congress
 - ProPublica Congress API
 - Returns the following data: Roll-call vote data, Member data, Personal explanations, Bill data, Nomination data, Floor actions and Committee data.
 - Candidates
 - Vote Smart API/ Ballotpedia API
 - Gathering information about presidential candidates, in this case, we will be mainly focus on Donald Trump and Joe Biden.
 - Polling Information
 - Turbovote API/ Ballotpedia API
 - Gather local polling information.
 - Voting record
 - Vote Smart API/GovTrack API
 - Gather voter's basic information.
 - Candidate Platform
 - Vote Smart API/ Ballotpedia API
 - Gather voting candidates' platform information.
 - Donor information and Graphs regarding corporate and lobbyists contributions and media sponsors
 - Vote Smart API/ OpenSecrets API

- Nonprofits
 - GuideStar API
 - Gather the nonprofit insights users needed.
- Government Spending
 - FollowTheMoney API to track the money.
 - Track the government spending.
- Corporate Donors
 - Tracks companies disclosed corporate political contributions in the form of a report from the company website.

-

1.3 ACRONYMS, TERMS AND DEFINITIONS

Activity: A single face or screen that users can interact with.

Fragment: A piece of an activity that contains its own layouts.

Database: A structured set of data held in a computer.

SQL (Structured Query Language): Database language used to store and query data.

Google Maps: GPS technology.

Client: A computer that obtains information from a server.

Server: A computer that manages access to a centralized resource or service.

User Interface: The visual components of an application that users can interact with.

Machine Learning: A subset of artificial intelligence where algorithms can learn without being explicitly programmed.

OS (Operating System): Software that supports a computer's basic functions.

IDE (Internal Development Environment): A software application that provides comprehensive facilities to programmers for software development.

iOS (iPhone Operating System): Mobile operating system created by Apple inc. used only for Apple hardware.

Swift: An object-oriented programming language developed by Apple inc. used to develop software for iOS.

XML: A scripting language used to describe the structure of an application.

Midterm Elections: An election where the people can elect their representatives in the middle of the term of executive members.

Ballot: A process of voting, in writing.

Polls: The process of voting in an election.

ZIP: A code established to identify locations, initially for routing mail.

API (Application Programming Interface): A set of subroutine definitions, communication protocols, and tools for building software.

CKAN: An API that allows developers to harvest data from public databases to use for their application

Data.gov: Public database of government data

Census.gov: Public database regarding US citizen data, geographic data, and education.

AWS (Amazon Web Services): A subsidiary of Amazon that provides on demand-cloud computing.

Google Civic Information API: An API that allows developers to retrieve civic information from Google's servers

Caucus: A meeting at which local members of a political party register their preference among candidates running for office or select delegates to attend a convention

Primary: A preliminary election to appoint delegates to a party conference or to select the candidates for a principal, especially presidential, election (in this case, we will mainly focus on the Trump and **Biden preliminary election**).

Convention: An agreement between countries covering particular matters, especially one less formal than a treaty

DNC: Democratic National Committee, the principal campaign and fund-raising organization affiliated with the United States Democratic Party.

GOP: The term "Grand Old Party" is a traditional nickname for the Republican Party and the abbreviation "GOP" is a commonly used designation. The term originated in 1875 in the Congressional Record, referring to the party associated with the successful military defense of the Union as "this gallant old party".

RNC: Republican National Committee, the principal campaign and fund-raising organization affiliated with the United States Republican Party. Republican National Convention, the nominating convention for the United States Republican Party.

Bipartisan: A cooperative effort by two political parties

Bleeding Heart: A term describing people whose hearts "bleed" with sympathy for the downtrodden; used to criticize liberals who favor government spending for social programs

Bully Pulpit: The Presidency, when used by the President to inspire or moralize. Whenever the President seeks to rouse the American people, he is said to be speaking from the bully pulpit. When the term first came into use, "bully" was slang for "first rate" or "admirable."

Campaign: An organized effort to win an election to strive for elected office

Checks and Balances: The system of dividing power among the three branches of government (executive, legislative, and judicial) to prevent anyone from having too much power. Each branch has some authority to check the power of the others, thereby maintaining a balance among the three.

