CS 6755 - Human Computer Interaction Foundations

Understanding the Problem Space for Students Needing Temporary Assistance

D1 - Understanding the Problem Space

Pirates of the GAAARibbean
Gabriela Buraglia, Annette Guan, Aastha Patel, Ariana Olalde Keller, Rajath Pai

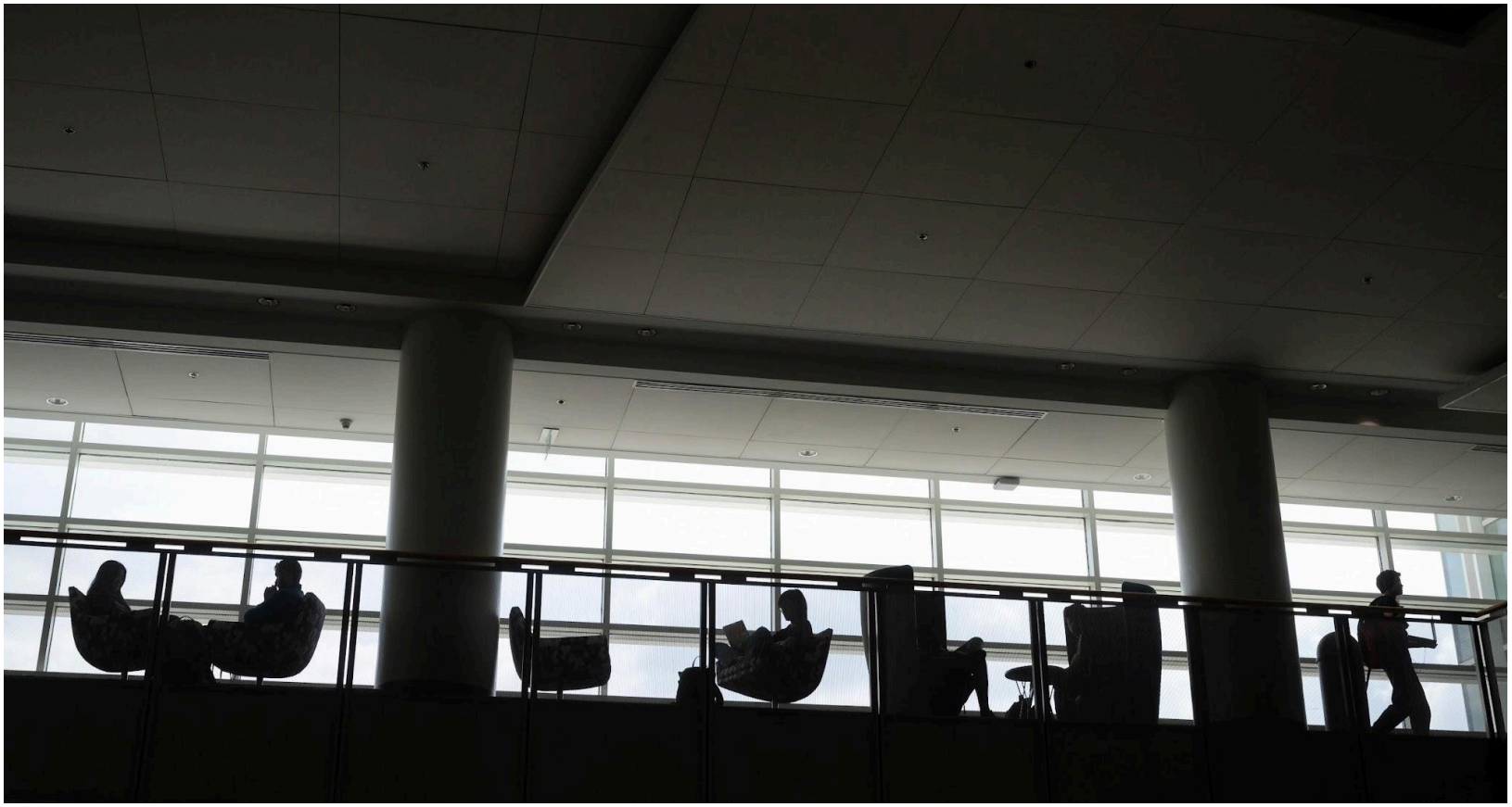


Figure 1: Students sitting in College of Computing building at Georgia Tech
Source: Georgia Tech Institute Communications via https://gatech.netx.net/app/

Table of Contents

Table of Contents **1**
Students Needing Temporary Assistance **2**
What is Temporary Assistance? 2
Users Have Increased Health Risks 2
Users Face Social Stigma and Shame 3
Users Are Empathetic 3
Users Are Resourceful 4
Users Show Resilience 4
Description of Practices and Goals **5**
Satisfying Hunger 5
Securing Emergency Housing 7
Searching for Community and Wellness 8
Searching for Professional and Practical Clothing 10
Description of Stakeholders **11**
Staff 12
Volunteers 13
Loved Ones 14
Analysis of Existing Systems **15**
Campus Services Digital Landing Pages 15
In-Person Community Fridges 17
Food Kitchens 18
Student Organizations 19
Housing and Residence Life 20
Stamps 20
Societal Implications **22**
Stigmas and Biases 22
Disconnect of People in Positions of Power 22
Fairness 22
Design Requirements **23**
Incorporate Universal Design 23
Keep Accessibility at the Forefront 23
Show Cultural Sensitivity 23
Ensure Shareability 23
Protect Users' Data and Information 24
Socio-Technical Contexts 25
References **26**

Students Needing Temporary Assistance

What is Temporary Assistance?

Research suggests food and housing insecurity is higher for United States (US) college students than in their respective populations [1], [2], [3], [4]. As such, our user group is college students who need temporary assistance, which we define as assistance related to food, housing, financial, and mental health in emergency situations.

According to the US Department of Agriculture (USDA), **low food security** means reduced diet quality without reduced food intake, while **very low food security** involves disrupted eating patterns and reduced food intake [5]. Our report combines both types of food insecurity.

We also refer to the United Nations Department of Economic and Social Affairs definition of **economic insecurity**, which is *"the exposure of individuals… to adverse events* [and] *their inability to cope with and recover from the costly consequences of those events"* [6].

The American Psychology Association (APA) defines **mental health services** as *"any interventions—assessment, diagnosis, treatment, or counseling—...for the maintenance or enhancement of mental health or the treatment of mental or behavioral disorders"* [7]. We broaden this definition to be the avenues people seek to find general emotional and psychological wellbeing.

