Post-Interview Document

Quaranteam - Cellular Automaton: Infectious Disease

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Ben Vigna, Calvin Voss

Scientists/Clients: Leo Ureel

Meeting Date/Time: 4pm Tuesday, January 19, 2021

Meeting location or media: Zoom call

Students and their Interview Roles:
Moderator: Calvin Voss
Recorder: Devin Stewart
Questioners:
Alec Rospierski
Alexander Martin
Jared Perttunen
Ben Vigna

Questions:
They are available for questions, email Leo or Meara any questions. Leo notes that this is a part of research
Links provided to us:
https://playgameoflife.com/
https://medium.com/analytics-vidhya/epidemic-spreading-of-information-and-ideas-simulation-on-a-square-grid-9825a91c37b7
^^ similar to what is wanted of app.
https://www.amazon.com/New-Kind-Science-Stephen-Wolfram/dp/1579550088

- Please tell us about your app idea?
  The app is inspired from Conway's game of life where there is a universe with a set of rules that can be adjusted and the rules apply to the grid of cells after each time tick. Instead of just having dead and alive states, we want to be able to simulate a virus spread with more customizable rules and able to change initial configurations of the game. We are able to do this since Conway's game of life is Turing complete, meaning it is possible for a computer to do a complete simulation.

We want the game to have more than 2 states and the viruses can contact different surfaces such as an open floor, the air. We also want players to have spaces they can move to that could have the virus in the space, as well as items or player characters to be able to contract the virus. Contagious objects such as people, surfaces, and areas can contaminate players while players and/or other player characters can contaminate other players/player characters.

When playing the game, the students should be able to set up an original grid with cells and be able to change the rules of the game

- Are there any similar projects we can look to for inspiration or ideas?
  Conway's game of Life is more or less the basis for this project
- When or where will the app be used?
  Middle schools will be where the app is used
- Do you have a technology stack in mind for this project?
  Leo doesn't have a particular technology stack in mind. He suggests Python could be an option, but said that what we use is up to the group.
- What information or content does the app show the user?
  Users would see a grid similar to Conway's game of life.

  Students should be able to save their program and to be able to pick up and start it again along with changing rules and changing the initial configurations.
  (Room size can be changed) decay time, virus replication, etc (See video for more)
  We want students to understand that viruses have a population. Each cell will contain a viral load/viral count or range for contact.
  Users are able to log in and save to their account. At the end of a simulation the viral amount of each player should be tracked over time for a graph or some kind of report at the end to be displayed.
- Who are the users of your app?
  Middle Schoolers and Middle school teachers will be using the app
- What kind of interactions are expected from the users of the app?
  Users will be able to move players around the grid
    - Are there any additional rules that the user should be able to tweak/adjust?
      See document for adjustable rules/parameters.(Alec should receive list and upload it to team drive)
- What should the general layout of the application look like?
  There could be a workflow to it (I.E multiple pages) log in -> new/load -> play -> graphs? ->try again with new/same rules

    - Should there be a navbar for multiple pages?

- What type of aesthetic are you going for?
  Open for us to decide
    - Material design?
      Open for us to decide
    - Any specific CSS?
      Open for us to decide
    - Any color pallet in mind?
      Color gradient for infectious party, otherwise open for us to decide
- What data should the app collect?
  Log in info, Save progress, save different configs, teacher account that can access student sims
    - Should users be able to log in?
      Yes
        - If so, would Google OAuth work?

    - Would this require a database?
      Yes
    - Could this be done client side?

    - Should there be some kind of after action report? (Export to Sheets, Excel, CSV, etc.)
      Yes, there should be an after action report in the form of some graphs and other data. Should be kept in the app that students can print the web page to keep.
- Do you have any documents such as flyers, forms, or spreadsheets that you can share with us?
  Meara will be sending us the documents (Mostly done in a physical simulation, not virtual but will give us the mathematical information behind it)