Texas Democratic Party

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1 Introduction

1.1 Purpose

The purpose of this document is to give a detailed description and outline of the "Texas Democratic Party" (TDP) software that will be used to manage and collect data of people attending various events. This document will contain all the specific requirements as well as diagrams illustrating how various tasks will be handled by the system. This document will also help the customer understand the product we intend to create based off of their requirements to ensure we are creating what is desired.

1.2 Scope

The Texas Democratic Party software is a web-based and mobile application that will used to manage democratic conventions within the state of Texas. Admins/Leaders will create conventions and sub-conventions that attendees will be able to view on the website. From there, attendees will be able to register for different events by giving their personal information or by creating an account.

The website will access an external database which will contain all the information about different conventions, sub-conventions, attendee/leader/admin data, and attendance data. The external database will also be accessed by a mobile scanner application that will verify whether an attendee is registered for an event or not. The scanner application will also update the database to show a registered attendee was present for the event.

1.3 Definitions, acronyms, and abbreviations

Term	**Definition**
Attendee	A person who is not directly involved with an event. This classification is meant to be used for a person of the general population attending an event.
Scan User	Refers to those who will have access to the mobile application to scan an attendee's badge for various events. Scan users will only be unique per event ID.
Leader	A person who is directly involved in a sub-convention. Leaders have the ability to create sub-conventions and request reports based on the sub-convention they created.
Admin	A person who is directly involved with the primary convention. Admins have the ability to create conventions and sub-conventions. They also have the ability to request a report of the overall convention as well as any sub-convention that was held.

Convention	The main event hosted by an admin. A convention may have primary speaker or purpose. A convention may also just be there to organize its sub-conventions.
Sub-convention	Smaller events created by leaders that take place within a primary convention.
Stakeholder	Any person who has interaction with the system and/or overall product.
Website	Primary piece of software that will be used among all users. The website will display all the convention and sub-convention information. Attendees will be able to find and register for conventions and sub-conventions. Attendees will also have the option of creating an account to store their personal information. The website will also allow leaders and admins to create their events as well as generate reports. Admins will also be able to access and edit any information for registered users.
Scanner	Use of the scanning application on a mobile device to scan attendee badges. Confirms their registration in an event.
Database	The database will store convention/sub-convention information, attendee information(personal and registered events).
Database Manager	The database manager will be software on the database that handles requests from the website or scanner. It will accept a request, process the data requested, and return it to the program requesting it.
Report	Report generated by an admin and/or leader that contains information about people who attended the convention or different sub-conventions. Example info obtained is: Name, Gender, Age, Ethnicity, Email, Presidential preference, etc.
Event	Refers to either a convention or sub-convention
User	Anyone using the website or scanner
TDP	Texas Democratic Party
DBM	Database Manager
DB	Database
LGBT	Lesbian, Gay, Bisexual, Transgender
UTSA	University of Texas at San Antonio

1.4 Overview

The remainder of this document will discuss in detail the layout and plan for development of the TDP software. It will contain graphs of various use cases, classes, sequences, and states. It will also describe user stories given by the customer to better explain the customer's overall vision while also giving an idea of importance level for each feature requested.

2 General Description

2.1 Product Perspective

The TDP software will consist of three main parts: the database, website, and scanning application. The database will house all information for each attendee, leader, and admin. It will also contain the information for each convention and sub-convention. Additionally, the database will contain a database manager which will receive requests from the website or scanner to access the information in the database. The scanner and the website do not communicate with each other at all. The scanner will access the database and receive a response from the database. The website will also access the database and receive a response from the database.

2.2 Product Functions

The primary portal in which users will access is the website. The website will allow admins to create conventions which will in turn allow leaders to create sub-conventions. Admins and leaders will also have the ability to edit any information regarding their conventions/sub-conventions such as date, time, location, etc. Additionally, admins will be able to access and edit any registered users information per user request. The website will also be the portal for the general population to view and register for any convention or sub-convention. General users will be able to create an account to store their personal information, essentially allowing attendees to "one-click register" for conventions and sub-conventions. General users will also be able to register as a guest without requiring a registered account. The downside to this is the user will have to input their information for each event.

When a user registers for an event, their information will be sent to the database and stored to whichever event they registered for. When it comes time for the convention, the employees will print badges containing a QR code for each attendee. Attendees will receive their badges at the event and the QR code will be used to gain access to the convention or any sub-convention that attendee registered for. When the scanner scans a QR code, it will send a request to the database to verify the attendee is registered. The database will then send a response to the scanner either approving or denying entry for that attendee.

When the convention is over, admins and leaders will have the ability to request a report through the website. Admins will receive a report of all attendees for the main convention and leaders will receive a report for the attendees of just their sub-convention. The report will be generated by the database manager and sent to whichever email is specified by the admin or leader.

2.3 User Characteristics

The users can be separated into four categories of increasing capability. The scanners have access to a scanner and can only scan in attendees via use of a smart phone. Attendees input their information via registering for the convention on the website. Attendees can be anyone who attends the convention including the scanners, leaders and the admins. Leaders have the ability to create sub conventions and requisition information about a convention be sent to them. The admin can do all these things as well as create conventions and edit user data.

2.4 General Constraints

- **Time** - Creating a functional product within the time constraints of the project.
- **Knowledge of Various Programming Languages and Tools** - Many languages and tools required to create this product are outside of the UTSA curriculum. We will be required to research and learn various languages and tools on our own.
- **Privacy Policy** - Ensure all the information collected is made known to users prior to giving information.
- **Database** - The website and scanner require access to an external difference to store and receive information.
- **Simple** - Must be simple enough for a user to register with very little knowledge of a computer. A large population of attendees to the conventions are older and are not familiar with computers.
- **Admin/Leader Restrictions** - Admins must be allowed to create conventions and generate any type of report they desire. Leaders are only allowed to create sub-conventions and generate reports for their own sub-conventions.

