

## Homework 7 (20%)

# Systems Requirements Specification (SRS) Document Cover Sheet

**Team number:** 20      **Team Name:** Team Domo  
Last (family) names of team members:

Lingad  
Monchusap  
Puth  
Sedlik  
Sias

**Case study name:** Personal Sustainability Lifestyle Application (Case Study B)

**Final grade:** [50 points]

### Evaluation:

#### Introduction (~6 points)

##### *Purpose*

- Do you accurately describe the goals of the system?

##### *Scope*

- Are there clearly defined system boundaries?
- Is the problem space well-scoped and feasible?
- Does it cover the customers' needs?

##### *Definitions, acronyms, and abbreviations*

- Are your terms well defined?
- Do you unpack all acronyms?

##### *References*

- References to individual sources, including evidence of some research on the domain?

##### *Overview*

- Does it provide an apt and concise summary of the project?

#### General Description (~6 points)

- Displays a good understanding of the domain and product?
- High-level functions summarized?
- Stakeholder considerations?
- User characteristics covered?
- Covers all relevant aspects?

#### Specific Requirements (~20 points)

- Do you cover all customer needs?
- Are the requirements traceable throughout the RE process?
- Is the evolution of the requirements reasonable?
- Are the requirements accurately identified (i.e. essential vs. extension, functional vs. non-functional)

#### Appendices (~8 points)

##### *Glossary*

##### *Analysis Models*

- Are the models consistent?

##### *Traceability (optional)*

- Are the models linked?

##### *Issues List*

- Are any inconsistencies remaining between models listed?

#### Presentation (10 points)

##### *Structure*

- Introduction, Body, Conclusion?

##### *Content*

- Clear? Interesting? Supported by examples?  
Customer experience covered?

##### *Presentation Style*

- Full team represented? Logical flow? Consistent format? Slides in sequence?

## Meeting Minutes & Field Notes

### 1/20/2015 - Team meeting

Team ID: 20	Date: 1/20/2015
Team Members 1. Lingad, Jefmark 2. Monchusap, Diane 3. Puth, Emily 4. Sedlik, Mason 5. Sias, Heath	Role 1. Scribe 2. Question asker/answerer 3. Question answerer 4. Absent 5. Question asker/answerer
Agenda: 1. Establish what requirements we want for Case Study A.	Outcomes: 1. Success, we settled on requirements to discuss with Team 19
Problems encountered: 1. None	Resolution 1. n/a
Plans for next meeting: 1. Elicitation session with Team 19	Responsibility 1. Review requirements for Case Study B

#### Meeting Notes:

Student can belong to a community (opt-in)

no way to verify they live there, but do we need to cross check? see if student ID matches in community?

honor system -- can't verify they recycled a bottle

last year ...

competition

whoever got more water from the filtered water station

tracked progress

we are customers of the management system that goes hand in hand from the app

#3 grabbing data from the students and making a visible form of it

charts, graphs, etc of the data

possibly done through a website

sorted by different things

accessible through password to get data

#2

someone creates a website in the future, have a mechanism in the system that can

handle someone using the system

database in the center that collects all the statistics from the students

once in the database, everything is just querying the database

ie. webpage(student stats; #3), mobile app

competition subsystem to query the database, who wins, how to award prizes and rewards

these goody things can be fields in the database  
database housing facility field to query by (#1)

\*\*\* how to quantify different 'green' actions?  
are there different weights for each activity?  
going vegan, recycling a bottle, changing your entire lifestyle?

#4

user input, sensors, etc. feed into the database to update attributes about certain places/people  
just measure in each dorm/building that has a recycling container and measure the volume/weight  
the housing complex as a whole is being measured in this  
voluntary-- individual student input (I recycled [yay!])  
but community/housing complexes is not going to measure individual apartment rooms and dorm rooms,  
only communities as a whole

#5 and #2 are linked to each other (possibly pushed to the application)

basically get a notification on your sustainability app that says “try this”, “new challenge”, “try this, do this”, etc

student website for notifications, info, that is querying the main database (push notifications to app)  
people don't have the app but still want to get the info  
shows recent challenges, events, information on sustainability

input into the database could be from the employees of the sustainability system (or sensors, meters on various devices)

competition component that somehow tracks sustainable behaviors

system that deals with sustainable challenges to students

have a data analysis system

### **General Idea**

Central Database System (1)

Webpage (for both the students and management/administration) (2,5)

Application for the students to track sustainable apps (3)

Data Analysis System/Tool (1,2,3,4)

Measuring Sustainable Activities (through sensors, meters, etc) (2)

related questions

#2 organize challenges and stuff -- internally

#5

Both parts of project are client server

Case Study A: **Server**

Case Study B: **Client**

### **Potential Questions**

For every student:

What data do you want to collect from students and facilities overall?

Facilities / Community

weight of recyclables measured

usage of water filters / water use  
 how long you take shower? (# minutes in shower/day)  
 Gather utility use in campus-owned communities  
 facility as an entity  
 link student individual and facility usage (validation)  
 put under data analysis  
 Generated waste from dining halls, food courts, mess halls  
 but food courts might not buy in, too much waste produced  
 Compost  
 Individual  
 How many miles have you driven?  
 Electricity use?  
 solar panels at puerta  
 Water saving appliances?  
 Double-paned glass  
 Carpooling  
 Bigger Events (lifestyle changes -- go vegetarian, vegan)  
 from vegan back to meateater  
 Cooking vs eating out of packaged food  
 Recycling electronics (e-waste)  
 One-time only events vs. things you would do everyday?  
 Lifestyle changes vs sustainable activities  
 Does doing more individual quantity to doing more than a lifestyle change  
 lifestyle change with a large green factor vs weekly thing  
 Idea of achievements  
 recycle a bottle everyday for a year -> lifestyle change

### 1/26/2015 - Team meeting

Team ID: 20	Date: 1/26/2015
Team Members 1. Lingad, Jefmark 2. Monchusap, Diane 3. Puth, Emily 4. Sedlik, Mason 5. Sias, Heath	Role 1. Scribe 2. Question asker 3. Question asker 4. Absent 5. Question asker
Agenda: 1. Elicitation session #1 with Team 19 (for Case Study B)	Outcomes: 1. Success, we managed to ask all of our questions, Jef transcribed the meeting so we could complete the Elicitation and Goal Model document
Problems encountered: 1. None	Resolution 1. n/a
Plans for next meeting: 1. Elicitation session #2 with Team 19	Responsibility 1. Review requirements for Case Study A

**2/4/2015 (1) - Team meeting**

Team ID: 20	Date: 1/26/2015
Team Members 1. Lingad, Jefmark 2. Monchusap, Diane 3. Puth, Emily 4. Sedlik, Mason 5. Sias, Heath	Role 1. Question asker/answerer 2. Absent 3. Scribe 4. Absent 5. Question asker/answerer
Agenda: 1. Add goals to current list 2. Decide on 7 goals	Outcomes: 1. Created a list with various goals to choose from 2. Decided on 4 goals
Problems encountered: 1. Deciding if goals high-level enough 2. Deciding if goals were too high-level	Resolution 1. Decided to wait to discuss with other members in second meeting, to get more opinions 2. See #1
Plans for next meeting: 1. Finish deciding on goals 2. Break down at least one goal	Responsibility 1. Construct a goal model for each goal

Meeting Notes:

- To do: Review goal model requirements
  - doesn't have to fully cover the application
  - include behavioral and soft goals
  - expectations
- To do: Refine goal list
- "app will help students be more sustainable" -- may be too high-level; out of scope
- "students can interact with other profiles (but not see everything/security settings need to stay consistent)"
  - customer was pretty adamant about having a social application; something used to pass time
- "EEE integration" -> branch to other goals relating to EEE
  - unsure of how it works...API?
  - EEE is an expectation -- we expect that we are able to use it
- Receive news, statuses of you and your friends, recommended goals, competitions, etc.
  - High-level goal: Notifications on [activities/events]
  - Low-level goals: news, statuses, competitions
  - Statuses are quite different from news and suggestions, so should we split them up and have separate high-level goals?
  - Notifications: receiving updates about statuses is separate from receiving news (tool), although both use notifications
- UX: nothing more than clicks away; minimal and clean UI
  - convert to soft goal -> minimize time to access certain functionalities

- behavioral goal: prepopulated options will be displayed in a dropdown menu when the user inputs/reports a sustainable action -- all activities will be prepopulated and selectable by a button or picker
  - no activity should require more than 3 clicks
- Mentorship: should be able to see when mentees are not meeting sustainability goals
- Competitions
  - Students will be able to see the status/progress of competitions (scores, participants, critical events relating to competitions, milestones) -- something like a system status where you are updated with what is going on and when it is finished
  - High-level goal: users should easily see the status of competitions
  - Soft goals: view competition details ^^

### 2/4/2015 (2) - Team meeting

Team ID: 20	Date: 1/26/2015
Team Members 1. Lingad, Jefmark 2. Monchusap, Diane 3. Puth, Emily 4. Sedlik, Mason 5. Sias, Heath	Role 1. Question asker/answerer 2. Scribe 3. Question asker/answerer 4. Question answerer 5. Question asker/answerer
Agenda: 1. Finish deciding on our 7-10 goals 2. Break one goal all the way down	Outcomes: 1. Success 2. Made progress, finished 2 goals, will divvy up last 5 amongst group members
Problems encountered: 1. Unsure of how deeply to break down goals 2. Trying to conceptualize some goals	Resolution 1. Wrote them out to get a tangible breakdown 2. discussed the complexity of some of the goals 3. discussed the complexity of some of the goals
Plans for next meeting: 1. Read up on next phase	Responsibility 1. Review usage models

#### Meeting Notes:

- continuing from this afternoons meeting
  - started compiling goal list
  - need to have a final list of goals to model
  - break it down
  - lucidchart to make them all
- how deep should we make our goals?
  - UX -> could be as many as 5 levels deep
- trying to conceptualize EEE integration
  - can most likely use EEE authentication system
  - what about message boards?
- we have goals pertaining to the major areas of the app eg. communication, UX, etc.
- “the app will report activity to campus system”

- how deep do we go? we can go so deep before we get too deep or we'd be too shallow
- breaking down different goals is hard
  - how to distinguish which goal is the highest level goal
- divvying up the 2 in meeting then each member will do 1 each

### Field Notes

#### 1/26/2015 - Customer Meeting (Elicitation)

##### Interview As Developers

0. Similar existing application? Rengineering?
    - fitbit (closest application)
    - if it doesn't exist, just make it
  1. Standalone app? Do you want to integrate it into social media?
    - more standalone because it is catered to UCI alone, but if ways are found to be interesting to be integrated, then options are open for that.
    - app on its own; won't be built on facebook, but can integrate facebook login
    - take away UCI login, just becomes another app
    - nicety to have to provide integration
  2. What standards are going to be used to see if something is green?
    - materials they are using (styrofoam vs plastic; paper for an event)
    - *what about activities? biking, going vegan, etc... are the activities that are going to be recorded going to be a set list or free entry into the application?*
    - create a bunch of things you want to do and then follow it [waste less water, so check it off in the application as being green]
      - but trying to standardize/quantify behaviors, what is the data that we are getting?
        - quantifiable things can be picked
    - categories (shower and water)
      - water consumption (can be general; I make sure to only use X gallons of water for this) can be specific if you want to, but can be specific
    - tags (?)
    - finding trends, keep track of certain words that they use
    - trends that these actions are following
    - **COME BACK TO THIS**
  3. Ideal format for student lifestyle?
    - facebook group, make people talk about the same thing
    - using UCI info to login, so use something like EEE message board on the app itself
      - different discussions based on the tags themselves
      - threaded comment system (which tags come up more frequently)
      - each comment will be associated with replies it got over time
- Use existing EEE messageboard infrastructure, just make it work to be visible only to the app
- but don't make it only visible to the app, make it useable on non mobile platforms
- No need for IM/IRC
- discussion vs. conversation
4. What areas of UI to focus on? What does it look like?
    - Nice to have on frontpage : GOALS and LOGGED ACTIVITY
      - goals: milestones for yourself; progress bars
        - track with progress bars
      - Recommendations onto the side that someone can send to you and you can try the activity yourself
        - make it apparent for the user

- Venmo -- shows what your friends paid and for what, include it into the UI for this application; show your friends, show what tasks they did
  - not a homepage feature, something on the side
- Facebook -- see activity of what your friends are doing
  - for sustainability, especially for goals, to do better, then you want to see what other people are doing in comparison to you
  - gives you stepping stone, some kind of encouragement to get an idea that you never thought about or just stepping up for yourself

[real time updates, or click on someone and get more info about past behaviors]

5. Suggestions to be recommended?

[look up]

Tiled

1. Recent goals activities
2. Recommendations

No popups

Share feature to send a specific recommendation to someone

6. How do you want to measure practices? How do we quantify it?

**COME BACK TO THIS TO WORK WITH BOTH GROUPS**

7. If something is made private, should UCI still have access to it for statistical purposes?

public visible, public invisible, personal private?

- UCI should always have access; if it's a private event, then something can't be linked (anonymous, just collect the data)
- Friends can't see it
- OK to use data because even if UCI collects it, the personal information won't be tied to it. There's no way to really trace it back to that specific person, so it'll be ok.
  - No personally identifiable person in top 10 lists

SOCIAL ASPECT, identity can be associated in a particular aspect if a person has allowed the information to be shared; no specific names are associated with it

*Typical friends lists? If they're not a friend you can't see in feed?*

- Have a friends list, but generally everyone's profile will be open so they can see what you did.
- PUBLIC, FRIENDS ONLY, PRIVATE (Facebook)
  - For whole profile or individual actions? You should by default be able to see their profile, but secondary to being able to see the action or activity, not the people themselves are going to be trending
  - 1. Actions first 2. Profile

8. Should certain actions have more weight than others?

- Depends on how categories are set up
  - Time with every action, the longer an activity takes, and they are keeping track with it, it should definitely have more weight, than say something that takes 10 minutes
  - A one time activity.. be consistently green than a one time big action
  - **LIFESTYLE CHANGE?**
    - Badges
      - buying hybrid, going vegan, etc..
      - become attached to your account by doing these things
      - outside the point system

9. Mentorship: super-friend? private message boards for mentors and mentees?

- Get notifications if the mentee stops doing something or isn't meeting their goals
  - Gets notifications based on goals
  - Not based off super-friend

10. How do you image students to be using the product? Walkthrough?



- *basic use case*
  - **Open app > I just did X**
  - **Open app > see recommendations**
  - **Open app > see what friends have recently done**
  - Using social media
    - Make it integrated into everyday life, use it to check up on to pass the time
11. Failed product?
- Message board should not have spam, have constructive discussions
  - Bad UI, unusable -- doesn't look nice, not going to be using
    - Want it to be very appealing because it's something that we expect students to be using on regular basis
    - GREEN, UCI colors, minimal
- Minimize the amount of actions to do whatever it is
- logging, check what friends are doing, see trends
  - **MOBILE** quick, on the go, shouldn't take too long
    - everything within a couple clicks
- Not necessary: if the app can predicts what you're going to do
- ie, 3 days you've been doing X, on the 4th day did you X?
  - automatically pops up as a suggestion
  - doing something repeatedly, did you do X today?
- Is the user going to be searching from list of actions today? Smart algorithm? User can choose goals?
- If goals are set up, it's going to prompt them to do it
  - If someone has been doing something regularly, suggest as goal
12. Are we going to have access to research to climate info?
- Here's stuff we want on the app, and here's where it goes
  - API
  - We will be given info in some format
  - *How is it going to be displayed?*
    - Per news feed, you'll get research update
      - why you should be sustainable (2 in news feed)
      - won't be separate page of this
    - ie. Google, featured results
      - different bg on why 2 things are good, and then different bg on news breaks, and then friend activity below it
    - add to your goals by a click
13. What kind of information needs to be provided?
- Do they need to be a UCI student?
  - First name last name, UCInetID
    - use EEE login and all information needed anyway
- UCI exclusive anyway
- Then later, they can put any information that they have
- dictated by different public statement categories
14. If someone wants to add friends? How is that done?
- *Search for name?*
    - Who's associated with what activity?
    - Search has to be there
    - Recommended friends based on activities and people you might know
    - Recommend people who have the same goals
- Add someone as friend who is private?*
- See their name, but wouldn't see their activities

- You can find out if they're using the app, just not the info
- Notification system that someone can either add, ignore, block, etc.

