CS160
USER INTERFACE DESIGN
FALL 2020

OVERVIEW

In this assignment you will use the brainstorming method you learned in class to begin to develop your team project idea. You should conduct at least two one-hour brainstorming sessions with your team members (you will start online in Zoom breakout rooms in class today). You will report the complete list of ideas that your team generated, and then report the final project idea. Note that you will have time in class on 28 September (TODAY) to start the brainstorming. We expect you to meet outside of class via Zoom or other media to complete the assignment. You also need to setup regular, in-person team meeting time outside of class. These should be at least 1-2 synchronous times a week (and many more asynchronous channels).

THEME

We are all privileged in our positions here at UC Berkeley. There is inequity and injustice all around us. We have seen it play out through violence and discrimination. Sometimes it is the things we see and hear around us such as homelessness and poverty. Other times it is more hidden and subtle such as food insecurity. Sometime the issues are massive and overwhelming – perhaps even global at scale such as global warming. What can we do? Listen, read, educate ourselves, be more aware, take action, protest, support communities, grassroots initiatives, campaigns (political and non-political)? **In this final project you will be looking to apply your skills as a human-computer interaction designer in creating a mobile application that focuses on equity and inclusion.** What does that mean? Your design could help a community more equitably participate in civic government, provided tools to promote awareness of instances of inequity in the classroom, enable a service to ameliorate food insecurities, support navigation for mobility challenged seniors in urban landscapes, or be a mobile platform that empowers a missing voice to be raised up and heard in a time of protest. It is for you and your team to discover this need and design.

It may feel overwhelming to launch into this design space. That's ok, being in the unfamiliar will also likely challenge your team to flex your design muscle and can lead towards tremendously rewarding final outcomes. One approach is to begin by sharing stories of either your own or others experiences of inequity. It could be around economics, education, race, culture, language, gender, etc. You do not have to tackle the largest global scale problems. While raising awareness of global warming through issues of consumption, waste, recycling, air quality, etc. can be powerful (and indeed encouraged), your project may be just as meaningful if it empowers, connects, or provides a service for a specific demographic – one left out of the *swipe*, *tap*, *tok*, *like*, *tweet* vernacular with our mobile phones. A mobile application to support breast feeding mothers (and their partners)? An economic service to support rural farmers with fair labor

rights and pay? An anonymous service for undocumented workers to locate healthcare for their families? A service to help <u>communicate and coordinate doing protests</u>? A tool that can foreground lacking viewpoints, skills, or perspectives?

We invite you to open your mind, see the needs and inequity around you, and work with those communities (as best you can given COVID-19 social distancing) to design mobile phone applications that support their cause and needs. We are all sheltered in place so it may be difficult to reach out to communities and groups. But we can still be creative. Do you know or live with someone connected to such communities? Do you yourself have personal connections or knowledge that pertains to ideas of equity and inclusion? Many groups are also sheltering in place and reaching out digitally is certainly the new norm – so drop them an email, DM them on social media, etc. You may be surprised how supportive they may be to your introduction. Ideally they will share ideas and your project will find a real home with users. However, today you will start your brainstorm before you reach out to such communities or groups. Don't worry about getting your final single ideas today. You are beginning your brainstorm. It will be followed by several stages, levels of feedback, research, and hopefully discussions with others that could benefit from your design.

What **your final project should not be** is a mobile phone app that is too similar to the world of apps we have today – how can I find great restaurants around me? I need to keep track of my workout? How do I find people to date? However, I challenge you to think more deeply around these issues. It could be a service to help restaurants improve the way their excess food is distributed to shelters or homes in need. It could be a mobile dating tool for the visually impaired. Push yourself as a designer!

Please leave many of your common experiences with mobile phones behind. This is your chance to not just be different and do different, but to design for change! To improve the health and well-being of others. That's not to say that common metaphors and interaction styles should not be used. Leverage the wealth of interaction expectations, visual language, and cultural knowledge that mobile phones celebrate. Simply use them in a new context, with a new community, from a new perspective. If you have trouble getting started, begin by looking at existing mobile apps and platforms and then ask yourself, "Who is *not* part of this? Who is *not* part of this conversation? Who is *not* participating? Who does *not* have a voice (or equal voice) here?"

DISCUSSION AND DETAILS
By working to support equity and inclusion you design will likely also **provide benefits to everyone! Our theme is also strongly related to universal design which is the process of creating products (i.e Apps) that are usable by people with the widest possible range of abilities, operating within the widest possible range of situations**.

This is a very open-ended theme and should give you plenty of room to come up with a specific project that is personally exciting to your team. **Please use this freedom with caution**. In addition to having a technology component, you should also select a concrete, well-defined target user group and task you want to support. The more concrete and specific, the better. You will be required to reach out to your selected community and conduct initial interviews to inform your design (similar to DESIGN 02). You will share your prototype designs with this or a similar community to get feedback as you iterate on your final project as it evolves over the rest of the semester.