Coattails: The power of a popular candidate to gather support for other candidates in his or her party. Winning candidates are said to have coattails when they drag candidates for lower office along with them to victory.

Delegate: A representative to a party's national convention chosen by local voters to vote for a candidate. Each state is assigned a certain number of delegates based on its population.

Demagogue: A leader whose impassioned rhetoric appeals to greed, fear, and hatred, and who often spreads lies. Former U.S. Sen. Joseph McCarthy (see McCarthyism) is often cited as a classic demagogue.

Fence Mending: What politicians do when they visit their electoral districts to explain an unpopular action. The term originated in 1879, when Ohio Senator John Sherman made a trip home that most people considered a political visit. Sherman insisted, however, that he was home "only to repair my fences."

Filibuster: An attempt by a Senator or group of Senators to obstruct the passage of a bill, favored by the majority, by talking continuously. Because there is no rule in the Senate over how long a member can speak, a Senator can prevent a bill from coming up for a vote by talking endlessly. Senator Strom Thurmond of South Carolina set the record in 1957 by speaking for more than 24 hours without stopping.

Fishing Expedition: An investigation with no defined purpose, often by one party seeking damaging information about another. Such inquiries are likened to fishing because they pull up whatever they happen to catch.

Front Burner: Where an issue is placed when it must be dealt with immediately

Gerrymander: The reorganization of voting districts by the party in power to insure more votes for their candidates. The term originated in 1811, when Governor Elbridge Gerry of Massachusetts signed a bill that changed districts to favor the Democrats. The shape of one new district supposedly resembled a salamander, provoking a Boston newspaper editor to say, "Salamander? Call it a Gerrymander!"

Grass Roots: Political activity that originates locally, or arises from ground level

Ideology: An integrated system of ideas about politics, values, and culture. Those who espouse an ideology are sometimes criticized as rigid and narrow-minded.

Incumbent: A current officeholder

Inside the Beltway: The area inside the Capital Beltway, a highway that encircles Washington, D.C. An issue described as "inside the Beltway" is believed to be of concern only to the people who work in and with the federal government and of little interest to the nation at large.

Lame Duck: An officeholder whose term has expired or cannot be continued, who thus has lessened power

Left-wing: Liberal. The labeling system originated from the seating pattern of the French National Assembly, which put liberals on the left, moderates in the middle, and conservatives on the right.

Lobby: A group seeking to influence an elected official, or the act of doing so. The term originated in the seventeenth century, when people waiting to speak with legislators at the English House of Commons waited in a large atrium outside the legislators' hall, called the lobby.

1.4 OVERVIEW

The purpose of this document is to provide detailed information about the use, functionality, and development plans for the *Know&Vote* application.

The first section of the *Know&Vote* SRS covers the objectives for the application, the scope of the project, and the terms, acronyms and abbreviations that will be used going forward.

The next section of the SRS covers the overall description of the application, including the system interface that will be used, the software interface, the user interface, and product functionality.