Add a friend:

- Everyone's profile is public -- everyone can see who uses app
- But if I friend person B, if their activities are already private, then that shouldn't change anything. Their activities are private
  - You have a friend, but it doesn't change access
  - Activities themselves make the profile private
  - Only see basic info as not friends, but once friends, you can see more info
  - UCI only gives public basic info (name, standing, school, etc.)

15. Viewing the stats of the system, can I do it by timeframe or by general at this moment these are the top 10 activities.

- Date of when you started, date of when you finished
- Come up with graphs of over time progress, of all tasks you've done so far
- Some fine grained control

16. How is the mobile app going to link to the main system?

- Client-server model is fine

Questions after:

- What platform do you want the app to run?

*App should be accessible from mobile and web.*

Companion web app or native?

## Customer Correspondence (Reverse Chronological Order):

Re: Re[4]: Inf113: HW2 Team Session Qs



From Zayd Simjee

Thu 1/29/2015 11:19 PM

to Heath Sias and copy to msedlik@uci.edu, Jefmark Sabino Lingad, Diane Jiea Monchusap (via Google Docs) and other 5 people ▾

I'm happy with those.

On Jan 29, 2015 11:18 PM, "Heath Sias" <[siash@uci.edu](mailto:siash@uci.edu)> wrote:

sounds good to me - let's change 'eating' to 'food', though. could be grocery shopping, cooking, etc.

so:

food  
transportation  
recycling  
reuse  
conservation

?

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Heath E. Sias  
B.S. Software Engineering

Re: Re[2]: Inf113: HW2 Team Session Qs



From Zayd Simjee

Thu 1/29/2015 11:12 PM

to Heath Sias and copy to msedlik@uci.edu, Diane Jiea Monchusap (via Google Docs), Jefmark Sabino Lingad and other 5 people ▾

You replied to this message on Thursday, January 29, 2015 11:18:48 PM.

So can we come up with those categories? I liked the ones Mudassir suggested, with the additions of reuse and conservation.

On Jan 29, 2015 11:07 PM, "Heath Sias" <[siash@uci.edu](mailto:siash@uci.edu)> wrote:

Either sounds good to me! Yeah, second would probably be easier.

---

Heath E. Sias  
B.S. Software Engineering  
University of California, Irvine | 2016  
[siash@ics.uci.edu](mailto:siash@ics.uci.edu)

Re: Inf113: HW2 Team Session Qs



From Jan Sawyer

to Heath Eugene Sias and copy to Mudassir Idriss Mayet, Jefmark Sabino Lingad, Jazmynn-Jade Flores Daos and other 5 people

Thu 1/29/2015 10:03 PM

You replied to this message on Thursday, January 29, 2015 11:07:31 PM.

I think that the weights should be left to the interpretation of the conductors of the competitions so that is fair. As for the names of the activities, we can either allow them to name the activity whatever they want (so long as they place the appropriate "tags" associated with the activity for data gathering) or we simply give them a preselect list of categories to choose from and remove the option of custom "names." The second option would probably be easier to implement.

- Jan

On 1/29/2015 9:46 PM, Heath Eugene Sias wrote:

So we're talking about leaving students to decide the names of their activities and the level of each? If that's the suggestion then it would be impossible to gather specific statistics on all student's behavior, since every behavior would have a unique label and only fit a category. Also, it would be impossible to have competitions since each student could assign their own level to their activities... That, or I'm not understanding what you mean!

On Thu, Jan 29, 2015 at 9:40 PM, Jan Sawyer <[jsawonline@gmail.com](mailto:jsawonline@gmail.com)> wrote:

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Re: Inf113: HW2 Team Session Qs



From Jan Sawyer

to Mudassir Idriss Mayet, Jefmark Sabino Lingad and copy to Jazmynn-Jade Flores Daos, Heath Sias and other 5 people

Thu 1/29/2015 9:38 PM

I like what Mudassir suggested since the three categories consolidates the majority of aspects and the idea of levels is pretty good because it gives the illusion of playing a game which would make it seem more fun to use.

- Jan

On 1/29/2015 9:26 PM, Mudassir Idriss Mayet wrote:

Can we do this:

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Re: Re[2]: Inf113: HW2 Team Session Qs



From Mudassir Idriss Mayet

Thu 1/29/2015 9:26 PM

to Jefmark Sabino Lingad and copy to Jazmyynn-Jade Flores Daos, Heath Sias, ka lun lee, TheJSAWProcess and other 4 people

Can we do this:

- Eating
- Transportation
- Recycling

And they each have level 1, 2 and 3.

We can give an example for each, and the student themselves than compare what level of an action suits their action best.

Example: recycle 1 bottle - level 1  
carpool every day - level 2  
bike to work - level 3

and we can come up with any arbitrary list, and leave the students as judges.

On Thu, Jan 29, 2015 at 9:07 PM, Jefmark Sabino Lingad <[jlingad@uci.edu](mailto:jlingad@uci.edu)> wrote:

Do we need to separate the different substances we can recycle? Like plastic, aluminum, glass, or electronics?

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Re: Re[2]: Inf113: HW2 Team Session Qs



From Jefmark Sabino Lingad

Thu 1/29/2015 9:07 PM

to Jazmyynn-Jade Flores Daos and copy to Heath Sias, ka lun lee, TheJSAWProcess, Mudassir Idriss Mayet and other 4 people

Do we need to separate the different substances we can recycle? Like plastic, aluminum, glass, or electronics?

As for ideas:

- carpooling/public transport
- biking/skating/scooting(?)/walking
- paper/reusable bags instead of plastic
- e-waste
- reusable bottles

On Thu, Jan 29, 2015 at 5:34 PM, Jazmyynn-Jade Flores Daos <[jdaos@uci.edu](mailto:jdaos@uci.edu)> wrote:

Hi guys,

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Re[2]: Inf113: HW2 Team Session Qs



From Heath Sias

to Jazmynn-Jade Daos and copy to kalun.lee1@gmail.com, jsawonline@gmail.com, mmayet@uci.edu and other 5 people

Wed 1/28/2015 5:06 PM

IMG\_20150120\_143447.jpg (1,759 kB)

a rough draft of the system architecture we envisioned.

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Heath E. Sias  
B.S. Software Engineering  
University of California, Irvine | 2016  
[siash@ics.uci.edu](mailto:siash@ics.uci.edu)

----- Original Message -----

From: "Heath Sias" <[siash@uci.edu](mailto:siash@uci.edu)>

To: "Jazmynn-Jade Daos" <[jdaos@uci.edu](mailto:jdaos@uci.edu)>

Cc: [kalun.lee1@gmail.com](mailto:kalun.lee1@gmail.com); [jsawonline@gmail.com](mailto:jsawonline@gmail.com); [mmayet@uci.edu](mailto:mmayet@uci.edu); [zaydsimjee@gmail.com](mailto:zaydsimjee@gmail.com); "Diane Jiea Monchusap (via Google Docs)" <[dmonchus@uci.edu](mailto:dmonchus@uci.edu)>; "Jefmark Sabino Lingad" <[JLINGAD@uci.edu](mailto:JLINGAD@uci.edu)>; "[msedlik@uci.edu](mailto:msedlik@uci.edu)" <[msedlik@uci.edu](mailto:msedlik@uci.edu)>; "[EPUTH@uci.edu](mailto:EPUTH@uci.edu)" <[EPUTH@uci.edu](mailto:EPUTH@uci.edu)>

Sent: 1/27/2015 10:02:20 PM

Subject: Re: Inf113: HW2 Team Session Qs

Re: Re[2]: Inf113: HW2 Team Session Qs



From Jazmynn-Jade Flores Daos

to Heath Sias and copy to ka lun lee, TheJSAPProcess, Mudassir Idriss Mayet, Zayd Simjee and other 4 people

Thu 1/29/2015 5:34 PM

Hi guys,

So we didn't really specify what exactly are considered "sustainable actions" for both our systems. We agreed that we would have certain categories and some sort of weighting system per category, but we didn't specify what those exact categories are. Can we finalize as a group (both teams) what the categories would be?

Some ideas so start us off would be:

- water consumption
- recycling
- electricity

Jazmynn

On Wed, Jan 28, 2015 at 5:06 PM, Heath Sias <[siash@uci.edu](mailto:siash@uci.edu)> wrote:  
a rough draft of the system architecture we envisioned.

---

Reply

Re: Inf113: HW2 Team Session Qs



From Heath Sias

to Jazmynn-Jade Daos

copy to [kalun.lee1@gmail.com](mailto:kalun.lee1@gmail.com), [jsawonline@gmail.com](mailto:jsawonline@gmail.com), [mmayet@uci.edu](mailto:mmayet@uci.edu), [zaydsimjee@gmail.com](mailto:zaydsimjee@gmail.com), Diane Jiea Monchusap (via Google Docs), Jefmark Sabino Lingad, [msedlik@uci.edu](mailto:msedlik@uci.edu), [EPUTH@uci.edu](mailto:EPUTH@uci.edu)

Tue 1/27/2015 10:02 PM

You replied to this message on Wednesday, January 28, 2015 5:06:44 PM.

Hi Jazmynn,

Thanks and we'll see you tomorrow!

Heath

----- Original Message -----

From: "Jazmynn-Jade Daos" <[jdaos@uci.edu](mailto:jdaos@uci.edu)>

To: "Heath Sias" <[SIASH@uci.edu](mailto:SIASH@uci.edu)>

Cc: [kalun.lee1@gmail.com](mailto:kalun.lee1@gmail.com); [jsawonline@gmail.com](mailto:jsawonline@gmail.com); [mmayet@uci.edu](mailto:mmayet@uci.edu); [zaydsimjee@gmail.com](mailto:zaydsimjee@gmail.com)

Sent: 1/27/2015 9:54:49 PM

Subject: Inf113: HW2 Team Session Qs

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Inf113: HW2 Team Session Qs



From Jazmynn-Jade Daos

to Heath Sias and copy to [kalun.lee1@gmail.com](mailto:kalun.lee1@gmail.com), [jsawonline@gmail.com](mailto:jsawonline@gmail.com), [mmayet@uci.edu](mailto:mmayet@uci.edu), [zaydsimjee@gmail.com](mailto:zaydsimjee@gmail.com)

Tue 1/27/2015 9:54 PM

You replied to this message on Tuesday, January 27, 2015 10:02:20 PM.

Hi Heath,

Please include the rest of your team in the next email reply and CC everyone in the email so far. Feel free to email us any other questions you have that you guys weren't able to ask during the session Monday. One of us from our group with respond ASAP with any answers we have.

We'll see you and the team tomorrow in class for the next session.

Thanks,

Jazmynn

---

Jazmynn-Jade F. Daos

[jdaos@uci.edu](mailto:jdaos@uci.edu)

University of California, Irvine

Informatics, Organizations and Information Technology (OIT)

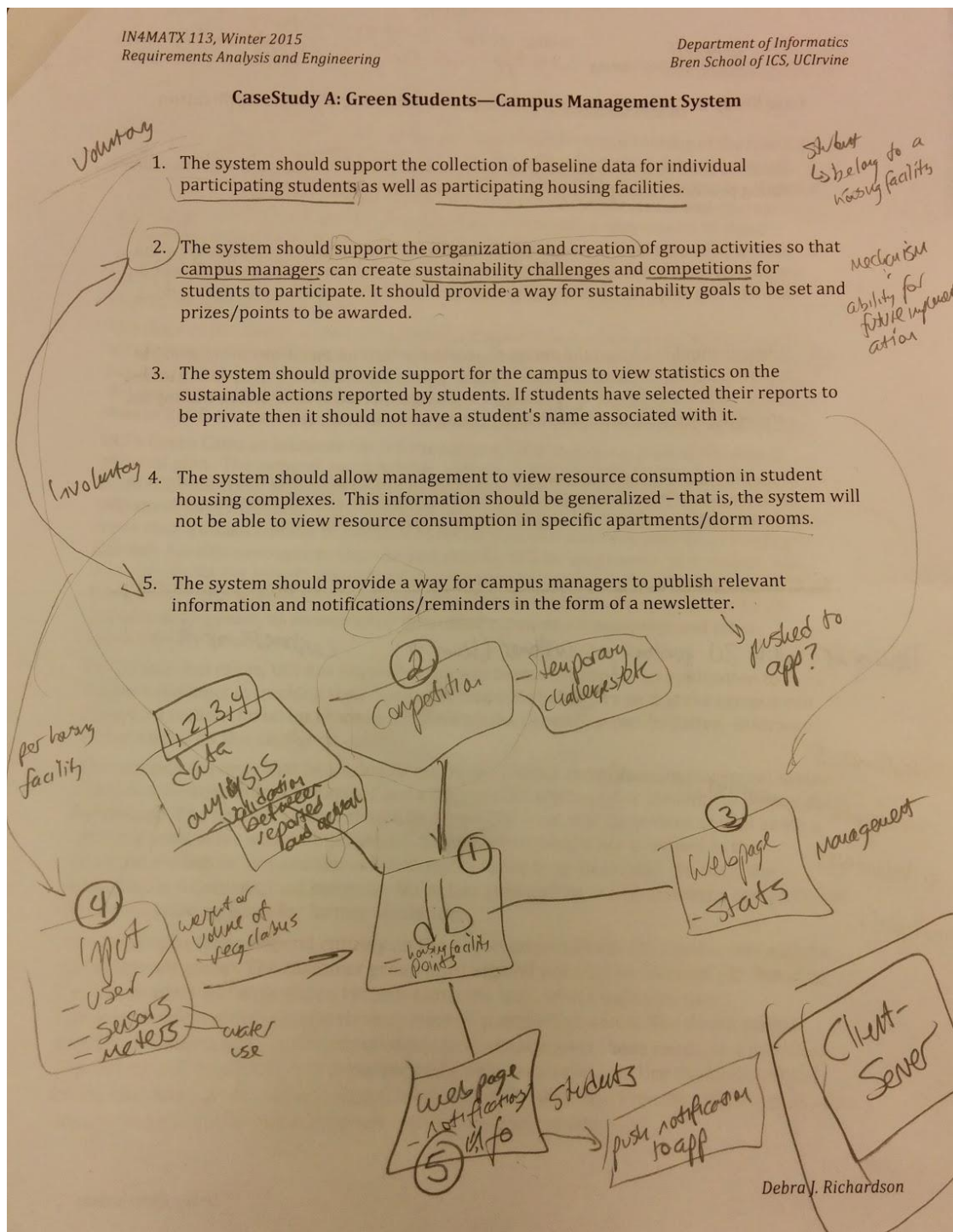
Cell: (949)422-8036

\* Sent from my iPhone

Please visit: [iglesianicristo.net](http://iglesianicristo.net) | [incmedia.org](http://incmedia.org)

