

## **Software Studio: 6.170**

### **Envisioning Futures Prep Activity**

#### **Background**

In Class on October 21st, we'll have a guest lecture to discuss the societal responsibilities and intricacies when building and deploying software. In this preparatory activity, we'd like you to start thinking about the ethical side of designing and building technology. We're giving you this assignment before the lecture, so we know you haven't learned how to answer these kinds of questions yet. Use your intuition and think critically, but don't overthink this assignment. You should be able to put together some appropriate responses in less than an hour.

#### **Part 1: A Quick Qualtrics Survey**

Please fill in the Qualtrics survey. This part of the preparatory activity is graded only for completion, and is useful to help us understand your perspective on ethics and software design. While we record your Kerberos ID to check for survey completion, we will not associate responses with your identity. There are no right or wrong answers to these questions; please try to answer truthfully.

#### **Part 2: Envisioning Futures Free Response**

Countries and companies around the world are building digital contact tracing apps in response to COVID-19. These digital contact tracing apps have two main functions: *contact identification*, wherein people who have been potentially exposed to COVID-19 are identified, and *contact notification*, wherein people are notified of their potential exposure. Digital contact tracing typically uses smartphone location data or phone-to-phone bluetooth to assess whether "contact" was made between two people. Digital contact tracing is currently deployed in several countries (South Korea, Singapore, Canada, etc). Locally, contact tracing is deployed at Lincoln Lab, and experiments are underway to bring it to the dorms and larger MIT campus. *If you'd like to (optionally) learn more about contact tracing, [this](#) is a useful overview and [this](#) is a thorough breakdown of the requirements for contact tracing tools.*

For this assignment, imagine that you are responsible for building a contact tracing app. There are lots of plausible implementations of digital contact tracing, so you can make any assumptions you'd like about what features your app has and how your implementation works. Answer **three** of the following questions (in ~150 words each) and upload your responses to Github.

1. What is the best case scenario for your digital contact tracing app?
2. What's the worst case scenario for your digital contact tracing app?

*Note: for questions 1 and 2, there are different ways to understand "best" and "worst" and corresponding different ways to understand questions 1 and 2. Answer the questions for each of these different meanings. For example, one best-case scenario might have to do with how your contact tracing app is received by users, another best-case scenario might have to do with how your contact tracing app is evaluated by your*

*boss.*

3. If your digital contact tracing app were the subject of an episode of *Black Mirror*, what would it be called? What would happen in it?
4. If an investigative journalist was evaluating your digital contact tracing app and they wrote about it, what would the headline be? What would the story be?
5. If a historian in the year 2100 were writing about the good that your contact tracing app had done for the world, what would their book be called? What would the story be?
6. If you were working in the customer service call center for your contact tracing app, what would someone call to complain about?
7. *What kinds of domain-hopping are possible?* (You have a particular set of uses in mind for contact tracing, and a particular area of life or kind of activity in which it will be used. But the thing you make, or parts of it, could end up being used in other areas. What are they? What would be different if contact tracing or the underlying technology was used in ways you don't currently intend? Think about novel uses)
8. *What about bad actors?* How could someone appropriate your contact tracing app for malicious purposes? What would happen if they did?
9. *What are the failure modes of your project?* Nothing works perfectly all the time. What can go wrong, and how? What will be the effects when malfunctions occur?
10. *How could a member of a group affected by your contact tracing app—especially a member of a group that's been historically disadvantaged—show you that there's something about your project that affects them differentially?*

## Rubric

- Total Points: 10
- Part 1: 1 Point for Qualtrics survey completion.  
*While we record your Kerberos ID to confirm your completion of this task, we do not associate your ID with your responses. There are no objectively right or wrong answers to these questions.*
- Part 2: 3 Points for each Envisioning Futures question.  
*Your responses should identify the questions you respond to.*  
*Your responses should be clear, and should state any assumptions you make about the functioning of your app.*  
*Your responses should answer the questions you select.*

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