Hometown Heroes

CS 361 - 400, Group 6
Homework 1
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Client:
Benjamin Rodarte

Developers:
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INTRODUCTION

Hometown Heroes is a mobile social-media and volunteering app. It aims to leverage young-adults' social media habits to motivate them to volunteer and then it facilitates finding local volunteering opportunities. The system is composed of three main components: volunteers, event organizers, and data and social media integration.

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. Users also provide their skillsets (teach, construct, artist, cooking).
● Users shall be given the option to take a questionnaire that asks them about their interests, then suggests some areas they might be interested in.

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 filtered location, setting, skillset, and host Hometown Hero Level.
● Users should be able to search for opportunities.
● Users can view details of a volunteer opportunity they select and sign up for it via the app.
● Users can “red flag” events for misuse, bad experiences, spam, etc.

Administration

● Hometown Hero administrator can approve or deny the event for publication on the site.
● Users can become “Event Reviewers” to help with moderation.
● Users can coordinate ride shares.

Point System

● Point distribution is initiated when organizers open the event, and stopped when organizers close the event.
● Users earn points for the duration they participate in the events.
● 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

● Mobile app automatically tracks to the minute when a user enters and leaves 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 tag in photos) 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. Staff will be required to evaluate potential volunteer events.

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 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 should be designed to encourage the use of its mobile app in order to integrate GPS functionality, but will also be available as a web app.
● The web app should work on all operating systems because it is web-based. The mobile app functionality should be the same as the web app except for the addition of geolocation.

Reusability

● Must be cross-functional between browser environments.

Interoperability

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

Important Uses Cases

Use case name: Create Hometown Hero Account
Actor: Application User
Preconditions: The user is using the application for the first time on a computer or 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 the user profile.
    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.

