

Requirements Analysis

Data Against Police Brutality

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Team Page: <https://github.com/elenarose/DAPB>

Problem

The current relationship between police and minority communities can be characterized as distrustful, strained and sometimes dangerous. Many people of color and people living in poverty see the police as violent due to experiences they have had being racially profiled, discriminated against, or otherwise treated unfairly. In addition, calling the police using the standard 911 dial-in service is outdated and often doesn't work to get first responders to the place they need to be fast enough.

User Analysis

Primary Stakeholders

- Minority students, particularly Black students, at Northeastern
- Minority faculty and staff, particularly Black faculty and staff, at Northeastern
- Non-minority students at Northeastern
- Non-minority faculty and staff at Northeastern

Secondary Stakeholders

- Northeastern University Police Department (NUPD) officers
- NUPD supervisors (Chief of Police, Deputy Chief of Police, Lieutenants, Sergeants, Internal Affairs investigators)
- Northeastern administrators (Office of University Equity and Compliance)
- NUPD Advisory Board

Tertiary Stakeholders

- Greater Boston community members
- Parents and alumni of Northeastern
- Boston Police Department, Massachusetts State Police, and other local law enforcement
- Mobile app & smartphone technology companies

Point of View

Point of view statement:

We experienced the Black Lives Matter movement and protests during the summer of 2020. We were struck by the lack of accountability of law enforcement and the ineffectiveness of the 911 system. It would be game changing to use data to increase accountability in police officers and make citizens feel safer and more confident in calling law enforcement or getting emergency assistance.

How we created the statement:

We discussed the personas we created and what we learned from the user analysis. We identified the problems our users face and also the context in which we first came up with the idea for this user interface, which was in reflecting on the BLM protests this summer.

Why it has:

- Landed your team on an idea that others have not thought of
 - We thought about combining a service that would solve the problems with the 911 system which could also increase accountability with officers. This combines two existing problems that are related to each other but haven't been tackled with a single interface. We envision this as combining the capabilities of reviewing interactions with officers and gaining data regarding the location of first responders as they travel to you via a valuable tool that people will want to have access to.
- Helped you understand something ordinary about your users or their tasks in a new way
 - When you call 911, a normal first step is to provide the operator with your location if you are using a mobile phone, but that may not always be possible if the caller does not know where they are or are disoriented due to their situation. We understand this in a new way because of how important knowing the location of an emergency is in order for the help to arrive and we find it amazing that our phones have GPS capabilities but can't provide the operator with the location automatically.
- Helped you deal with implicit needs of users rather than explicit problems of user
 - The problem the user wants to resolve is the inefficiency of the 911 system and the discrimination from law enforcement. What they actually want implicitly is to feel safe and comfortable getting help in emergency situations.

Task Analysis

Routing officers to emergencies - Ashraf

- Where: Communication center at Police Department
- Environment: Hectic, as there are usually multiple dispatchers working concurrently
- Frequency: Extremely often, there 600,000 911 calls every day

- Time Constraint: An average 911 call lasts 21 seconds, which means the responder is under pressure to collect information very quickly. In addition, emergency situations can escalate quickly and the first responders need to know the location and details as soon as possible.
- Others Involved: There are two other parties involved, the caller, and the police officers or other first responders waiting to be dispatched.
- How is it learned: The police department provides training for all 911 call respondents, and there is an instruction manual that provides guidance.
- What can go wrong: Numerous things, the phone could cut out before the caller provides their information, the information could be flawed, there could be no available officers, the responder may forget to ask for certain details.

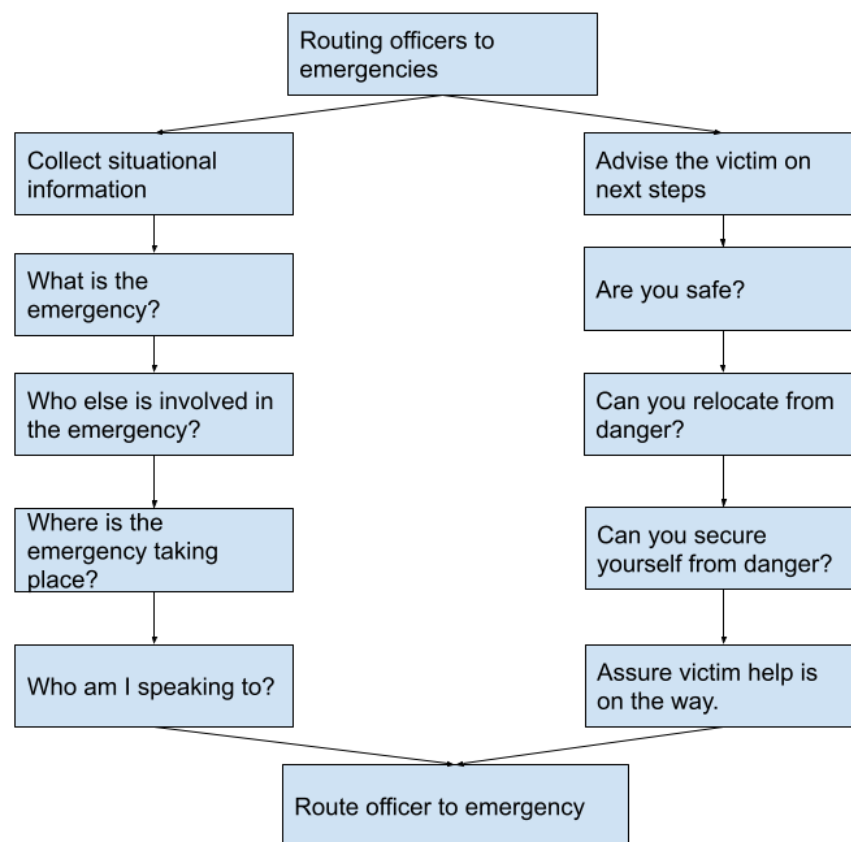


Figure 1: Hierarchical task analysis for routing officers in emergencies

Bystanders responding to emergency situations - Ashraf

- Where: Typically occurs in public spaces, and after or whilst an incident occurs.
- Environment: Typically occurs in a high energy environment that can even be dangerous. There are often multiple things going on at once and distractions all around the people involved.