2.5 Assumptions and dependencies

Our software assumes it will have continuous and uninterrupted access to the database. If the database happens to be offline, users will not be able to view or register for conventions. Additionally, leaders and admins will not be able to create or edit any existing events or user data. This has the potential of being fatal if the database goes offline during a convention because the use of the scanner requires access to the database. If necessary, a future implementation may require an additional backup database to reduce the risk of no accessible database.

Our software also assumes users will be able to access a computer and use the computer to register for events. As a last resort, attendees will be able to register with the assistance of a leader or event worker at the physical convention.

3 Specific Requirements

3.1 Functional Requirements

3.1.1 User Stories

- As an administrator, I want information about the attendees so that I (benefit).
  - Priority: Medium
- As an leader, I want information about the attendees so that I (benefit).
  - Priority: Low
- As an administrator, I want to create a convention so people can attend.
  - Priority: High
- As an administrator, I want information from the event organized so that I can easily view it.
  - Priority: Low
- As an leader, I want information from my sub-convention organized so that I can easily view it.
  - Priority: Low
- As an attendee, I want to use my QR code so that I can attend meetings faster.
  - Priority: High
- As an attendee, I want to register so that I can attend conventions.
  - Priority: High
- As a leader, I want to be able to create meetings so that I can keep track of who attends.
  - Priority: High
- As a scanner, I want to be able to quickly scan attendees QR codes so that lines move quickly.
  - Priority: High

3.1.2 Use Case Diagrams

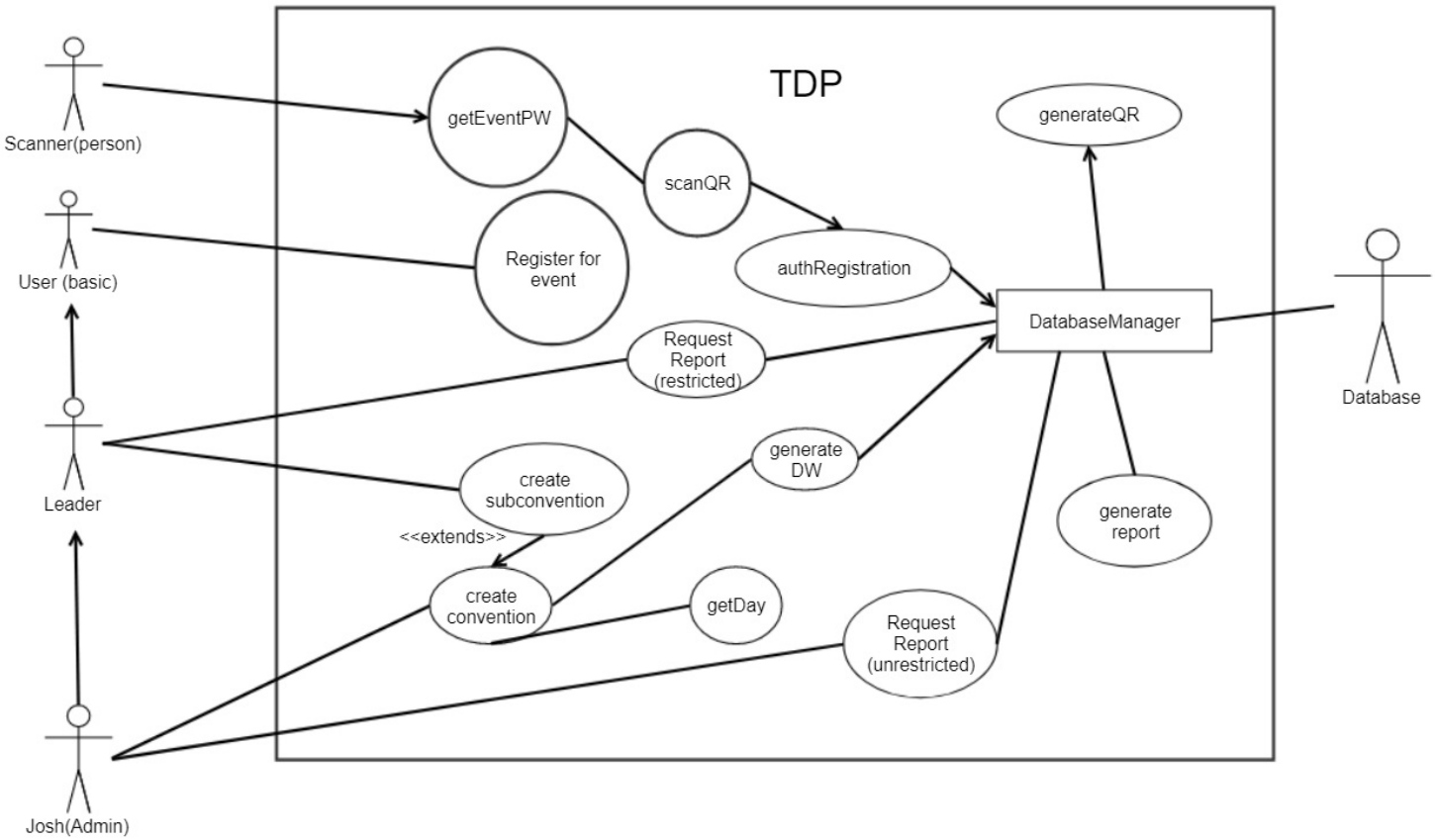

Figure 1: Use Case Diagram

In the use case diagram, the Admins are extended from Leaders which are extended from users. The user should be able to sign up for a convention. Leaders should be able to create sub-conventions and request reports about the sub-conventions that they have access to. Admins can request reports of anything to do with a convention such as the list of attendees for a specific sub-convention. Scanners are limited in use to checking people in to sub-conventions. The database should only be accessed via a database manager.