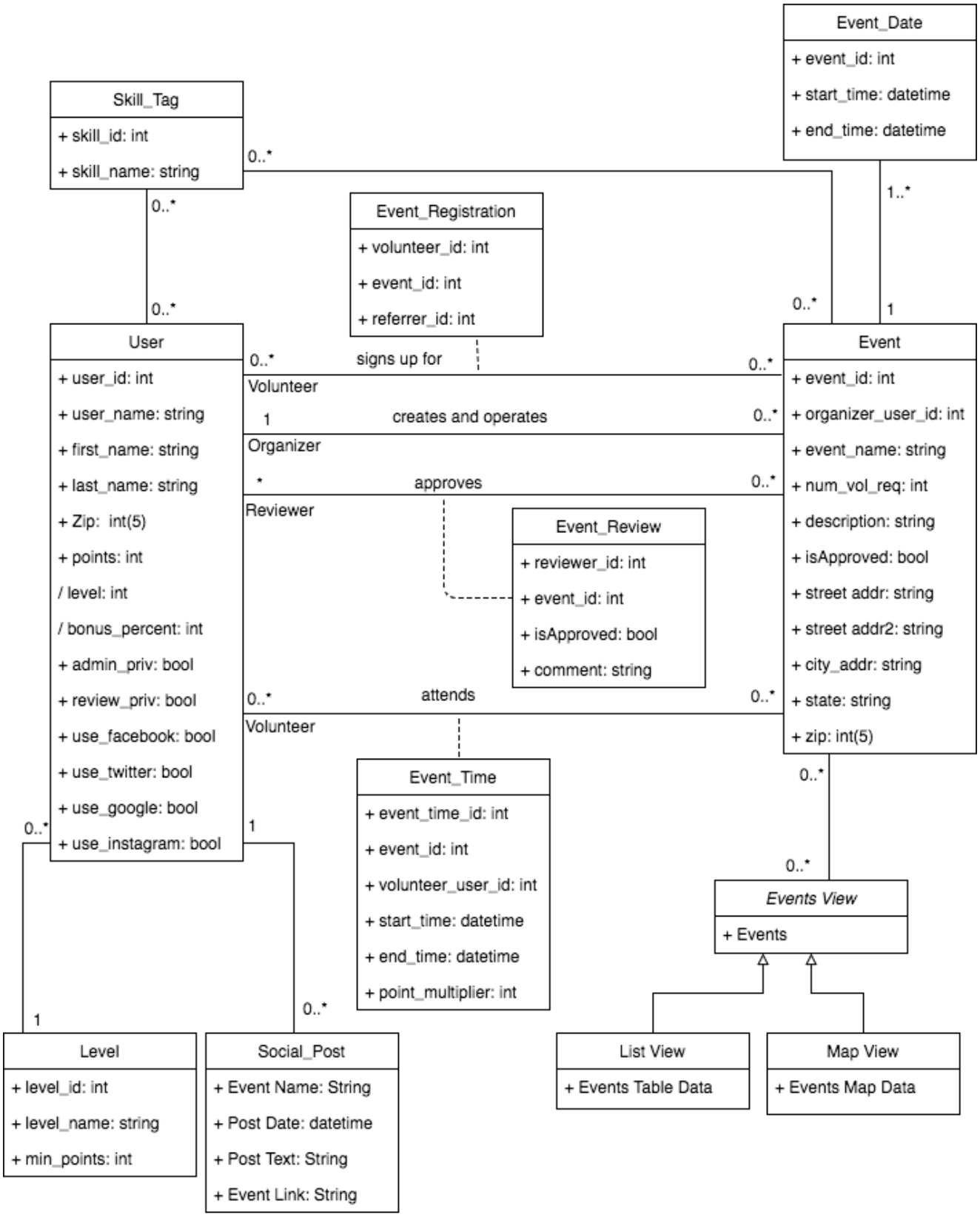
Use case name: Create event

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 “add event.”
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 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 is prompted to select a future event (based on location, service type, event start time, event duration, physical requirements, outdoors or indoors?).
3. The event selection is sent to a server, and the server saves them in a database.
4. User receives registration confirmation.
5. User receives event notifications and updates leading up to the event.
6. Event name and link are posted to user’s social media account

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. User checks in when on location and event organizer has started the event timer.
3. User checks out when either the user leaves the event (gps location), 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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1..*
0..*
0..*
Event_Registration
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+ referrer_id: int
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+ last_name: string
+ Zip: int(5)
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/ level: int
/ bonus_percent: int
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+ review_priv: bool
+ use_facebook: bool
+ use_twitter: bool
+ use_google: bool
+ use_instagram: bool
0..*
signs up for
0..*
Volunteer
1
creates and operates
0..*
Organizer
*
approves
0..*
Reviewer
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+ comment: string
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attends
0..*
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+ street addr2: string
+ city_addr: string
+ state: string
+ zip: int(5)
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+ event_id: int
+ volunteer_user_id: int
+ start_time: datetime
+ end_time: datetime
+ point_multiplier: int
0..*
0..*
Events View
+ Events
1
0..*
Level
+ level_id: int
+ level_name: string
+ min_points: int
Social_Post
+ Event Name: String
+ Post Date: datetime
+ Post Text: String
+ Event Link: String
List View
+ Events Table Data
Map View
+ Events Map Data

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, physical capabilities, interests, previous volunteer experience, refering account, and associated social media accounts. This will be done through a GUI in the application. The user may input their attributes by following a tutorial based questionnaire or manually 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, experience, zip code, and linked social media accounts.
● Users’ previous events are viewable in the profile.
● Users event creation and participation history are viewable in the profile.

Event Creation

● 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: time, place, setting, description, hosting user, desired skill sets, 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.
● Peer 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 and approved or rejected.
● If an event is rejected, administrators can enter a message that will be sent to the creator about why it was rejected.
● Users can rate and review completed events in their history.
● Users attending the same event and that live close to each other are automatically offered the chance to message each other to coordinate ride shares if they'd like.

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. Hosting users manually confirm attendance for non-mobile users.
● 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 = ((number of weeks in the streak) - 2) for all n > 2: p = m(1 + x(n)) for all n <=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 x 1.5 = 90, 60 + 90 = 150], level 4 is 285 points [90 x 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>.
        - Include Hometown Hero logo/link to app/web page?
    - 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 tag in photos.
● Only events which are approved by staff will be available on the app.