Other Notes

Brainstorming session on how we envision the Campus Management System working - this informs our goals for App development (Login, Competitions, Notifications)





IN4MATX 113, Winter 2015  
Requirements Analysis and Engineering

WHOLE SYSTEM  
= CLIENT-SERVER  
(B) (A)

Department of Informatics  
Bren School of ICS, UCIrvine

### Case Study A: Green Students—Campus Management System

1. The system should support the collection of baseline data for individual participating students as well as participating housing facilities.  
*carpooling? define this (water usage, weight/quantity of recyclables? student data?)*
2. The system should support the organization and creation of group activities so that campus managers can create sustainability challenges and competitions for students to participate. It should provide a way for sustainability goals to be set and prizes/points to be awarded.  
*not compulsory*  
*MESA, ME, ACC, Graduate*  
*how to quantify?*
3. The system should provide support for the campus to view statistics on the sustainable actions reported by students. If students have selected their reports to be private then it should not have a student's name associated with it.  
*each report should have an associated ID tag for each profile that can be toggled on/off.*
4. The system should allow management to view resource consumption in student housing complexes. This information should be generalized - that is, the system will not be able to view resource consumption in specific apartments/dorm rooms.
5. The system should provide a way for campus managers to publish relevant information and notifications/reminders in the form of a newsletter.  
*pub-sub?*

*Student Profile*  
*→ tagged by community & then sorted.*

*(internal)* →

*(external)* →

*query database*

- central DB
- student website
- admin "
- push notific.
- some sort of data analysis/aggregation method
- competition system.
- efficient information distribution

*① Looking at housing entities vs. grouping students by housing area?*

- validation factor by comparing the two.

*- food courts & dining hall waste volume tracking.*

*- statistically analyze the data*

*- Aggregation of the data → put into visually friendly format*

*Defining "Green"*

- ewaste?
- what is a green "action"?

*Achievement System:*

- lifestyle change vs. building up to something.

Debra J. Richardson

### Meeting Minutes

Team ID: 20	Date: 2/11/2015
Team Members 1. Lingad, Jefmark 2. Monchusap, Diane 3. Puth, Emily 4. Sedlik, Mason 5. Sias, Heath	Role 1. Question asker/answerer 2. Question asker/answerer 3. Scribe 4. Backup scribe 5. Question asker/answerer
Agenda: 1. Scenario brainstorming 2. Begin writing scenarios	Outcomes: 1. Success 2. Wrote up rough outlines of three scenarios to be fleshed out
Problems encountered: 1. Some scenarios didn't really line up with our goal model	Resolution 1. Decided to focus on scenarios that would emphasize actor interaction with system
Plans for next meeting: 1. Recover from midterm 2. Review next phase	Responsibility 1. Review domain models

### Field Notes

2/11/2015 - Meeting - All present

To do: Work on scenarios

- Personal Lifestyle Sustainability Application
  - Account Verification System
    - Use Cases:
      - User is authenticated with EEE (account creation)
      - User authenticated with CMS (account creation/login)
      - Authenticate new account
      - Authenticate user on login
    - Notification System
      - Use Cases:
        - Send notification
        - System notifies mentor of mentee's failed goal
        - System notifies user of friend joining activity/goal/competition
        - System notifies user of successful login
        - System notifies user of successful account creation
      - Profile System
        - Use Cases:
          - User views a friends profile
          - User sets profile privacy settings
          - User requests Friend status from another user
          - User requests Mentor status from another user

- Activity Logging System
  - Use Cases:
    - Logs user into the application by verifying identity with db
    - Student selects behavior and quantity to post and sends update
    - Notify user of successful update and sync (audible/visual)
- Competition System
  - Use Cases:
    - Admin creates a competition
    - Begin competition (timer or manual?)
    - CMS/Admin updates competition details/status
    - CMS (admin?) ends competition
    - Notify users of competition
    - Send notification to users (dupe of above?)
    - Join competition
    - Join competition thru a friend's profile or via their recommendation

### Meeting Minutes

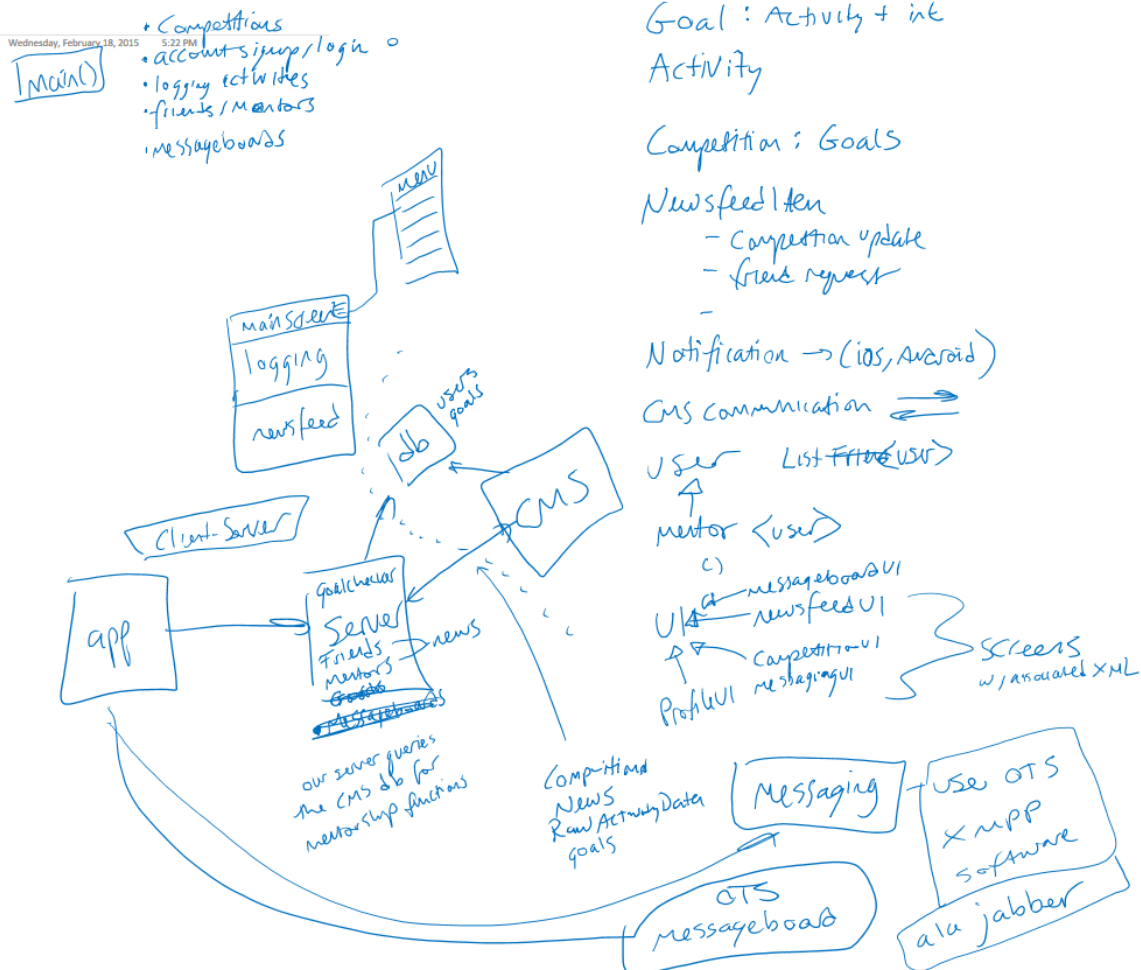
Team ID: 20	Date: 2/18/2015
Team Members 1. Lingad, Jefmark 2. Monchusap, Diane 3. Puth, Emily 4. Sedlik, Mason 5. Sias, Heath	Role 1. Question asker/answerer 2. Scribe 3. Absent 4. Backup absentee 5. Question asker/answerer
Agenda: 1. Break down classes/objects 2. Begin building class diagram	Outcomes: 1. Broke down nearly all objects to diagram 2. Sketched out the various objects
Problems encountered: 1. Vague instructions 2. Scope of the work	Resolution 1. Decided to include as much information as possible in final doc 2. Decided to have diagrams cover both client and server objects
Plans for next meeting: 1. Online meetings: Wed 10pm, Thurs 11pm, Fri 6pm	Responsibility 1. Meet up on time and get the assignment done

#### Notes:

- we're basically locked into expanding on competitions
  - can document input from nearly all the end users (students, admins, CMS, etc.)
- 6pm friday online
- deconstructing our system into classes (class inheritance/extension)

- determining how much work is necessary for us to be in charge of vs. how much is from case study A
- looking at everything from an implementation perspective
- we would have our own server for storing user data (eg. friends list, mentors/mentees, specific goals, etc.)
  - interacts with CMS and app
  - interacts with a database that can also be accessed by CMS
- need to clarify
  - sign in process
  - temporary data storage
  - UI class...? with extensions
  - mentor-mentee communication
    - IM?
    - should be some sort of package to use for messaging system
  - message boards -> off the shelf?

Notes cont.



## Missing Information

### Assignment 3 Missing Information

- **Gaps in elicited information**
  - a. The process of becoming a mentor
- **Assumptions**
  - a. Integration with EEE (for student verification) is permitted.
  - b. The components of the application that the team assumes will be the most important/popular are more quickly and easily accessible than others.
  - c. Users want to see the status of the competitions they are enrolled in (e.g. milestones, participants, scores).
- **Further questions**
  - a. Are there more responsibilities as a mentor? Can they recommend/assign goals and activities to their mentees just as a friend can?
  - b. How does one become a mentor?

### Assignment 4 Missing Information

- Need to verify with Team 19 what the main communication method will be (messaging/IM vs. threaded BBS/comments)
- Or at least determine whether or not mentors can message mentees and vice versa, if not implementing application-wide messaging
- Are mentors listed separately or is there only one friends list, but mentors have a distinction on their listing?
- From where and how do users recommend things to their friends?
- From the activity/news item/post/etc.? Or is there a separate process for it?

### Assignment 5 Missing Information

- We need to confirm with the customer that their CMS system will contain the user database and competition functionality we previously agreed upon
- Assumption made that there would be overlapping classes and operators between the app and the CMS system.
- Unsure if the customer would be against using XMPP in order to implement a messaging system, at least for mentor-mentee interactions (since they were against using a messaging system at all, and would much rather use a threaded board system).
- Unsure of what kind of message board the customer would want to implement in the application.
- Assuming that the CMS will contain the primary user database, we need to confirm that the user database will include which users are friends/mentors/mentees of other users. Our server's User class relies upon it.

## Software Requirements Specification

Title: Case Study B - Personal Sustainability Lifestyle Application

Prepared by: Team Domo

Submitted:

Name:  Date: 3/6/2015  
Jefmark Lingad

Name:  Date: 3/6/2015  
Diane Monchusap

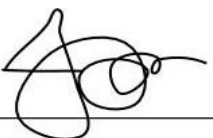
Name:  Date: 3/6/2015  
Emily Puth

Name:  Date: 3/6/2015  
Mason Sedlik

Name:  Date: 3/6/2015  
Heath Sias

Authorized by: Team 19

Accepted:

Name:  Date: 3/6/2015  
Jazmynn Daos

Name:  Date: 3/6/2015  
Ka Lun Kee

Name:  Date: 3/6/2015  
Mudassir Mayet

Name:  Date: 3/6/2015  
Jan Sawyer

Name:  Date: 3/6/2015  
Zayd Simjee

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# Software Requirements Specification

Case Study B - Personal Sustainability Lifestyle Application

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# 1. Introduction

## 1.1 Purpose

The purpose of this system requirements specification is to provide documentation for the Green Campus Initiative Personal Sustainability Lifestyle Application. It is intended to consolidate all information pertaining to the requirements of the PSL application. This document is intended for all stakeholders of the application, including developers and general stakeholders such as users, administrators, and business stakeholders.

## 1.2 Scope

This SRS documents the requirements for the Green Students PSL application. The PSL application is to encourage students to adopt and maintain sustainable lifestyles, as a byproduct of the University of California, Irvine's Green Campus Initiative. The application is intended to be a tool accessible from both mobile and non-mobile devices where students can log their behaviors, participate in challenges, and receive suggestions and updates on the world's current state of sustainability.

## 1.3 Definitions, Acronyms, Abbreviations

1.3.1 Actionable: A user-interface element which can be pressed to achieve a result. An example of an actionable item is a User Activity with an associated button for logging it.