3.1.3 Class Diagrams

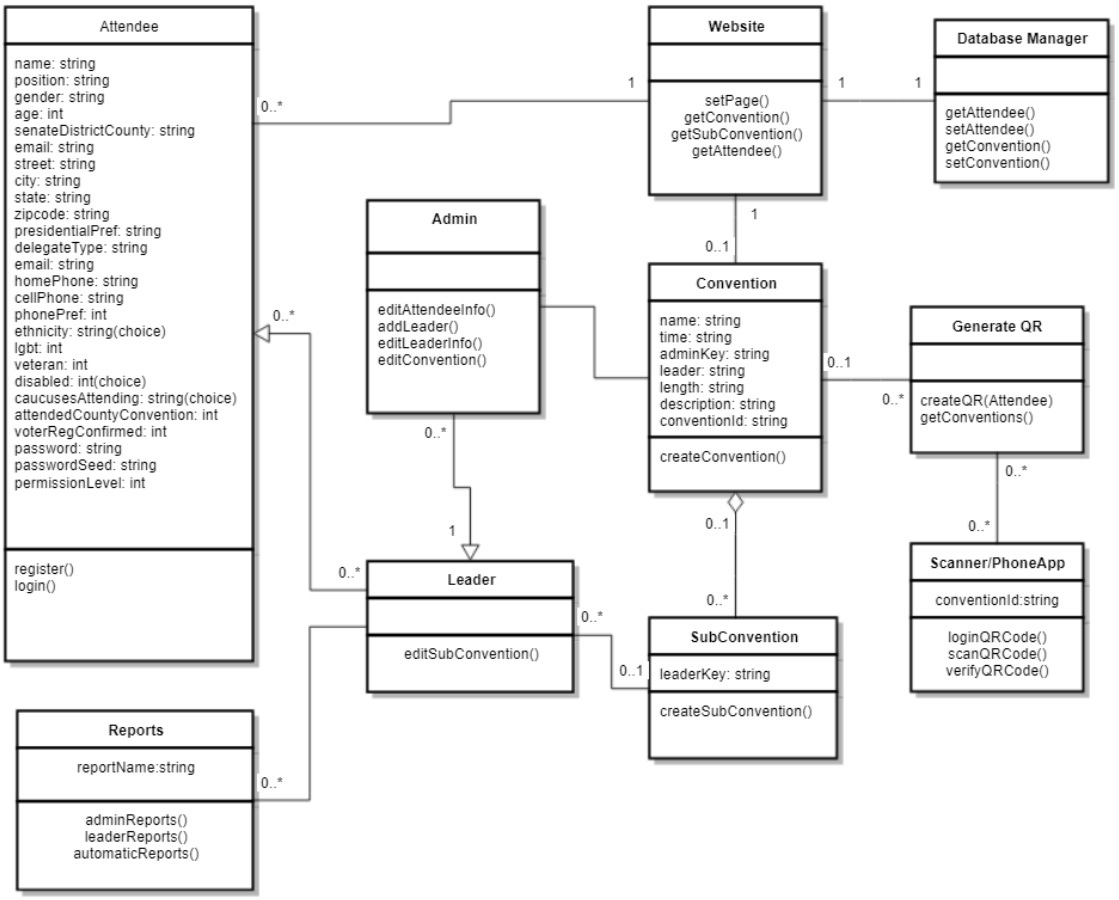

Figure 2: Class Diagram

3.1.4 State diagrams

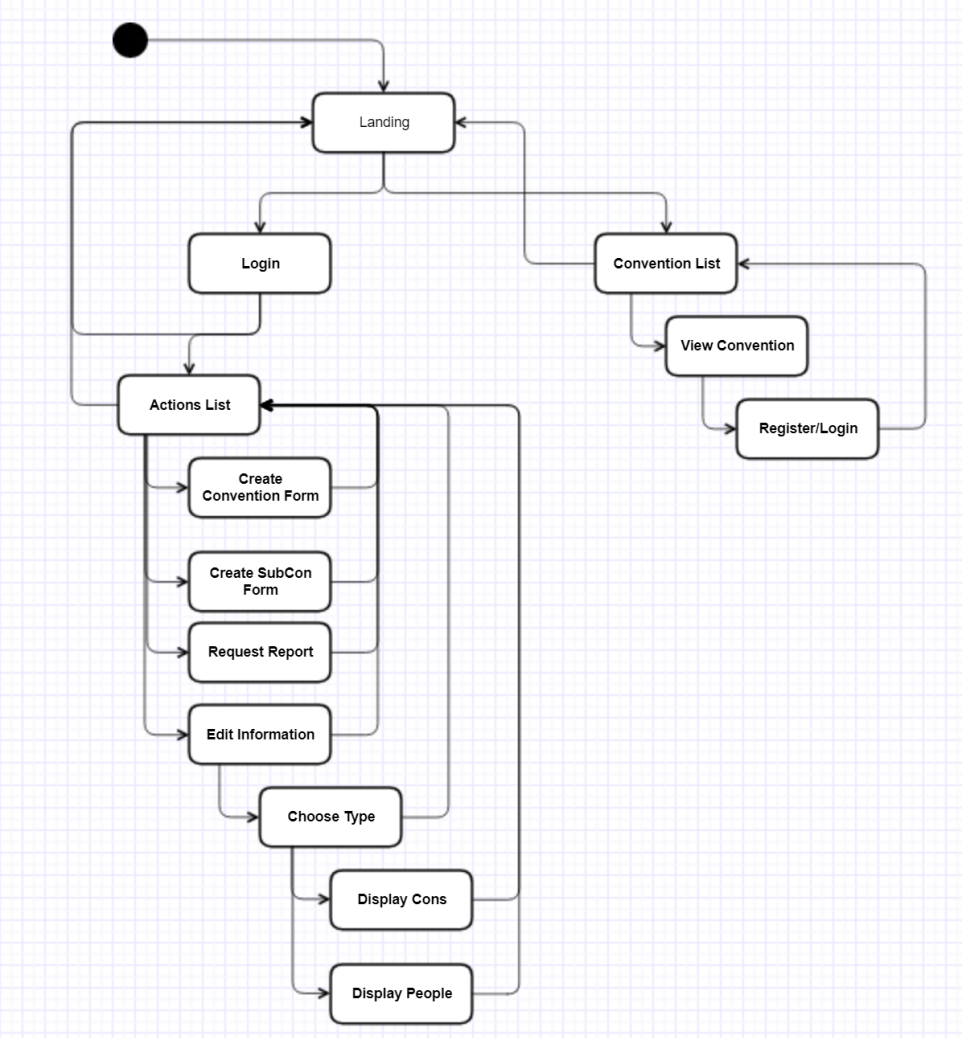

Figure 3: State Diagram: Website

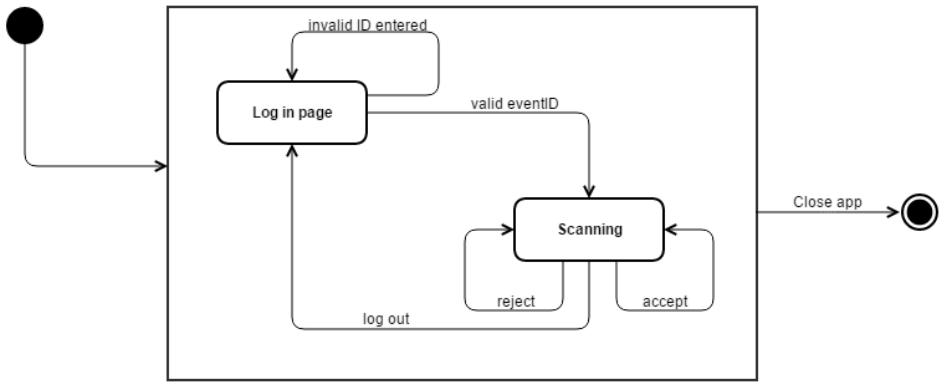

Figure 4: State Diagram: Scanner

3.1.5 Sequence Diagrams

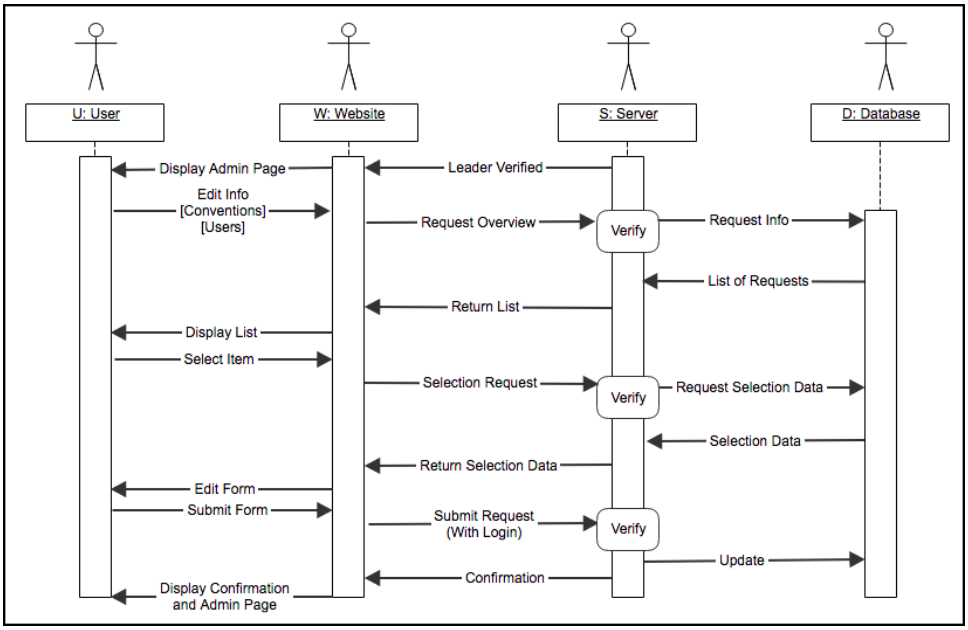

Figure 5: Sequence Diagram: Admin Edit Info

