

Hometown Heroes

CS 361 - 400, Group 6

Homework 2

July 14, 2017

Client:

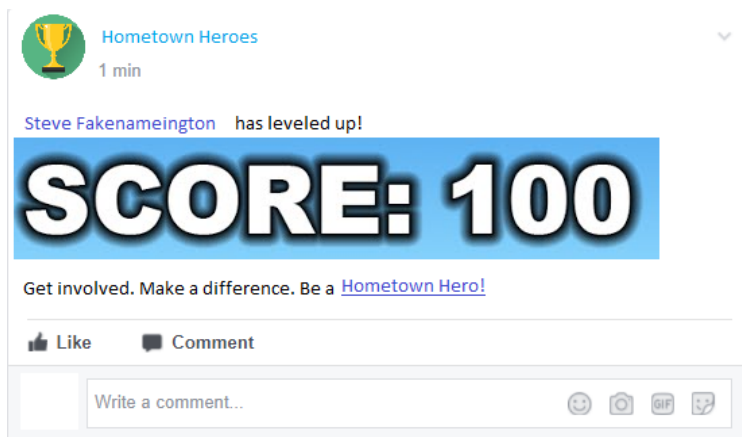
Benjamin Rodarte

Developers:

Jon Austin, Valerie Chapple, Kenny Lew, Gregory Niebanck, and Charlotte Murphy

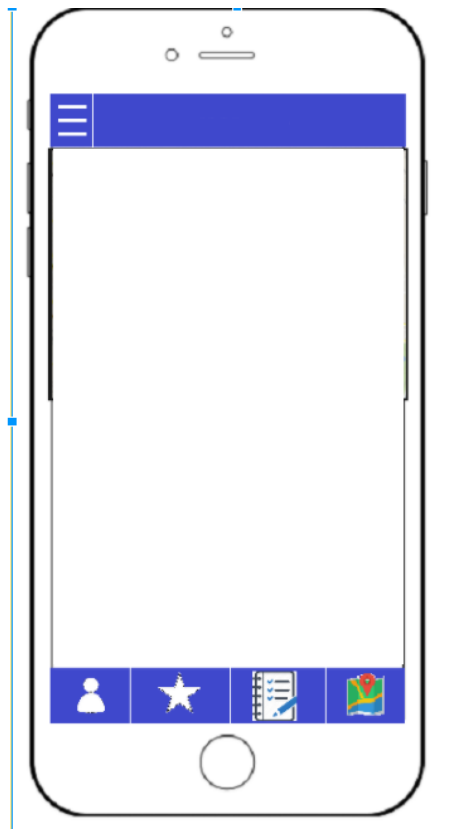
Paper/Low Prototypes

Example Automatic Facebook Post, tagging a participant.

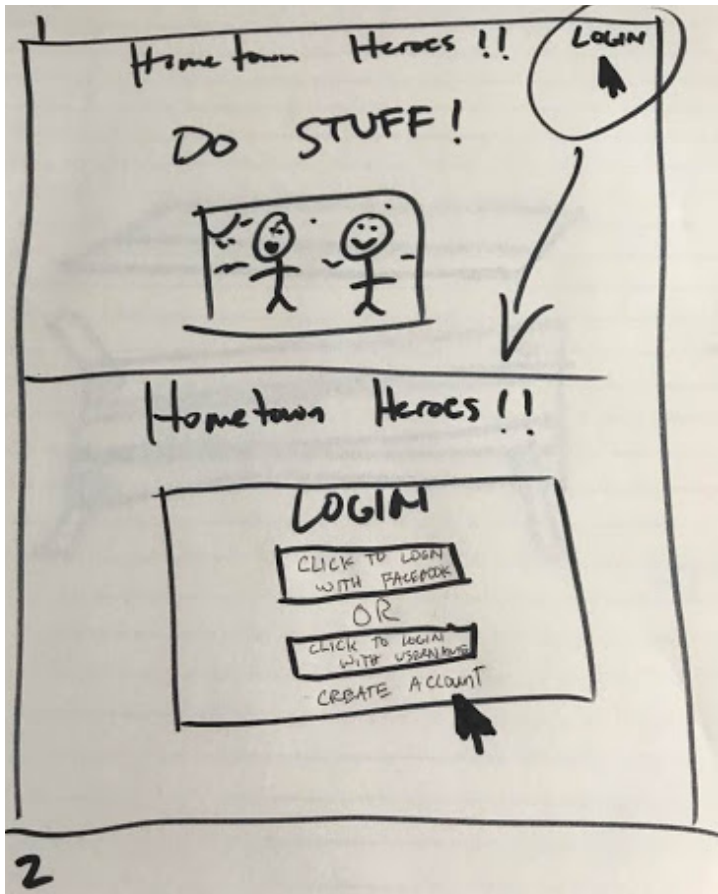


Sample automated post with user tag and link to app store.

Mobile App: Menu Template



General Interface: Create Account



Mobile

Desktop

LOGIN WITH

Google Plus

Twitter

Etc...

OR

Name:

Email:

Password:

Repeat Password:

Zip Code:

GO

HH

EVENTS

LOGIN/SIGN UP

CREATE A Hometown Hero PROFILE

Facebook

Twitter

Google +


Instagram

EMAIL

1,536,203 Volunteer hours and counting...

264 users online

2,492 events coming up (list additional starts...)



hockey_bob72 is on a 10-week streak you too can be a Hometown Hero

SIGN UP NOW (or login here)

General Interface: Create Account CONTINUED

MANUAL SELECTION:

4

YOU MADE A PROFILE

WOULD YOU LIKE TO:

CHOOSE SKILLS AND INTERESTS

or

TAKE A QUIZ TO HELP FIND EVENTS

5

SKILLS / INTERESTS

I am interested in:

- ☐ Tutoring
- ☐ Chores
- ☐ Advocacy
- ☐ Children
- ☐ Homeless
- ☐ Seniors
- ☐ Crises
- ☐ ETC.

I feel skilled in:

- ☐ Tutoring
- ☐ Math
- ☐ Reading
- ☐ ESL
- ☐ Citizenship
- ☒ Animals

- ☐ Handycrafts
- ☐ Computers
- ☐ Legal
- ☐ Accounting
- ☐ Youth
- ☐ ETC.