- Frequency: For one individual, finding themselves in a situation of being a bystander might not happen very often, however whenever there is an incident in public, there are usually bystanders around who witness it.
- Time Constraint: There can be a time constraint if the incident is still happening, and the bystander chooses to engage. The time constraint will vary depending on the incident.
- Others Involved: There are three other parties involved: other bystanders, the victim, and the first responders.
- How is it learned: There are articles written online that describe how to respond to certain situations, however most people learn and react as the event is occurring.
- What can go wrong: Typically the biggest issue would be that the incident is still live and dangerous, therefore unprofessional intervention could harm the bystander.

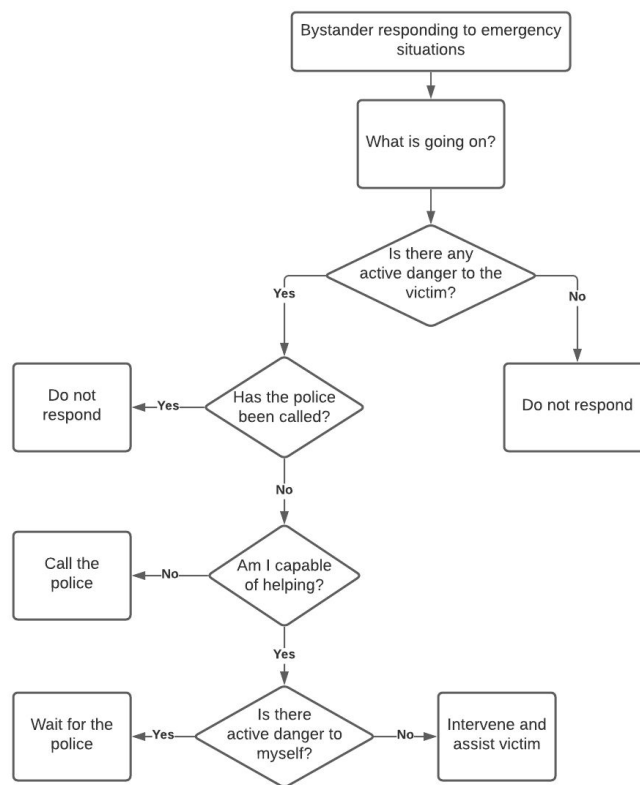


Figure 2: Hierarchical task analysis for a bystander responding in an emergency.

How victim responds to violent crime - Anu

- Where: A violent crime could occur in someone's house, outside, or public places like stores/restaurants.
- Environment: This environment can be highly stressful and volatile if the perpetrator does not receive what they demand. Also, the victim may be unable to make a call to 911 as that could bring more risk to the situation.
- Frequency: Violent crimes tend to occur more often in large and highly populated cities, and large open public areas or commercial stores.

- Time Constraint: If a person has been injured in an altercation, or is at risk of being injured, there is a time constraint in getting medical attention or police intervention as soon as possible.
- Others Involved: The parties involved would be the victims of the violent crime and the perpetrators of the crime. In addition, first responders and law enforcement should arrive at the scene quickly.
- How is it learned: A victim or perpetrator would learn this situation because they are directly involved. Additionally, law enforcement is usually trained in a police academy on how to respond in this situation.
- What can go wrong: If there are weapons involved and aggressive perpetrators, someone could get injured if police intervention does not arrive on time. Additionally, this could be a situation in which actively picking up a phone and speaking to a 911 operator is not possible, which would make it hard for victims to get help in the moment.

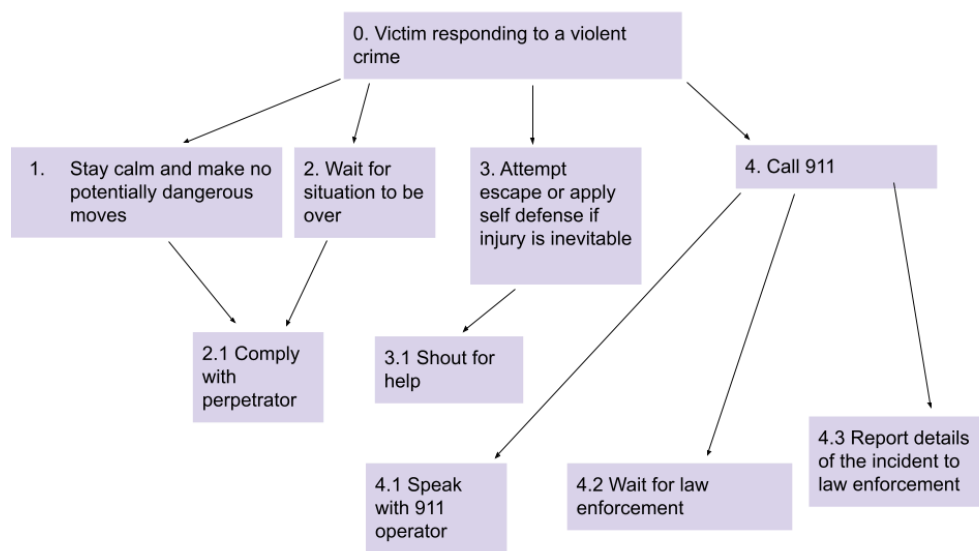


Figure 3: Hierarchical Task Analysis on How a Victim Responds to a Violent Crime

How victim responds in medical emergency - Anu

- Where: This can happen in someone's home or in a public place if there has been some sort of accident.
- Environment: This can be a highly stressful situation for the victim in which they may be unable to communicate properly due to an injury or distress.
- Frequency: While a medical emergency does not occur very often for most people, it could occur at any time to anyone, the risk going up depending on a person's age, lifestyle, and underlying health conditions.
- Time Constraint: There could definitely be a time constraint in this situation if the medical emergency is life-threatening. The victim will want to get help as soon as possible.

- Others Involved: The people involved would be the person having the medical emergency, any bystanders nearby, and the first responders/paramedics that arrive at the scene.
- How is it learned: A victim would learn this situation if they are the one experiencing the medical emergency. Additionally, first responders and paramedics are trained in programs that teach them the appropriate course of action in these situations.
- What can go wrong: The victim's injuries could become life-threatening if they don't receive medical assistance on time, or are unable to give enough information about their location to 911 operators due to their injuries.