1.3.2 Activity: a sustainable action recorded by the PSL application

1.3.3 CMS: Campus Management System. The administrative system which distributes information to, and collects information from, PSL applications. Also manages the website and competitions

1.3.4 EEE: Electronic Education Environment; system to be integrated with in order to verify students' enrollment at UCI

1.3.5 Friend: A relationship within the PSL app which gives specific privileges to a pair of Users with regard to each others' profiles

1.3.6 Goal: A group of Activities with an associated timeframe

1.3.7 IM: Instant message. A single direct communication sent from one User to another User

1.3.8 Mentor: a user who can monitor (a) designated mentee(s)

1.3.9 NewsFeed: A visual display of status-related items regarding Friends, Competitions, and Sustainability News

1.3.10 PSL: Personal Sustainability Lifestyle application. The software application system this document describes.

1.3.11 SRS: Software requirements specification document.

1.3.12 UCI: University of California, Irvine

1.3.13 User: a UCI student or affiliate using the PSL application

## 1.4 References

UC Irvine Green Campus Initiative Enhancement Document (the case study document)

[IN4MATX 113] Lecture 3: Elicitation; *Debra J. Richardson*

[IN4MATX 113] Lecture 4: Stakeholders & SRS Preview; *Debra J. Richardson*

[IN4MATX 113] Lecture 5 & 6: Goal Oriented Analysis; *Debra J. Richardson*

[IN4MATX 113] Lecture 7: Usage Model; *Debra J. Richardson*

[IN4MATX 113] Lecture 8: Domain Model; *Debra J. Richardson*

[IN4MATX 113] Lecture 11: Validation; *Debra J. Richardson*

[IN4MATX 113] Lecture 13: Traceability; *Debra J. Richardson*

## 1.5 Overview

This SRS document defines the the system requirements specifications for the PSL application. Section 1 of this document is an introduction, where the SRS document's purpose, system scope, and acronyms, definitions and abbreviations used throughout the document are described. In Section 1, a list of references is also provided.

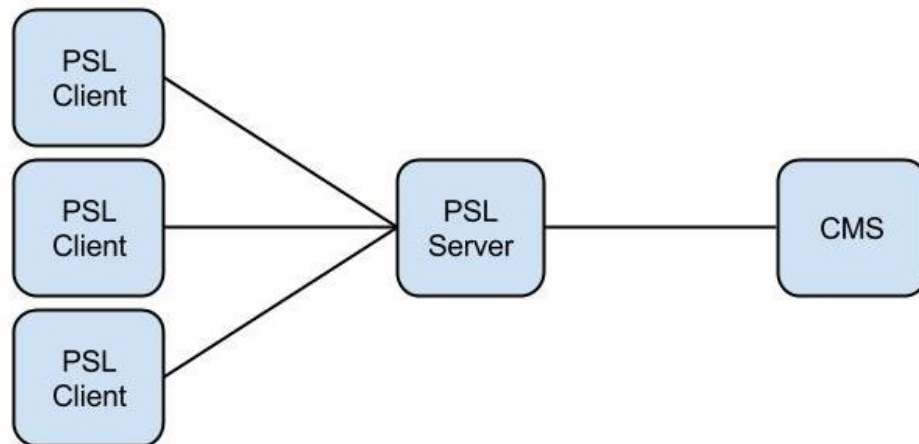
Section 2 describes a general description of the PSL application to be developed and any other additional details that were important to the development of the application. A list of those details that the team discovered are included in the section.

Section 3 provides the requirements elicited from the customer team. These requirements were gathered from personal interview sessions and email exchanges between the developer team and the customers. This section lists the requirements gathered and any additional details of that function that we felt should be explicitly stated to ensure clarity in the functionality of the application.

## 2. General Description

### 2.1 Product Perspective

The Personal Sustainability Lifestyle Application is a new system that UCI is recruiting us to develop. It is a social media-esque application whose main purpose is to promote environmentally-friendly and sustainable behaviors among students at UCI. The PSL application is intended to work, through an intermediary server, in direct relation with the Green Students Campus Management system, both as parts of the Green Campus Initiative System. Another group was chosen to develop the CMS which works in conjunction with the PSL application. Their main purpose is to develop the framework and manage the database that will encompass all the information that is going to be gathered from student input through the application. The CMS will also make sense of the data and return to the application relevant information and statistics to the student users informing them of anything important. The PSL application is the main interface that students will use that will ultimately interact with the CMS.



- **PSL Client:** Mobile application which communicates directly with PSL Server
- **PSL Server:** The server maintains a database of Friends and Mentors and facilitates User to User instant messaging. All communication to/from CMS is routed through the PSL Server
- **CMS:** Campus Management System. Manages competitions, user accounts, collects data and pushes information to PSL Clients

## 2.2 Product Functions

The main goal of the PSL application is to promote sustainable lifestyles among students at UCI. This could range from something as simple as recycling a bottle to making a lifestyle change. The application assists in this by creating a centralized place for students to share and post their actions, so other students can see and possibly mimic something that they find on the application. To accomplish this, there are a few main functions, listed below:

### 2.2.1 Activity logging

2.2.1.1 Users are able to input certain sustainable behaviors and share with their friends what they accomplished.

### 2.2.2 Interaction among users

2.2.2.1 This has a social media-esque essence and should follow the sense that social media allows users to interact with other users.

### 2.2.3 View and suggest recommendations

2.2.3.1 Users' main goal is to practice sustainable actions and promote them to their friends. By viewing friends' behaviors and mimicking them, or having friends mimic your behavior through explicit sharing or by logging their action, it promotes the behavior.

### 2.2.4 Sustainability education

2.2.4.1 View research and statistics on climate change, how to maintain a sustainable lifestyle, and other factors relevant to sustainable lifestyles.

### 2.2.5 Mentorship system

2.2.5.1 Students are able to opt-in to a mentorship program that helps them get started on a sustainability goal. Mentors are capable of making sure their mentees are keeping up with their goals as well as encourage their mentees to continue on goals, or recommend new ones.

### 2.2.6 Discussion forums

2.2.6.1 By providing a place for users to share and interact with one another to help others in certain fields of sustainable actions, this creates a welcoming environment for new people to try new sustainable actions that hopefully lead into good habits.

## 2.3 User Characteristics

The user demographic of the PSL application encompasses the general student population at the University of California, Irvine. This includes undergraduate and graduate students. It is expected that all users have at least a high school diploma or equivalent, and at least some college education. Their technical skills may vary; some users may have extensive technical experience and others may have close to none. These users may live off campus or on campus in one of various housing communities.

## 2.4 General Constraints

2.4.1 The application will not have any kind of similar software to relate it to

2.4.1.1 Closest relative software would be the major social media platforms

2.4.2 The PSL application will only be available to students at UCI.

2.4.3 User input will not be free-entry, they will choose from a set of inputs and populate their specific log with available selections

## 2.5 Assumptions

2.5.1 The CMS is going to be interacting directly with the PSL system (application and server).

2.5.2 Integration with EEE to allow for student verification and simple student info retrieval.

2.5.3 Users will want to see the status of the competitions they are enrolled in

2.5.4 Application will have a social media vibe in how it is used and managed.

## 3. Specific Requirements

### 3.1 Essential Requirements

#### 3.1.1 Functional Requirements

##### 3.1.1.1 PSL Login

3.1.1.1.1 PSL shall require user login.

3.1.1.1.2 User shall only be allowed to log in if they are UCI students

##### 3.1.1.2 Activity Logging

3.1.1.2.1 User shall be able to choose from a pre-populated list of activities what they would like to track

3.1.1.2.2 User shall be able to create Goals from actions

3.1.1.2.3 User shall be able to adjust the timeframe of a Goal

##### 3.1.1.3 PSL shall define relationships between users

3.1.1.3.1 User shall be able to request Friend status with another user.

3.1.1.3.2 User shall be able to accept or deny a Friend request from another user.

3.1.1.3.3 User shall be able to request mentorship from another user.

3.1.1.3.4 User shall be able to accept or deny mentorship requests.

3.1.1.3.5 User shall be able to request another user to be his/her Mentee.

3.1.1.3.6 User shall be able to accept or deny requests to be a mentee of another user.

##### 3.1.1.4 PSL Notification System

3.1.1.4.1 User shall have the option to receive notifications regarding Friends' status updates

3.1.1.4.2 User shall have the option to receive notifications regarding Mentors' status updates

3.1.1.4.3 User shall have the option to receive notifications regarding news items

3.1.1.4.4 User shall have the option to receive notifications regarding competitions

3.1.1.4.5 Mentor shall be notified when their mentee is failing to meet any goal

##### 3.1.1.5 Message board

3.1.1.5.1 PSL shall allow discussion amongst users via threaded post

##### 3.1.1.6 Instant Messaging

3.1.1.6.1 PSL shall allow an instant message to be sent to another user

#### 3.1.1.7 Recommendation system

3.1.1.7.1 User shall be able to recommend an activity to a Friend or Mentee

3.1.1.7.2 User shall be able to recommend a NewsFeed item to a Friend or Mentee

#### 3.1.1.8 Competition system

3.1.1.8.1 User shall be able to join a competition

3.1.1.8.2 User shall be able to quit a competition

#### 3.1.1.9 News Feeds

3.1.1.9.1 User shall be updated on certain research updates on topics related to sustainable behaviors

3.1.1.9.2 User shall be able to view their friends' logged activities and add one or more of those activities to their own

3.1.1.9.3 User shall be able to view their friends' joined competitions and join one of more of those competitions

#### 3.1.1.10 Friends Lists

3.1.1.10.1 User shall be able to search for other Users by name and request that User to be a Friend of Mentor

3.1.1.10.1 User shall be able to recommend Friends or Mentors to their Friends

3.1.1.10.2 PSL shall suggest Friends to User based on mutual friends

#### 3.1.2 Non-functional Requirements

3.1.2.1 PSL shall have a simple and minimal user interface

3.1.2.2 Message boards shall minimize posts irrelevant to the discussion of sustainability

3.1.2.3 PSL shall visually distinguish between news feed item categories

3.1.2.4 Students shall be able to be associated with a housing community

3.1.2.5 User shall have control over the privacy of his/her profile

3.1.2.5.1 CMS shall always have access to User profile and data

3.1.2.5.2 User shall be able to set privacy status in which they are the only User able to view their profile

3.1.2.5.3 User shall be able to set privacy status in which they, their Friends, and their Mentors are the only Users able to view their profile

3.1.2.5.4 User shall be able to set privacy status in which every User is able to view their profile

#### 3.1.3 External Interface Requirements



#### 3.1.3.1 Client platform

3.1.3.1.1 PSL shall be initially available on popular mobile platforms

3.1.3.1.1.1 PSL shall be available on Android

3.1.3.1.1.2 PSL shall be available on iOS

#### 3.1.3.2 CMS Communication

3.1.3.2.1 PSL shall report User activities to CMS

3.1.3.2.2 PSL shall query CMS for User profile information

3.1.3.2.3 PSL shall query CMS for historic User data

3.1.3.2.2 PSL shall query CMS for competition updates

#### 3.1.3.3 EEE Communication

3.1.3.3.1 User Account Creation

3.1.3.3.1.1 Student status shall be verified with EEE

#### 3.1.3.4 Client-Server Architecture

3.1.3.4.1 PSL Client shall be connected to PSL Server via client-server relationship (PSL Client = client; PSL Server = server)

3.1.3.4.1 PSL Server shall be connected to CMS via client-server architecture (PSL Server = client; CMS = server)

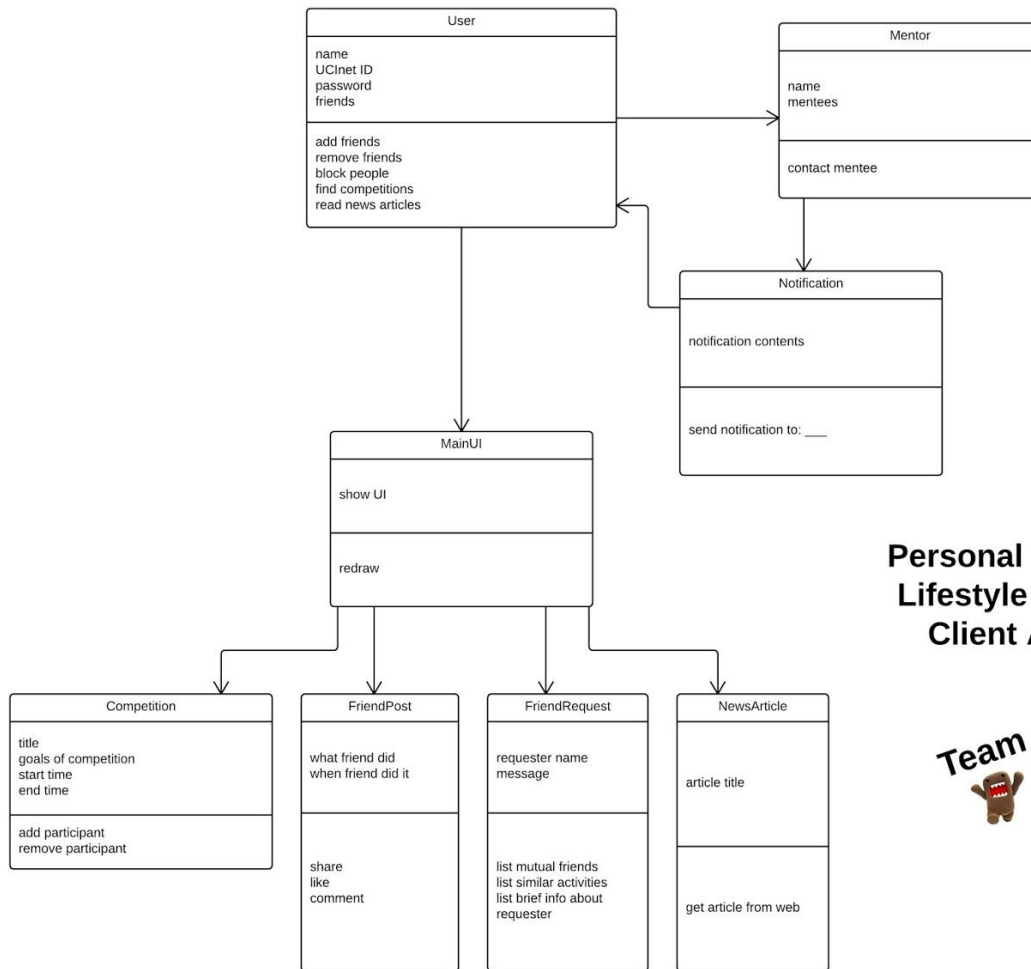
#### 3.1.3.5 User Interface Requirements

3.1.3.5.1 User shall have a unique profile screen through which to access the various parts of the application

3.1.3.5.2 Main profile screen shall initially display a NewsFeed and an Actionable list of current Activities and Goals

3.1.3.5.3 PSL shall not use a tiled interface

### 3.1.4 Logical Data Model



**Personal Sustainability  
Lifestyle Application -  
Client Application**



### 3.1.5 Design Constraints

3.1.5.1 The application shall not use a tiled interface

3.1.5.2 Shared database

3.1.5.2.1 There shall be a shared database between the application and the Campus Management system to hold user data

## 3.2 Extension Requirements

### 3.2.1 Functional Requirements

3.2.1.1 Message board integration

3.2.1.1.1 Message boards shall be integrated with EEE's preexisting message board system

### 3.2.1.2 Central Database

3.2.1.2.1 CMS and PSL server shall share the same database

## 3.2.2 Non-functional Requirements

### 3.2.2.1 Enforcing message board content

3.2.2.1.1 Spam should be filtered and the boards should be moderated to make sure that productive discussion is being made