Usability

● The profile can be completed with a questionnaire or by manual input.

Testability

● Confirmation sent after event creation, event registration, and event participation.

Flexibility

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

Portability

● The web app and mobile app have the same functionality except for the addition of geolocation to the mobile app.

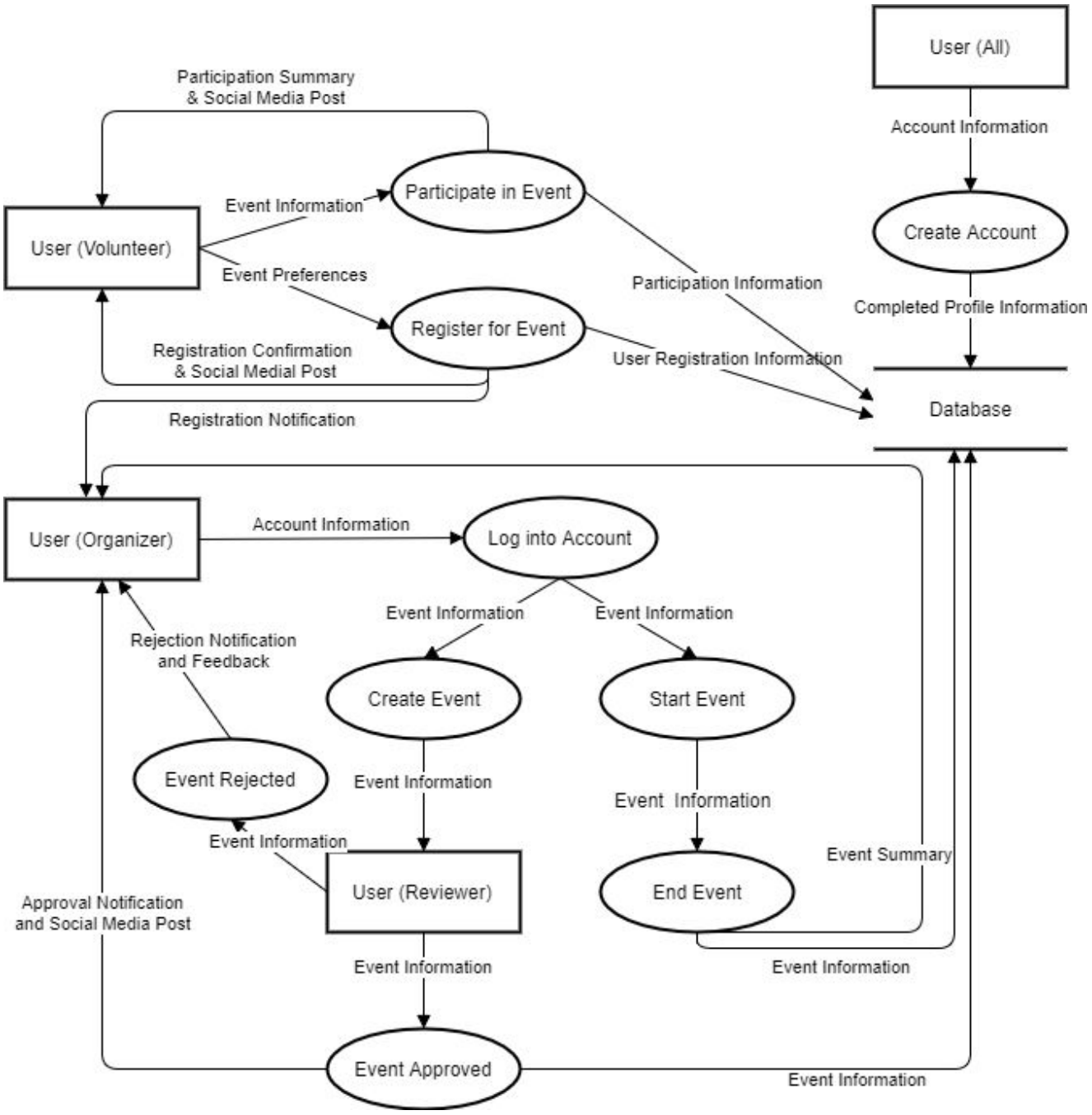
Reusability

- User experience between computer OS browsers and mobile browsers will be the same.