Try to think out of the box — Don't think in a device-centered way, and don't think only of things that a smartphone can do. Instead focus on the things that people do everyday *while* they have a mobile device with them. That will also give you a good handle on the set of target users. How can a smartphone complement or enable or empower new methods of interactions and experiences? You got an initial feeling for this in the DESIGN 02 assignment. You should start with a set of target users and think of their needs and context of activities and how such a smartphone design might improve their lives. Talk to potential users and observe them in their place of work (i.e. contextual inquiry) to figure out their needs and the design opportunities. Be sensitive during this process. You won't be able to do that as part of the initial brainstorm but it should follow shortly afterwards as you narrow your final selection.

Google Cloud APIs — While this should certainly not be part of your early brainstorm we will include it here in the spirit of full disclosure. That is, that within the final design you select you will be required to implement some live interaction with at least one <u>Google Cloud Machine Learning API</u> service. You could use the VisionAPI to label objects in images, detect faces, the Speech API for improved voice interaction, the Natural Language API for sentiment analysis. Yes, Machine Learning (ML) and AI techniques invite their own elements of inequity – but they can still be used wisely and powerfully for good. But wait this is not a ML class and maybe you have never used or been introduced to these concepts. We are not expecting you to push the frontier of ML in your project. But you should feel comfortable using them as black box APIs similar to PROG02 where you used several APIs to get location data and civic information. Now you can use it to detect if food is safe to eat, a sidewalk has a curb ramp, etc.

Sensors — We are still in the early phase of smartphone development. As such there is a wealth of applications within this INCLUSION+EQUITY theme to explore, and you should have no problem brainstorming how existing smartphones can be programmed with new experiences. That said, this nascent period often means that many of the sensing and expressive behaviors you desire may not be capable using today's hardware. We want to allow you to open your brainstorm up, if you feel the need, to applications requiring hardware not currently on smartphones. To be clear, you will ultimately need to design and program your user experience on an Android smartphone (or emulator is fine) for the final assignment. However, we will allow you to mock up a limited number of interactions around such sensing that are not provided by the hardware. For example, if your compelling application requires sensing via a pulse oximeter (a medical device that indirectly monitors the oxygen saturation of a

patient's blood), you would still design all of the interactive touch points of your user experience and "mock up" the feeling of the experience around how the pulse oximeter sensor would be incorporated into the design. What you cannot do — you cannot add so many sensor that the entire Android smartphone design is radically changed (i.e. it senses stress, skin, hair growth, radiation, plankton detection, oh and it has a hologram projector and a karaoke pop up, and…well you get the idea). Also, any sensing you choose must be near term and realistic (i.e. you cannot embed a ghost or extraterrestrial sensor or teleportation mode, etc). While we want you to feel open to including novel sensing in your brainstorming of ideas, adding sensors (or actuators) is not required to find a compelling and interesting application. Also, if you do decide to add some new sensors, you must check with us after you hand in this assignment as to the viability of the design and novel sensor selections.

Be ambitious, but realistic — You have limited time to work on the project and the goal of the course is to iterate, test and improve users' experience of your design, not to produce the most elaborate experience. Some of the most successful apps have been conceptually simple. Make sure you're realistic about what can be done in a semester. This is an exercise in prototyping apps that could really be built, not in science fiction. You are not expected to implement every feature of your final app but a core subset.

You should check bCourses for for the full details on what its required for this assignment (Due Next Mon, 5 Oct before class). To get you started we highlight what you need to focus on today.

Team — Who is on your team? Get to know them and their interests and skills. How will you all stay in touch after today? Make a plan. How will responsibilities be shared? Each team has a unique Figma page to get you started. You will also be given a special Kaleidoscope team page. Please use that to start gathering ideas, artifacts, images, links, notes, videos, and your Figma design. **Kaleidoscope now supports links, YouTube videos, and Figma designs.**

Brainstorm — A list of at least 50 numbered ideas (aim for more) that you came up with during your brainstorming sessions. Each idea has to be described in one full sentence (don't just list an abstract title like "Cooking App". Better would be, "Vegan Cookery: an application for vegan home cooks that helps them prepare recipes by using voice commands to step through recipe steps." You should be visual during your brainstorm – include photos of sketches (but also describe in text).

Later (not today) — Check bCourses for full details and move toward selecting the top 3 ideas your team is interested in and a short explanation of why the team picked it from amongst all the possibilities in your list. This idea may develop and change later. It's your best 3 ideas *at this time*. It is normal to still have 5–7 contenders in the mix but identify 3 top idea right now. Also, realize that this almost always changes. For those that want to plan ahead, you will need your final design idea by 14 Oct. But don't worry about that now. Think big and bold.

Brainstorm! Give every idea a chance, no matter how strange at first!