### 3.2.2.2 Elegant interface

3.2.2.2.1 Profile UI elements shall be able to be rearranged by the User

3.2.2.2.2 Backgrounds and notification sounds shall be able to be customized by the User

### 3.2.2.3 Smart Algorithm

3.2.2.3.1 The application shall use an algorithm to find trends among Users and present them to students as Actionable NewsFeed items (Goals, Activities, Information Pages)

## Appendix

### A.1 Glossary

A.1.1 Administrator: A system user who is in charge of administrative tasks such as creating competitions or managing one of many databases

A.1.2 Developer: A person directly involved with the development of the system

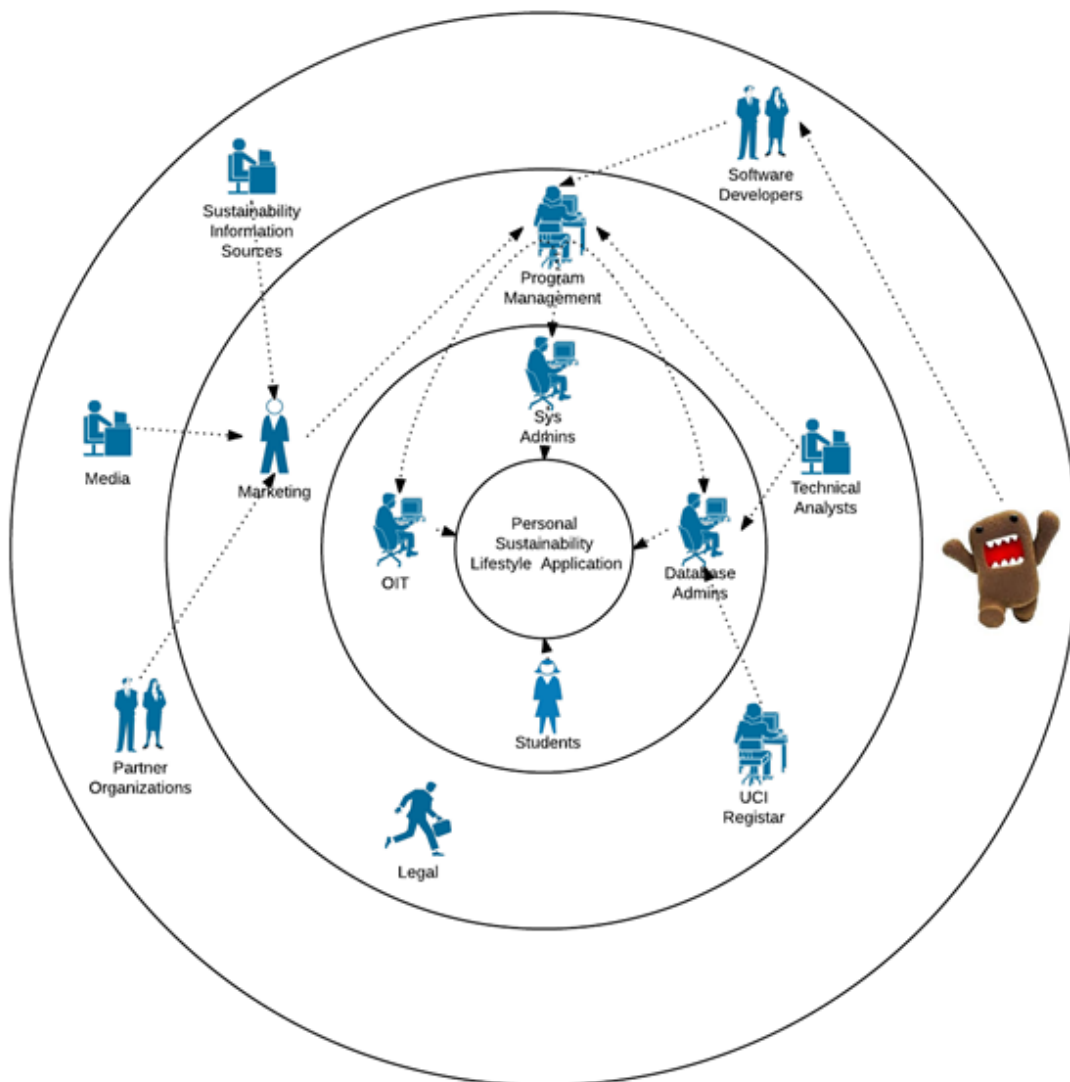
A.1.3 Domo: Our friend

A.1.4 Stakeholder: A person who influences or is influenced by the described system.

A.1.5 Sustainable/Sustainability: Behavior deemed friendly to the earth, as per the Green Campus Initiative

### A.2 Analysis Models (Stakeholder, Goal, Usage, Domain)

#### A.2.1 Stakeholder Model



#### A.2.1.1 Stakeholder List:

1. Students
  - The primary users of the app, intended to motivate them to adopt more sustainable behaviors.
2. Program Management
  - The team responsible for overseeing and managing the Personal Sustainability Lifestyle (PSL) application. They interact primarily with the Campus Management system, which is directly connected to the PSL app.
3. System Administrators (Sys Admins)
  - The system administrators ensure that user accounts are given to the correct people, and oversee the general health and efficiency of the system.
4. Database Admins
  - The team responsible for proper and secure functioning of the application's associated database. They provide data to the Technical Analysts as well as Program Management.
5. UCI Office of Information Technology (OIT)
  - Department responsible for the campus' network infrastructure.
6. UCI Registrar
  - The Registrar is responsible for confirming the student's credentials so that they will be allowed to use the app.
7. Sustainability Information Sources
  - These sources will be the primary provider of news and information for the students to reference.
8. Legal
  - The University of California (Irvine) legal dept. Since the app records and transmits the personal sustainability behaviors of its users, privacy concerns are an issue. Legal must dictate what types of information can and cannot be collected, as well as deal with any legal issues that arise.
9. Software Developers

- The developers are the ones in charge of ensuring that the requirements requested from the customer are included in the app, and also designing the user interface. They expect to be provided with reasonable requirements and a reasonable time frame within which to complete the project.

#### 10. Technical Analysts

- Party responsible for collecting and ‘making sense’ of the data collected by the application. They also supply chart and graph data to the management team. This team uses algorithms determined by the Green Initiative to analyze the data.

#### 11. Marketing

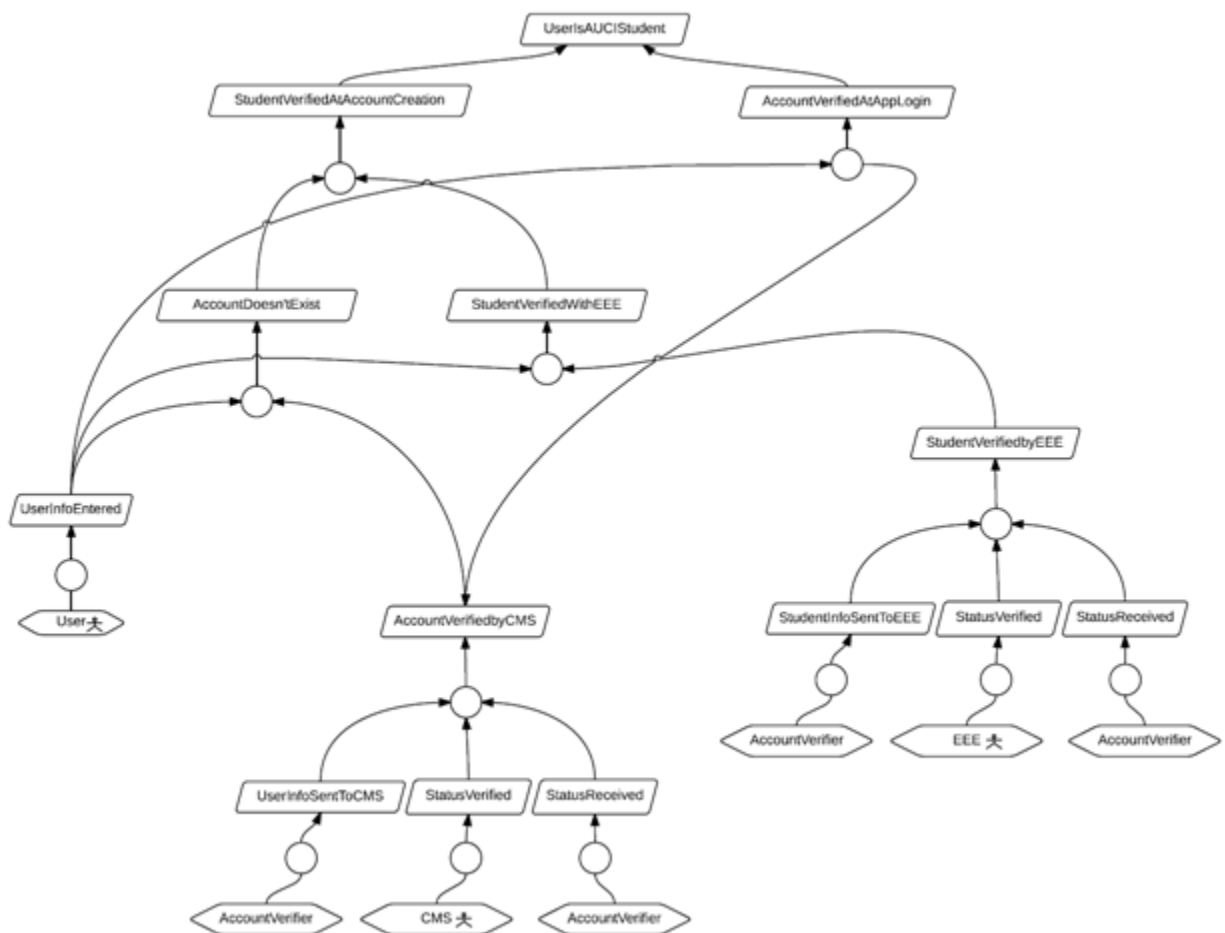
- The marketing team promotes the app, establishes partnerships with local businesses, and ensures up-to-date sustainability-related information (for app suggestions, competitions, and website information. For challenges, the marketing team has jurisdiction over what kind of point values will be used when comparing student behavior during challenges.

#### 12. Partner Organizations

- [potential] (local “green” restaurants, coalitions, organizations, etc.) which provide a public face to the application. Their involvement is solicited by Marketing.

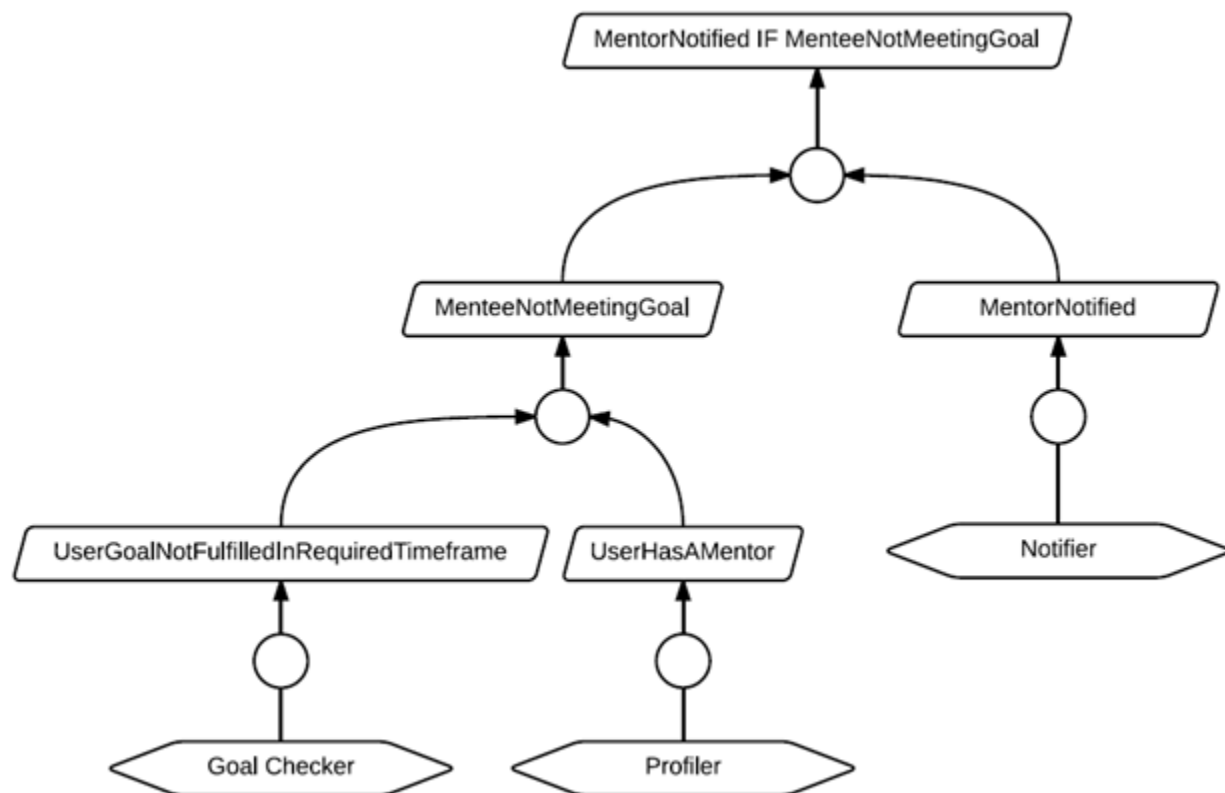
## A.2.2 Goal Models

### A.2.2.1 UserIsAUCIStudent



**EXPLANATION:** The Personal Sustainability Lifestyle (PSL) app is being designed as part of UC Irvine's Green Campus Initiative Project and is specifically for UCI students. Therefore, there is a need to confirm that each user is, in fact, a UCI student. Through discussions with our customer, we determined that the best way to go about this would be to verify a student's credentials (UCInet ID and password) with EEE upon PSL account creation. For subsequent logins, only PSL account information is needed and is verified with the Campus Management System (CMS).