Interoperability

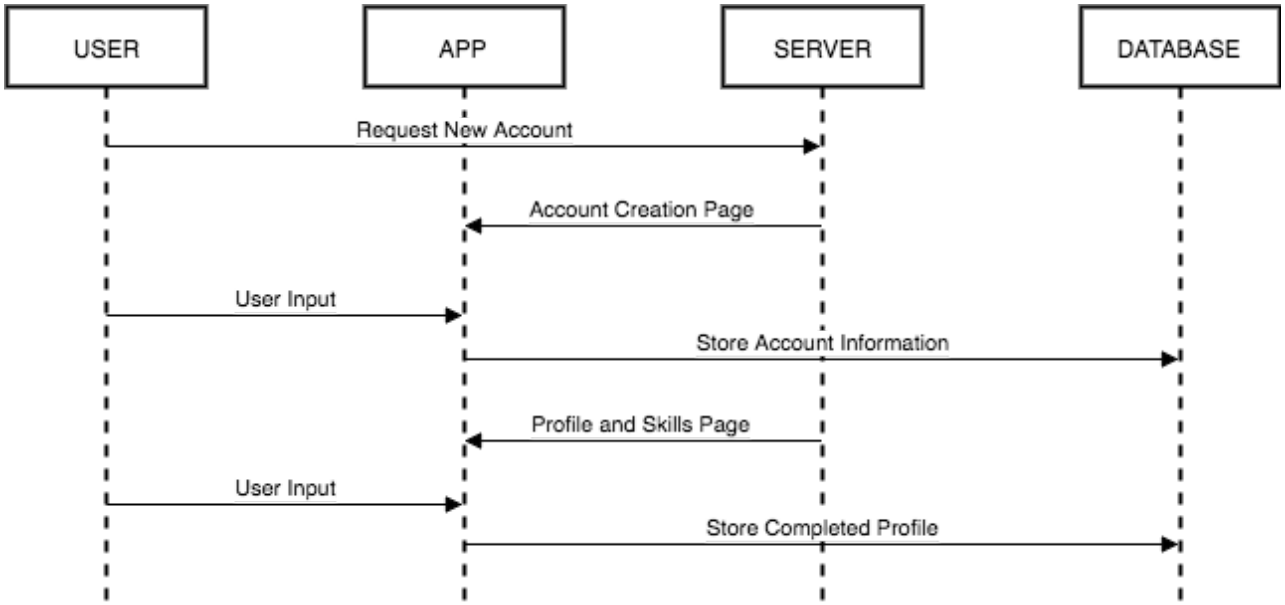
- Default settings accept all social media integration options.