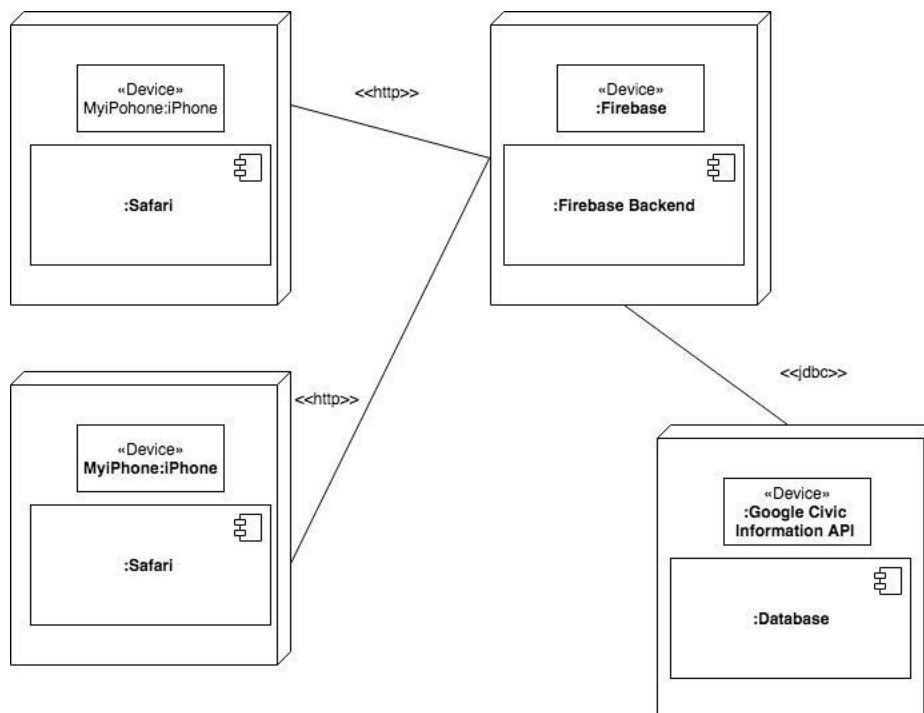
The last section of the document will cover the specifics of the *Know&Vote* application including the external interface requirements along with sample UI/UX images, the design constraints for this project, the solutions that will be implemented to meet those requirements, some recommendations for future development of the application, and the software system attributes for the project.

2. OVERALL DESCRIPTION

2.1 SYSTEM INTERFACE

Server Infrastructure:

Know & Vote will use a client-server back end infrastructure to allow users to receive data from the Google Civic Information API server. The Google server will be the backbone of most backend transactions. When a client requests information from the server, the server will return JSON data that can be parsed and displayed to the client. All data returned from the server will be in JSON format. Clients must have an Internet connection to communicate with the server to receive any political data from the API. Since the server is property of Google, we cannot alter the data in any way. While this means that we will not have to worry about updating the server with new data, it also means that we cannot update the information with our own data.



2.1.2 USER INTERFACE

Login/Signup Activity: Users can sign in with an existing account or create a new one.

Home/Landing Activity: The main page of the app. Users can access all four fragments from the home page.

News Fragment: Displays a news feed from local political publications.

Petitions Fragment: Displays current petitions. Users can sign and like petitions.

Post Fragment: Displays a list of posts from political figures and other users. Users can like posts.

Elections Fragment: Displays information regarding local elections, candidates and their political affiliations.

Profile Activity: Displays user account information.

2.1.3 SOFTWARE INTERFACE

Firebase: Used to support backend user functionality. Provides services such as:

1. Realtime Database
2. Crash Reports
3. Performance analysis
4. Chat functionality
5. User Authentication

Google Maps: Used for Geolocation. Geolocation will provide additional functionality by:

1. Obtaining users locations and adjusting content accordingly
2. Displaying the locations of local voting ballots
3. Finding local political organizations
4. Displaying the location of local protests

SQL: Used for advanced database queries that can't be performed with Firebase. SQL will be used to record information such as:

1. User's post history
2. User's like history
3. Posted Petitions
4. News that passed through the server

Google Civic Information API: This API will be used to retrieve civic information such as:

1. Referendum Information
2. Drop of locations
3. Elected Representatives

Open Secrets API: Provides additional information for legislators

1. List of legislators based on district
2. Personal finance disclosure statement
3. Candidate contributions

Follow the Money API: Provides contribution data, independent spending data and lobbying expenditure data.

1. Can view contributions for a specific organization to a specific candidate
2. Can sort by local, state and federal data

Little Sis API: Shows financial contributions between politicians and organizations. This API will be used to help fill in the gaps of information from the follow the money API.