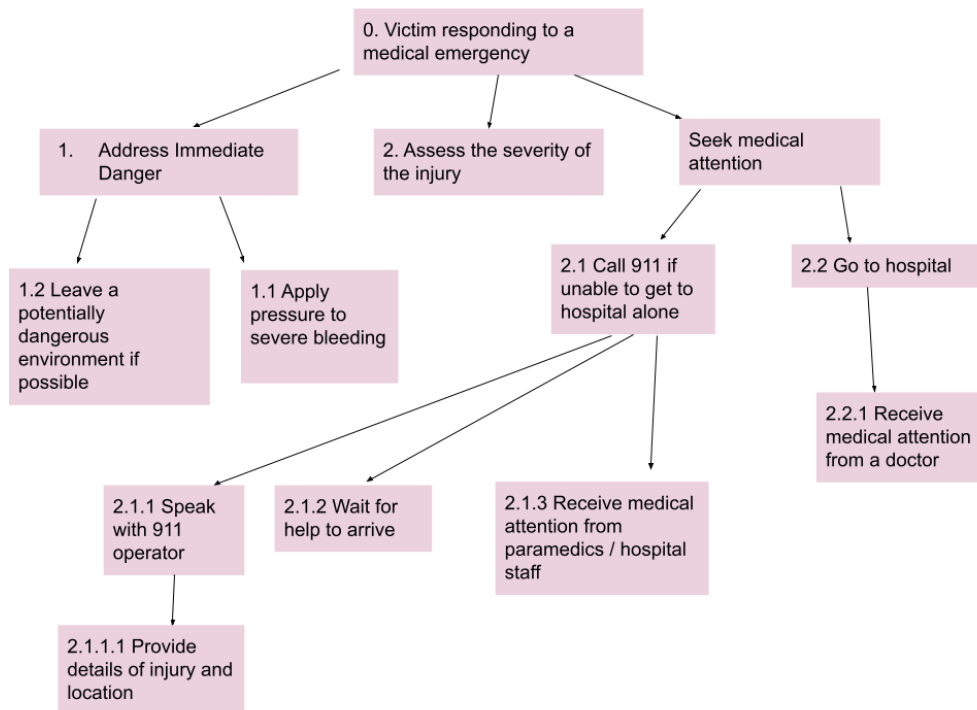


Figure 4: Hierarchical Task Analysis on How a Victim Responds in a Medical Emergency

Responding to being in a car accident - Elena

- Where: This can happen on a road or in a parking lot in public.
- Environment: Often noisy and stressful. It can be a high traffic area in which case other vehicles could be going by at high speeds making it dangerous.
- Frequency: Ideally this would never happen, but in reality the average American will be involved in four car accidents in their lifetime.
- Time constraints: Generally individuals involved will want to get the situation cleared up quickly. If there are severe injuries then the need to get medical help quickly increases.
- Others involved: the individual(s) driving the other car(s) involved if it is more than just a one-car accident. The first responders who come to the scene. The bystanders who witness the accident or pass it after the fact.

- How it is learned: by experiencing it yourself as a driver or passenger, by witnessing it as a bystander or by watching it on the News or in other media content like movies and television.
- What can go wrong: injuries sustained can be life threatening, first responders can have a difficult time finding the location, individuals involved could be unable to call for help due to their physical condition, cell phone service could be unavailable.

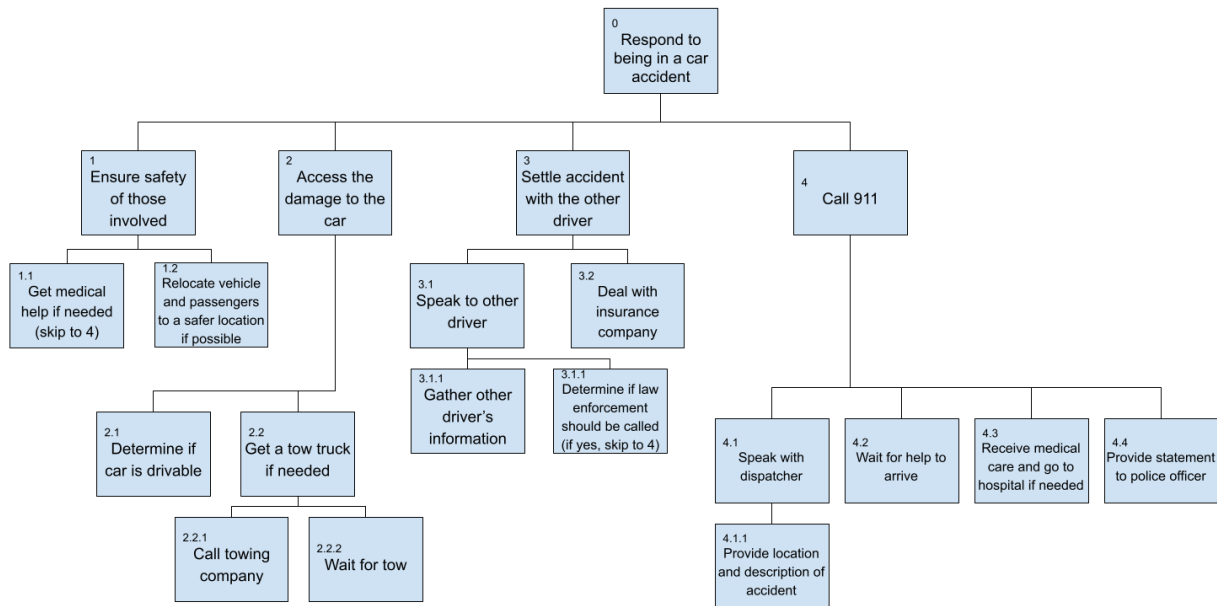


Figure 5: Hierarchical task analysis for responding to being in a car accident.

Provide feedback regarding an interaction with police - Elena

- Where: at home, at work or anywhere someone may be when they would like to report feedback to a police department regarding an interaction they had with a member of their force. It could also happen physically in the police station if someone went in to provide feedback.
- Environment: either in a virtual setting when the person providing the feedback is in their home, car, at work, or elsewhere and they are calling or using a computer to provide feedback.
- Frequency: this would happen fairly infrequently because most people don't interact with police on a regular basis and even fewer actually provide feedback to their department after those interactions.
- Time constraints: the person providing the feedback has a very specific goal and doesn't want to wait, however there aren't any specific time constraints inherent to the action.
- Others involved: the police officer isn't involved in the task itself, but they are involved in the person's brain and memory as they recount their experience and provide the feedback.
- How it is learned: this is learned by doing or by watching someone else do it. There is also an aspect of looking up on the internet for the method to use. For example, the

Boston Police Department has an online feedback form that can be found online with a simple Google search.