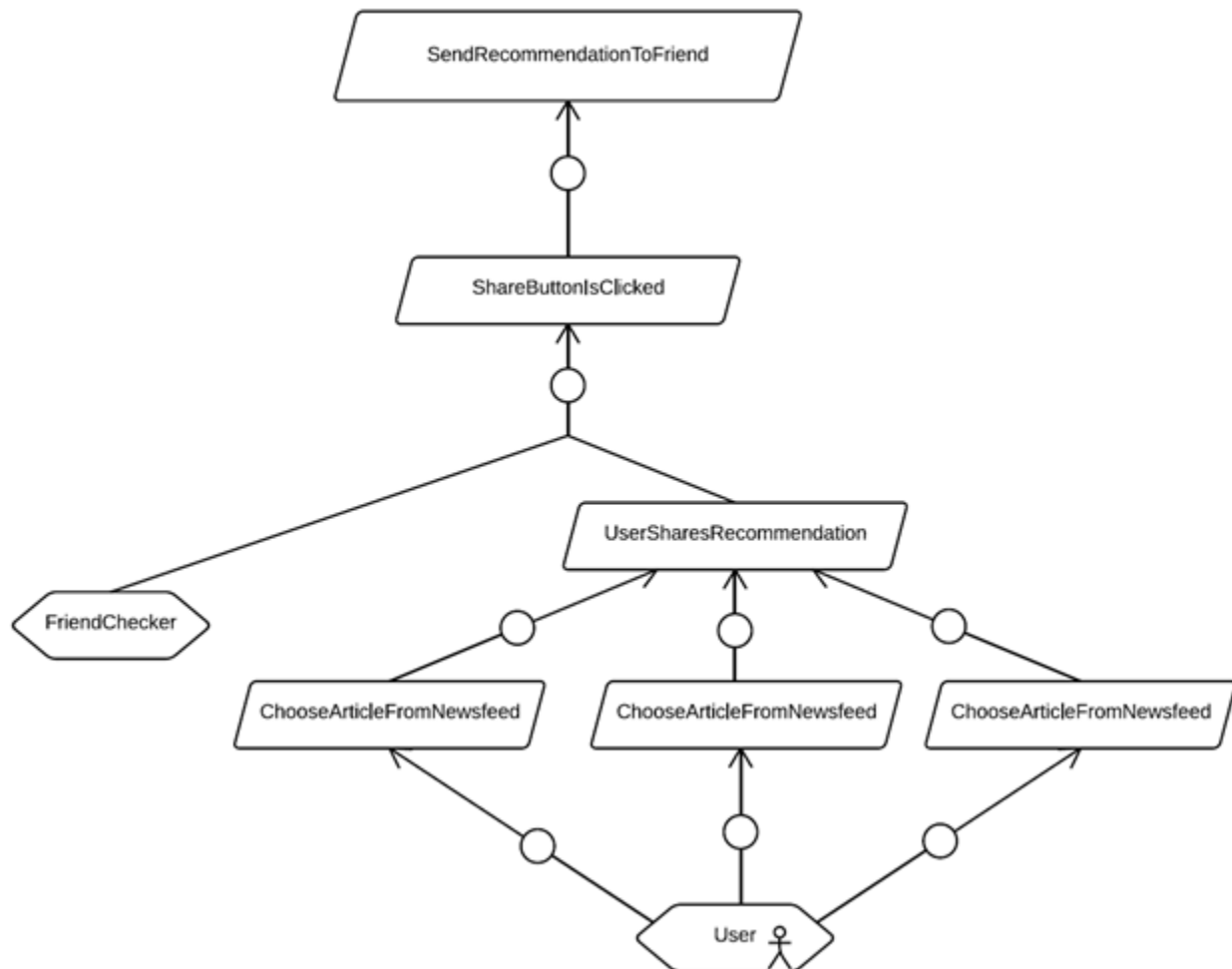
#### A.2.2.2 MentorNotified IF MenteeNotMeetingGoal



**EXPLANATION:** The customer decided that mentorship would only mean that a mentor would be notified when their mentee is NOT meeting one of their goals. No other special relationship would exist between a mentor and his/her mentees. To this end we have to check whether a given user is meeting their goals. We envision doing this on a timer which would run every night at midnight (sending notifications as necessary), but final implementation has not been agreed upon. We believe this satisfies the customer's requirement.

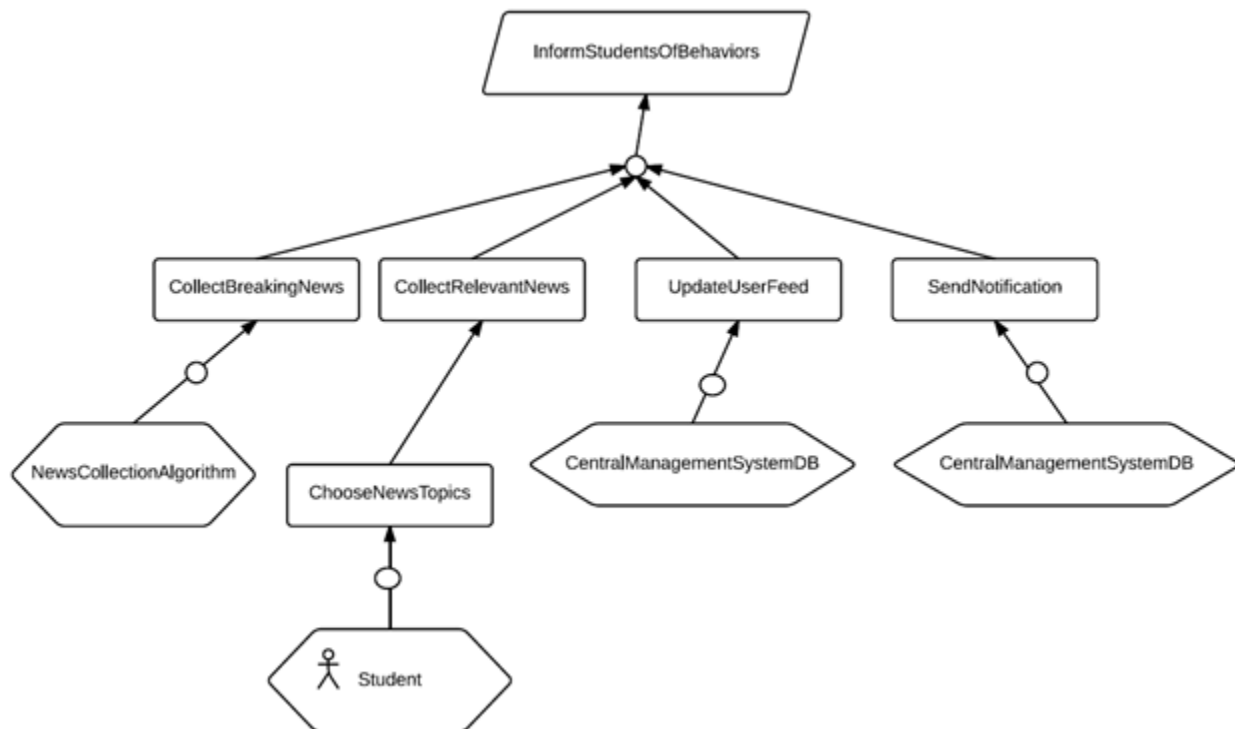


### A.2.2.3 SendRecommendationToFriend



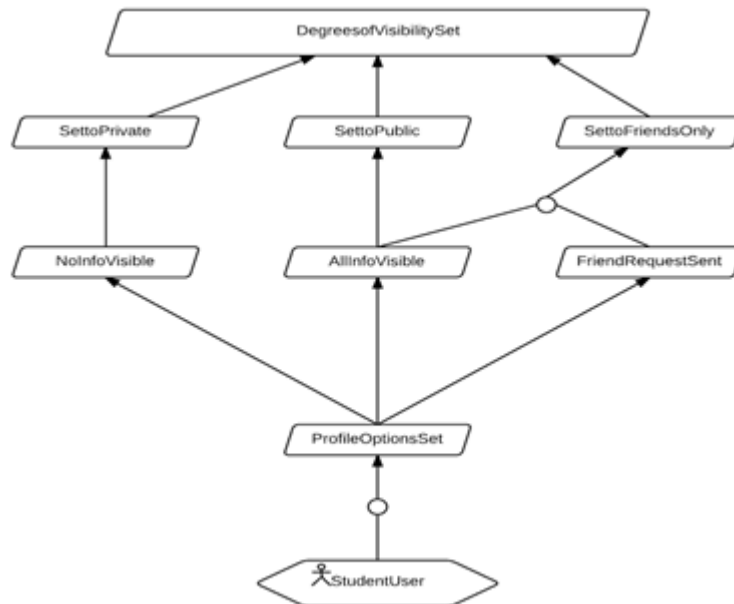
**EXPLANATION:** The customer expressed an interest toward the idea of incorporating social aspects into the application. One of the requests made by the customer was to have some component that allows for users to send recommendations for goals, activities, and news articles to their friends. Rather than being able to send recommendations to any user, students are only allowed to share items with other users if they are friends with each other. Users can choose to share articles from the newsfeed, as well as recommend goals and activities listed in the app.

#### A.2.2.4 InformStudentsOfBehaviors



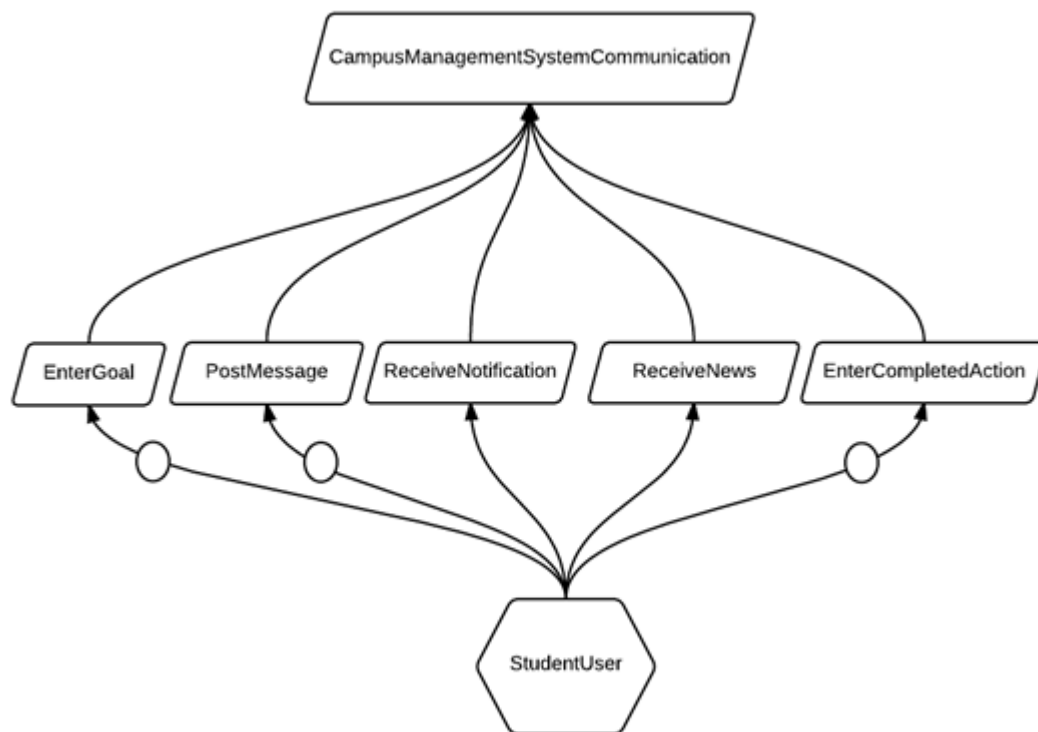
**EXPLANATION:** One of the main requirements in the background study of the application was the ability for the application to inform users of recommended and suggested behaviors through phone notifications. The application has to be able to collect important news articles automatically, collect relevant news topics to the user, and then send a notification to the user and update the user's information feed. The application will implement an algorithm that collects news that could benefit the user community. Users should also be able to choose news topics based on their sustainable behavior goals and challenges. By updating users on information to support them, they are more likely to maintain sustainable actions for longer periods of time. After collecting this information, the application should be able to send a notification to the user device and/or update the user wall feed of information on the main screen.

#### A.2.2.5 DegreesofVisibilitySet



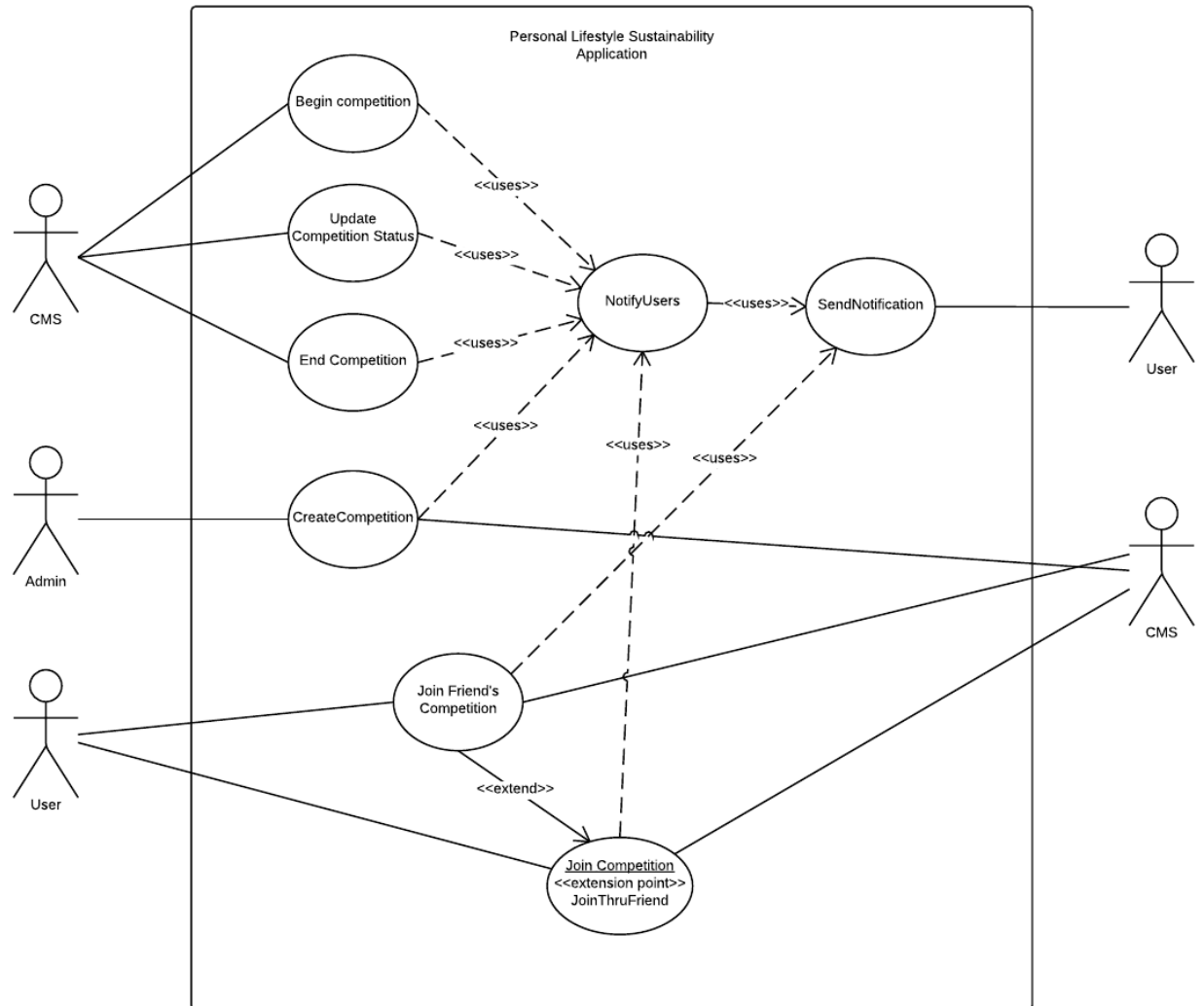
**EXPLANATION:** In order to maintain a level of security, the user has the option to change the visibility of information on their profile. They can choose from private, public, and friends only. Friends only is different from private in that private information is not shown, regardless of friend status. Also, the friends only option would require a friend request to have been sent and approved before being able to view information. We have determined that these levels of visibility are sufficient for the users' and customers' needs.

