**System Requirements Specification**

**COVID Tracking Ego Network App**

**CS-490 Fall 2020**

Team Name: COVID Tracking App

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**Section 1: Introduction - Sultan, Justin**

System to be Produced:

The product that will be produced from this project is a mobile app that calculates how close the user is to each of their friends using an ego network that calculates friendship levels. The ego network is able to calculate these friendship levels using uploaded Instagram and Snapchat data that must be uploaded to the user’s device. This information is then able to be used to track COVID-19 spread along with who you are most at risk of spreading COVID-19 to or getting COVID-19 from.

Applicable Standards:

None

Definitions:

None

**Section 2: Product Overview - Bryce, Justin**

Assumptions:

The mobile app should work mainly as a standalone application. Due to the privacy issues surrounding using lots of user data, all computation will be done locally on device. The user is expected to have a phone running either Android or iOS. The application is not resource intensive so the memory/processor configuration is irrelevant. If the device can run the operating system, it will be able to run the app. In order to make a good evaluation the application also needs data about the user. It will be assumed in version 2 that the user has an Instagram and Snapchat accounts that are used on a semi-frequent basis. This means following at least 100 people and liking 500 photos on Instagram. For Snapchat, this means having messaged at least 25 unique people. The user must then download their communication data from Instagram and Snapchat then save that data on their mobile device.

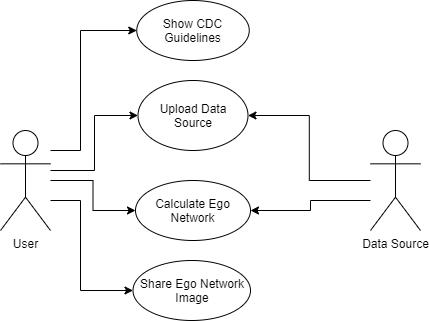
Stakeholders:

* Customer:
  + The customer is a major stakeholder because the app is being designed as their product.
* Researcher:
  + A researcher is a type of user that would use this app as a way to research ego networks and be able to test different algorithm weights and how that affects the algorithm.
* Normal User:
  + This type of user would simply use the app out of curiosity and interest, giving them insight into how close they might be to each of their friends.
* COVID Tracking User:
  + This type of user would use the app as a way to help protect themselves from catching COVID-19 by understanding who they interact with the most.

Event Table:

|  |  |  |  |
| --- | --- | --- | --- |
| Event Name | External Stimuli | External Responses | Internal data and state |
| Link Data Source | User navigates to the Upload Data tab and clicks the Upload Data button. | The app provides a UI to select files from the device’s file system | The user must navigate to and be on the Upload Data tab of the app. |
| Calculate Ego Network | User navigates to the Ego Network tab and clicks the Calculate Ego Network button. | The app calculates the user’s ego network based on the uploaded communication data. | The user must navigate to and be on the Ego Network tab of the app. |
| Show CDC Guidelines | User navigates to the COVID Info tab. | A page is displayed with verified information about COVID-19. | The user must navigate to and be on the COVID Info tab of the app. |
| Share Ego Network Image | User clicks the share button. | An image is generated of the ego networked and is then shared using Android/iOS’s built in share feature. | An ego network must be calculated. |

Use Case Diagram:



Use Case Descriptions:

* Show CDC Guidelines:
  + The user navigates to the COVID Info tab that gives general information regarding COVID-19.
* Upload Data Source:
  + The user navigates to the Upload Data tab and clicks the button to upload their communication data. If the user successfully selects their communication data using the file picker with no errors this will give the app the path to find the data which will be needed to calculate the ego network.
* Calculate Ego Network:
  + The user navigates to the Ego Network tab and clicks the button to calculate their ego network. Upon this event the ego network algorithm will then be called and use the path to the communication data that was given to calculate then display the user’s friends based on friendship level.
* Share Ego Network Image:
  + The user calculates their Ego Network and then clicks the Share Ego Network button. This will save their ego network as on their device as an image that can be shared.

**Section 3: Specific Requirements - Bryce, Justin**

3.1 Functional Requirements - Bryce, Justin

* F-1: The app shall produce an ego network that informs the user of how close they are to different people they interact with based on the given data.
* F-2: The app shall use the user’s Instagram follower list as a parameter of the ego network algorithm.
* F-3: The app shall use the user’s Instagram likes data as a parameter of the ego network algorithm.
* F-4: The app shall use the user’s Instagram message history as a parameter of the ego network algorithm.
* F-5: The app shall use the user’s Instagram post location data as a parameter of the ego network algorithm to determine people they may have been close to.
* F-6: The app shall allow the user to delete all local data that is related to their instagram data or their ego network.
* F-7: The app shall display to the user who is in each level of closeness in their ego network.
* F-8: The app shall ask the user to upload their data to the app to be analyzed.
* F-9: The app shall inform the user of people in their ego network that they have been in close physical contact with recently.
* F-10: The app shall direct the user to reliable information about COVID-19 when prompted by clicking on the COVID-19 information tab.
* F-11: The app shall allow the user to generate an image representing the ego network and share it using the OS’s sharing api.
* F-12: The app shall use the frequency at which the user messages an individual through Snapchat as a parameter to the ego network algorithm.
* F-13: The app shall allow the user to adjust the weights of the ego network algorithm.

3.3 Physical Environment Requirements - Bryce

The system must run on either an ARM Android device or iOS device that is an iPhone 4S or newer. This app will only run on an Android with operating system Jelly Bean v16 4.1.x or newer or on an iOS device with iOS 8 or newer. Due to the use of flutter, one codebase should operate on both platforms and provide the opportunity moving forward to port to the web. The system should operate on all modern versions of the proposed operating systems. Being a mobile application the location of the device should not matter, as long as it has an internet connection. Variables like temperature and humidity will be defined by the device manufacturer.

3.4 User and Human Factors Requirements - Bryce

The system will be aimed at all users over the age of 13. This is due to the age requirement of most social sites. The skill level of the app should be relatively low. Downloading your data from a company is a little difficult on purpose, so less technologically inclined users may need a little assistance.

Normally apps that handle large amounts of user data are ripe with misuse and a large target for hackers. Because of this we made a design decision to keep all data stored locally. This greatly reduces the opportunities for misuse.

3.5 Documentation Requirements - Bryce

The most important part of the documentation suite will be the SRS but an SDS and Test Plan will also be completed. Other than these formal documents more informal documents will exist as well. This includes well commented code and readme files. All documentation will be online not printed. The skill level assumed will vary depending on the documentation. Formal documents like the SRS will assume little to no skill, but code comments will be directed at people who are either modifying or writing code.

3.6 Data Requirements - Justin

* D-1: The app shall only accept data that is in the JSON format.
* D-2: The app shall convert the inputted JSON data from the user’s Instagram and Snapchat accounts into a custom JSON format specified in the GitHub repository in the file “data\_standard.md”.
* D-3: The app shall calculate the user’s ego network using a custom ego network algorithm that will be created specifically for this app.

3.7 Resource Requirements - Justin

* No resources shall be required by the app.

3.8 Security Requirements - Justin

* S-1: The app shall not store any communication data that the user imports for usage in creating their ego network.
* S-2: The app shall only store the names, friendship levels, and friendship scores of the user’s friends.
* S-3: The app shall only store data locally on the user’s device.

3.9 Quality Assurance Requirements - Justin

* QA-1: The app shall be required to be secure enough that a user can trust this app with their communication data.