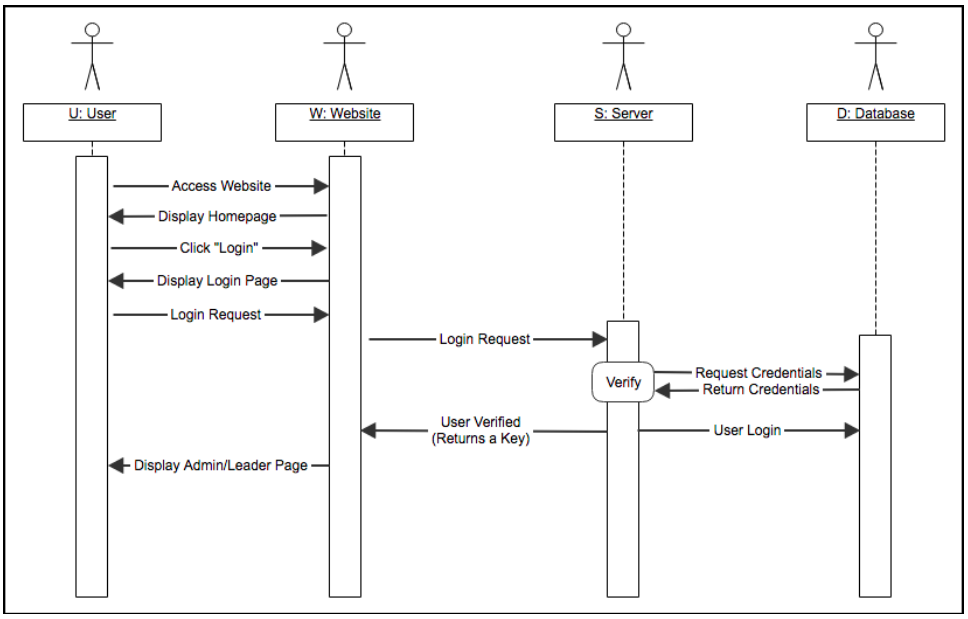

Figure 6: Sequence Diagram: Admin Leader Log In

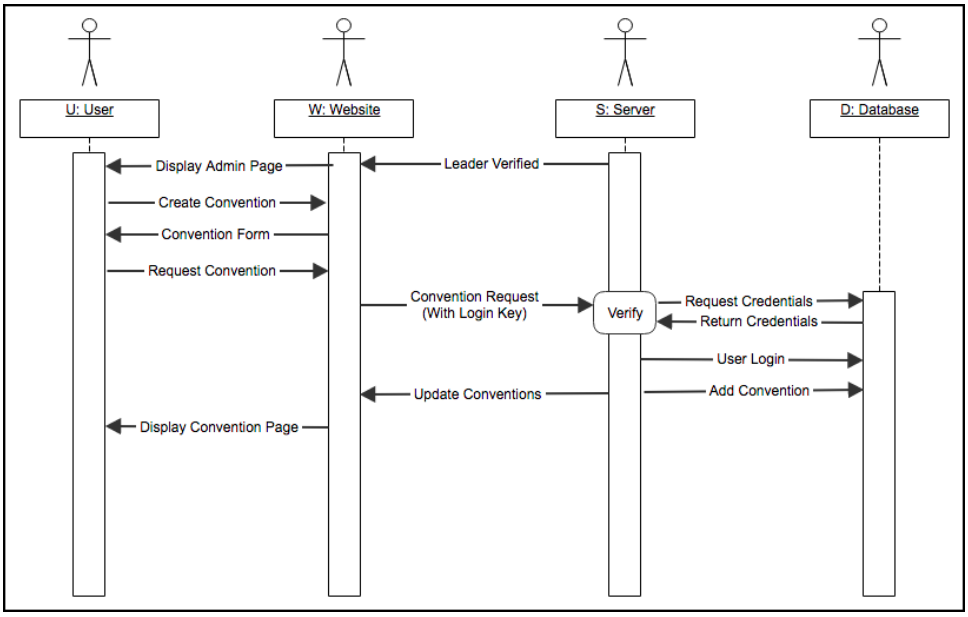

Figure 7: Sequence Diagram: Create Convention

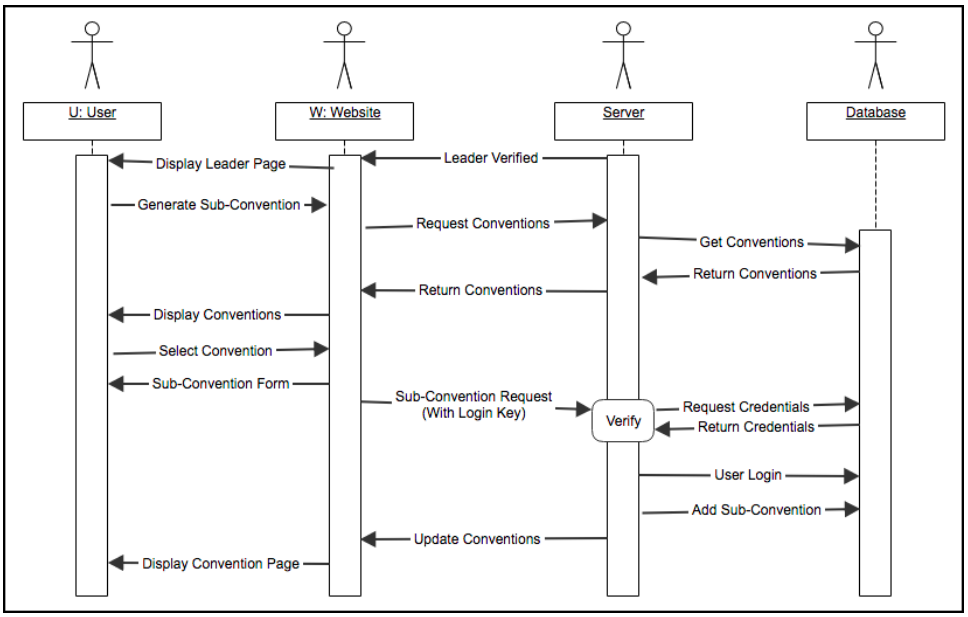

Figure 8: Sequence Diagram: Create Sub Convention

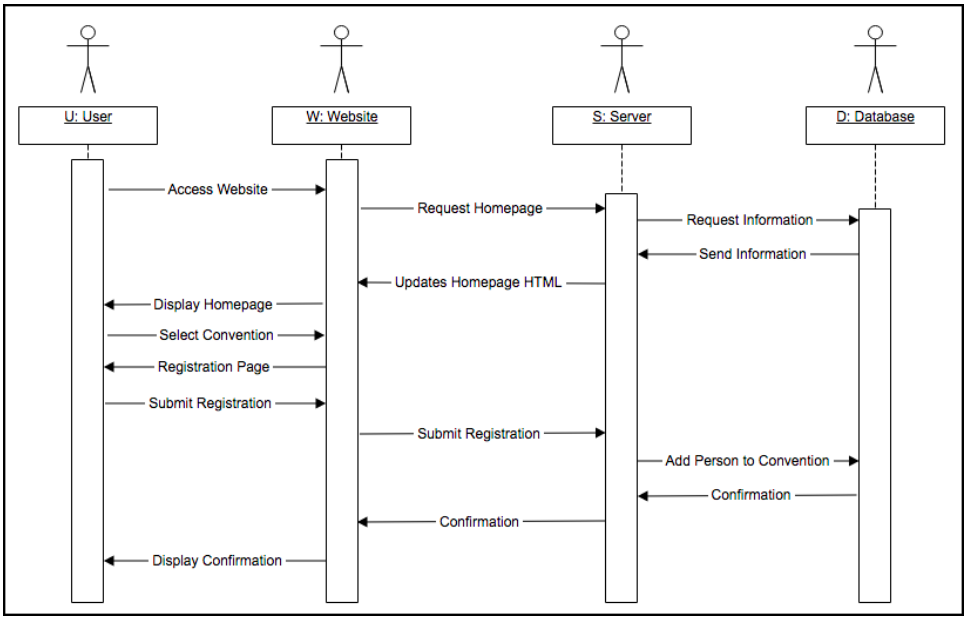

Figure 9: Sequence Diagram: Register as Guest

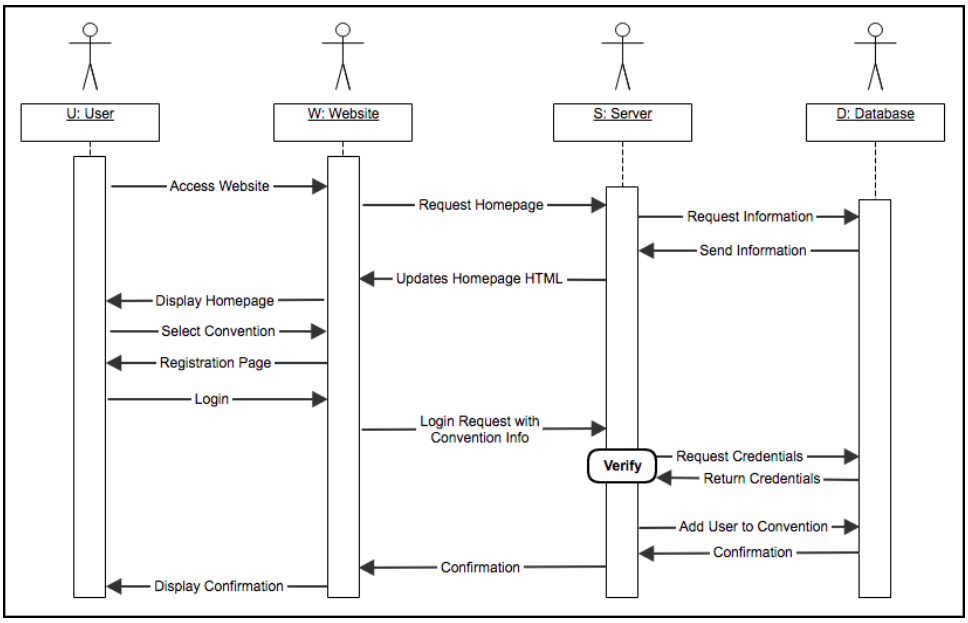