SUBMIT

QUESTIONNAIRE:

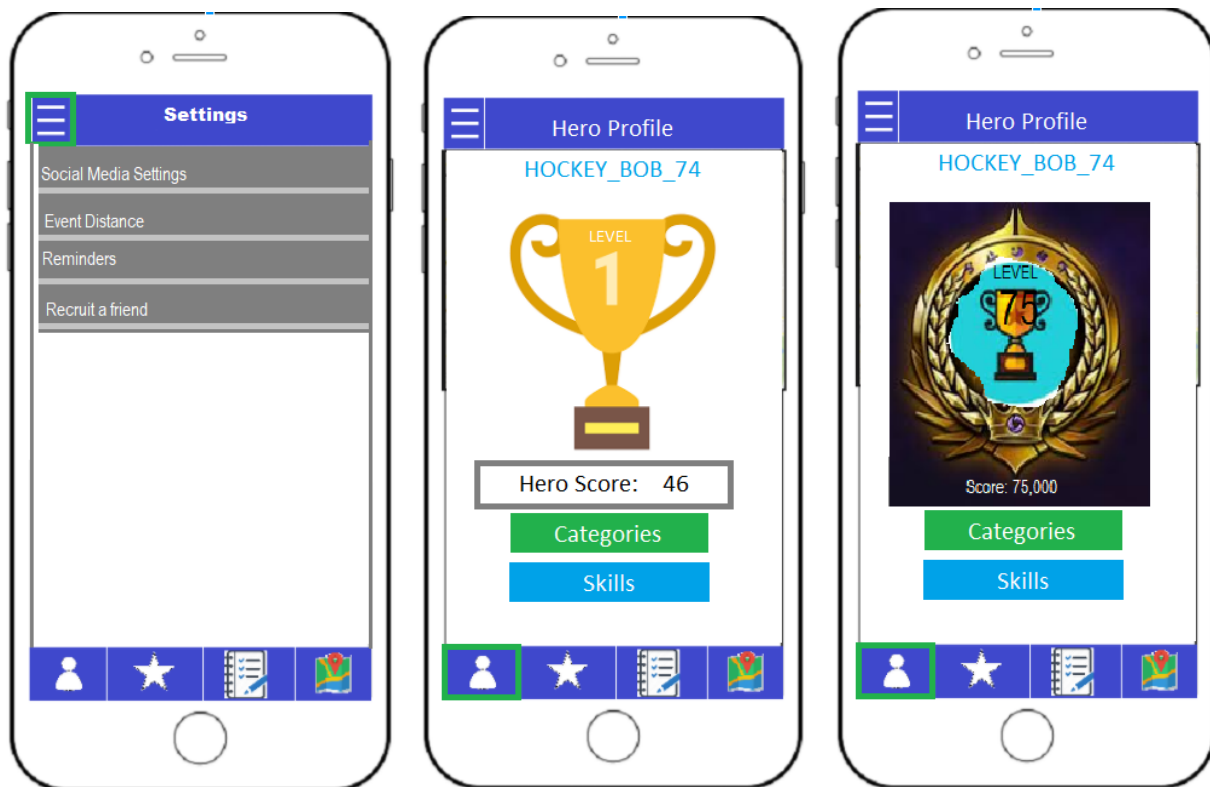
Skills + Interests

Please take 10min to complete the Hometown Hero profile survey, which will help you find events relative to you!

Question 1 / 25

	Disagree	Neutral	Agree
I like animals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I like working with animals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I like protecting animals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