- What can go wrong: if a user has trouble figuring out how to provide feedback or if they have another obstacle such as having to travel into the station to do so or wait on the phone, they will likely abandon the task. They can forget or misremember the name of the officers involved and result in their feedback not being able to get to the right people.
- Mental state: the feedback would likely be on either extreme of the positive to negative spectrum because most people would likely not provide feedback on an average, mundane or boring interaction. This means that the person providing feedback has either recently had a very positive experience or a very negative experience.

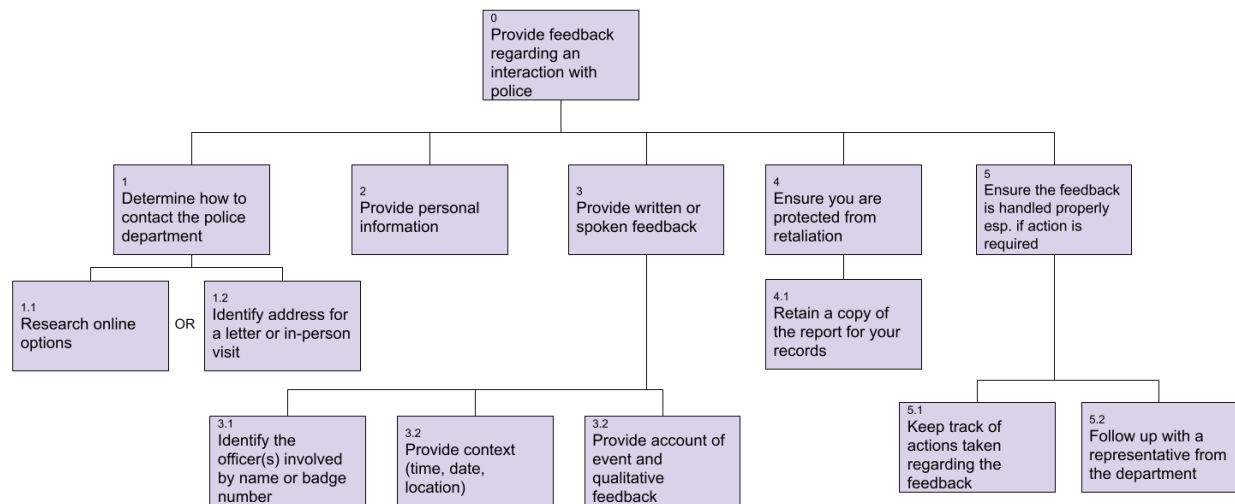


Figure 6: Hierarchical task analysis for providing feedback regarding an interaction with police.

Problem Scenario Analysis

Routing officers to emergencies

The date is Friday, October 9th. Sydney is finishing her last class of the day, but it is moving at a snail's pace. Attending her Molecular Biology class is not Sydney's choice of how she likes to spend her Friday evenings, but there is 20 minutes left and she cleared out her entire evening schedule for her best friend's birthday celebration.

Sydney has already picked out the perfect gift for Laura, her friend of 11 years. She knows Laura is a huge choco-holic and on a trip together they visited Sydney's cousins in Hershey, Pennsylvania where Laura's sweet tooth was left to run amok. But that was 5 years ago and Laura's sweet tooth has matured. She is turning 21 tonight and Sydney wants a gift fitting of the occasion and the person. Two weeks earlier, Sydney scoured the internet for interesting chocolate themed care packages and she found the perfect one: a care package littered with

luxurious Belgian chocolates filled with liquor. She ordered it expeditiously, and was planning on picking it from the BU mailroom right after class.

Now, with the gift in hand, all that is left to do is get ready for the evening's affairs. Sydney, a Boston University student, loves that Laura also goes to school in Boston at Northeastern. She speeds off to her room to shower, get dressed, pack an overnight fit and swiftly call her Uber to meet her friend at her dorm.

The party begins well, with Laura inviting many of her new Northeastern friends, she has the apartment to herself as her roommate is out of town. One of her friends has already gone ahead and bought numerous bottles of alcohol, as they are intending on doing some heavy drinking tonight to coronate Laura's 21st birthday. The drinking and partying rages on throughout the night with music and laughter filling the room.

As the night comes to an end people slowly trickle out leaving just the two friends. Sydney, tired from the partying and dizzy from the drinking, wonders where Laura has gone. She also needs to use the bathroom. She heads down the hallway to the bathroom, and opens the door to find her friend laid out on the ground and unresponsive. Sydney freaks out and realizes she has to call for help. She calls 911, and tells them that they are on-campus at Northeastern, so 911 redirects her to Northeastern police. Northeastern police ask her where she is, and Sydney remembers that this area is called West Village. She is then asked which West Village building but Sydney blanks. She guesses West Village B and says room number 1014. Minutes pass but they feel like hours. Sydney is worried and calls them again, asking them to urgently get here, she then decides to use Google Maps to see if the building data is in there. She calls the police a 3rd time and tells them the building according to her Google Maps location.

Fifteen more minutes pass before a knock on the door is heard, with the Northeastern police announcing they intend on entering. The police bring a gurney and ship Laura into an ambulance to get her stomach pumped.

How bystanders respond to emergency situations

It was a long day like any other for Abdul. He had woken up at 5:00 am, gone through a whole day of classes, and was studying at the John D. O'Bryant African American Institute. He liked studying at the institute because many of his friends and other like minded people would be around him. He had been working on his engineering homework for the last 3 hours, making good progress. He thought he would have been done within 2 but it had proven more difficult.

He started to notice the brain fog creeping in, and could feel his stomach grumbling. Abdul lived off-campus and food was rarely an issue when he was home, but he was far from home at the moment and knew he had to meet up with his group for his women and gender studies elective in about an hour and a half.

Abdul remembered he had a couple meal swipes donated to him by a first year Somali student he was mentoring. He decides that International Village is not too far and he could use a bite, so he packs up his stuff and heads over. The quickest route from the Institute to International Village was through Ruggles train station. As he was walking through Ruggles, he noticed how much less busy the train station appeared. He and another student walking in the opposite direction were the only people around. In a flash, a lone figure appeared from the stairs and rushed the student, knocking them over, and snatching their backpack. The student wails, and shouts "hey, that's my bag! Thief!"