Figure 10: Sequence Diagram: Register as User

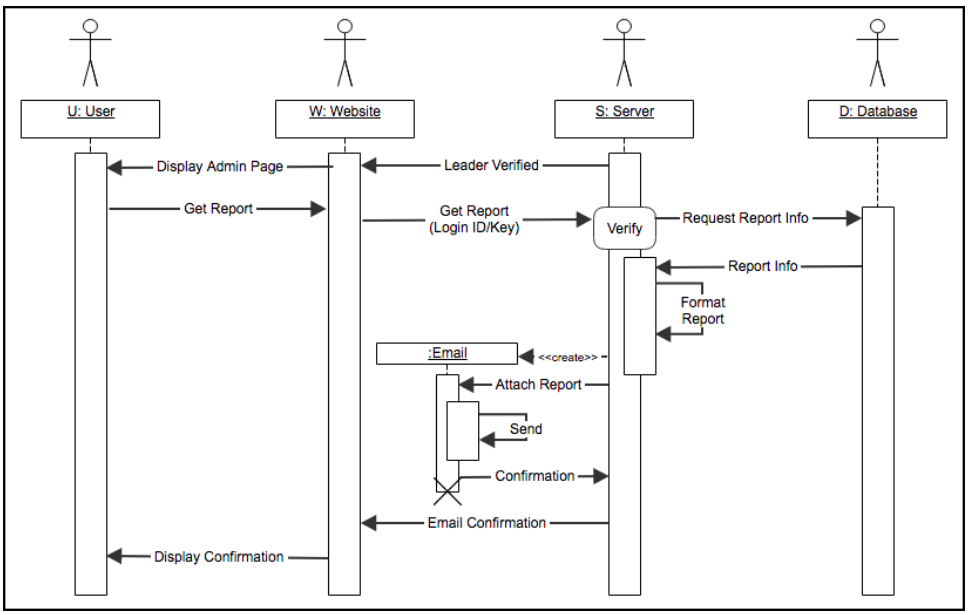

Figure 11: Sequence Diagram: Request Report

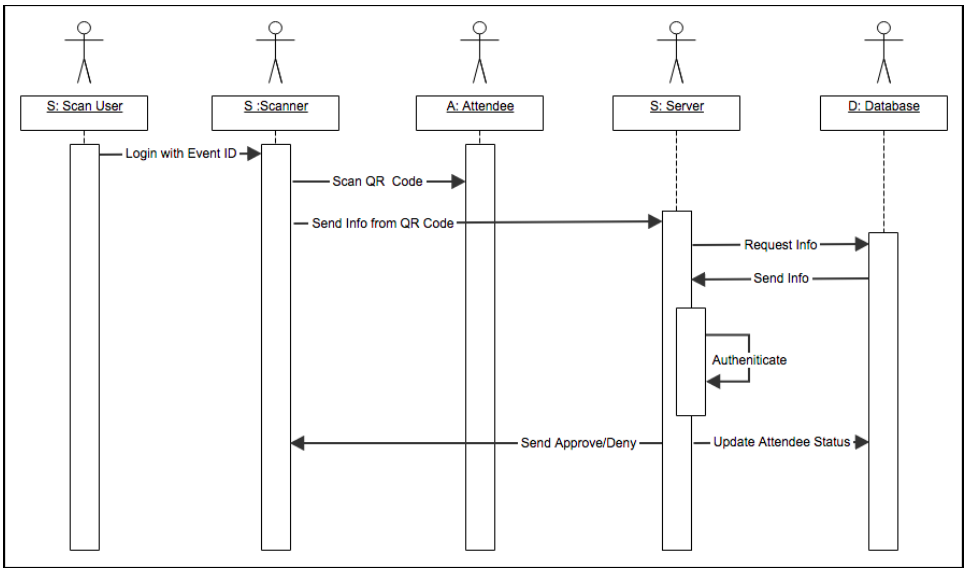

Figure 12: Sequence Diagram: Scan in Attendee

3.2 Data Dictionary

3.2.1 Class: Attendee

- Attributes:
  - string name : Attendee's name (first, last)
  - string position : County chair, elected official, etc.
  - string gender
  - int age
  - string senateDistrictCounty : Voting district for attendee
  - string email
  - string street
  - string city
  - string state
  - string zipcode
  - string presidentialPref : Attendee's presidential candidate preference
  - string delegateType
  - string homePhone
  - string cellPhone
  - int phonePref : Attendee's preferred phone number