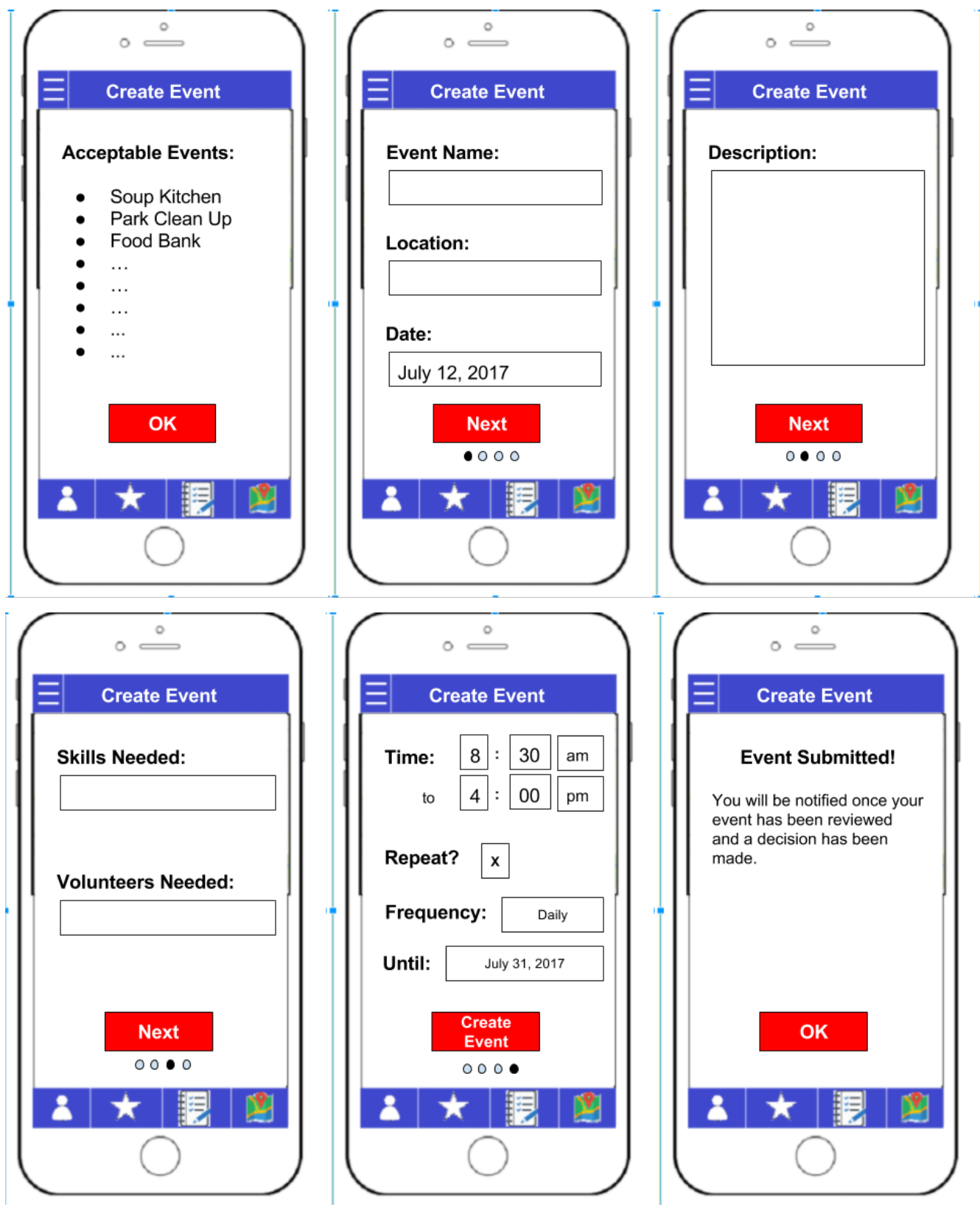
Mobile App: Settings and Profile Views



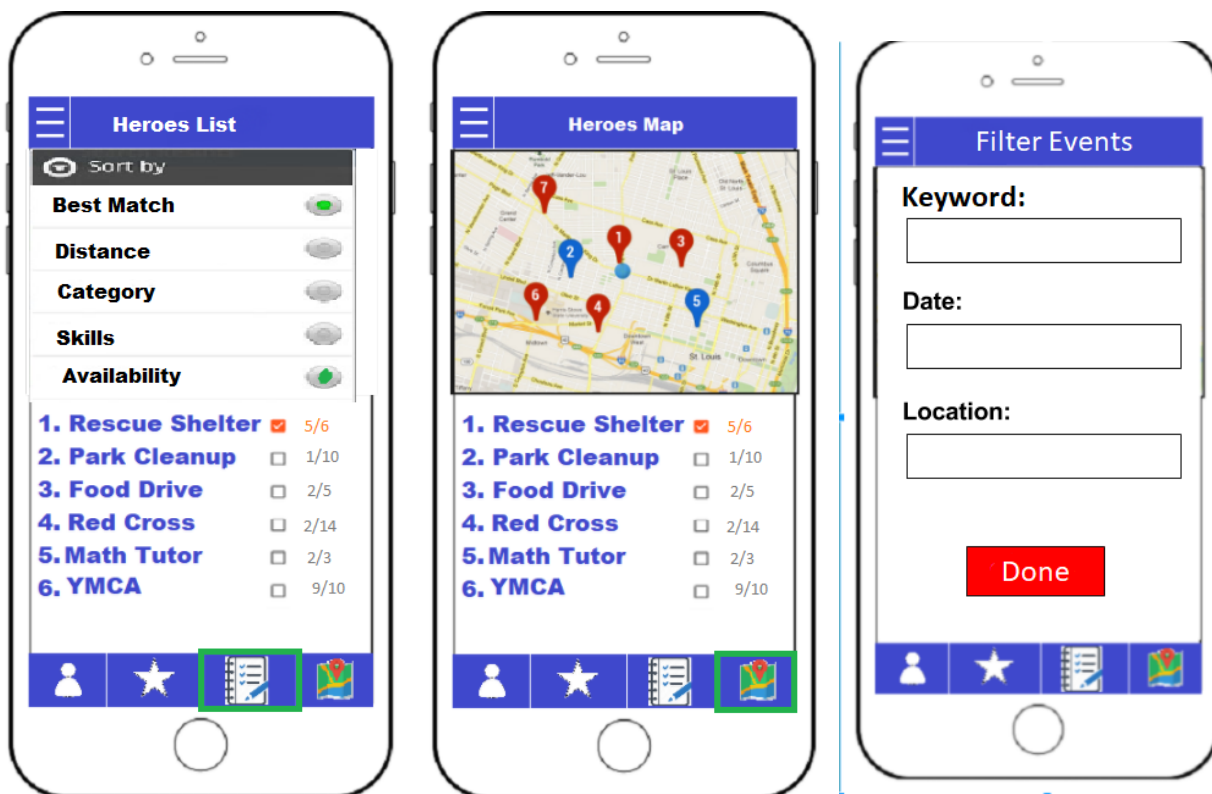
Mobile App: User's Event History and Event Creation Buttons



Mobile App: Event Creation Form



Mobile App: Event Search by List and by Map



Desktop: Event Search by List



Note: No Desktop Ver.

Mobile App: Register For Event

Register for Event

Keyword:

Date:


Location:

Search

Select Event

7/15 Nall Park Cleanup
 7/22 YMCA Tutoring
 7/25 St. Mary's Food Bank
 7/31 Humane Society

Select Event - Map



1. Rescue Shelter
2. Park Cleanup
3. Food Drive
4. Red Cross
5. Math Tutor
6. YMCA

Confirm Event

7/15 Nall Park Cleanup
 10440 Nall Ave, Overland, KS

Description: Pick up litter and clear weeds in the park.

Requirements: Light physical labor, lifting less than 50 lbs

- Outdoors
- Environment
- Community

Confirm

Confirmation

Thank you for being a Hero!

Successfully registered for:
Nall Park Clean Up

Requirements

Functional Requirements Definitions

Account/Profile

- When users create a Hometown Hero profile, they identify the types of volunteer opportunities or causes in which they are interested in.
- When users create a Hometown Hero profile, they provide their skillsets (teach, construct, artist, cooking, etc.).
- Users shall be given the option to take a questionnaire to help select interests/skills.

Event Creation

- Users can create and organize volunteer events.
- Organizers request for publication of their event on Hometown Heroes by providing details on location, date, and times of the event, as well as a brief statement on the positive impact on the community.
- Event organizers can track the number of pledged volunteers.
- On the day of the event, organizers are required to open and close the event.
- On the day of the event, organizers can track volunteer attendance.

Event Registration

- Users can view local volunteer opportunities on a map or a list.
- Viewable volunteer opportunities can be by filtered location, category, and skillset.
- Users should be able to search for opportunities.
- Users can view details of a volunteer opportunity they select and sign up.
- Users can “red flag” events for misuse, bad experiences, spam, etc.

Administration

- A select group of Hometown Hero app users will be designated as administrators.
- Hometown Hero administrators can approve or deny events for publication on the application.
- Administrators may also delete any event that was previously approved but deemed in violation of terms of use.
- Users can become “Event Reviewers” to help with moderation.

Point System

- Point distribution is initiated when an organizer opens the event through the app and is stopped when the organizer closes the event.
- Users earn points for the duration they participate in each event.
- Users who have continual participation in at least 1 event per week for 2 weeks straight will earn an additional percentage of points for future events attended.
- At various point values, users will increase their Hometown Hero level.

Social Media Integration

- When users register for events or increase their Hometown Hero level, a post can automatically be shared on social media.
- Organizers can use the application to post updates and photos of the event on social media.
- Users can gain points for recruiting other volunteers via social media.