Users Have Increased Health Risks

Students who need temporary assistance are at a greater risk of mental and physical health issues than their peers. For example, food insecurity causes anxiety when students don't know how long their food will last or when their next meal will be [8]. Sometimes, this anxiety manifests as irregular sleeping patterns, which may be related to worsened depressive symptoms [9]. One study found that, while most college students slept poorly, food-insecure students were more prone to serious issues such as prolonged sleepiness and sleep apnea [10]. In another study, students experiencing housing insecurity or homelessness reported poorer mental health and suffered from more *"adverse mental health days"* than others [11]. A survey of students randomly sampled from the ten University of California schools found that food-insecure students consumed less fruits and vegetables, participated in less moderate-to-high intensity physical activity, and had a higher body mass index [12]. These may result from the food-insecure student's coping mechanism of purchasing the cheapest food possible, even if it is unhealthy [13]. Our challenge will be to design a system that addresses the intersectionality of these issues that affect student wellness.

Users Face Social Stigma and Shame

Many students don't seek temporary assistance due to stigma and shame. A study of on-campus food pantry usage at the University of Florida found that social stigma and embarrassment were one of the main reasons food-insecure students did not seek assistance [14]. One student shared, *"It is embarrassing for people to know you don't have enough money for food"* [14]. At Georgia Tech, the **Students' Temporary Assistance and Resources** (**STAR**) program provides temporary aid to students through four programs: **Campus Closet**, **Klemis Kitchen**, **Crisis Housing**, and the **Dean Griffin Hip Pocket Fund**. According to the program's director, Steve Fazenbaker, students who could benefit from temporary assistance are reluctant to use STAR because of the stigma around it [15]. This statement is corroborated by a 2016 survey of 788 Georgia Tech students in which, of the 82 students who self-identified as food insecure, 48% responded they were not likely to consider seeking assistance [8]. Stigma also affects the likelihood that students seek mental health assistance. A survey of students at a university in Australia found that *"addressing the stigma of mental illness is a first and crucial step in getting students to…* [gain] *access to the support they require to succeed in their studies"* [16]. A challenge that arises from this characteristic is how to destigmatize temporary assistance among college students. For example, one source suggests "rebranding" food pantries as a community resource that is linked to other health-promoting resources instead of crisis assistance [14].

Users Are Empathetic

Anecdotes from students requiring temporary assistance reveal their empathetic nature. A student at the University of North Carolina at Charlotte, explains that, although all the income she receives from her on-campus job goes towards paying for her education, she believes that having a job already makes her more fortunate than students who are not employed, hence disqualifying herself from needing the food pantry [17]. Separate studies from the University of Florida and Georgia Tech reveal that another major reason students do not use temporary assistance is that, even if they are food insecure, they do not want to take resources away from others [14], [8]. Because these students are so willing to help their peers, we must design a system that allows students to easily share information. Simultaneously, empathy can prevent students from accepting assistance because they view this support as a limited resource [17]. Our challenge will be to dispel the misconception that temporary assistance is reserved for only the most destitute.

Users Are Resourceful

Students who need temporary assistance must rely on their resourcefulness to solve problems. For example, students often resort to a variety of mechanisms to cope with hunger. One Georgia Tech graduate student describes *"planning his day around events with free food in order to avoid paying for part of his meals"* [8]. Other strategies include giving up meals, snacking throughout the day, going to bed earlier to avoid feelings of hunger, and using friends' meal plans [18]. This resourcefulness is also exhibited by housing insecure students. Students in Toronto relied on strategies such as *"modifying their physical presentation to landlords"* and *"*[organizing] *activist groups to raise awareness of predatory landlord practices"* to secure housing [19]. Students may also seek out trusted professors or university staff members who can connect them with resources. Our challenge will be to design a system that both centralizes assistance for students and facilitates locating and utilizing these resources.

Users Show Resilience

Many students requiring temporary assistance display a determination to continue their education regardless of the obstacles they face. For some students, this means working part-time jobs on top of being full-time students. 61 out of the 788 Georgia Tech students surveyed responded that they had to *"prioritize working at their job over academics and extracurriculars in order to pay for food,"* and 126 students reported having to temporarily reduce spending on food to pay for textbooks, tuition, and emergency expenses [8]. Because these students are already spread thin between academics and their additional responsibilities, our challenge will be to design a system that doesn't add additional mental or physical burdens. For example, the system should not require much searching to find information or require students to traverse campus to access resources.

Description of Practices and Goals

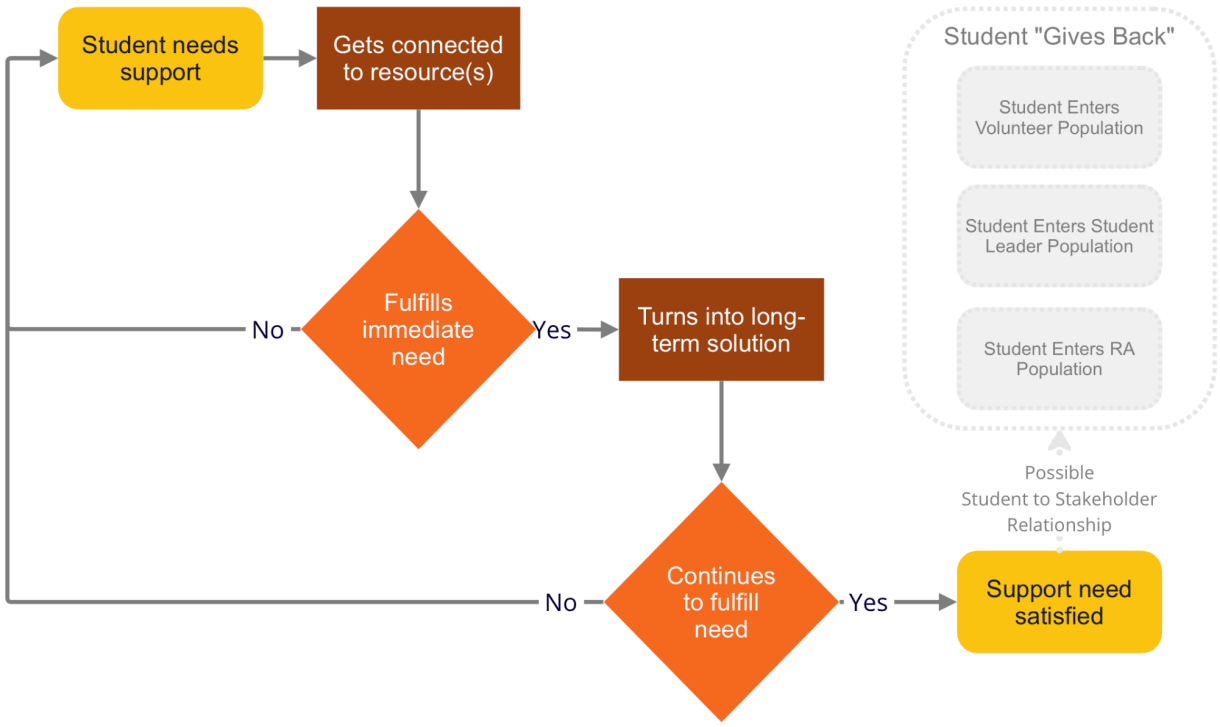


Figure 2: High level process flow of receiving support to meet needs
Source: Primary via Miro