#### A.2.2.6 CampusManagementSystemCommunication



**EXPLANATION:** The mobile application has four main items to communicate with the campus management server. When users enter goals and record their progress through completed actions it must be sent to the central database. Any messages the user posts onto the messageboards must also be sent through the servers. The newsletters will also be communicated to the application by the campus management system. Finally, any push notifications sent from the management server will be received by the application and displayed.

### A.2.3 Usage Model



### A.2.3.1 Use Case Descriptions – Competition

Section	Content/Explanation		
Use Case Name	CreateCompetition		
Author	Heath Sias		
Priority	High - A required part of the application is that it supports competitions. Creation of competitions is therefore high priority.		
Criticality	High - For a competition to exist, it must be created. Without this use case, a major aspect of the software will not be able to function. That being said, this use case does NOT prevent implementation of the rest of the application.		
Source	Green Campus Initiative PSL Case Study B Document		
Short Description	An authorized admin creates a Competition by filling out the details in their application. The details include relevant goals (behaviors and associated time-frame), start date, end date, rewards, target audience [if the competition is based on current user activities then the invitation may only be sent to those who are currently engaged in that activity), and description]. The admin confirms the information and the a request is sent to notify all applicable students of the new competition.		
Goal(s)	UsersNotifiedOfANewCompetition		
Primary Actor	Green Campus Initiative Admin		
Secondary Actors	Users		
Preconditions	None		
Success End Condition	Competition is created & users are notified.		
Failed End Condition	No competitions can be created		
Trigger	Admin decision		
Results	Notifications sent to users, Competition created in CMS		
Main Success Scenario	Description of the main scenario of the use case, successfully completing		
	Step	Action	
	1	Competition details are submitted by admin	
	2	Competition details are sent to CMS	
	3	Admin notified of successful submission	
	4	List of users and Competition details sent to notification system	
	5	Users are notified of new competition	
Alternative Scenarios	Description of alternative scenarios – e.g., extension scenarios specifying the action above at which each extension applies		
	Step Extended	Condition	Action or sub-use case
	3	No notification received	App resends info after timeout
	5	User doesn't receive notification	Notification not resent
Exception	In the case that the admin is not notified of the acceptance of the competition		

Scenarios	by CMS, an error message is displayed to the admin for them to try again at a later time. End result is that no competition is created and no users are notified.
Qualities	
Relationship to other use cases	This use case uses NotifyUsers to send notifications to prospective entrants to the competition. Through NotifyUsers, SendNotification is also used to send each notification.
Supplementary Information	None.
Open Issues	None.

Section	Content/Explanation	
Use Case Name	BeginCompetition	
Author	Jefmark Lingad	
Priority	High - Basic requirement of the system before any requirements were elicited from the stakeholder interview.	
Criticality	High - Expected feature of the application that helps drive the idea of sustainable behaviors and promoting sustainable actions.	
Source	Case Study documentation specifying basic requirements of the system before any meetings with the stakeholders.	
Short Description	Once the set start period of the competition has been reached, the Central Management System is expected to update all students participating in the competition. From this moment, student submissions that are relevant to the competition are being recorded and assessed. They input their information through the application and allow the application to update the records accordingly.	
Goal(s)	This is a high-leveled goal in the system. It refers to the requirement that was set before the stakeholders were given a chance to describe the system that they had in mind. It is meant to promote certain activities. This use-case indicates that the system is notifying all users of the beginning of a competition.	
Primary Actor	Central Management System	
Secondary Actors	Student Users, Administration	
Preconditions	Admin leveled user has created the competition and its parameters.	
Success End Condition	Ends when the notification has been sent out. From this point, the competition has successfully begun.	
Failed End Condition	If the competition cannot begin given the specified parameters, there will be no competition that promotes different sustainable behaviors.	
Trigger	A specified date time that the admin user has inputted when creating the competition and its details.	
Results	Notifications are pushed to all users that are participating, notifying them that the competition has begun.	
Main Success Scenario	Description of the main scenario of the use case, successfully completing	
	Step	Action
	1	Specified date time has been reached, the central

		management system recognizes this and begins the process of notifying users.
	2.	The central management is expected to send notifications to all relevant users of the competition.
Alternative Scenarios	Description of alternative scenarios – e.g., extension scenarios specifying the action above at which each extension applies	
	Step Extended	Action or sub-use case
Exception Scenarios	If a start date time is reached, but the competition cannot begin successfully, the admin who created the competition will be notified of an error in the system.	
Qualities		
Relationship to other use cases	This use-case makes use of the NotifyUsers condition which makes use of the SendNotification condition.	
Supplementary Information	None.	
Open Issues	None.	

Section	Content/Explanation
Use Case Name	UpdateCompetitionStatus
Author	Emily Puth
Priority	Medium - Information about competitions, such as when it starts and when it ends, and who is participating, needs to be tracked and recorded as the process progresses.
Criticality	High - There needs to be some assurance that there is a beginning and end to all competitions.
Source	Requirements, Elicitation Document, Stakeholder Model, Goal Model
Short Description	The purpose of implementing competitions into the app is to encourage UCI students to live a more sustainable lifestyle. In order to feel confident in participating in a competition, it is important for the user to be able to view the status of the competition and know how far along in it they are. Since the data collected for a competition will change overtime due to a nearing deadline or an increasing number of participants, it is the Central Management's responsibility to frequently update the statuses of competitions. It must be ensured that competitions start and finish as planned.
Goal(s)	The competition moves along from beginning to end.
Primary Actor	Central Management System
Secondary Actors	Users
Preconditions	There must already be a competition in progress.
Success End Condition	The status of competitions are updated throughout its process, from when it starts to when it ends.
Failed End Condition	The deadline for a competition has approached, but the system assumes that it is ongoing. It may continue to track sustainable activity not having to do with the particular competition.
Trigger	A new item of information on the competition needs to be added and then



	updated.		
Results	As a competition comes to a close, users are notified of the nearing deadline. A list of all the participants and their measurable activities for the competition are tracked and recorded.		
Main Success Scenario	Description of the main scenario of the use case, successfully completing		
	Step	Action	
	1	A user joins in on a competition	
	2	The system updates the status of the competition indicating that there is an additional participant/competitor	
Alternative Scenarios	Description of alternative scenarios – e.g., extension scenarios specifying the action above at which each extension applies		
	Step Extended	Condition	Action or sub-use case
	1	The competition ends	User is informed of the end of the competition and the system no longer can update the status
Exception Scenarios	The administrator that created the competition may manually stop the updates for the competition if the system fails to recognize the end of a competition.		
Qualities			
Relationship to other use cases	Takes into account BeginCompetition and EndCompetition to know when to start and stop making updates.		
Supplementary Information	None.		
Open Issues	None.		

Section	Content/Explanation
Use Case Name	EndCompetition
Author	Mason Sedlik
Priority	High - Competitions are a core component of the system
Criticality	High - Expected feature of the application that helps drive the idea of sustainable behaviors and promoting sustainable actions.
Source	Green Campus Initiative PSL Case Study A Document
Short Description	After either the preset ending time or manual intervention from an admin, the competition will end. After the competition is ended, users can no longer submit data to count towards their progress in the competition. Immediately after the ending of the competition, participant data is compiled and reviewed to determine the winners of the competition. Notifications are sent to all participants regarding the ending of the competition, and the winners are notified that they have won in addition to adding their respective rewards to their accounts.
Goal(s)	<i>Goal(s) that shall be satisfied by executing the use case scenarios (refer to goals and sub-goals in your goal model)</i>
Primary Actor	CMS
Secondary Actors	Users, Administration

Preconditions	Competition must have been created and started		
Success End Condition	Competition ends and results are compiled		
Failed End Condition	Competition remains active		
Trigger	Competition time expires or competition is manually ended by admin		
Results	Competition is ended, and users can no longer submit data. Winners of the competition are determined from compiling the result data.		
Main Success Scenario	Description of the main scenario of the use case, successfully completing		
	Step	Action	
	1	Competition time ends	
	2	CMS automatically ends the competition and sends competition ended notifications to participants.	
	3	Result data is compiled and winners are determined	
	4	Statistics are sent to the admin who created the competition	
	5	Competition winners are notified via notifications and any rewards are added to their accounts	
Alternative Scenarios	Description of alternative scenarios – e.g., extension scenarios specifying the action above at which each extension applies		
	Step Extended	Condition	Action or sub-use case
	1	Manual override	Admin manually ends the competition before time expiration
Exception Scenarios	Description of exception scenarios of the use case – e.g., those that end in a failed end condition		
Qualities			
Relationship to other use cases	Counterpart to BeginCompetition		
Supplementary Information			
Open Issues			

Section	Content/Explanation
Use Case Name	NotifyUsers
Author	Diane Monchusap
Priority	High - this process compiles nearly all data from stakeholder interaction (CMS, Admin, and User) and is utilized by SendNotification to send meaningful notifications to the user. If users were never notified, they would not be aware of updates and competition information and not utilize the application fully.
Criticality	Moderately High - users would still be able to participate in competitions sans notifications, but notifications provide updates that are important in maintaining a competitive “atmosphere”, and ensure that users are informed of new competitions as they are created. However, users generally learn of competitions through notifications that are pushed to them after an administrator creates a competition. After that, this process is used to update users of the status of competitions.

Source	Requirements, GCI PSL Case Study A Document, Goal Model		
Short Description	Although the creation of competitions is a feature of the CMS, notifications for the user are distributed through communications between the PSL application and the CMS. Without a process to comb through data and determine which is critical enough to notify the user (eg. a new competition is started, an existing competition is updated, etc.), the user would either receive too much information, resulting in an overload, or the user would receive too little information, resulting in a less engaging application. Hence, NotifyUsers is important in ensuring that Users can actively be aware of changes in the competitive aspects of the application, since notifications are the main method through which Users learn of new competitions.		
Goal(s)	Goal(s) that shall be satisfied by executing the use case scenarios (refer to goals and sub-goals in your goal model)		
Primary Actor	CMS		
Secondary Actors	Admin(s), user(s), CMS (receiving updated information)		
Preconditions	There must be information available to compile into a notification.		
Success End Condition	Users are notified		
Failed End Condition	Users are not notified		
Trigger	The CMS begins a competition, updates the competition status, ends a competition; an Admin creates a competition; a User joins a competition.		
Results	Description of the outputs that are created during execution of the use case		
Main Success Scenario	Description of the main scenario of the use case, successfully completing		
	Step	Action	
	1	CMS triggers BeginCompetiton, UpdateCompetitionStatus or EndCompetition; an Admin triggers CreateCompetition.	
	2	Appropriate information is gathered and verified	
	3	Information is sent to a User via SendNotification	
Alternative Scenarios	Description of alternative scenarios – e.g., extension scenarios specifying the action above at which each extension applies		
	Step Extended	Condition	Action or sub-use case
	1	User trigger’s JoinFriend’sCompetition	By extension, JoinCompetition will trigger NotifyUsers
Exception Scenarios	Description of exception scenarios of the use case – e.g., those that end in a failed end condition		
Qualities			
Relationship to other use cases	Utilized by SendNotification to compile notification information before sending		
Supplementary Information	Additional relevant information about this use case		
Open Issues	Any open issues remaining to be resolved		

Section	Content/Explanation		
Use Case Name	SendNotification		
Author	Diane Monchusap		
Priority	High - users obtain most new information through notifications, else they would only obtain new information via scrolling through newsfeed.		
Criticality	Moderate - since users can still obtain information manually, notifications are more of a convenience rather than a necessity. However, most competition information is acquired through notifications, and thus are important to ensuring that competitions are executed		
Source	Requirements, GCI PSL Case Study A Document, Goal Model		
Short Description	After NotifyUsers compiles the necessary information, or a User triggers JoinFriend'sCompetition, SendNotification verifies that information. After verifying the information, a notification is sent to the User. The user then acts upon the information in the notification accordingly.		
Goal(s)	Users receive notifications; User and CMS communicate (see CampusManagementSystemCommunication goal model).		
Primary Actor	CMS		
Secondary Actors	User(s)		
Preconditions	NotifyUsers must acquire relevant information from CMS and/or Admin; a User joins a friend's competition		
Success End Condition	Notification is sent, user receives notification		
Failed End Condition	Notification is not sent, user does not receive notification		
Trigger	NotifyUsers has acquired relevant information to be compiled into a notification; another User has triggered JoinFriend'sCompetition, which by extension triggers JoinCompetition which can trigger NotifyUsers.		
Results	Notifications are sent to the user, containing either information from CMS or from another User triggering JoinFriend'sCompetition.		
Main Success Scenario	Description of the main scenario of the use case, successfully completing		
	Step	Action	
	1	NotifyUsers gathers appropriate information	
	2	Information is compiled into a notification	
	3	Notification is sent to user	
Alternative Scenarios	Description of alternative scenarios – e.g., extension scenarios specifying the action above at which each extension applies		
	Step Extended	Condition	Action or sub-use case
	1	User joins a competition via a friend, not through CMS or Admin prompting	User triggers JoinFriend'sCompetition
	3	User has notifications turned off	User does not receive notification
	Exception	If a user has notifications turned off, the user will not receive notifications when	

Scenarios	the CMS uses SendNotification.
Qualities	
Relationship to other use cases	Sends compiled notification information from NotifyUsers to users before, during, and after competitions are begun, in progress, and completed.
Supplementary Information	Additional relevant information about this use case
Open Issues	Any open issues remaining to be resolved