  - string ethnicity
  - int lgbt : (Lesbian, Gay, Bisexual, Transgender)
  - int veteran
  - int disabled
  - string caucusAttending : Which caucus the attendee is going to attend
  - int attendedCountyConvention : If the attendee attended a previous county convention
  - int voterRegConfirmed : If the attendee is registered to vote
  - string password
  - string passwordSeed
  - int permissionLevel : Grants different access on website
- Operations:
  - register() : Allows the attendee to register a user account on the website
  - login() : Allows a registered attendee to log in to the website

3.2.2 Class: Leader

- Attributes:
  - (Inherits everything from Attendee)
- Operations:
  - (Inherits everything from Attendee)
  - editSubConvention() : Allows the leader of a sub-convention to edit any information about it such as date, time, location, etc.

3.2.3 Class: Admin

- Attributes:
  - (Inherits everything from Leader)
- Operations:
  - (Inherits everything from Leader)
  - editAttendeeInfo() : Allows admin to edit an attendee's personal information
  - addLeader() : Allows admin to add leader permissions to a user
  - editLeaderInfo() : Allows admin to edit a leader's personal information
  - editConvention() : Allows admin of a convention to edit any information about it such as date, time, location, etc.

3.2.4 Class: Convention

- Attributes:
  - string name : Name of convention
  - string time : Time of convention
  - string adminKey : Unique key for a convention
  - string leader : Approved leader of a convention
  - string length : Approximate duration of the convention
  - string description : Brief description of the convention
  - string conventionID : Key used for scanning attendee's into specific convention
- Operations:
  - createConvention() : Allows for admin to create a new convention

3.2.5 Class: Sub-Convention

- Attributes:
  - (Inherits everything from Convention)
  - string leaderKey : Unique key for a sub-convention
- Operations:
  - (Inherits everything from Convention)
  - createSubConvention() : Allows for leader to create a new sub-convention

3.2.6 Class: Reports

- Attributes:
  - string reportName : Contains the name of the report
- Operations:
  - adminReports() : Allows admin to request a report
  - leaderReports() : Allows leader to request a report
  - automaticReports() : Allows for creation and delivery of every report from a convention and its sub-conventions

3.2.7 Class: Website

- Attributes:
- Operations:
  - setPage() : Calls the requested HTML file and sets the page using a function
  - getConvention() : Request to database manager to receive a list of the conventions from the database
  - getSubConvention() : Request to database manager to receive a list of sub-conventions from the database
  - getAttendee() : Request to database manager to retrieve an attendees user account from the database with all their personal information

3.2.8 Class: Database Manager

- Attributes:
- Operations:
  - getAttendee() : Obtains an attendee's information from the database
  - setAttendee() : Adds an attendee to an event in the database
  - getConvention() : Obtains a list of events from the database
  - setConvention() : Adds an event to the database

3.2.9 Class: Generate QR

- Attributes:
- Operations:
  - generateQR() : Creates a unique QR code for each attendee

3.2.10 Class: Scanner/Phone App

- Attributes:
  - string conventionID : Holds the convetion ID to allow for quick sign-in
- Operations:
  - scanQRCode() : Scans the QR code on the attendee badge
  - verifyQRCode() : Verify attendee is registered for event

3.3 User Interface Requirements

The structure of the website most closely follows the single page application paradigm. As such the website interface is primarily composed of buttons and dynamically generated forms. Layout is maintained as a floating dynamic structure. In either the upper left hand corner or along the top of the page is a menu that will allow one to log in and access the items that they can access such as the actions panel for Leaders/Admin.