Satisfying Hunger

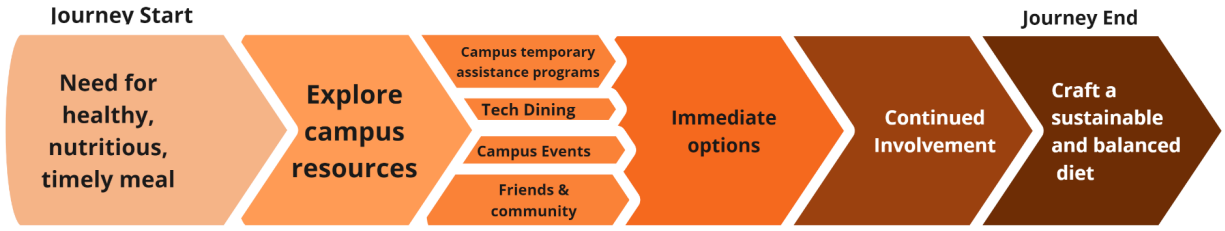


Figure 3: High level journey map of satisfying hunger
Source: Primary via Miro

The “starving student” stereotype normalizes the poor eating habits and low-quality diet of a college-going student as a part of the college experience [20]. Another common expression is the “Freshman Fifteen” which refers colloquially to the fifteen pounds students usually gain in their freshman year due to increased alcohol consumption, malnutrition, fast food, and decreased levels of exercise [21].

We have previously discussed the widespread nature of food insecurity on college campuses. One way Georgia Tech combats these statistics is through on-campus programs like STAR that are *"providing students with everything they need to thrive and flourish"* [22]. These university programs acknowledge that needing temporary assistance can *"derail a student's academic progress, and temporary assistance is needed to get back on track"* [22]. For those encountering food insecurity, students can turn to food banks such as **Klemis Kitchen**.

Klemis Kitchen, named after its generous namesake Tommy Klemis, is supplied by the Campus Kitchen Project, which recovers food from dining halls and packages it into individual meals. The Campus Kitchen also organizes shelf-stable food drives sponsored by different campus departments, and external donations, such as from religious organizations [23]. Four Klemis Kitchen locations are currently operational on campus:

1. The Original Klemis Kitchen with 24/7 availability, which requires approved Buzzcard access
2. Klemis 489
3. The 24/7 Community Fridge at **Grace House**
4. Klemis Graduate Student Lounge

Our team visited the community fridge at Grace House, which is discussed in further detail in *"Analysis of Existing Systems"* and we have requested access to Klemis Kitchen for observations in the upcoming weeks.

Tech Dining is another viable student option. Food insecurity is often entwined with financial insecurity [24]. Employment at Tech Dining, guarantees a free meal every shift [25]. Some students may opt for Tech Dining as a useful way to supplement their income as well as avoid the anxiety of planning their next meal.

Some students choose to rely on **campus events** for food and even take courses that promise a free lunch [26]. Through our conversations with student organizations on campus, we discovered that others may rely on their **community**, such as their friend circle or religious group, for their next meal. Our project will concentrate on campus resources such as those mentioned above while also acknowledging that other resources such as off-campus food shelters and soup kitchens remain feasible practices that students might pursue.

Securing Emergency Housing

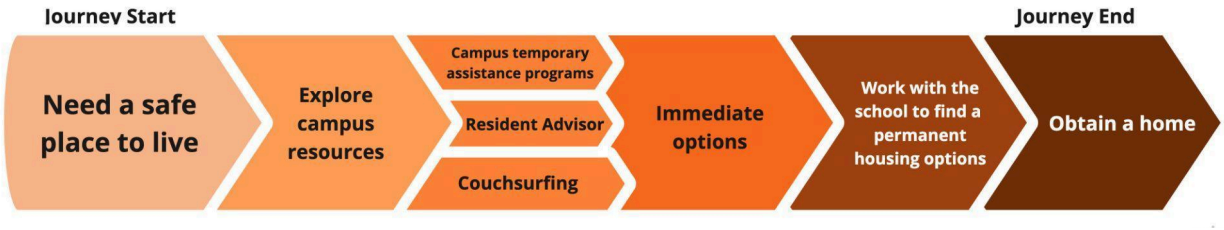


Figure 4: High level journey map of securing emergency housing
Source: Primary via Miro

Housing stability is crucial because homes are often people's safe spaces. Yet 33% of second-year college students have experienced some form of housing insecurity in the past year and 11% of fourth-year college students were housing insecure [3]. Housing is intimately connected to academic success and overall wellbeing, whether that be mental, physical, or emotional. According to a report by the UCLA Center for the Transformation of Schools, homeless students report lower GPAs and drop out at higher rates compared to their peers [27]. There are many reasons that students may need emergency housing, such as mold in their homes, domestic violence, safety concerns, natural disasters, or financial reasons. Students may need emergency housing due to mold in their homes, domestic violence, safety concerns, natural disasters, or financial reasons. The **STAR** program at Georgia Tech has been able to find students housing the night they submit their request forms [28]. College campus programs emphasize that these are temporary options, but will work with the students to find more permanent living situations.

Other students may find housing through on-campus jobs, such as being a **Resident Assistant (RA)**. College campuses employ students living on campus to take on a leadership role in a dorm in exchange for free or heavily subsidized housing. Though RAs commonly experience burnout through role conflict, role ambiguity, lack of adequate time for accomplishing tasks, low worker support, and "compassion fatigue," the incentive of free housing influences RA recruitment and retention [29]. Being an RA provides a direct link between the students and housing support through a job, allowing those facing housing instability to ensure stable housing during their academic careers.

Another way many college students find temporary housing is through **couchsurfing**. Couchsurfing is moving from one temporary housing arrangement, usually with friends and acquaintances, to another [30]. Students who stay with different friends for a few nights often do not even consider themselves homeless, but rather housing insecure [31]. Previous research has shown that "among households with 13- to 17-year-olds and 18- to 25-year-olds, 4.0% and 20.5%, respectively, reported that they had couch surfed in the last 12 months" [30]. This practice poses a problem. Many students may not consider themselves homeless or at risk of homelessness; therefore, they believe they don't need or deserve help [32]. Though this system

is not formally associated with the university, it is a common approach because it provides a quick and safe solution.