Nonfunctional Requirement Definitions

Reliability

- App automatically records a user's number of minutes at an event through geolocation.

Efficiency

- Signup needs to be fast and easy to promote participation.

Integrity

- Signing in through social media should only request access to user data that is necessary (name and permission to post to social media) for Hometown Heroes. No other user information from their social media accounts is collected.
- Events need to be legitimate, and based on a realistic need. Selected reviewers will be required to evaluate potential volunteer events before making available.

Usability

- Experienced volunteers should be able to quickly setup their profiles manually. Less experienced users can use a questionnaire to assist setting up their profiles.

Testability

- Confirmation is sent to the user within the app that the action is completed successfully for event creation, event registration, and event participation.

Flexibility

- Users can volunteer for and organize events with the same account.

Portability

- Hometown Heroes is exclusive to the mobile app in order to integrate GPS functionality. However, a web app is still an option for future versions.

Interoperability

- Default settings should maximize social media integration to promote participation.

Important Uses Cases

The four most important use cases are: create an account, create an event, register for an event, and participate in an event. Together these use cases encompass the core functionality of the Hometown Hero application. The use cases individually represent crucial aspects of the application, yet they are interdependent. For example, users are required to have an account (use case 1), only registered users can create events (use case 2), and only registered users can register for and participate in events (use cases 3 and 4).

Secondary use cases include sharing event pictures on social media sites, posting event updates and reminders, and reviewing new events for approval. However, the four use cases outlined below fully serve the main purpose of Hometown Heroes by encouraging young adults to create more service opportunities in their communities and participate in more local service events.

Use case #1

Use case name: Create Hometown Hero Account

Actor: Application User

Preconditions: The user is using the app for the first time on a mobile device with internet access.

Postconditions: The user has access to an account complete with general information and activity preferences. User attribute data is stored in a database. The user can now view available activities, or create activities.

Flow of events:

1. User is prompted to create an account.
2. User connects to social media or manually inputs account information, which is sent to a server.
3. Server will insert the user login information into a database.
4. Server will direct the user to a profile creation page.
5. User is prompted to answer a questionnaire or setup profile manually.
 - 5a. User answers probing questions about skills and interests, which will apply associated interest in skills tags to list of suggested profile tags.
 - 5b. User selects interest and skill tags manually applying them to the user profile.
6. The completed profile is sent to a server, and the server saves them in a database.

Use case #2

Use case name: Create event

Actor: Application User

Preconditions: The user has an account.

Postconditions: The user has an event posted with necessary information (location, description, skill set “tags,” duration, repeated request [weekly, monthly, etc.]).

Flow of events:

1. User logs in, either manually or via their linked social media account.
2. User clicks “Create Event” from the Calendar screen.
3. User enters pertinent info (see postconditions).
4. Event is sent to approval queue, notifies admins/reviewers.
5. Event is approved or rejected.
6. User is notified that the event is approved or rejected with feedback/reason.
7. Event is entered into the live database and will be shown to matching volunteers/searches.
8. User is notified when volunteers register for event.

Use case #3

Use case name: Register for an event

Actor: Application User

Preconditions: The user has an account.

Postconditions: The user is registered to participate in a specific event. The user can now view more specific information about the event. The user will receive event notifications.

Flow of events:

1. User logs in, either manually or via their linked social media account.
2. User can view suggested events, chosen based on user’s location or user can filter events by keywords or date.
3. User browses events in list or map view.
4. User registers for selected event.
5. The event selection is sent to a server, and the server saves them in a database.
6. User receives in-app registration confirmation.
7. User receives event notifications and updates leading up to the event.
8. Event organizer receives notification of user’s registration.
9. Event name and link are posted to user’s social media account.

Use case #4

Use case name: Participate in an event

Actor: Application User

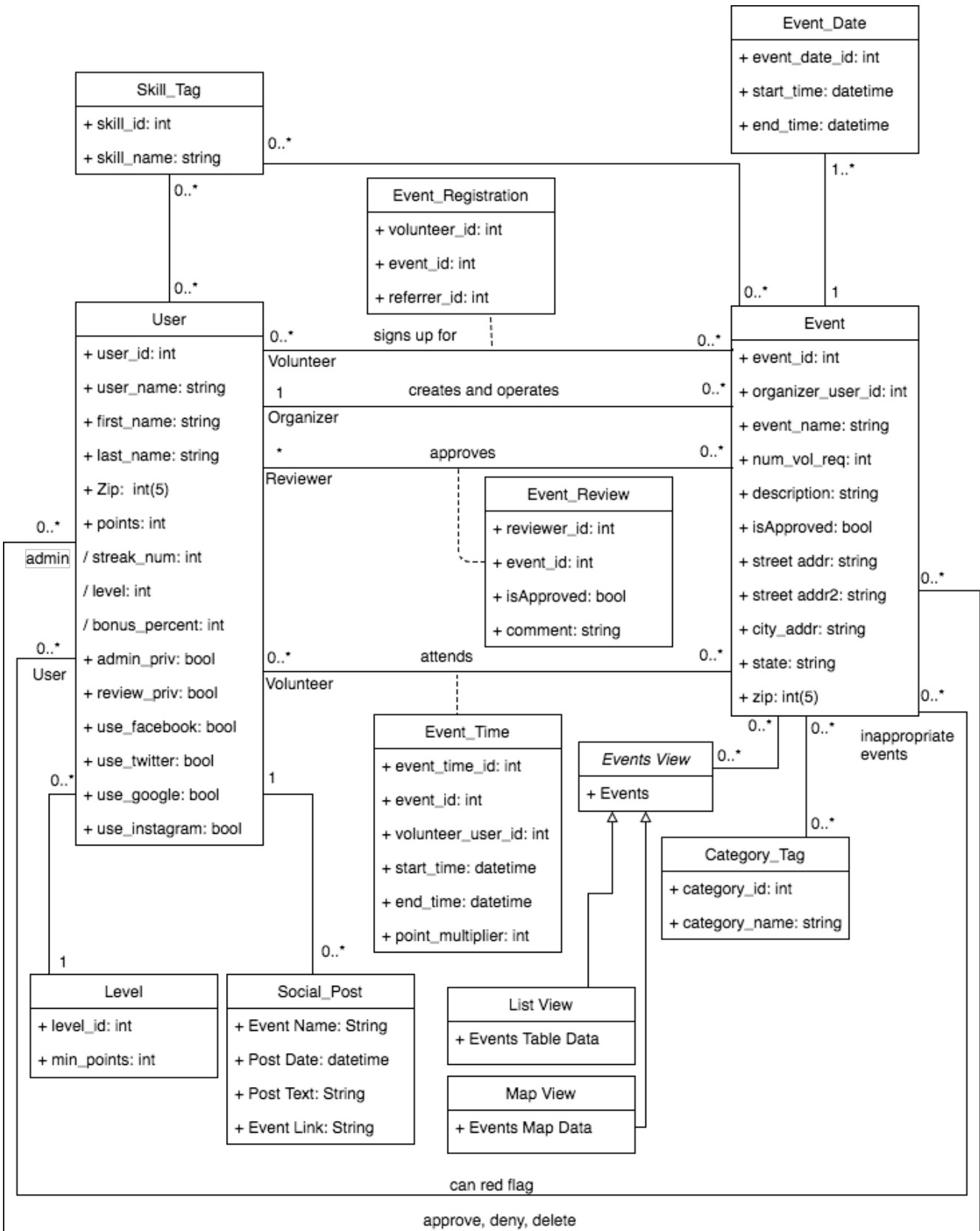
Preconditions: The user has an account and is registered to participate in an event.