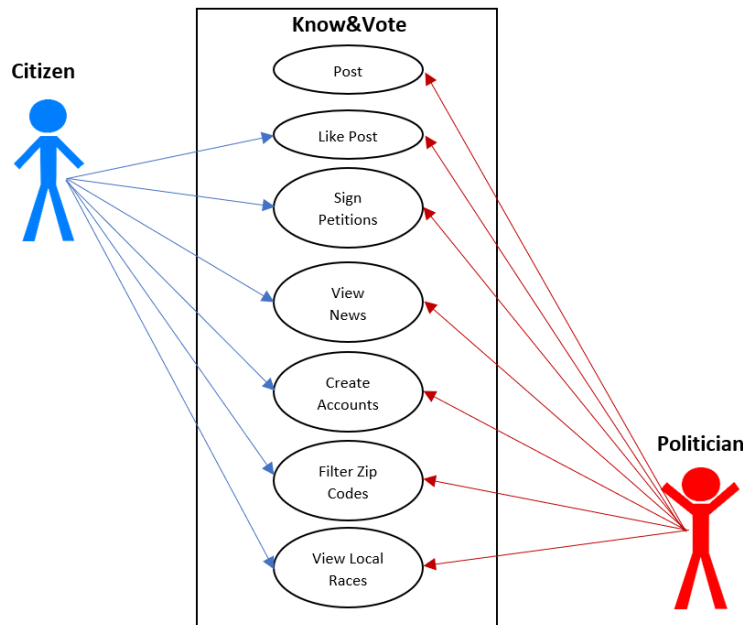
1. Track relationships between politicians and business leaders
2. Track relationships between politicians and lobbyist

USA Spending API: Provides detailed information regarding government spending

1. Returns budget information for a federal account
2. Returns an agency's federal obligations
3. Returns financial balance information

2.2 PRODUCT FUNCTIONS

Use Case Diagram



Information: One of the app's purposes is to help users stay informed of politicians and policies and to have it all in one place.

Post: Politicians can post announcements for anyone in the local area to see. These posts can be viewed by Citizens and other Politicians.

Like Posts: Politicians and Citizens can like posts, however both sets of users (Politicians and Citizens) cannot like a single post more than once.

Customizable: We would like to be able to make the application experience more geared toward the user so we want it to be able to make content that is displayed more relatable by allowing the user to choose the type of news that is displayed.

Reliable: The know and vote app only pulls information from certain sites which filters out information that could be false and users can feel safe when using an app that only uses reliable sources.

Sign Petitions: Both Politicians and Citizens can sign petitions.

View News: Citizens and Politicians can view local news that is guided towards their political agenda.

Create Accounts: Politicians and Citizens can customize their accounts with biographies and interested topics.

Filter ZIP: Politicians and Citizens can filter using ZIP codes. News and races will depend on the ZIP code or geolocation.

View Local Races: Politicians and Citizens can view local races and all their details. These details include ballots, candidates, polling information, voting record, candidate platform, donor information and graphs regarding corporate and lobbyists contributions and media sponsors.

2.3 USER CHARACTERISTICS

Politician: Users who have registered under the app with an official political position and with the intent to promote themselves and their policies.

Citizen: Users who have registered under the app normally, will be able to stay informed with politicians running for office while also be able to have news on things that they are interested in such as sports celebrities. The benefit of this app is that it would all be in one place which makes it much more convenient for the user.

3. SPECIFIC REQUIREMENTS

3.1 EXTERNAL INTERFACE REQUIREMENTS

3.1.1 LOGIN/SIGNUP ACTIVITY

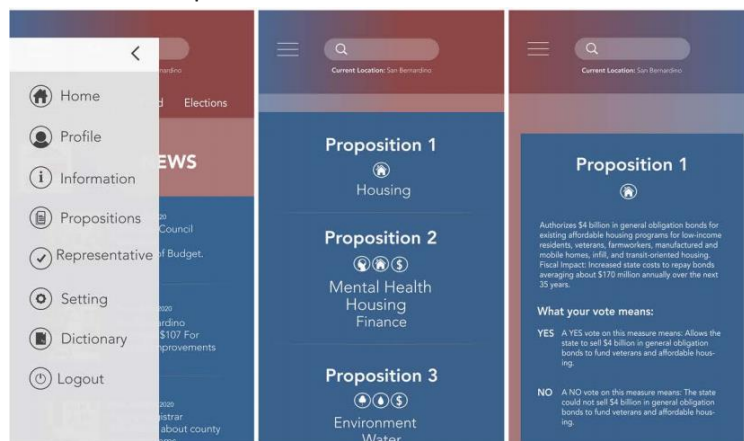
Users can login in with an existing account or create a new one. Users must have an email address and password already registered with the app to login. Newly created accounts must provide a valid email and password. Both actions will take place on the same page.

