\*CS+Social Good: CS+Social Good is an organization that focuses on the intersection of computer science and social impact. Striving to build a community of passionate computer scientists and engineers who are applying their technical knowledge towards solving the world’s biggest problems, CS+Social Good is changing the way students understand the value behind a computer science education and its application worldwide.

Our mission: We empower students to leverage technology for social good by inspiring action, facilitating collaboration, and forging pathways towards change.

**Final Project General Information**

Projects are usually somewhat open-ended. If we do not specify how you have to do something, then you are free to use your own imagination. I have put some information in the description, but you may design and organize your application as you wish, as long as it meets the basic requirements.

A few extra credit opportunities are suggested in M13. You may propose other ideas by posting them to piazza in the appropriate topic. Throughout the semester, you will be designing the full application as described here. You will be required to implement a subset of the requirements as detailed in the coming feature slices. Any functionality described here that is not in one of the milestone descriptions can be completed for extra credit.

**Homeless Shelters Project**

This application concept was created by CS+Social Good, an organization that focuses on the intersection of computer science and social impact. You may actually name your application whatever you want, I will be calling it \_\_\_\_\_\_\_\_\_\_\_.

In Georgia alone there are about 13,000 homeless people. At the same time multiple shelters exist, mainly in Atlanta, which can host a good number of them. One of the struggles homeless people are facing is that they cannot find the homeless shelter closest to them, and even if they do, they might not be able to get a bed there because there are no vacant spots or because the shelter has gender, age, or other restrictions. The goal of this project is to create an app that homeless people can use (either on their own phone if they have one or by borrowing a friend’s) to find a shelter.

This semester’s project is focusing on combining CS skills with Social Good and aims to not only teach students good design techniques and Object Oriented Programming, but also show how they can use their programming skills to have an impact on our communities. The teams that implement well-functioning apps by the end of the semester will be able to collaborate with CS+Social Good and local shelters to bring the app to the market and have a positive impact on Georgia’s homeless population.

We want to help answer questions like:

Where is the nearest shelter to the user’s current location?

What gender or ages do nearby shelters house?

How can the shelters be contacted?

Do they currently have available beds?

That is where this app comes in.

**User Categories**

Admin : An admin can add and remove users and shelters as well as unlock/lock accounts.

User : A user is anyone who wants to use the system to view data or self-report where they will be (creating a more accurate vacancy count for other users).

Shelter Employee : A shelter employee is someone who works at one of the homeless shelters and can update the current vacancies for his or her shelter (this user type is not a required feature, but can be added for extra credit)

All user types contain the same basic information:

* login name (in recognition of current popular trends, this can be the email address)
* password
* account state (locked or unlocked)
* contact info (email address)

In addition to this information, a Shelter Employee should be linked to their shelter.

**Shelter Data Handling**

CS+Social Good has compiled information on Atlanta’s homeless shelters for us, which will be provided to you in the form of a comma separated values file (CSV).

The information for each shelter includes the following:

* Unique key (These numbers are meaningless outside of this app and should not be visible to the users. Depending on implementation, they may or may not be useful to your team.)
* Shelter Name
* Capacity (for individuals or for families)
* Restrictions
  + Age (Range)
  + Gender (Female, Male, Anyone)
  + Families (Yes/No)
  + Teens/Kids (Yes/No)
* Location (latitude, longitude, and street address)
* Special notes
* Phone Number (in (000) 000-000 format)

**Shelter stay reporting**

Users will be able to self-report when they stay at a certain shelter and then report that they have left. Each user account should only be “checked-in” at a single shelter at a time. This should help other users know approximate numbers for how many of a certain shelter’s beds are taken and which shelters are more likely to still have room.

If there is a Shelter Employee for a certain shelter, then that user will be able to change the app’s number of remaining vacancies to accurately reflect the real-world number.

**Security**

A person must login to the application in order to access its features. At login, the user type is determined, and the appropriate rights granted.

If a login attempt is unsuccessful, the person is allowed a total of 3 failures before they are locked out. An administrator must unlock their account once it is locked.

**Searches**

A user may conduct a search for information about shelters. The following searches should be supported:

* Vacancy - show all shelters with more than given number of vacancies
* Restrictions - show all shelters for a given age/gender/other restriction
* Location - show all shelters close to a certain location

**Map Displays**

The location of shelters should be shown on google maps. Clicking on a pin should show some details of the shelter at that location.

**M13 Extra Credit ideas**

* You may implement an extra option at the login/register stage of your application. The third option is to proceed without logging in. This would allow the user to search the shelters but not report about vacancies or otherwise change the system’s data. Essentially, this create a fourth user type who has less privileges than any of the other three in return for being completely anonymous.
* Email-based password recovery (in lieu of or in addition to Admin unlock after 3 unsuccessful attempts)
* Use Google Maps to show directions to a selected shelter
* Push notifications (for vacancies, only works if there is some way of marking which shelters are of interest to that particular user)
* Alternative platform implementations: for example, Native iOS or a web app
* Implementation of Shelter Employee user type