Abdul froze, and before he could come to his senses the figure disappeared. Abdul then walked over to the student, asked them if they were okay and offered to call the police. Abdul then called Northeastern police, who arrived 20 minutes later. Abdul chose to wait with the other student at International Village, who he later comes to know is called Chet.

When the police arrived, they found Abdul and Chet sitting together at a bench going over details of the event. The police pulled Chet aside and asked him some questions about what happened. Abdul waited around and not long after got called up to give his take on the proceedings.

The police officer asked "what happened?" Abdul elaborated on how Chet got his bag stolen. The officer scribbled down notes as he spoke, then asked "could you identify the man?" Abdul answered this uncertainty, and gave his best take on the perpetrator's identity. Finally, the officer asked if anyone else was around. Abdul simply stated "no," but then quickly switched to "maybe" and then switched again to "I do not really remember." The officer continued to scribble down his final notes and told Abdul that he may be contacted to identify the perpetrator if the police are able to gather some suspects. Abdul agreed.

Fatigued and still hungry. Abdul texted his project group that he will have to reschedule the meeting. Abdul, shaken, grabbed his backpack and headed home.

How victim responds to violent crime:

Chris is at a convenience store around the corner from his house buying snacks before heading over to his friend's house. He selects all the essentials: Doritos, chips & salsa, potato chips, and Oreos. He has been making daily visits to the gym so he feels that he can treat himself. As he is getting rung up by the cashier, two masked men burst through the door with guns, demanding that everyone get down and put their hands above their heads. Chris is shocked and scared, but he complies. He does not want any trouble. One of the two men then proceeds to approach the register, and orders the cashier to open it and take out all the cash. The other man keeps an eye on Chris and the two other people in the store at the time, implicitly warning them that any wrong move could result in consequences. The whole situation is over in a matter of minutes as the two masked men leave as soon as they get what they came for. Chris watches through the glass door as they speed away in a black Honda Civic and tries to get a good look at the license plate. Chris immediately whips out his phone to call 911, and provides as many details as he

can to the operator. When the police arrive at the scene, they take statements from everyone in the store, making note of any descriptions of the men and their getaway car. After ensuring that no one is hurt or in danger, the police radio in the incident and tell their fellow officers to look out for a black Honda Civic with a fragment of the license plate. Once the officers leave, Chris, shaken up and scared, runs back home and tells his friend what happened. He has never been in that kind of life-threatening situation where things could have gone very wrong very quickly. He then decides that since he isn't feeling well, he will just stay home and try to relax.

How victim responds in medical emergency:

It is a Tuesday night and Jessica is making some stuffed bell peppers for dinner. Her wife Bree is on her way back home from taking their daughters to the doctor's office. Jessica is sure her family is hungry and won't want to wait too long for dinner, so she starts rushing. As she is chopping up some onions, her hand slips and she accidentally cuts off her finger! Blood immediately starts spurting from the wound, and Jessica starts to feel dizzy. She hates seeing blood, especially if it is her own. Jessica screams in pain and starts to cry, but snaps herself back into focus. She grabs a nearby towel and tries to wrap her hand in it, but the bleeding does not slow down. She then realizes that she needs medical attention or else she risks losing her finger altogether or bleeding out. Fighting the urge to pass out, Jessica grabs her phone and dials 911. As she speaks with the operator and explains what happened, Jessica notices that the towel her hand is wrapped around is soaked with blood. She vomits. The 911 operator is bewildered, but at that point has noted down an address from Jessica and sends an ambulance over. She reassures Jessica that help is on the way and attempts to calm her down. Jessica sits on the floor with her back against the kitchen counter, shifting to the left of her vomit. She continues to keep pressure on her finger until she hears her doorbell ring around 5 minutes later. She is greeted by a police officer and a team of paramedics who quickly assess her hand and load her into the ambulance. Jessica answers a couple questions from the police officer, and as she is doing so her wife Bree arrives home. Bree is shocked and worried by the scene, but the police officer explains the situation. Jessica is taken to Boston Medical Center, followed by Bree and her kids, and is given the attention she needs. The surgeons there are successfully able to re-attach her finger and stop the bleeding. As Jessica lays in her hospital bed, she is grateful that she is okay but very shaken up by the experience. Bree suggests that she can take over the cooking for a while, and Jessica agrees.

Responding to being in a car accident

Jane is picking up her daughter from school in her Toyota Camry. She has pulled over in front of the school and is temporarily double parked as she gets her daughter situated in the backseat. Jane then jogs around to the driver's seat and quickly pulls away as she can see cars waiting behind her. However, she forgets to check her blind spot and pulls out right as another car goes by, hitting the front driver side corner of her car. In shock, Jane looks back to make sure her daughter is okay. After making sure they are both not injured, she turns her attention to the driver of the car that has just hit her. The man is getting out of the car and is already on the

phone, Jane assumes it is with the emergency services. Jane is frustrated because she knows this is her fault and she would rather handle this without the police, but that doesn't seem to be an option. Jane tells her daughter to stay in the car and gets out to discuss the situation with the man. They decide it would be best to pull into the parking lot of the school to get out of the way of other traffic. After they relocate, the police arrive and take statements from Jane and the other driver as well as one of the teachers who witnessed the accident. Jane is told she will receive a report in the mail and possibly be summoned to court after the police department can look at the case. Jane is dreading going home and telling her wife because she knows this will be a big expense and set them back in their efforts to save for their future.

Provide feedback regarding an interaction with police

One day, while working at Marino, Abdul is approached by an NUPD officer named Jared. Jared asks Abdul if he had recently stopped in Wollaston's and requests to ask Abdul a few questions. Since Abdul is at work, he doesn't have time to talk so he declines the officers request. Abdul later observes Jared and another officer speaking to the manager of Wollaston's and overhears them discussing a shoplifting case. Abdul connects the dots and realizes that Jared was profiling him as a suspect. Abdul feels angry and embarrassed that he didn't realize this was the situation sooner and that the officer would assume that he might steal from the same building in which he works. He would like to submit a complaint to NUPD. When Abdul gets home that night, he goes online and researches ways that he can submit a complaint regarding a police officer. He finds a complaint form on the NUPD website that he begins to fill out. Abdul remembers the officer introducing himself as Jared, but doesn't know his last name or his badge number. He scrolls the NUPD website but can't find a list of officers anywhere. He finishes filling out the form using just the first name Jared and hopes there is only one officer that goes by that name. However, before he submits, he considers whether or not the officer could retaliate in some way. Abdul considers the fact that Jared knows where he works. Eventually, Abdul decides he can't allow nothing to happen, so he submits the form. Abdul waits a few weeks and nothing happens and eventually he stops thinking about the experience. He never finds out if anything actually happened but he moves on as he feels he is fairly helpless in actually creating change within the NUPD.