Section	Content/Explanation										
Use Case Name	JoinCompetition										
Author	Emily Puth										
Priority	High - Competitions are a requirement by the customer and having it as a feature would be pointless if users were unable to partake in them. Competitions are the easiest way to get people to participate with the app.										
Criticality	High - Competitions would cease to exist if few participants join.										
Source	Requirements, Elicitation document, Stakeholder Model, Goal Model										
Short Description	The student user receives an invitation from the CMS to participate in a competition. The user is then prompted to either accept or decline the challenge. If the user accepts, the challenge is queued into the list of competitions he/she is currently engaging in. Details for the competition are then viewable. The user's information is also added to the appropriate database corresponding to the competition, allowing the CMS to view his/her progress with the competition. If the invitation is declined, the user can proceed with using the app as usual.										
Goal(s)	Goal(s) that shall be satisfied by executing the use case scenarios (refer to goals and sub-goals in your goal model)										
Primary Actor	Student users										
Secondary Actors	Central Management System										
Preconditions	There must be competitions available to join.										
Success End Condition	The student is added to the competition's database and is able to view competition details.										
Failed End Condition	If the user declines the invitation, he/she has not joined the competition.										
Trigger	A competition invite is sent to the user.										
Results	The challenge's details is added to the user's viewable list of competitions.										
Main Success Scenario	Description of the main scenario of the use case, successfully completing <table border="1"> <thead> <tr> <th>Step</th><th>Action</th></tr> </thead> <tbody> <tr> <td>1</td><td>Competition invite is sent to the user.</td></tr> <tr> <td>2</td><td>User accepts the invitation</td></tr> <tr> <td>3</td><td>User is added to the competition's database</td></tr> <tr> <td>4</td><td>User is able to view competition details</td></tr> </tbody> </table>	Step	Action	1	Competition invite is sent to the user.	2	User accepts the invitation	3	User is added to the competition's database	4	User is able to view competition details
Step	Action										
1	Competition invite is sent to the user.										
2	User accepts the invitation										
3	User is added to the competition's database										
4	User is able to view competition details										
Alternative Scenarios	Description of alternative scenarios – e.g., extension scenarios specifying the action above at which each extension applies										

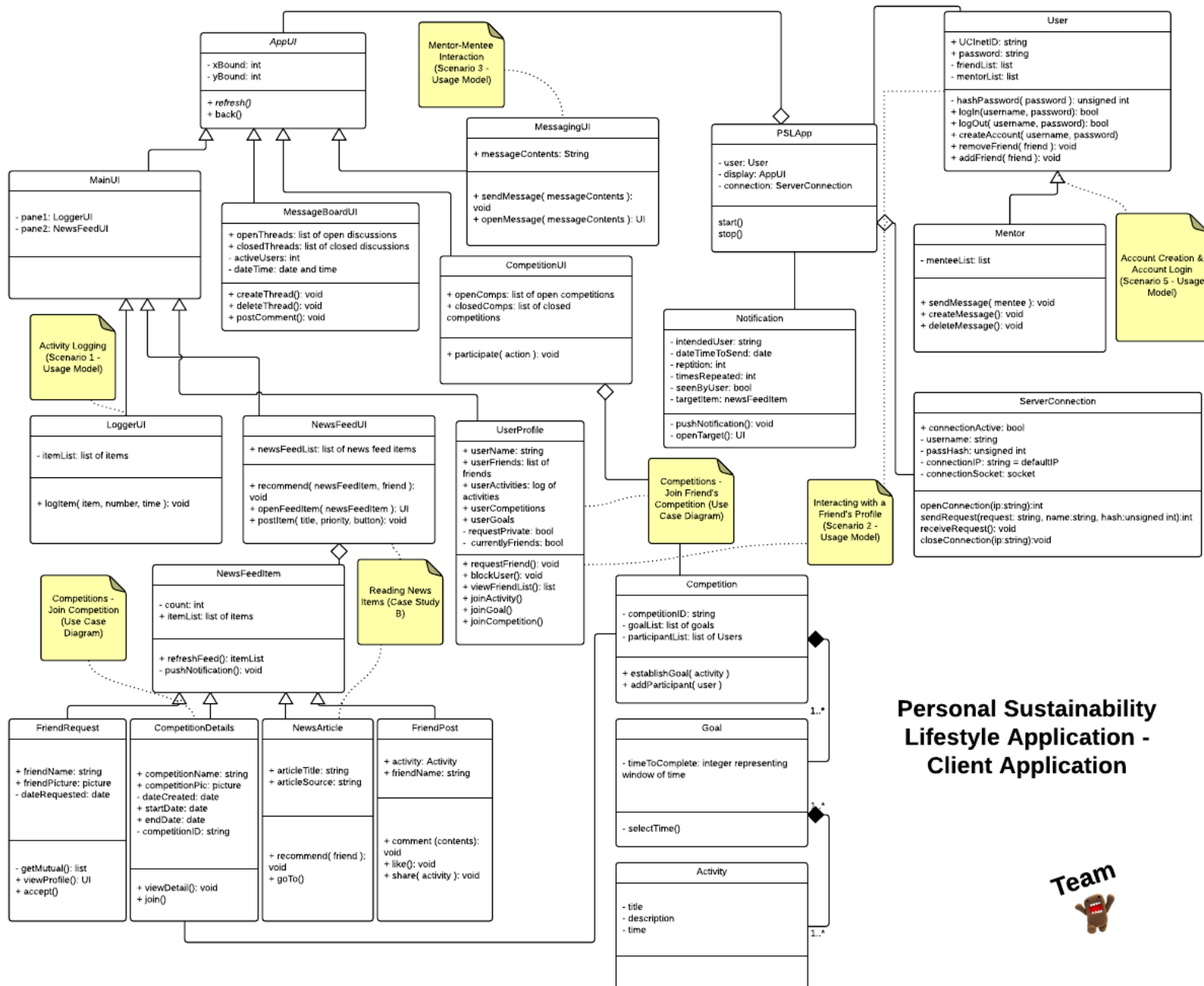
	Step Extended	Condition	Action or sub-use case
	2	User does not participate in the competition	User declines the invitation
Exception Scenarios	User proceeds with using the app without being added into the competition.		
Qualities			
Relationship to other use cases	This use-case receives the notification for a competition through the NotifyUse use-case. It also utilizes the UpdateCompetitionStatus use-case for informing participants of the competition details.		
Supplementary Information	None.		
Open Issues	None.		

Section	Content/Explanation	
Use Case Name	JoinFriend'sCompetition	
Author	Mason Sedlik	
Priority	Medium - The application's user experience is heavily based off of communication with friends. Joining a friend's competition is a key part to users' participation in the system.	
Criticality	Low - While joining a competition is a critical component of the system, being able to join through a friend is more of a convenience.	
Source	Stakeholder requirement	
Short Description	User sees (either through notifications or newsfeed) that their friend has entered a competition. Should they also wish to join they can enter the same competition. They can decide to view the details of the competition. After deciding to join the competition, their information is sent to the CMS, which sends back a confirmation.	
Goal(s)	<i>Goal(s) that shall be satisfied by executing the use case scenarios (refer to goals and sub-goals in your goal model)</i>	
Primary Actor	Users	
Secondary Actors	CMS	
Preconditions	Competition must be created, Competition must still be active, Friend must have previously joined competition, Users must be friends	
Success End Condition	User joins the competition	
Failed End Condition	User fails to join the competition	
Trigger	User decision	
Results	Notification sent to user's friend, user added to CMS' list of competition participants	
Main Success Scenario	Description of the main scenario of the use case, successfully completing	
	Step	Action
	1	User notified that friend has entered a competition

	2	User selects to join that competition	
	3	User’s details are sent to CMS	
	4	User is notified that they have successfully joined the competition	
	5	User’s friend is notified that the user has joined them in the competition	
Alternative Scenarios	Description of alternative scenarios – e.g., extension scenarios specifying the action above at which each extension applies		
	Step Extended	Condition	Action or sub-use case
	1	User has notifications turned off	User will not receive the notification, but it will still show up in their newsfeed
	4	Response is not recieved	User info is resent to CMS
	5	Friend has notifications turned off	Friend will not receive the notification. The user still shows up in the list of competition participants
Exception Scenarios	If the CMS does not receive the user’s request to join the competition, the user will receive an error message.		
Qualities			
Relationship to other use cases	Extends JoinCompetition		
Supplementary Information			
Open Issues			

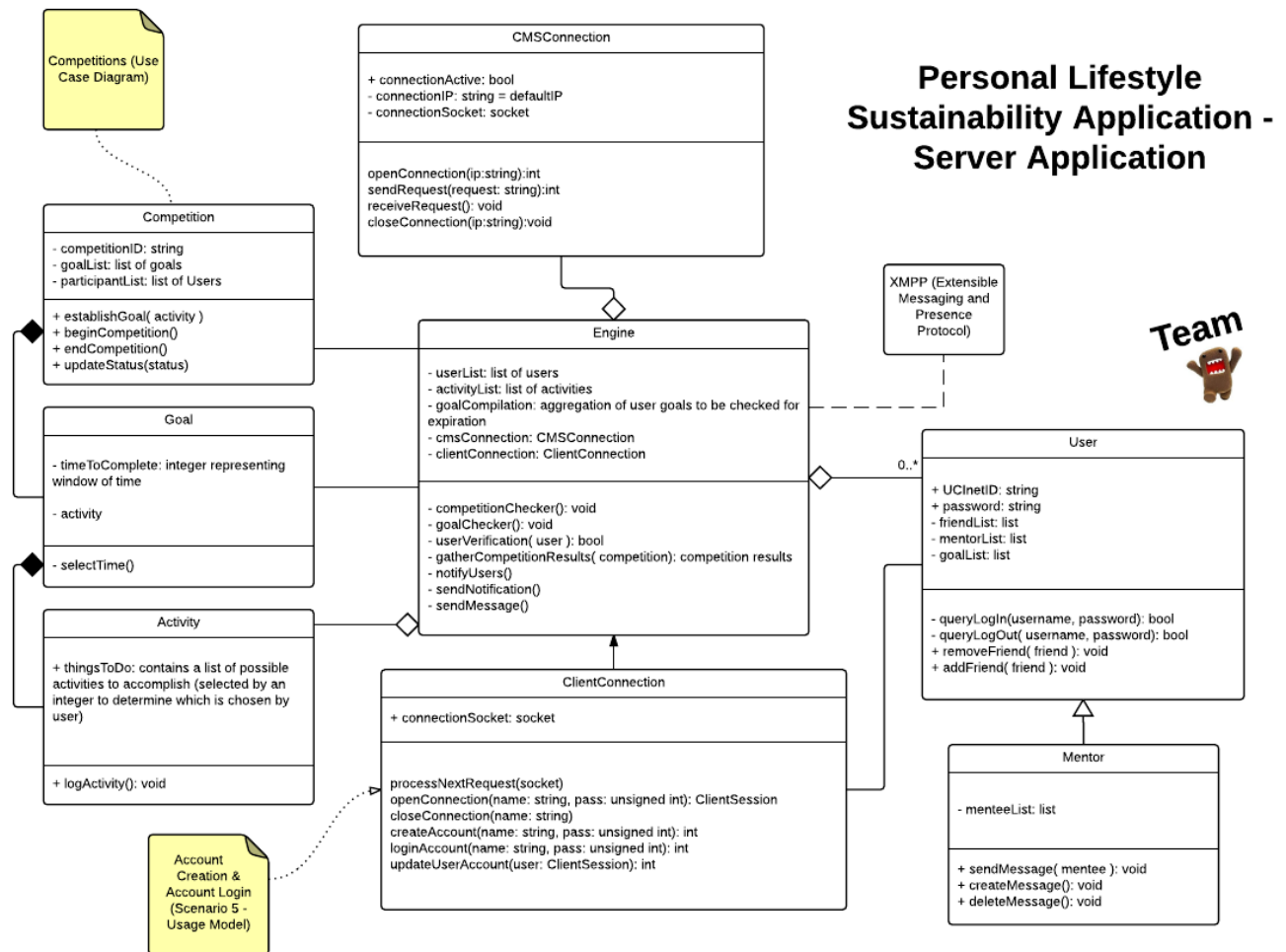
## A.2.4 Domain Models

### A.2.4.1 Class Diagram - Client





#### A.2.4.2 Class Diagram – Server



#### A.2.4.3 Domain Model Explanations

##### A.2.4.3.1 Client Model:

The client model describes how users interact within the context of the app, and also how the app operates as a whole. Since most of the use cases we designed in the previous document focused on user interaction with the application's features and with other users, we were able to more thoroughly conceptualize how the app could be implemented on an object level. It maps out the relationships between the different classes of users, the different user interface pages, and how the flow of the app is executed as well. Here, we broke down the main concepts that we and the customer group had decided upon, down to relatively low level operations and attributes while still maintaining a degree of abstraction to keep the

diagram easy to understand. Also, considering that there is a server working with the client application, we chose to break down classes as much as possible to allow for data to flow easily between the clients and server.

#### A.2.3.4.2 Server Model:

The server model is centered around an 'Engine' class which contains most of the application's underlying logic. It will query the CMS database nightly for goals that have reached their due-date. If the goal has been completed it will send a notification to the user. If not, and the user has one or more mentors, they will be notified of the users' lack of progress so that they might more efficiently motivate them. The Engine is also responsible for collecting the results of competitions, determining the outcome, notifying the appropriate users, and adding the appropriate rewards to the winners' profiles. The server also runs the services necessary to facilitate instant messaging and messageboard communication between the users.

### A.3 Traceability

A.3.1 PSL Client is connected to PSL Server through PSL Client's ServerConnection class. All information sent to and received from PSL Server is achieved through this class' methods. Information sent is in the form of a request which PSL Server accepts and acts on. PSL Server maintains a local list of Users which it uses to achieve instant messaging and goal checking (for Mentor notification), as well as which Users are Friends and which are Mentors. Currently, CMS does not maintain this information.

A.3.2 PSL Server is connected to CMS via PSL Server's CMSConnection class. All information sent to and received from CMS are achieved through this class' methods. Information sent is in the form of a request which CMS accepts and acts on. CMS maintains the User database which PSL Server queries for User information and data and updates with new information and data (received from PSL Client).

A.3.3 Notifications are going to be initiated from the CMS and be pushed to the clients' applications based on any relevant and critical information to the users.

A.3.4 XMPP is the platform we are using to achieve messaging among users within the application itself. Messages will be stored in a server where they can be retrieved when queried.

#### A.4 Issues List

- A.4.1 Difficulty meeting with the stakeholder group
- A.4.2 Difficulty finding meeting times with the team together in person
- A.4.3 Splitting the work among a small group
- A.4.4 Managing overlapping deadlines with other classes
- A.4.5 Vagueness and ambiguity in assignment directions
- A.4.6 Keeping scope contained; unsure how far scope extended for each case study
- A.4.7 Difficulty communicating with stakeholders about precisely what is required in the software