Searching for Community and Wellness

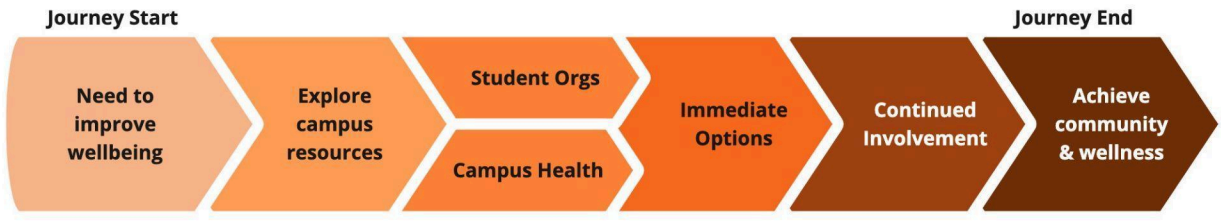


Figure 5: High level journey map of achieving sense of community and wellness
Source: Primary via Miro

Students search for community and wellbeing to achieve mental and physical wellness. Research shows that balanced physical and mental wellness improves academic success, individual satisfaction, and student retention [33], [34]. As such, support in this search is key to student success.

One potential search avenue is through **student organizations**. When we spoke via email/phone with 12 organizations, many representatives shared that the primary method of new membership recruitment is word-of-mouth, and a close second is through tabling efforts, such as organization fairs.

We conducted an ethnographic study at Georgia Tech's Fall Organization Fair and witnessed all types of organizations foster social interaction. We saw one student cheerfully yelling, *"Happy late birthday!"* and saw members from a Jewish organization yelling, *"See you at Shabbat!"* to one another. Volunteers greeted those who approached their table and exchanged names. Cultural, non-religious/non-ethnic organizations, such as language clubs and LGBTQIA+ groups, focused on inclusion, saying phrases like, *"Everyone is welcome"*. Meanwhile, religious and ethnic organizations highlighted community building. Explaining that they create a safe space, support system, and "people to rely on".

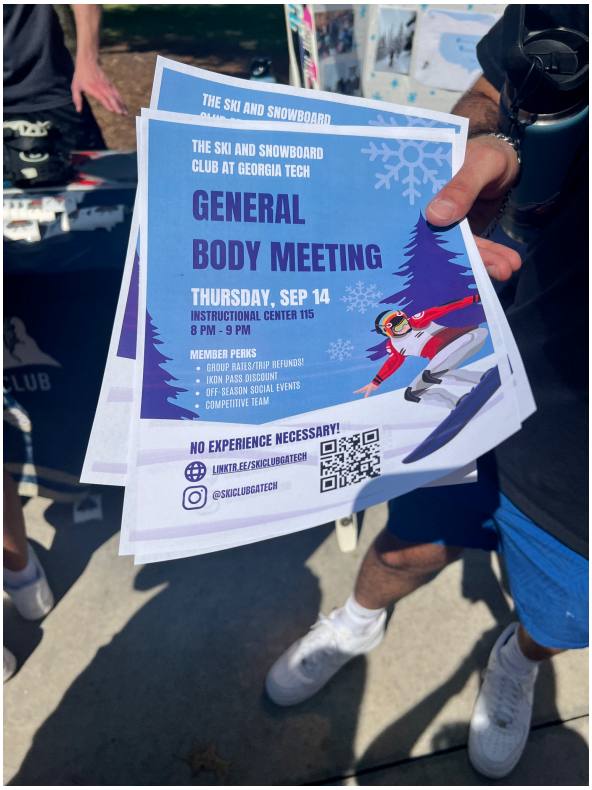


Figure 6: Example interaction at organization fair
Source: Primary

Research has found that racial/ethnic organizations that promote cross-cultural learning, peer support, and identity development play a role in increasing the retention and success of underrepresented students [35]. In the responses we received from 4 such groups, all mentioned community, family, or bond when describing how they support students. The 4 religious student organizations that responded referred to providing students with help or guidance, and 3 out of 4 reported providing or sharing food before prayer. Lastly, all 4 sport-oriented student groups we talked to mentioned the words enjoy, fun, or good time, and all referenced physical activities such as playing, lifting, or dancing.

Another option is **campus-provided mental and physical health services**, including low-cost or free virtual and in-person therapy, general wellness counseling, and dietician services. Additional details about the services available at Georgia Tech are discussed in the *"Analysis of Existing Systems"* section.

Searching for Professional and Practical Clothing

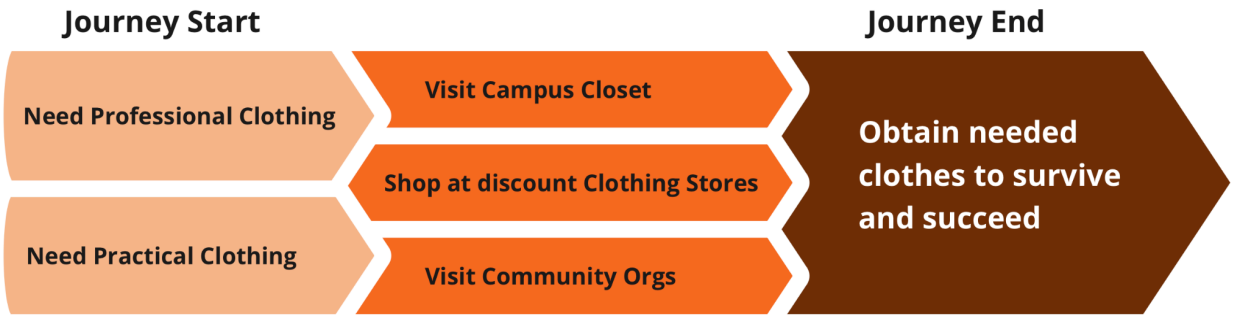


Figure 7: HIgh level journey map if obtaining professional and practical clothing
Source: Primary via Miro

In college, students learn about workforce preparation to find employment post-graduation. Students needing temporary assistance may not have business attire for job fairs and interviews. If people can't afford food and housing, they also can't afford items like underwear, socks, jackets, etc. [36].

At Georgia Tech, **Campus Closet** offers 2-week "rentals" for suits and professional wear. Appointments are walk-in during the closet's open hours or made via email [37]. At the University of North Carolina, the Attire for Hire program led an impact study on their career readiness initiatives. Students participated in professional development workshops, shopped for food in their pantry, and obtained professional clothing. As a result, students reported feeling more prepared and knowledgeable about professionalism and entering the workforce [38].