Postconditions: The user has participated in an event. Participation data is stored in the database. User accrues participation points.

Flow of events:

1. User arrives at event.
2. App automatically checks user in when on location (through geolocation) and after the event organizer has started the event timer.
3. App automatically checks user out when either the user leaves the event location (through geolocation), the event organizer stops the event timer, or the user manually checks out using the app.
4. Participation information is saved to the database.
5. User receives participation summary including event title, participation time, and points accrued.
6. Event name and Hometown Hero points accrued are posted to user's social media accounts.

UML Diagram



Specifications

Functional Requirements Specifications

Account/Profile

- Accessing the application requires a user to log in to an account. The user can create an account manually or use social media credentials.
- Login credentials will be saved to a database.
- On the first use of the application, the user must create a profile with attributes that identify their locale, skill set, interests, and associated social media accounts. The user may input their attributes by following a tutorial based questionnaire or manual selection.
- Questionnaire questions include, but are not limited to:
 - “What types of events interest you most?”
 - “Which of these areas are strong points for you?”
 - “Do you prefer working alone, in small groups, or large groups?”
 - Event types include, but are not limited to:
 - “Chores” with subcategories “Cleaning”, “Yard Work”, “Moving”
 - “Tutoring” with subcategories “K-8”, “High School”, “Adult”, “Math”, “Reading”, “English As A Second Language”, “Citizenship”
 - “Organizational” or “Service-based” with subcategories “Food Banks”, “Homeless Services”, “Advocacy”, “Animals”, “Youth”, “Crisis/Emergency”
 - Skill types include, but are not limited to: “Tutoring (math, language, reading, etc.)”, “Children”, “Computer”, “Mechanical Repair”, “Housework”, “Legal”, “Accounting”, “Seniors”, “Handy”, “Artist”, “Music”, etc.
- A database stores user profile, including skill set, interests, location, and linked social media accounts.
- User’s previous events are viewable.
- User’s event creation and participation history are viewable

Event Creation

- Users may only create events they intend to host.
- Before event creation, a list of guidelines for acceptable events will be presented to the user. These serve as acceptance criteria for the event.
- Event creation is accessed through a calendar interface in the application. When creating an event, the following information must be provided: event name, location, description, skill set “tags,” duration, repeated request [weekly, monthly, etc.] if applicable, and number of volunteers needed. The event request and attributes are saved in a database, and await approval.
- Users that have created events can view them on the Calendar.

Event Registration

- Users can access a list of approved events seeking volunteers in a list interface and a map interface. The list interface default search filters are based on the user's profile tags, but may be adjusted. The map interface shows upcoming events that are accepting volunteers.
- When events are selected in the GUI, participation info (e.g., 7 of 10 heroes volunteered, 3 spots available), other users names and HH scores are visible to the user as well as a button to sign up.

Administration

- Administrators can access events pending approval.
- Administrators use a GUI to mark pending events as 'approved' in which case they become available to users for viewing and sign up.
- Once users reach a high enough level, they can apply to become peer reviewers.
- User reviewers vote on pending events.
 - If the event gets enough votes, it is automatically approved.
 - If the event doesn't get enough votes, it is reviewed by an administrator.

Point System

- Users that host an event initiate the point distribution by starting the event. Mobile users with GPS automatically accrue points for being in range during the event.
- Users registered for an event receive a point for every minute they volunteer at an event.
- Streak bonus: If a user volunteers at an event every week for more than 2 weeks a streak bonus coefficient is applied for all events in subsequent weeks until the streak is broken. This coefficient increases by 0.1 for each week the streak continues.
- Point system summary : Let $x = 0.1$ Let p = points this week, let m = minutes volunteered this week, let $n = ((\text{number of weeks in the streak}) - 2)$ for all $n > 2$: $p = m(1 + x(n))$ for all $n \leq 2$: $p = m$.
- Streak bonus is capped at 50% bonus points.
- Participation minutes can be tracked by the length of time a user is in a specific GPS range of the active event.
- Additional points are awarded to users who recruit other volunteers via links shared on social media accounts. Points are only awarded for recruited volunteers who actually participate in the event.
- Level 2 is reached at 60 points, each additional level is reached at an additional 1.5 x the previous amount of points needed (i.e. level 3 is 150 points [$60 \times 1.5 = 90$, $60 + 90 = 150$], level 4 is 285 points [$90 \times 1.5 = 135$, $150 + 135 = 285$, etc.]

Social Media Integration

- When specific events occur, the application will automatically make a post to social media. These include:
 - Registering for an event
 - Jane just registered to help a local veteran with roof repairs. Want to be a Hometown Hero, too? Check out the event at <insert personalized link>.
 - Creating an event
 - The Boys and Girls Club needs Hometown Heroes to tutor kids after school. Get more information and sign up here <insert link>.
 - Completing an event
 - Joe is a Hometown Hero! He earned 360 HH points for refereeing at the Special Olympics basketball tournament.
 - Sending a referral link to their social media account
 - St. Mary's Food Bank needs more Hometown Heroes to serve Thanksgiving dinner. Sign up here <insert personalized link>.
- Organizer may post event updates and share event photos.

Nonfunctional Requirement Specifications

Reliability

- The mobile app will start tracking the time when the the GPS of the phone is detected to have entered the tracking area. It will stop tracking the time when the GPS is detected to have left the tracking area. This tracking will be accurate to the minute.

Efficiency

- The app will easily link to social media accounts through standard accepted authorization methods.