Usability Requirements

- Learnability: Users can figure out how to call the police in less than 5 seconds on the first occurrence of opening and using the app.
 - Justification: this app would need to be used in high stress and time sensitive situations so the learnability needs to be very high. In addition, users can go long periods of time without using the app so it needs to be learnable very quickly every time.
 - How we can test this: We can measure the time it takes our test users to learn how to get to the "call 911" page in our prototypes and understand how they can complete the task. Basically this will measure how long it takes for the user to understand how to complete the action.

- High Responsiveness: Users know exactly what the result of their action is after calling the police. They are 100% sure that their action was successful and the police have been notified and are on their way.
 - Justification: In an emergency situation, it is important that the caller is reassured that help is on the way.
 - How we can test this: ask users after they “call the police” in tests whether or not the police are on their way, observe how sure they are, and why they think that.
- Accessibility/Speed: It takes less than 5 seconds to call the police from the time the user opens the app to when they are confident the call has been placed.
 - Justification: users need to be able to complete the action of calling the police very quickly in emergency situations because the time it takes to complete the action is valuable time for help to arrive.
 - How we can test this: We can measure the time it takes for a user to complete the action of calling the police using our prototypes.

Appendix

Ashraf

Primary Stakeholder Persona 1: Abdul

Hard Facts:

- Abdul is 24 years old and a 4th year undergraduate at Northeastern on a merit-based scholarship studying to get his Bachelor’s degree in Political Science and Engineering.
- Abdul grew up in the greater Boston area, and lives with his family of 4, in Chelsea where he commutes from to go to school.
- Abdul is a practicing Muslim and a peer group leader at his mosque where he participates in community outreach programs.
- Abdul loves to play basketball in his freetime and works at Marino gym to earn some extra money.

Interests and Values:

- Abdul values quality time with his family and is very proud of his Somali heritage. He speaks fluent Somali and was lucky enough to visit his grandparents in Somalia 2 years ago. He keeps in touch with his cousins in Somalia and sends them gifts every year around Eid.
- Abdul loves to play basketball, and often goes to Marino gym to play pick-up games with his friends from classes, but prefers spending time with his childhood friends at the park or YMCA.
- Abdul values his faith in God, and hopes to one day earn enough money to make a Hajj to Makkah with his parents. He’s also a leader in his youth group at the mosque where he conducts philosophical discussions about God, life and politics.

Computer, Internet and TV use:

- Abdul owns a Dell XPS 13 courtesy of his scholarship providing free laptops to all participating students. The laptop is his daily driver, where he consumes his entertainment, writes his papers, browses the web and completes assignments. He finds it works well for him as it is light and holds a charge of 8 hours, so he can carry it with him throughout the day on his many errands and tasks.
- Abdul does not have the best internet service at home, therefore he commonly goes to Snell library to complete his assignments, and sometimes attend classes via Zoom.
- Abdul is not a fan of TV as the content is not tailored to his tastes, and his father and little brother occupy it at home a majority of the time.

Typical Day:

A typical day for Abdul starts in the early morning when he does his morning prayer. He then proceeds to have breakfast with his family before heading to campus via the train. Once he is on campus he grabs a sandwich at Rebecca's to have for lunch and heads to the library to attend his first class of the day. He stays at the library until 4pm, attending classes and completing work in-between classes. At 4pm he makes his way over to Marino gym to begin his four hour shift until 8pm. At 8pm he takes the train home and spends the rest of the night with his family and doing homework. Lately, Abdul has been appreciative of the online classes because of the freedom it gives him to manage his own schedule, but he does not like coming home so late at night because his home is somewhat far from campus and commuting is not always safe. He wishes he could have more time to spend with his friends and family.

Future Goals:

Abdul hopes that after he graduates he can get a job in Hanover, where his oldest brother lives, so he can move out of his family home. He feels there is a lot of pressure on him to succeed given he is the first member of his family to graduate from college. He believes that by living with his brother it will allow his parents to rent out the room he leaves behind, and allow them to earn money that will hopefully lead to them moving out of their current home to somewhere nicer.

Primary Stakeholder Persona 2: Jane

Hard Facts:

- Jane is a 44 year old Women's and Gender Studies professor at Northeastern, she joined the university 3 years ago after acquiring her PhD at Wesleyan. She previously taught at Tufts University.
- Jane has published 3 books on suffragette movements, and is currently doing research for a fourth one.
- Jane's wife is a professor of anthropology at Tufts University. The two have a child who they adopted on a previous trip to China.

Interests and Values:

- Jane's main interests are writing, barbecuing and travelling.

- Jane has a very strong interest in women's rights to economic freedom and has gone on numerous trips to Tanzania, where she set up a sponsorship program that helps young girls receive an education.
- She takes her family to an annual barbecuing festival in Lockhart, Texas. There they meet up with her older brothers and set up a stand to show off their barbecuing prowess.
- Jane is currently writing another book on the suffragette movement, this time with a greater focus on more recent movements such as those in the Middle East.

Computer, Internet and TV:

- Jane owns a Lenovo Thinkpad as her daily driver. She is starting to grow frustrated with it as she prefers the slicker look of her wife's Macbook Air. However, she likes that it has a long lasting battery, and it allows her to do all her work. Jane also owns an iPad which she takes on her mobile adventures, in order to quickly tend to tasks without being encumbered by a whole computer.
- Jane has a high-speed internet connection at home, therefore she holds all her lectures from the study in her 3 bedroom apartment. She has to share the study with her wife, but they are lucky they do not hold classes at the same time. When this does occur, Jane books a classroom on campus to carry out her work.
- Jane is not the biggest fan of television, but she does have a 50 inch television in the living room where her and her wife watch their favorite TV shows using an Amazon fire stick. She also likes being able to easily get local access cable to watch the news from.