Professional attire is more expensive than daily-use clothing. Fast-fashion companies have helped bridge that gap by providing inexpensive, trendy options. Despite this, the issue of spending money on single-use clothing remains. There is an unspoken expectation that people must spend money to meet workplace beauty standards [39] .

Clothing translates to intangible value through its representation of social status and impact on public perception. The *"use of clothing to gain prestige, leadership, or influence"* is a political value of clothing [40]. Students looking for employment aim to improve their financial standing. Making the first impression is the first step towards this goal.

Description of Stakeholders

Stakeholders are essential in creating a support system for students struggling with temporary difficulties as college students.

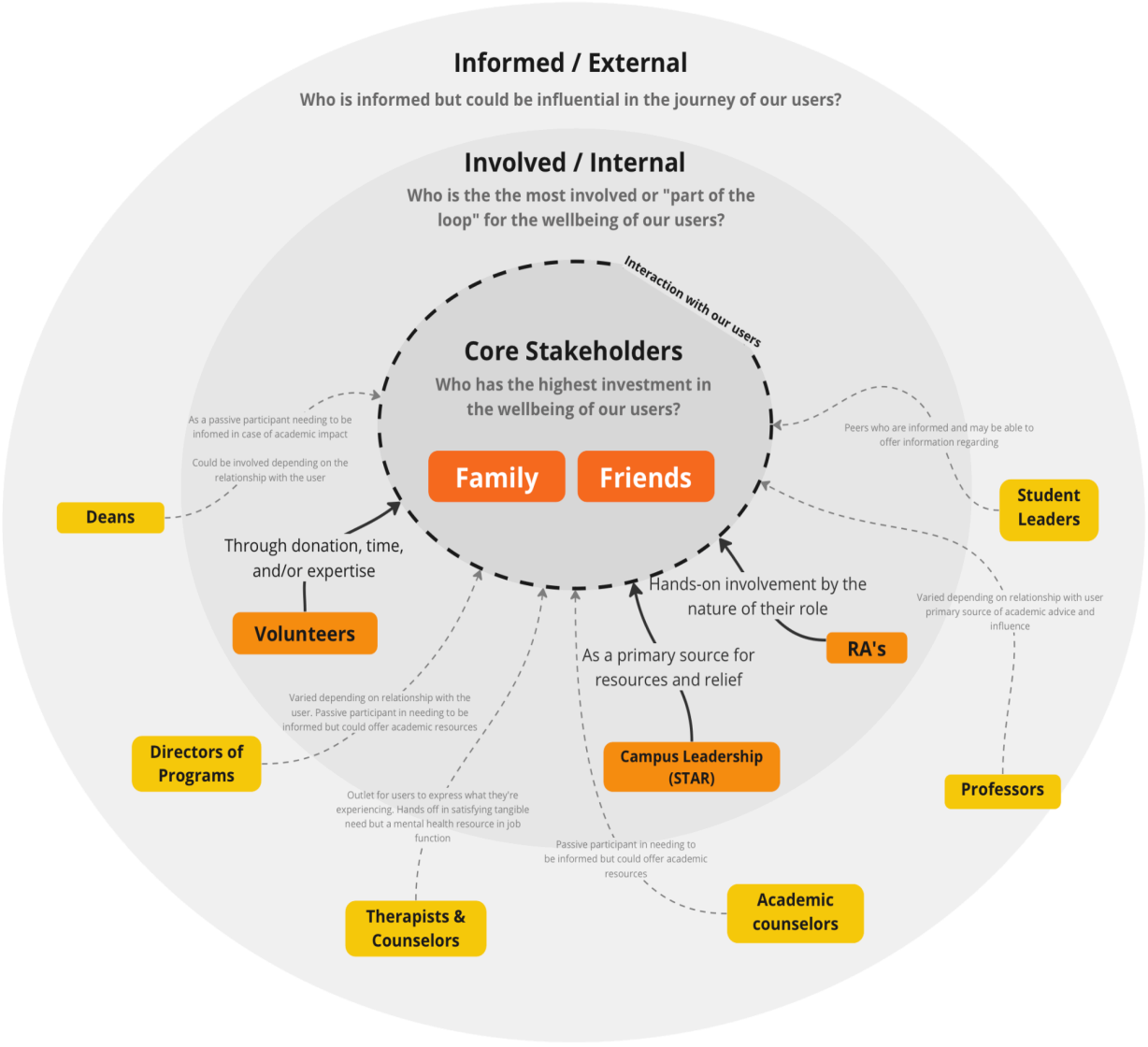


Figure 8: Initial stakeholder map highlighting Core, Involved, and Informed stakeholders in relation to users
Source: Primary via Miro

Staff



Figure 9: LGBTQIA Resource Center Staff helping woman
Source: Georgia Tech Institute Communications via https://gatech.netx.net/app/

Staff consists of Counselors, Resident Assistants, Campus Leaders, and Professors. **Counselors** are professionals who provide mental or academic services to students. They help students in need by referring them to temporary assistance programs and offering academic and mental health support. Some may even pick up on signals of necessary assistance based on their relationship with the student. A student said his academic counselor *"created a safe space for him to share his experiences and asked for help…worked with him to identify academic resources on campuses…allowed him to interact with other students with a similar experience"* [41].

Resident Assistants are students living in dorms who are employed to assume a leadership role. If students need assistance, the RA is a physically close point of contact who may provide guidance or resources for temporary assistance.

Campus Leaders are administrators who set policies and oversee programs such as presidents, deans, directors, etc. They are fundamental players in deciding funding and policies for infrastructure that support students. The Director for Undergraduate Advising and Transition at Georgia Tech explained that when students have special requests for emergency assistance, she would make referrals to on-campus temporary assistance programs such as STAR [42].

Professors play an important role in students' academic/personal lives and may identify challenges students experience through the multiple touchpoints they share. This is only effective if they are well-trained in what signs to look for– students have described that some *"professors were not well positioned to recognize* [this type of struggle] *in their students.* [Professors] *might blame other stuff but they might not know that the student did not eat or can't eat, so that's why he's tired"* [18].

Staff affect the system design because they must be well-informed about the resources to share them with students. Prior training or information sessions may also be helpful to teach staff what to look out for and how to best aid students. A pain point for many students was that they did not know who on the staff to reach out to, so one approach involved *"identifying a single point of contact where students can go to get support"* to decrease the shame and confusion associated with asking multiple different people for support [43]. Staff are also affected by changes in existing practices because changes in the temporary assistance programs can cause them to provide misinformation to students seeking help.