Integrity

- The app will only request access from social media accounts for the user name and only ask for permission to post to social media.
- Only events which are approved by the selected reviewers will be available on the app.

Usability

- The profile can be completed with a questionnaire or by manual input.
- Geolocation automates the user check-in and check-out process, making participation as simple as possible for the user. To participate in events, users only have to leave the app running on their mobile devices during each event.

Testability

- In-app confirmation sent after event creation, event registration, and event participation.

Flexibility

- The same account will be used for volunteering and for organizing.

Portability

- The mobile apps will utilize the same database API.
- Apple apps will work on iOS 6+, due to the need for geolocation access.
- Android and iOS client software limits the portability of code from one device to the other.

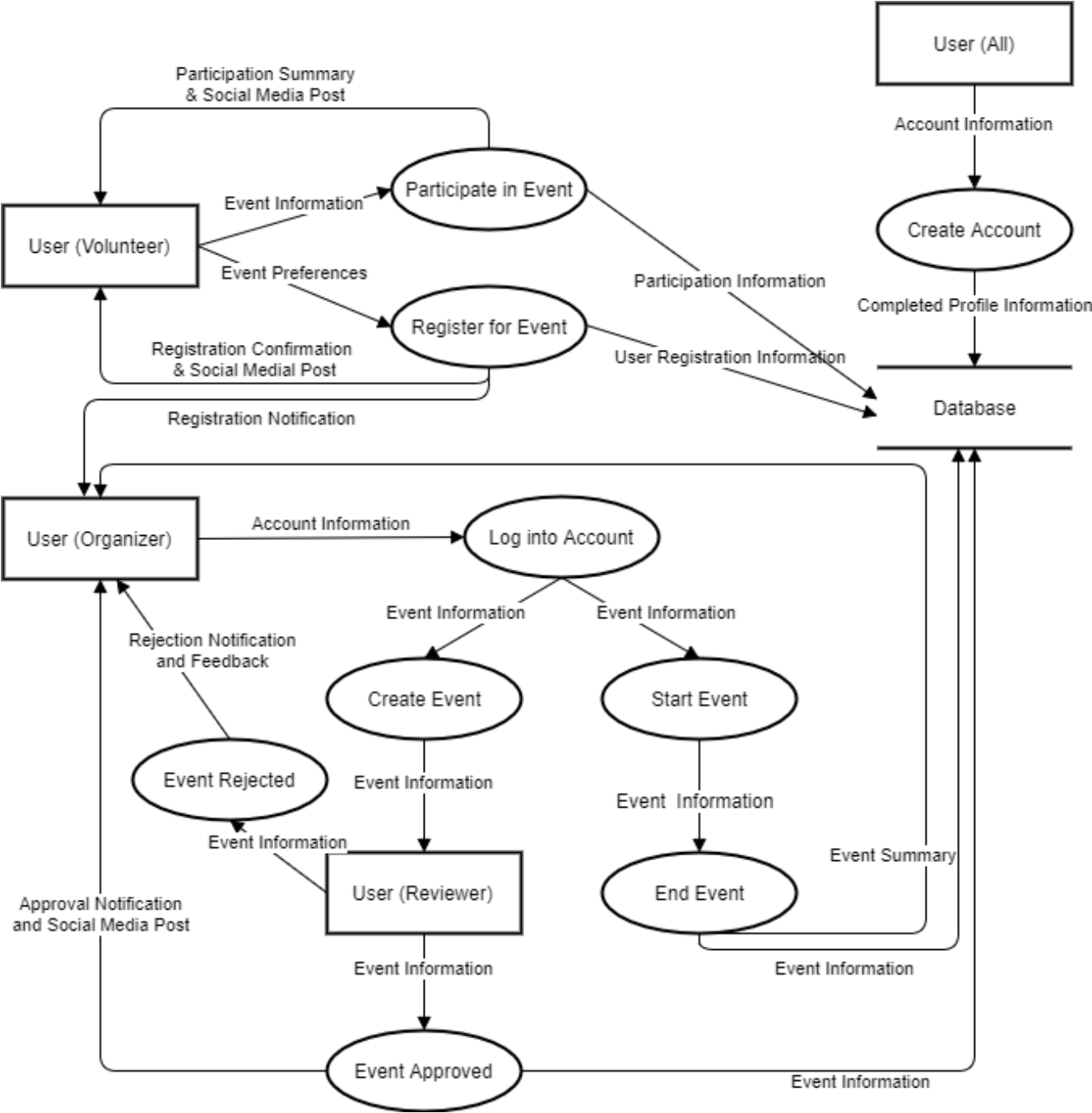
Reusability

- Differences in iOS and Android software limit the reuse of code. However, the structural integrity will be maintained as much as possible, adding or modifying functions as necessary to get the features to work.

Interoperability

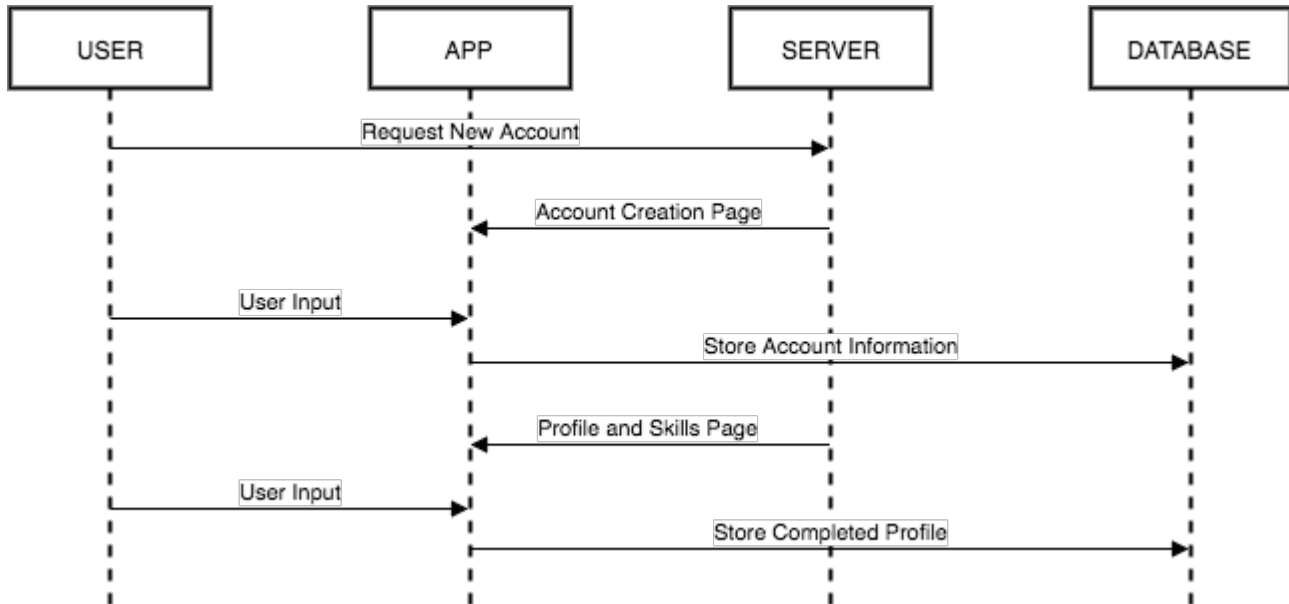
- Default settings accept social media integration with Facebook, Twitter, Google+, and Instagram.