Dataflow Diagram

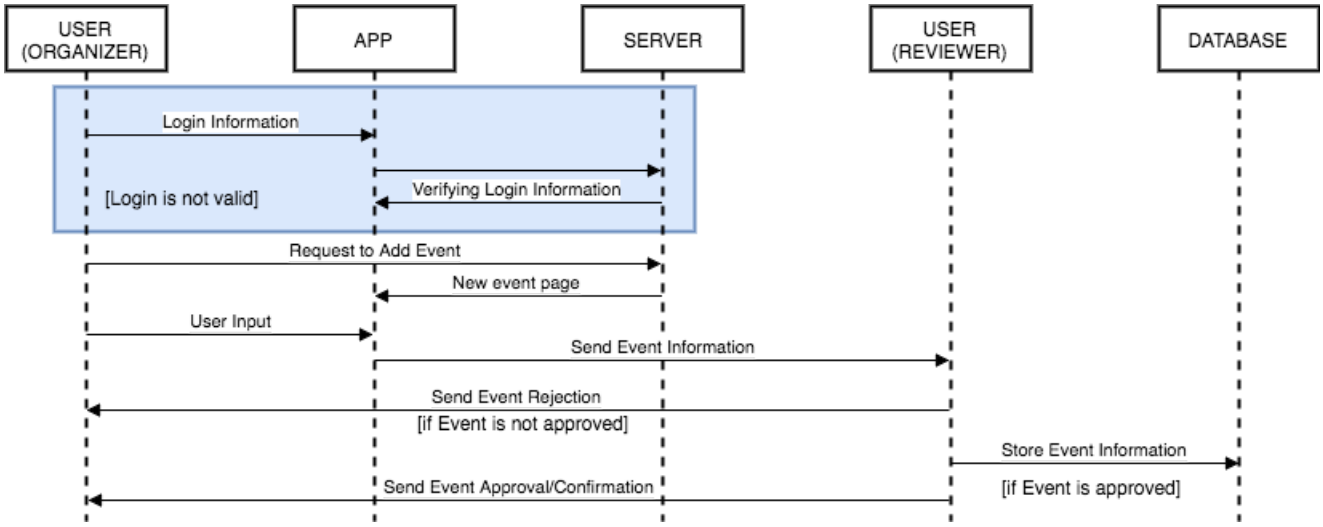


Message Sequence Charts

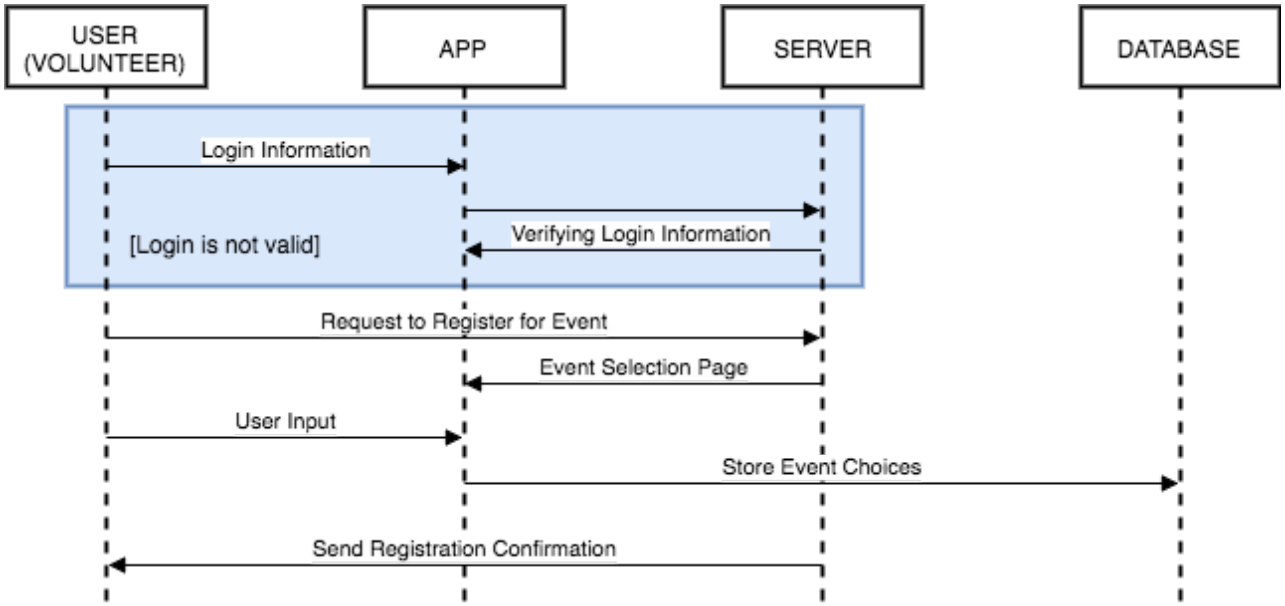
Use case name: Create Hometown Hero Account