Volunteers



Figure 10: Volunteer-oriented art at Atlanta Community Food Bank
Source: Primary

Volunteers include both those who **volunteer their time and talents** and **donors** who provide their financial resources. These two categories also overlap since, in general, those who volunteer their time give more financial donations to charity than non-volunteers [44]. In fact, a key determinant of alumni who consistently donate is if they volunteered during college [44]. Volunteers support students by offering their time to take on any additional help needed, such as cleaning up the temporary housing rooms, bagging food, stocking shelves, preparing the meals, organizing the campus closet, or donating money towards these initiatives [45].

Volunteers play a pivotal role in influencing a program's design since their participation is needed to execute these programs. This requires designing with recruiting, training, and

volunteer coordination in mind. At Georgia Tech, an initiative from STAR garnered a lot of attention, so *"people who want to be able to help have reached out to aid in painting the walls, building furniture, and making the rooms ready for the program"* [28]. The design of these programs must consider how to connect the necessary volunteers to the programs. When our team volunteered at a Campus Kitchen Project shift, we noticed how overjoyed the shift captain was at seeing all the volunteers who had shown up.

Temporary assistance programs run on volunteers, whether that be those giving their time to help with activities or donors contributing money. Donors also exert influence on program design, so expressing gratitude for their contributions helps maintain their ongoing support. Changes to existing practices can influence volunteers' desire to provide donations and resources. If the program changes its priorities and design, it may affect how they donate in the future; this can be positive or negative depending on the changes made.

Loved Ones



Figure 11: Loved ones celebrating student graduation, Spring 2022
Source: Georgia Tech Institute Communications via https://gatech.netx.net/app/

Loved ones are family and friends. **Family** includes parents, siblings, and relatives such as uncles, aunts, cousins, grandparents, and guardian figures. **Friends** are close peers, roommates, and acquaintances with whom they share personal relationships. Loved ones are often the first people who hear about the student's challenges, either personal, emotional, temporary, academic, romantic, etc. Therefore, they are the first point of contact when a student needs temporary assistance.

A study showed that students were most likely to rely on their peers at college for support when at school [46]. They can provide emotional and temporary support, while also connecting them to available resources. As discussed above, many homeless students stay with different friends when they couchsurf [31]. They affect the design because communication between loved ones and users is crucial and desirable. Since loved ones are the first point of contact, if they are knowledgeable about support resources, they could lessen the shame and hurdles to finding information for temporary assistance.

When discussing how students need support during challenging times, one journal states that *"parents could be involved… as a resource for information and to ensure continuity of care"* [47]. Loved ones may be affected by changes in practices, for example, they may be confused by changes in temporary assistance resources or exhibit more influence on students if communication improves between loved ones and the user.

Analysis of Existing Systems

Campus Services Digital Landing Pages

Georgia Tech provides access to its **Center for Mental Health Care & Resources** in person and via a digital landing page. Their strength is covering a range of needs by providing multiple counseling formats, including short-term individual counseling, group counseling, couples counseling, and workshops. However, their call-only options for emergency counseling and appointment scheduling present a barrier for students with speech disorders or language barriers. Students can find the **Wellness Empowerment Center** (WEC) in the same physical vicinity, however, digitally the two centers are separate. The WEC has a section on mental health that links to tips on self-care and journaling but doesn't mention campus counseling services, as seen in Figure 12. This digital siloing may lead to unnecessary duplication of effort by the two service providers.



Figure 12: Area of opportunity to leverage peer organization's counseling services
Source: Adapted from https://wellnesscenter.gatech.edu/

Another digitally present campus service is **STAR**. This office is divided by topic: **Campus Closet**, **Klemis Kitchen**, **Crisis Housing**, and **Financial Assistance**. Applications for two of four services are through digital forms. One is a Microsoft Form, which is preferable due to increased accessibility and an immersive reader option for each question. The other is a web-based Maxient admin form that would benefit from standardization to the Microsoft Form option. The other two services are available by appointment only, which must be scheduled via email. This contact method results in unnecessarily lengthy wait times and a high workload for administrators. For example, we emailed the Campus Closet contact over a week ago to simulate an appointment request and, at the time of submitting this paper, have not heard back. Additionally, the "Contact Us" button is misleadingly broken, which might confuse users even though the email address is listed below.

In-Person Community Fridges

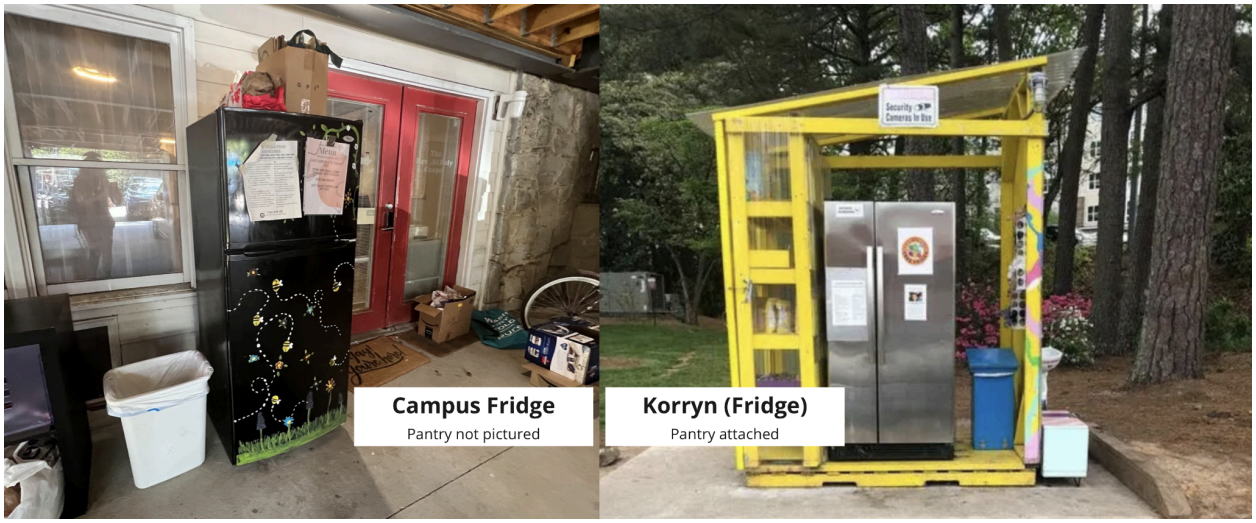


Figure 13: Campus Fridge and Korryn Fridge side by side
Source: Primary and https://atlfreefridge.com/

Category	Campus Community Fridge	Atlanta Community Fridge
Location	Grace House: 182 5th St NW, Atlanta, GA 30332 (Georgia Tech Campus).	North East of Campus: 2520 N Decatur Rd, Decatur, GA 30033
Setup	In an open garage, can enter from main road or through the back. Do not need to interact with any administrator or staff.	Placed on the sidewalk, a free-standing fridge with a small shelter (for the fridge) built around it. Located in an open parking lot with ample street lighting. No need to interact with anyone to access it.
Hours of Operation	Open 24/7, accessible to all.	Open 24/7
Use	Anecdotally said frequent use, gave example of perishable meals that arrived on a Wednesday all being gone by Sunday.	People are consistently there, some “camping” in the lot overnight. People camping there said it was stocked daily and heavily used.