Dataflow Diagram

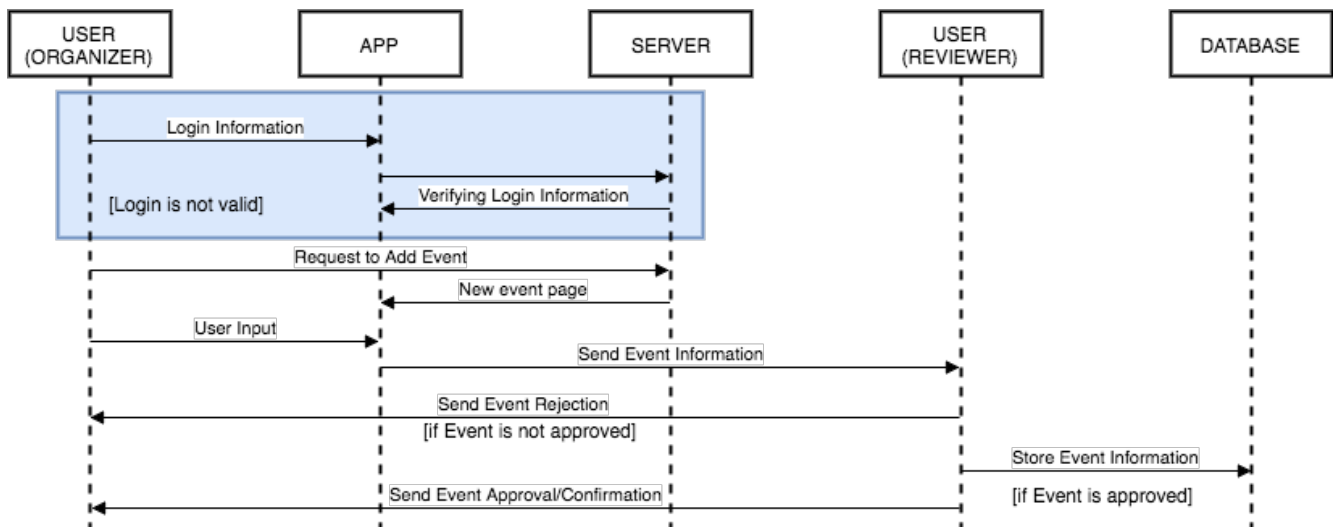


Message Sequence Charts

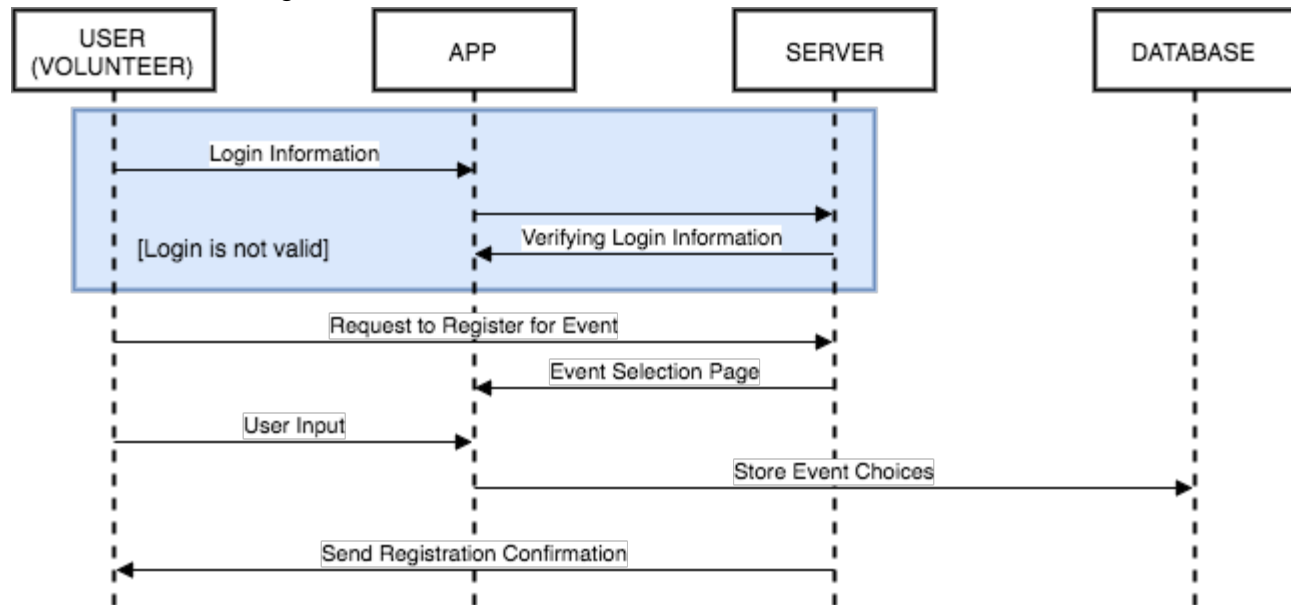
Use case name: Create Hometown Hero Account