3.4 Website Prototype

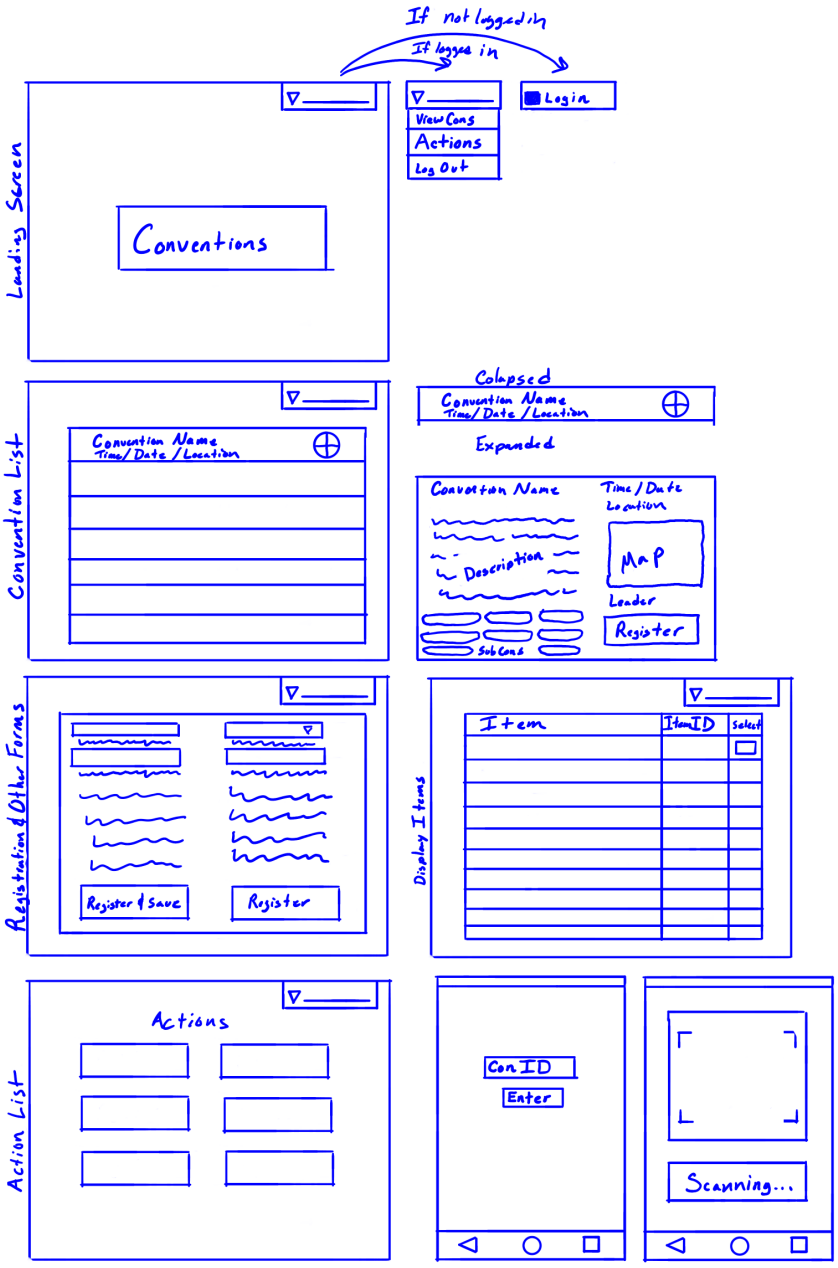

Figure 13: Website Prototype

3.5 Non-functional Requirements

- It must be extremely easy to use as most attendees are not familiar with computers.
- It cannot be unpatriotic.
- Secure in the sense of keeping personal information private, except by parties who are allowed to obtain it.

4 Requirements Table

Number	Name	Description	Related Requirements	Related Use Case
1	Admin information	Admins request attendee information for convention or sub-conventions	2, 4	requestReport and generateReport
2	Leader information	Leaders request attendee information for sub-convention	5	requestReport and generateReport
3	Create convention	Admin is able to create a new convention		createConvention
4	Admin report	Admin able to generate a neat and organized report of attendee information for a convention	1, 2	requestReport and generateReport
5	Leader report	Leader is able to generate a neat and organized report of attendee information for sub-convention	2	requestReport and generateReport
6	Attendee QR code	Attendees must receive a unique QR code to facilitate the sign-in process for conventions and sub-conventions	7	generateQR and scanQR
7	Attendee registration	Attendees must be able to register for different conventions or sub-conventions, with or without a user account.	6	registerForEvent
8	Fast sign-in	Scan users must be able to quickly and efficiently sign attendees into an event without having to enter an event ID before each scan	6	scanQR

5 Meeting Minutes

How do you want people to have accounts set up initially? For example, if someone shows up, how do we know they exist?
People meet all the time. So they meet by county during most parts of the year, and by senate district during these big events. So we'll send it [the invitation] out by county to sign up. For the first time, two years ago, they did a Google form and they were blown away. It was really neat because I could do a lot more with a spreadsheet of information. Just direct them to a website.

You said that there are no accounts, you don't have to sign in anywhere for this kind of thing?
This [the check-in process] would be kind of registering for sub-meetings. If you fill it out at all, you're going to be registering for the event. I don't want to deal with people not doing their passwords right. We're talking 10,000 people here. We're not setup to deal with that. In the future, more security would be nice but we're not dealing with real sensitive information here.

So the main things are: you're trying to keep track of people who show up, information about those people, and ease of use. As far as time for how fast they can get in and out. As far as how you actually do it, I think QR codes will be fine.
Keeping track of attendance for stuff like this in the past, we would just make a column in this meeting or that meeting. We would just put X's in for people that came in. I think we just need to keep track of who came to state versus county events.

Going back to the hierarchy, where there's leaders versus admins. How many levels are there?
Yeah, so the attendee would not have access to anything. They would just have their name badge with their QR code on it. I would like to have a leader level, to start and stop check-in times and get a report on who showed up at their meetings. I don't know that we need to specify caucus versus convention leaders.

So the only thing that particular rank [leader] would be able to do is create meetings and end them?
So, yeah. I'm the leader and I log onto the website and I say I want to have this titled meeting at this time. It spits back a code to me that I can enter into the app that would allow me to open the QR reader and scan one code after another. Then I can stop it, or time can stop it.

For the admin role, what exactly do you want the admin to be able to do? You mentioned assigning leaders, is there anything else?
I would say, having access to the full set of data. I don't know how it would look in the end, either being one giant spreadsheet or however you would have it.

What information do you want the leaders to not access in this?
The leader should be able to read the information that is generated, but not be able change anything except at certain registration points.

And the admin would have access to all?
Yes, correct. And you're looking at the admin.

Any necessary costs, are those going to be covered? What's going on with that?
Yeah, so I'll cover that. If you can give me a ballpark estimate. I'm willing to pay that. We can cover that.

Does the QR scanner need to be done in the form a native application, or would it be a web server which opens the scanner?
I would leave that up to your discretion. I've talked to a few of the professors who have been in the business world. Their feedback is that a native application is going to be faster than a web application.

Would you like the website's functions to be accessed through the mobile application?
That seems like an added level of difficulty. The way I see it is the application just scans people in and the website is where we can enter their information. The web does everything except scan people in.

So, you would have people entering in the information before they got to the QR scanners. This information would be what generates the QR codes?
Yes. So, we would screen people with their ID at the initial check-in for the event. There's no way to get around the mass of people picking up their packets. But we'd be entering their information as they were checking in.

Is there any particular format you'd like the report to be in?
I'm really fond of Google Sheets, if there was some way you could implement that from the database. If Excel is easier, you can go with Excel. I just prefer Sheets and the versatility of it.