Figure 14: Portion of team-generated comparative analysis done after observations
Source: Primary

Community fridges provide a shame-free, anonymous avenue for those facing food insecurity. We visited the fridge at **Grace House**, the on-campus Episcopal and Lutheran joint ministry center. This community fridge has a central location on campus, is open 24/7, and is accessible from the main road. It features both packaged home-cooked meals and non-perishable goods/supplies. They work with the STAR program to raise resource awareness. However, their

digital promotion is sparse. They are not featured on the Grace House website, their Instagram is inactive, and on the Klemis Kitchen webpage, their mention is a single-line callout.

In addition to the Grace House fridge, there is a free Atlanta community fridge located at North Decatur Presbyterian Church. Similar to the campus fridge, the **ATL Free Fridge**, also known as **Korryn**, is available for use 24/7. It's outside of the church and contains an attached pantry and hand-wash station. While the fridge is hosted by the church, the program is run by volunteers and depends on the community to supply and maintain the integrity of the fridge through mutual aid. [48] Korryn is the last remaining fridge of 7 that were once located around Atlanta and is a 20-minute drive from campus. In practice, Korryn has been a loved resource by those experiencing food insecurity in the area. Upon visiting, those resting near the space expressed appreciation for the stability it provides. The church offers a caseworker on a weekly basis to provide advice around several issues spanning employment, housing, and addiction. The fridge has a website and an active Instagram, but it is heavily dependent on followers sharing updates or users explicitly seeking out the resource to find it. Looking at our specific user group, the distance between Korryn and campus is a substantial barrier for students needing access to its contents.

Food Kitchens



Figure 15: Klemis Kitchen and Atlanta Community Food Bank volunteers side by side
Source: Georgia Tech Institute Communications via https://gatech.netx.net/app/ and Primary

Category	Campus	Atlanta
Setup	Unorganized, the leader didn't have a plan	Very organized. Check-in is done via a self-service kiosk station. Large, knowledgeable staff divided by job function and aligned to a set goal for the day.
Material Shortage	Ran out of boxes Ended up with too much meat, not enough veggies/grains	No shortages. If anything, there was so much food to sort through and package that some items expired before they could be sorted and packaged.
Food Delivery	Student volunteers with cars take meals to local Atlanta food bank Other dining halls (might) take meals to on-	Packaged boxes are distributed to community food pantries/kitchens/co-ops/pop-ups in and around Atlanta during distribution shifts. (roughly 60-80+ locations)

Figure 16: Portion of team-generated comparative analysis done after observations
Source: Primary

The campus food kitchen, **Klemis Kitchen**, is the Microsoft Form-driven service discussed above. Klemis Kitchen extends its reach with Campus Kitchen volunteers to help prevent food waste in dining halls and deliver them to Klemis Kitchen and other Atlanta food kitchens. The Campus Kitchen volunteer form is linked on the STAR webpage, but the link is not current, instead, our team member bookmarked it from signupgenius.com. We participated in a student-led effort out of North Ave Dining Hall. The shift captain mentioned he had been volunteering since his freshman year and many others were return volunteers who shared anecdotes of past experiences. It was well-meaning but unorganized. Toward the end of the one-and-a-half-hour shift, we ran out of packing boxes and sides to accompany the meat entrees and shoved all leftover food into the few remaining boxes.

A portion of our team also volunteered at the **Atlanta Community Food Bank (ACFB)** to compare an external food kitchen to the on-campus option. The ACFB website, acfb.org, provides visitors with information about ACFB, food insecurity, donation, and volunteer sign-up options. The facilities at ACFB are large and have well established processes regarding donation, sorting, packaging, and distribution. As the largest food bank in Georgia, and one of the largest in the country, the volunteer experience is well organized. However, due to the size and area served, they are always in need of volunteers and suffer from attrition. For our students, visiting one of their 70+ partner locations to acquire food may be an obstacle due to the distance from campus. However, ACFB does have certain times and days when they distribute food via delivery either through volunteers or 3rd party programs like Doordash. Additionally, ACFB practices may serve as a model for on-campus kitchens.

Student Organizations

The Engage platform serves as a repository for all Georgia Tech-registered clubs. Of the 12 organizations we spoke to, 4 referenced it as a way of reaching new members. This resource is linked to other Georgia Tech webpages and boasts a search feature with filtering capabilities. One weakness is that there is no way to see information about multiple organizations at once. Organization representatives reported using other avenues of communication more often, such as word of mouth, tabling, and social media. This begs the question, are other resources needed because the Engage platform isn't sufficient for student leaders?

Housing and Residence Life

At Georgia Tech, the Department of Housing has 1-2 **Resident Assistants (RAs)** per floor for every residential building on campus. As described by Housing and Residence Life, *"RAs are students who serve in the residence halls as a resource for their residents. The main function of an RA is to build community and relationships with residents in an effort to provide programming, individualized support, campus resource information, and academic encouragement."* [49]

As an existing system, the benefits RAs offer are two-fold. When a student needs temporary assistance, RAs are easily accessible and trained to handle situations by troubleshooting and providing immediate assistance or following the "up, not out" communication route and pointing the student to a Hall Director for further assistance.

In addition to being a resource, the job of being an RA offers students facing housing and food insecurity a way to satisfy those needs long-term. *"The RA compensation package is good, we get free housing and meals, and we get to have a great community, so it's a lot of fun."*[50]

Working for ResLife at Georgia Tech is a convenient option for students regarding location and consideration for academic responsibility. However, there are roughly 400 RA positions available on campus, with priority given to returning RAs. It is a lengthy and competitive application process and requires the student to be willing to carry the added responsibility of maintaining a relationship with 20 to 80 students per year.

Stamps

Stamps serves as an on-campus resource for physical and mental wellbeing. Students taking more than four credit hours pay a required health fee, granting them access to Stamps' resources at a free or reduced rate. There is a range of services offered to address student health concerns.