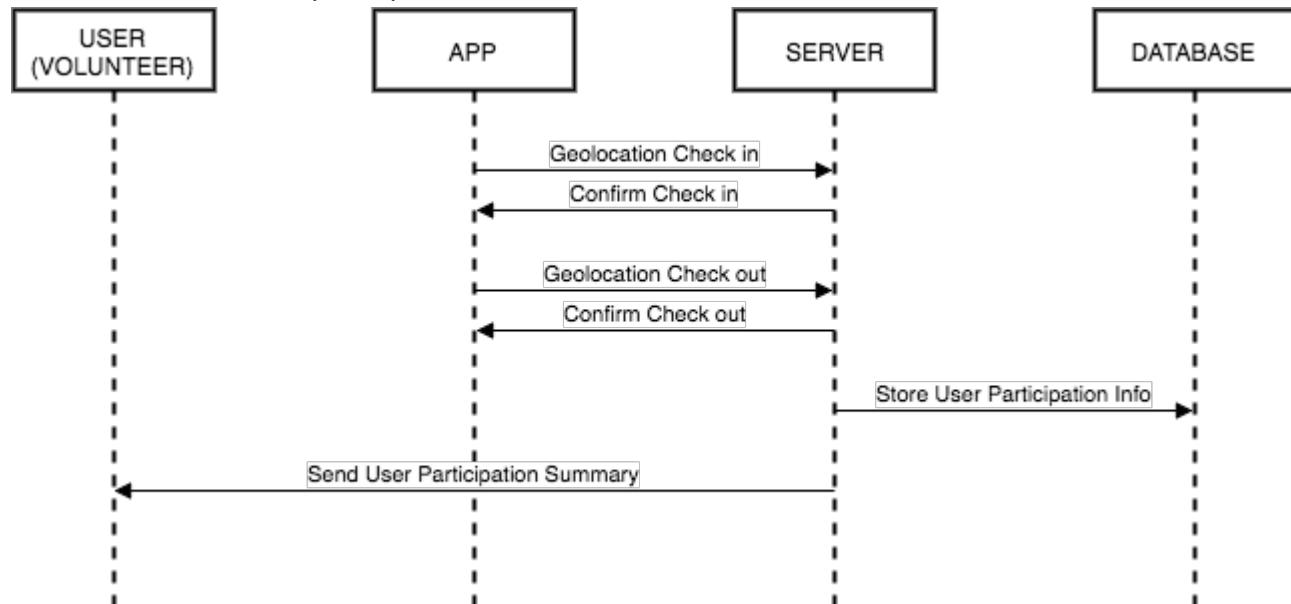
Use case name: Create Event



Use case name: Register for an event



Use case name: User participates in an event



Summary of Requirement Revisions

Our requirement revisions were minimal. This is most likely due to our client's open communication channels during the past two weeks and his willingness to work with us on even the smallest details. We utilized communication tools, such as Slack and Google Docs, which allowed us to collaborate both synchronously and asynchronously with the client and amongst our group members. That is, during the entirety of the HW1 drafting process, we were able to ask questions about features of the software and we quickly received articulate and detailed answers from our client. Due to the client having a distinct and vivid vision for the product, we spent less time last week on clarifying the client's expectations and more time on creating an accurate and comprehensive set of requirements and diagrams for the project.

There were, however, a couple minor changes we needed to make to our requirements. Initially, we did a lot of brainstorming about features for Hometown Heroes that would make it even easier for volunteers to access events and communicate with event hosts, but during the requirements revision process we all agreed that keeping the first version of Hometown Heroes to a core set of features would be easiest and most efficient to realize in accordance with the client's vision.

One of the things the client mentioned is our ride-sharing feature. In our first requirements draft, we had one or two mentions of the ride-share and how ride-sharing could be suggested to users who were going to the same events. In our original document, The description of the ride-share feature was vague and not as well thought out as the rest of the app. This was obvious to the client, who commented that the ride sharing aspect needed more detail before moving forward or it should be removed from Hometown Hero for now. Since the goal of the meeting was to narrowing the scope of the project to essential features, our group decided to leave ride-share out of the first version of Hometown Heroes. However, the ride-sharing feature can easily be adopted and introduced in subsequent versions of Hometown Hero without major changes to the app and will be a huge contribution to the core value of making volunteering easier.

Another issue with our first requirements document that the client mentioned was our requirement for event seekers to be able to filter volunteer opportunities by host Hometown Hero level. The client did not feel like Hometown Hero level of the organizer would be relevant. We initially thought that filtering by Hometown Hero level would allow users to find events hosted by users who have been involved with Hometown Heroes for a defined amount of time, and this could lend some validity to their request. While Hometown Hero level could serve as an indicator of a user's sincerity for volunteerism, Hometown Heroes also has an event approval process. This requires created events to go through a review process before they are added to the system and presented to potential volunteers. The review process was deemed adequate enough to validate the events published on Hometown Hero. Therefore, the Hometown Hero level was excessive and was removed from our requirements list.

The client also requested clarification for two of the use cases, creating a Hometown Hero account and registering for an event.

- 1) For account creation, *Step 5a* was reworded to explicitly detail user selection of skill and interest profile tags.
- 2) For event registration, Step 2 was reworded to better describe how users select events.

Some updates to the UML diagram included removing a name for the Hometown Hero levels. Levels will simply be represented by a number, which require a minimum number of points to obtain. The first version of the UML diagram omitted category tags. The tags are essential for users who wish to volunteer for particular causes, such as those involving nature, homelessness, and those in need. Also, the relationship of administrators was not included in the UML. The role of administrators will be to approve or deny events that did not earn enough approval votes from peer reviewers and to delete events that happen to get approved but are inappropriate or are not in line with the focus of Hometown Heros.

Finally, our initial requirements envisioned a web application, as well as a mobile application. However, the client has made it clear that he wants to move forward with only the mobile application for the initial build. The mobile application would take advantage of geolocation via a user's mobile GPS, automating the user check-in and check-out process. It has been important to our client from the start to make Hometown Hero as automated as possible. Therefore, we have revised our requirements by removing references to non-mobile elements.

Client Availability

The client, Benjamin Rodarte, met with us on Tuesday, July 11 to discuss the prototypes we have developed and to review our requirements. He was also continually available on Slack for follow-up questions.

Team Contributions

Jon Austin

- Summary of Requirement Revisions
- Participated in follow-up meeting with client on 7/11

Valerie Chapple

- Create prototype desktop website for user signup and home screen
- Participated in follow-up meeting with client on 7/11
- Updated UML diagram to represent changes and omissions
- Organized Paper Prototypes by topic
- Collaborated on revision of portability, reusability, and interoperability requirements.
- Collaborated on revision summary

Kenny Lew

- Create prototype for event creation.
- Collaborated on revision summary.
- Participated in follow-up meeting with client on 7/11

Gregory Niebanck

- Made a prototype sample automated facebook post
- Made a prototypes for 7 screens in the mobile interface
- Removed references to non-mobile elements in definitions and specifications.
- Participated in follow up meeting with client on 7/11

Charlotte Murphy

- Made prototype for event registration
- Updated dataflow diagram
- Collaborated on revisions to homework 1
- Participated in follow-up meeting with client on 7/11