Typical Day:

On a typical day Jane wakes up at 8am, 3 hours before her first lecture, to organize her lecture material and ensure her daughter is ready to go to school. After sending off her daughter to school, she does her daily yoga session, showers, and prepares to start her first of two lectures. She usually conducts her lectures from her study, and takes turns with her wife for time in the study. When she is not in the study she is grading papers at the kitchen counter. After all her lectures have concluded for the day, Jane picks up her daughter from school, takes her to soccer practice, and cheers her on for 2 hours. While watching her daughter at soccer practice, Jane also brings her iPad to grade papers. After soccer practice concludes, Jane takes her daughter home, where her wife has made dinner for them and they watch the news and prepare for bed or help their daughter with homework.

Future Goals:

Jane hopes that in 7 years time she will achieve tenure at Northeastern, and receive a pay increase along with it. Hopefully, that additional income can be dedicated to moving out of Boston and into a bigger space so her family can thrive, perhaps a house in Jamaica Plains. She hopes that her book sells well and can help finance this next stage of her life.

What I learned

What is something you learned from creating/reviewing personas that you didn't initially think about?

One thing I learned from writing these personas is that not everyone has an internet connection and this could be very important in an emergency situation especially when you rely on having a steady connection to call emergency services.

Elena

Secondary Stakeholder Persona 1: Jared

Hard Facts

Jared is a Northeastern University Police Department officer. He started with NUPD six months ago after graduating from a small college in New Jersey with a degree in criminal justice and then attending the Massachusetts State Police Academy. He is 25 years old and grew up in New Jersey but moved to Massachusetts after college because he has always been fascinated by the history of the city. Jared lives in an apartment in Dedham with one roommate and takes the commuter rail from his home to Ruggles station on the Northeastern campus on work days.

Interests and Values

Jared is a history buff who loved his history classes in high school and college and now spends his days off visiting historical sites around the Boston area. Jared joined the Police Academy partially because he is passionate about criminal justice and wanted to become a good cop after growing up watching the news and seeing bad cops get away with injustice in America. He also enjoys bike riding but unfortunately hasn't been able to bring his bike from his parents house to Dedham since moving to the area. He really enjoys it when he gets assigned to patrol campus on a bike.

Computer and Internet use

Jared has a MacBook as his personal computer that he got as a graduation gift from his parents when he graduated college. He uses it to browse the internet, check email, and watch his favorite YouTube channels about US history. He leaves his personal computer at home when he goes to work. At work, he uses a desktop computer when needed, but he is usually assigned to patrol campus with a more senior partner and he doesn't use a computer when doing this. Jared does have a work phone and radio which he has on him at all times when on the clock. The primary use of the phone is for work calls and texts, and the radio is used to communicate quickly with the campus emergency line dispatcher and other NUPD officers.

A typical day

His work schedule varies and sometimes he has to work nights, but for the most part he has to be at work by 8 am. On a typical day, Jared wakes up at around 6 am and gets ready for work. He catches the 7:05 am train to Boston and gets off at Ruggles. Then he walks to the NUPD station on Columbus Ave and usually arrives around 7:35 am. He is still a newbie so he likes to get there early if he can. He starts his patrol in either a car, on foot, or on a bike depending on which senior officer he is paired with for the day. They tend to grab breakfast together at a campus eatery and then continue their patrol. They keep their phones and radios near them at

all times and listen closely for calls from other officers or the emergency dispatcher notifying them of an emergency they need to respond to. The day usually unfolds fairly uneventfully perhaps a few calls to respond to medical emergencies or sometimes a shoplifter at Wollastons. At the end of his shift, Jared will sometimes grab a beer with his coworker, but most of the time he just takes the commuter rail back home, cooks himself dinner and unwinds. If there are chores to be done, like emptying the dishwasher or doing laundry, now is when he completes them. He tends to watch an episode of a show on Netflix before going to bed at around 10 pm.

Future goals

Jared is still learning the ropes at the NUPD but he hopes to someday work for the Boston Police Department or attend Law School to become a criminal defender. His parents want him to save up some money so he can buy a house or save for retirement before he decides to go back to school. For now, Jared is content with his job and isn't looking to make any big changes in the near future. He would like to get to know the Northeastern community a bit better as well as his coworkers.

Secondary Stakeholder Persona 2: Jessica

Hard Facts

Jessica is an investigator for the Office of University Equity and Compliance at Northeastern. Jessica is 45 years old and has worked for Northeastern for five years. She lives in a house in Brookline with her wife, Bree, and two young children.

Interests and Values

Jessica is an avid chef. She loves to cook dinner for her family every night, but sometimes isn't able to if she has to work late. One of the benefits of the Pandemic has been that Jessica has been working from home which eliminates her commute time, leading to more time for her to have to cook dinners. As a woman and member of the LGBTQ+ community, Jessica is very passionate about discrimination and injustices. She spends a lot of time reading books and memoirs about discrimination and how she can become a better ally to all minority people. After the Black Lives Matter protests during the Summer of 2020, Jessica committed herself to justice and accountability within her Northeastern community. She has an important role as an investigator with the Office of University Equity and Compliance to investigate race based discrimination and she feels lucky that she is able to tackle such important issues everyday in her job.

Computer and Internet use

At work, Jessica had a desktop computer provided by the University, however since the pandemic Jessica has been working from home on her laptop. The OUEC team primarily uses email and Zoom meetings for communication, so she generally has both of those applications open throughout the work day. Outside of work, Jessica tries not to use her computer too much because she wants to spend time with her kids and give them her full attention, but she will still use the internet to check email on her phone occasionally.

A typical day

On a typical work day, Jessica gets to work by taking the bus from her home to the Northeastern campus, however since the pandemic, she has been working from home. Bree works part-time as a pharmacist at a retail pharmacy in Brookline. During most days that Jessica works, Bree is off, which means she is able to supervise the kids during their on-line school so Jessica can focus on work. Jessica usually logs onto her computer at 7:30 am and starts the day by checking her email. She also checks to see what meetings she has during the day, including classes or student organization meetings that she is presenting in, which is a common occurrence. During the down-time in between meetings, Jessica investigates complaints of discrimination that have been filed by Northeastern community members. These complaints include sex and gender based discrimination, any discrimination based on a protected category and employment discrimination. The investigation usually consists of emailing and scheduling calls with members involved in a case, discussing the case with her coworkers, and documenting everything she does. Looking into these topics can be draining, but Jessica loves the work. After her work day, Jessica cooks dinner for her family, and they like to sit and have long conversations after dinner. Jessica likes to get a workout in before bed, and usually ends the day with a book and cup of tea before going to sleep at around 11:30 pm.