Figure 17: List of services offered through Stamps Health Services
Source: adapted from https://health.gatech.edu/

As a medical facility, Stamps is equipped to satisfy non-emergency student needs at a convenient location. However, after attempting to schedule appointments for Women's Health, Sports Medicine, Allergy, and Immunizations as an initial platform exploration, we found low appointment availability and no clear indication of next availability. The user must tediously click through the calendar to view potential openings.

For large campuses, the demand for medical resources is often greater than the amount of appointments available in the near future. In case of emergency, Stamps recommends students call 911 or visit an off-campus facility.

Societal Implications

Across our research, we repeatedly saw themes of stigma and how food and housing insecurity impact a student's physical, emotional, and mental well-being.

Stigmas and Biases

As described previously, many students forgo seeking assistance due to feelings of shame and guilt, with some even believing that assistance is meant only for the most destitute. Some students hold the belief that their needs are not severe enough to warrant assistance and that perseverance will get them through [20].

In addition, the popular "starving student" stereotype is detrimental when building the image of a well-balanced, well-adjusted, healthy life for students [20]. This creates a self-imposed bias of what student life should look like, which manifests into ill health and poor performance [26]. Doing away with such stereotypes and restoring a sense of dignity to seeking assistance would allow students to freely live and more importantly, thrive.

Disconnect of People in Positions of Power

The stigma surrounding insecurity also creates a disconnect with those around the student who have not experienced the student's circumstances. If volunteers and donors do not know what it is like to battle and overcome insecurity, then there could be gaps in their understanding of the student's issues. Awareness and empathy can help volunteers cater to students' needs, but a lived reality and training would help them anticipate student needs.

Fairness

Federal assistance, through programs like the **Supplemental Nutrition Assistance Program (SNAP)**, is another alternative. However, eligibility checks such as employment and housing status can create barriers. A senior at Oregon State University, learned firsthand how challenging SNAP rules are. He said, *"Because I was homeless and a student, I had to prove that I worked 20 hours a week. I did that and when they assessed my income, they said, since I wasn't paying rent, I was only entitled to $15 a month… I'm trying to avoid being homeless, but I'm very overwhelmed. The system is not helping me bridge that gap, but pushing me into a hole"* [26].

Design Requirements

Incorporate Universal Design

For our system to be beneficial to the greatest number of users, it must abide by the principles of universal design. According to the National Disability Authority, this means our system should cater to a variety of personal preferences and abilities, be intuitive to use, convey information effectively regardless of external circumstances, and be used without cognitive fatigue [51]. Our system must also be multi-modal, meaning that it is available in both an online and analog form to eliminate needing Internet access or the appropriate hardware.

Keep Accessibility at the Forefront

To support temporary assistance-seeking users with disabilities, the system we design must also be accessible. The interface, either digital or analog, should consider a range of cognitive and physical disabilities. We will refer to the W3C Accessibility Guidelines and the Americans with Disabilities Act (ADA) Guidelines to maximize our system's accessibility.

Show Cultural Sensitivity

Because college students come from a variety of countries, our system must be considerate of the way that people from other cultures think and perceive assistance. One study found that some international students at the University of North Carolina at Charlotte were hesitant to seek temporary assistance because certain cultures consider asking for help to be a sign of weakness [17]. At Georgia Tech, one student explained that he was confused by the concept of a food pantry because there was nothing comparable in his country [8]. Additionally, financial insecurity disproportionately impacts students of color, especially those from other countries [24]. Therefore, in order for our system to enable users to receive temporary assistance, its creation must consider intended users to avoid mistranslations and ensure that culturally appropriate language is used.

Ensure Shareability

A common marketing tactic used by temporary assistance programs is to encourage students to share knowledge through word-of-mouth. For example, when Georgia Tech's on-campus food pantry first started, information was spread word-of-mouth from the Dean of Students' office to ensure that students felt comfortable seeking help [52]. According to Georgia Tech's now-retired Homeless Student Liason, Dana Hartley, when students heard of a fellow student in need, they

would refer those individuals to her [53]. Therefore, our system must facilitate information sharing among students and be shareable so that students can find it easily.

Protect Users' Data and Information

As previously mentioned, social stigma is one of the major reasons that students refrain from seeking assistance [14]. To combat this stigma, Georgia Tech's food pantry protects students' privacy by limiting access to identifiable information to just the Dean of Students [52]. Our system must also protect the data and information of this vulnerable population so that students feel comfortable using it.

Socio-Technical Contexts

	Hardware	Software	Individual Factors	Social Factors	Cultural Factors	Environmental Factors
Keep Accessibility at the Forefront	Products and product form should be compatible with assistive technology equipment	Interfaces should incorporate accessibility features and be usable for people with disabiliites	System needs to consider the needs of individuals with a variety of cognitive and physical disabilities	When considering accessible design, the system should not alienate disabled users	System should be usable by people from all cultural contexts	System should be located in an easily accessible area (ex: near a bus stop)
Incorporate Universal Design	We must consider that some people may not have access to certain hardware, for example mobile phones	Interfaces should be usable for the majority of users				System should be located where the greatest amount of people can access it, whether that be physically, digitally, or both
Show Cultural Sensitivity	Products and product form should incorporate cultural preferences	Interfaces should use culturally sensitive language and imagery (if in English) and provide explanation for terms and processes specific to the United States	System should be adjustable during use or already account for individual variations and preferences based on culture, such as preferences for different languages	System should be designed based off of the behaviors and activities of different cultures and those most heavily impacted	System should be designed alongside people from different cultures	System location may have different implications for different cultures (ex: a church could have negative/positive connotations for certain cultures)
Ensure Shareability	Product and product form should facilitate information sharing and allow system to be easily shareable	Interfaces should facilitate information sharing and allow system to be easily shareable	System should consider individual behaviors and opinions regarding information sharing	System should consider how it is represented on social platforms, both physical and digital, to minimize negative reinforcement of stereotypes or stigmas	System should consider cultural differences in methods and opinions regarding information sharing	System should be located in an area that allows it to be shared easily/located easily/facilitates information sharing
Protect User's Data and Information	Products should incorporate security measures to protect users' data	Interfaces needs to incorporate encryption and secure data storage for sensitive information	System should communicate privacy considerations to users ahead of use to generate trust	System is designed with privacy in mind because of the vulnerable nature of our users and the stigma around temporary assistance	Different cultures have different ideas about what information should be kept private	System should comply with data protection regulations in different spaces

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Figure 18: Team-generated table of Socio-Technical Contexts by Design Requirements
Source: Primary

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