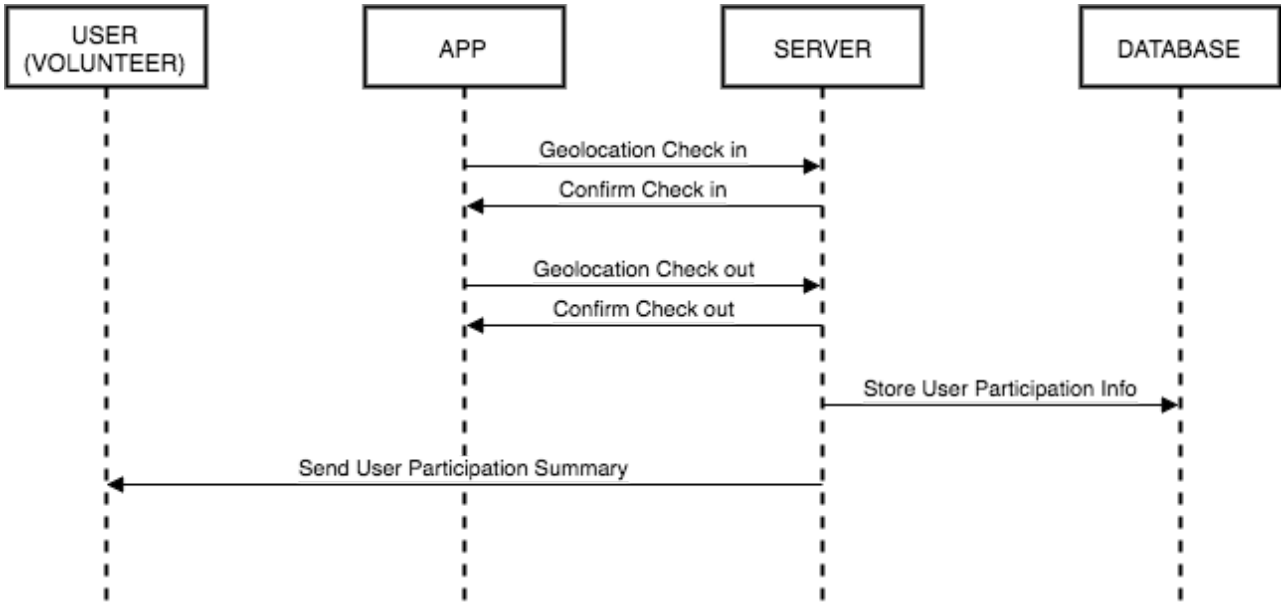
Use case name: Create Event



Use case name: Register for an event



Use case name: User participates in an event



Client Availability

The client, Benjamin Rodarte, met with us on Tuesday, July 4 to discuss the project. He was also continually available on Slack.

Team Contributions

Jon Austin

- Collaborated on requirements and specifications
- Integrated customer feedback
- Wrote a use case
- Followed up with customer to further refine requirements/specifications
- Attended client meeting on Tuesday, July 4

Valerie Chapple

- Initiated determining team communication methods
- Collaborated on functional and nonfunctional requirements definitions
- Created and updated UML diagram
- Peer reviewed data flow diagram,
- Attended client meeting on Tuesday, July 4

Kenny Lew

- Collaborated on nonfunctional requirements
- Collaborated on the dataflow diagram
- Message sequence charts for all use cases
- Made edits and suggestion to different parts of the report
- Attended client meeting on Tuesday, July 4

Gregory Niebanck

- Administrative, scheduled meetings, set up hangouts
- Attended client meeting on Tuesday, July 4
- Extracted a requirements definition outline from the client's vision statement
- Collaborated on requirements
- Collaborated on converting definitions to specifications
- Did a follow up with the client to disambiguate some definitions.
- Wrote a use case

Charlotte Murphy

- Wrote 2 use cases
- Collaborated on the dataflow diagram
- Formatted document
- Made edits and suggestion to different parts of the report
- Attended client meeting on Tuesday, July 4