The image displays three mobile app screens for login/signup activity. The first screen (left) is a registration form with input fields for Name, Username, Email, and Password, and a 'Register' button. The second screen (middle) is a login form with input fields for Username and Password, a 'Sign In' button, and a 'Forgot Password' link. The third screen (right) shows 'Login' and 'Register' buttons with user and lock icons.

Use Case: Create Account. These UIs are used whenever a new User wants to Register for Know&Vote or when a User wants to Login to Know&Vote

3.1.2 HOME/LANDING ACTIVITY

After signing in, users will be guided to the home page. All the core functions of Politicians Pulse can be accessed from the home page by implementing Fragment UI design. News, petitions, posts and graphs will be dynamically displayed on the homepage and can be cycled through with a button press. This approach cuts down on unnecessary activities and provides an easy-to-use modern approach to UI design. A map will sit at the top of the activity, displaying your current location, while awaiting user input. The user can minimize the map to allow for more screen real estate for browsing.



Use Case: View News. These UIs are used for the Home page and Landing page from where the User can access the rest of the functions of Know&Vote.

3.1.3 NEWS FRAGMENT

All fragments can be browsed by scrolling down. News objects will contain information pertaining to the news article such as title of article, date of publication and author name. Clicking on the object will direct users to the full source. The following image will show how browsing news will look if the user decides to minimize the map. The RSS feeder API will be used to pull information that the app needs.



Use Case: View News. This UI is used in the NEWS fragment of Know&Vote Application to display news articles.

3.1.4 PETITIONS FRAGMENT

Users can browse petitions that have been posted by other users. Petition objects will contain information such as poster information, like count, petition title and number of signatures clicking on the object will bring you to the full source. Users can press the thumbs up icon to like or press the pen icon to sign the petitions.



Use Case: Sign Petitions This UI is used for the Petitions Fragment of the Know&Vote Application to display petitions.

3.1.5 POST FRAGMENT

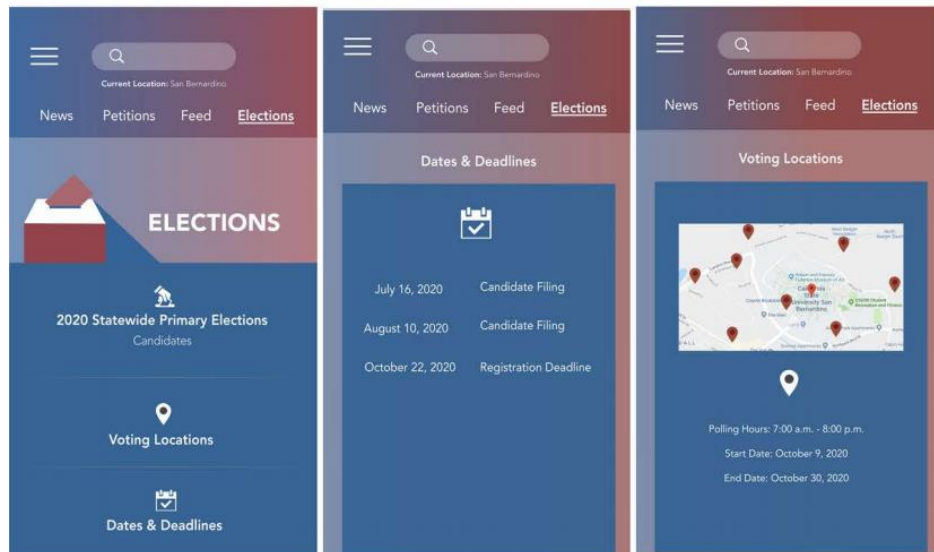
Users can browse posts from other local users. Petition objects contain information like poster information, like count and post description. Users can press the thumbs up icon to like a post.



Use Case: Like Post. This UI is used for the Feed Fragment of the Know&Vote Application to display news/articles from the User's desired feed

3.1.6 ELECTIONS FRAGMENT

Displays information about local races such as ballots, candidates, polling information, voting record. Clicking on an object will show more detailed information such as candidate platform, donor information, graphs regarding corporate, lobbyists contributions and media sponsors.



