

Defining the problem:

As we are currently facing the COVID-19 pandemic, Xx faces the issue of manually contact tracing as the head of operations for COVID-19 at her school. She has to hold multiple physical meetings in order to discover students and faculty members who have come into close contact with the infected person. This process is very **inefficient and wastes a lot of time** according to the appendix (page 1). In terms of bussing, the process begins with a call/email to the parents of the child for a lab report to see if they tested positive. Then, xx and the heads of transportation check the bus logs to assess the spread of the virus, plotting their route, checking if there was social distancing, and embarkment times (appendix page 1). This is all achieved manually by physically searching through many forms in order to find possible infected students which include a temperature log and a list of embarkment times per student. This along with holding multiple meetings with the infected student's teachers is very time-consuming and can even lead to more work as the time taken to go through the documents could result in further spreading of the virus. **A solution to this problem could be to create a website that would automatically upload and display close contacts to the red flag (positive case) for the bussing, as well as time spent on the bus, level of contact tracing to be conducted.**

Rationale:

A contact-tracing website which will link to various google sheets and forms for bussing that will output a list of possible infected students would best suit this issue as xx is familiar with PowerSchool, a web-based student information system at their school, and works a job that relies on her skills of uploading attendance information. XX works an office job so a website would work fine as they have computers and a stable wifi connection. GoogleScript would work perfectly with the job as their current bus form logging system is done manually and was requested to be in the form of a google spreadsheet. Also, the school xx works in is a google school with GSuite features meaning they have more storage, easy data migration, and advanced administration controls which all make the contact tracing more efficient. Also, the current bus form is an excel spreadsheet, which means that the migration to google script will be effective. This means using GoogleScript will allow for the information to be interconnected with other Google platforms as mentioned.

According to these requirements, I have chosen Google Script because:

- The school xx works in has GSuite features allowing for advanced administrative controls such as permissions on editing, viewing, and commenting access which helps with the security of student information
- Javascript uses less memory and interconnects with HTML, which will aid with the website
- There is a Google developer website with tutorials and descriptions for using apps script and all the rules
- The interconnection between google docs, sheets, forms, and email allowing for easy data migration and linking data across different documents

Success Criteria:

- Add button which takes an input of the student's information (first name, last name, and grade) through a form and adds that to the bus log of their new bus
- Display a sorted list of embarkment times in descending order on the website
- A risk-rating system that will take input from the bus driver of the infected student on how well various COVID-19 protocols were met to estimate the potential risk through a form by calculating a value from 1-5, 5 being worst spread and 1 being protocols followed and safety is met. This will then be displayed on the website as a dialog
- A data validated input box that takes in the coordinates of the infected student to calculate distances accordingly will and take in the bus number to perform the functions on
- Dialogs will be displayed after functions are ran to show timely feedback of what is being changed in the sheets
- Utilize 2 arrays (1 x-coordinate and 1 y-coordinate array) to calculate the distance from the infected student and then log those distances onto the bus log of the selected bus.
- Use the embarkment time and the distance from the infected student of student to calculate their "risk score" (time/distance) and set those values to the corresponding student on the bus log. Then, sort these scores in descending order and sort the corresponding name array in that same order.
- Send an email to the people of choice through an input box on the website when there is a red flag (case of the virus) which will display in order from the most at-risk to the least at-risk students from the bus
- A name validator which will validate the first and last name range of cells (ex. If a grade is accidentally inputted for a first or last name, an error message is displayed on the website with a dialog")
- Buttons for all the functions on the website to run the functions from the front-end instead of running the editor manually

Word Count: 415