Future goals

Jessica looks forward to continuing to learn how to be the most effective investigator she can be with OUEC. She hopes that one day the Northeastern Community will be a place that discrimination is extremely rare, however in the mean time she is enjoying being a part of solving and addressing cases. She is also looking forward to continuing to raise her children and seeing them grow into young adults.

What I learned

What is something you learned from creating/reviewing personas that you didn't initially think about?

I learned that we don't know exactly what technology an actual NUPD officer has with them when they are out patrolling campus, and so we need to understand who will be receiving the requests. Likely, the emergency hotline dispatcher will still be fielding the requests from the app, and notifying the officer where to go and what information they have received, however in the future it might be good to also be able to send the request directly to the officer's smartphone. I also thought about the need for records to be persisted so that people, like investigators with OUEC, investigating discrimination can easily access them.

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Tertiary Stakeholder Persona 1: Christina

Hard Facts:

Christina is a 40-year-old single mom of two and lives in a townhouse in Portland, Oregon. Her younger son, John, lives at home and attends the local high school, while her elder son, Rob, is a freshman at Northeastern University. During the days she works as a pediatrician and in her freetime loves to paint and bake.

Interests and Values:

Christina, although busy with her career, is very involved in her children's lives. Before quarantine, she would attend her son's high school basketball games on the weekends after a long week of seeing patients. In addition, she calls her other son Rob every day to check in and ask how his remote learning experience is going. She worries that due to COVID-19 safety measures, he has not been able to make many friends and lives alone in a big city. To make him feel better, she mails snacks to his dorm every few weeks, healthy ones of course. Christina is an avid supporter of healthy eating and has been experimenting with new recipes during quarantine. She loves to drink green tea in the mornings due to its gradual awakening effects and health benefits, and encourages her sons to do the same. However, they are not fans of it.

Computer, Internet, and TV use:

Christina has a Macbook and external monitor that she uses primarily for her Zoom telehealth appointments. In addition to work purposes, she uses the internet to stay updated on COVID-19 news. She also watches food network shows for cooking inspiration. Other than that, she tries not to use her computer too much so that she can get some quality time with her son and her friends. She has a smartphone as well but uses it mainly for work purposes (email, phone conferences) and contacting her loved ones.

A Typical Day:

During most days of the week, Christina drives to work at 10:00 a.m. around 20 minutes away in Portland. She spends a few hours at the pediatrician office and then returns home around 3:00 p.m. On some days, she does only telehealth appointments on her computer. She likes to start her day off with some green tea and cereal, but sometimes has scrambled eggs instead.

Outside of her work hours, Christina does various tasks around the house, including laundry and grocery shopping. She makes sure to get a COVID test every few days along with her son, as she sees patients pretty regularly. In the evenings, she spends time with her son and either cooks dinner or orders takeout. She likes to call her other son often because she worries about his health, safety, and happiness at college. He is close with his mom and tells her he has trouble connecting with people over a virtual setting and hopes things go back to normal soon. Christina does her best to reassure him and support him in any way that she can. Before bed, she likes to read a novel of any genre as she has an eclectic taste in books, and then falls asleep around 11:00 p.m.

Future Goals:

In the future, Christina hopes to see her children grow up to be happy and successful adults. She will continue to keep a watchful eye on them as that is what mothers often do. Once both her sons leave the house, she will consider getting a pet to keep her company and combat her "empty nest syndrome". She also hopes to develop her career as a pediatrician and help as

many children as she can. Once she retires from her job, she dreams of moving to a warmer place, perhaps California, and enjoying some time in the sun.

Tertiary Stakeholder Persona 2: Chris

Hard Facts:

Chris is a 24-year-old Boston resident who lives in a small apartment near Fenway. Chris recently graduated from Northeastern University and currently works as a software developer at a startup company in Boston. Due to COVID-19 safety measures, he has been working remotely for the past year.

Interests and Values:

In his free time, Chris likes to participate in and coordinate hackathons for developers of all skill sets. Chris has always had a passion for programming mainly because of the problem solving aspect. He has also started taking an online spanish language course, as he has always found the latinx culture intriguing. In addition, Chris enjoys spending the weekends with his friends, whether that means staying in and watching sports games or grabbing a drink at a local bar. Unfortunately, he has not been able to go out much recently due to the pandemic, but hopes things will go back to normal eventually. He believes in advocating for marginalized communities and supports the BLM movement. He has been to several protests over the summer and continues to show his support both on social media and through his everyday actions.

Computer, Internet, and TV use:

Chris does not watch TV much, but uses both his personal and work laptop often. While working, he communicates with his colleagues to debug and develop code, answer emails, and complete different tasks. He uses his personal laptop to watch Netflix shows, go on social media, and watch streams. He also loves to play video games and could play all day if not for work. Chris has a smartphone that he uses regularly to stay connected on social media and maintain contact with friends and family, but not while he is working or spending quality time with peers.

A Typical Day:

Chris likes to wake up early before work and go on a run. He then makes himself a large breakfast of eggs, bacon, toast, and a protein smoothie. He starts work at around 9:30 and continues till 5:30. Occasionally, he works outside these hours if he hasn't been as productive during the day and needs to complete some tasks later at night. Chris rarely has down time during his work hours; he always has several projects he is working on. After 5:30, he spends his Tuesdays & Friday evenings taking his Spanish language course for an hour. After all of his responsibilities on weeknights, Chris likes to play video games with his friends, as he feels more socially connected that way. At around 7:00 p.m. he either cooks himself dinner, usually pasta since he doesn't really know how to make much else, or he orders something from Postmates.

He goes to bed around midnight after a hearty video game session and repeats the process the next day.

Future Goals:

In the future, Chris hopes to travel around the world with his friends after the pandemic is over. He is particularly interested in visiting Spain so that he can try out his new Spanish vocabulary. In terms of goals, he hopes to one day develop software that solves an important problem in the world. He also hopes to contribute to seeing social justice and ending systemic corruption.

What I learned

What is something you learned from creating/reviewing personas that you didn't initially think about?

After this exercise, I realized that the personas I am creating are all under the assumption that they are somewhat technologically savvy. It is important to make our application very easy to understand for those who may not be familiar with applications outside the basic functionality of a phone (calls, messages, email), such as the elderly.