Use Case: View Local Races. These UIs are used for the elections fragment of the Know&Vote application and can display Elections, their Dates & Deadlines, and their Voting Locations.

3.1.7 PROFILE ACTIVITY

User Profile: The user will have the chance to display their name and age, along with the possibility to include their political party. They can upload a picture as their profile picture and can include a brief bio describing their life or interests. It can display who they follow, notifications or topics that they may have favorited. This serves as a simple interface from which they can explore the app and further their understanding of issues or topics that they may have interest in.



Use Case: Filter Zip Codes. This UI is used to customize the User's feed, for example if they only want state news and no world or local news, they would be able to adjust their feed with this UI.

3.1.8 REPRESENTATIVE ACTIVITY

Representative Profile: The user will have a list of political representatives to scroll through as well as having the option to view additional details about the representative by selecting their profile. The details show their political affiliation, office, social media platforms and corporate donation. Any recent or popular news can be included as a glimpse into what the politician is currently working on or involved in.



Use Case: View News. This UI is used to display detailed information about representatives.

Corporate Donors: The contributions activity will show a list of corporate donors and their contributions to political candidates. This will be useful since, the amount they donated can be seen clearly under the company's names. It can serve as a useful tool when it comes to labeling a corporation a left or right inclined.



Use Case: View News. This UI is used to display the corporate donors of a representative.

3.2 DESIGN CONSTRAINTS

False Data: There are issues with the gathering of information from the internet. In some cases, there can be false information that is entered into the database. The only way to verify if the information is true, would be to have a fact check website do an analysis of the data in order to confirm and publish the data onto our platform. Disinformation is currently affecting a lot of major media outlets therefore, a way to fact check our data would be useful.

Time Constraint: There will need to be some AI algorithms embedded in the programming of this app in order to fulfill the requests of users that may search for very specific location-based news or data.

Google search limitations: The search engine will always bring forth the most popular search terms and trends thus, any information received that may be politically inclined may be included into the application. This poses a limitation when it comes to gathering information on politicians that may not be so popular or barely known.

3.3 SOLUTIONS

Targeted APIs: Use better targeted APIs per client's request that focus on political news solely rather than drawing on pop culture and celebrity news in order to populate the client's RSS feed.

User Driven Content: User driven content allows the user to post news articles and statistics rather than having the server pull this information from a database. However, with users being able to posts information, we must now consider the legitimacy of the source. This will require some type of moderation.

Machine Learning: A machine learning algorithm can determine which articles to display to the user without explicit instructions from a programmer. A machine learning algorithm of this type must be able to perform two major functions:

1. Search the Internet for articles and statistics covering all 42,000 ZIP codes
2. Select articles and statistics that pertain to the current user and location

The performance of the algorithm will depend on how accurate statistics and news are from specific locations. If the algorithm is constantly sending you information that doesn't pertain to where you are located, it may cause some issues with illegitimate statistics. Developing a machine learning algorithm is difficult and requires a lot of time and knowledge.

3.4 RECOMMENDATIONS

Chat Functionality: This can allow an exchange of information with people of the same political party or it can be set to a global variable where all political parties are included.

Verification: Political Members that wish to interact with the public can be verified on the app in order to confirm their identity. This would provide a source of information directly from the political leaders themselves, further negating the spread of any fake information.

Experience Points: Users will earn experience points for participating in events and earning accolades from other users.

Debate Weekend: There can be an App hosted weekend where we gather users from all political parties to discuss highly voted topics that will stimulate the need for discussion and understanding in the country.

3.5 SOFTWARE SYSTEM ATTRIBUTES

Availability:

For the time being, only CSUSB 455 Students will have access to this iOS version of the app. Interns will work towards completing the app to be uploaded to the App Store. Eventually the app for Android will be completed and uploaded as well.

Reliability:

To ensure proper performance of the app, the QA team will work towards ensuring the proper quality and functionality of the app. QA team will test for possible errors and possible issues that users could face in the future.

Signature: _____

Date: _____