Covid-19 Information Gathering A3

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1. Identify the problem

Currently there is no efficient way of logging and keeping track of COVID-19 data such as the amount of recovered patients, amount of patients that have been re-infected, and in addition, the rest of the COVID related data that the government seems to be tracking. Data is currently being tracked in ways that are not very accessible to the public. In addition, the data that is accessible is most of the time questioned as we see different numbers in a lot of various “reliable” sources. Having a centralized place or database where this data can be stored with transparency would be beneficial for the government and for everyone in general.

The main idea would be only for reliable sources like hospitals and laboratories to be able to add data to this centralized database. Once that data is validated, it would then be available for anyone in the government or the general public to use that data. The point of having this data accessible is to clear doubt, and to have a place where reliable data could be shared and accessed by anyone. This allows anyone to use real data to make analysis and different statistics. The results could later be shown to others using websites or anyone could create different models such as predicting what places are more prone to being infected on a certain day of the week, and all of this using reliable data. In addition, there is currently data that isn’t being logged such as how many people have been infected more than once and even how many times those people have been infected and in what estimated area. In machine learning, new data is normally called features, and these features could be used to better predict, analyze, and come to a conclusion.

By only allowing reliable sources to be able to add data, and in addition, validating that data, we limit misinformation and we keep the standards that the government and society demand. This data would be accessible via an API that logs every action, allowing easy access to any client but at the same time allowing rollbacks of any undesired action. In conclusion, this system allows easy access from reliable sources, a better and more stable and efficient logging system, and a way to show more information to the public than what is normally stored and shown, allowing everyone to use the data for potential insights.

2. Set the target

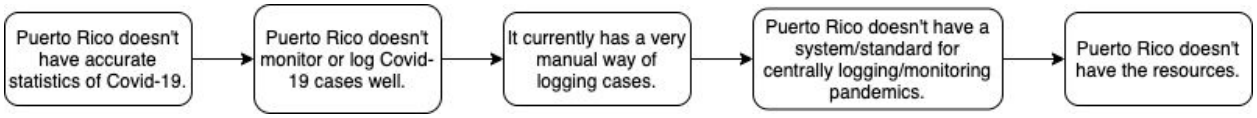
- Distribute COVID related information by consolidating various sources. (Aug-Sept 2020)
- Provide a logging tool for monitoring the reported cases and recoveries.(Sept-Oct 2020)

- Tack and sort individual patients via different infection related variables. (Oct 2020)
- API access through chat bots with commands for quick integration. (Nov 2020)

3. Analyze The Causes

No one was ready when Covid-19 pandemic hit the world, because of this the world has suffered the inconvenience of inaccurate statistics. This has had an enormous impact on how Covid-19 has been handled, including people not taking the virus seriously. The lack of preparation for very possible pandemics has left many nations, including Puerto Rico, in an unstable state.

- Causes:
    a. Puerto Rico simply does not have the resources to keep tabs on every infected citizen, and securely count how many citizens recover completely from Covid-19.
    b. Covid-19 particularly is a very difficult virus to monitor accurately. The high amount of asymptomatic cases are most likely never logged.
    Effect:
        - The pandemic has severely affected the overall functionality of Puerto Rico as a country, as a result, it hasn't been able to control the spread of the virus.
- 5 Why's (Puerto Rico doesn't track recovered patients.)



4. Propose and Implement the Countermeasures

The most feasible countermeasure is building a public API that acts as the middleman between the government and hospitals/laboratories where people get tested and throw positives for COVID-19.

This app creates a platform where any individual can GET the data related to COVID-19 (number of people infected, number of people in recovery, etc) while also providing hospitals/laboratories with PUT/UPDATE methods to facilitate adding patients to the system to monitor.

This creates a standardized system that facilitates the government's/researchers job to use this data (create data graphs, create AI models for predicting infections/deaths, etc) while also logging in important data that is not being tracked at the moment for simplicity's sake.

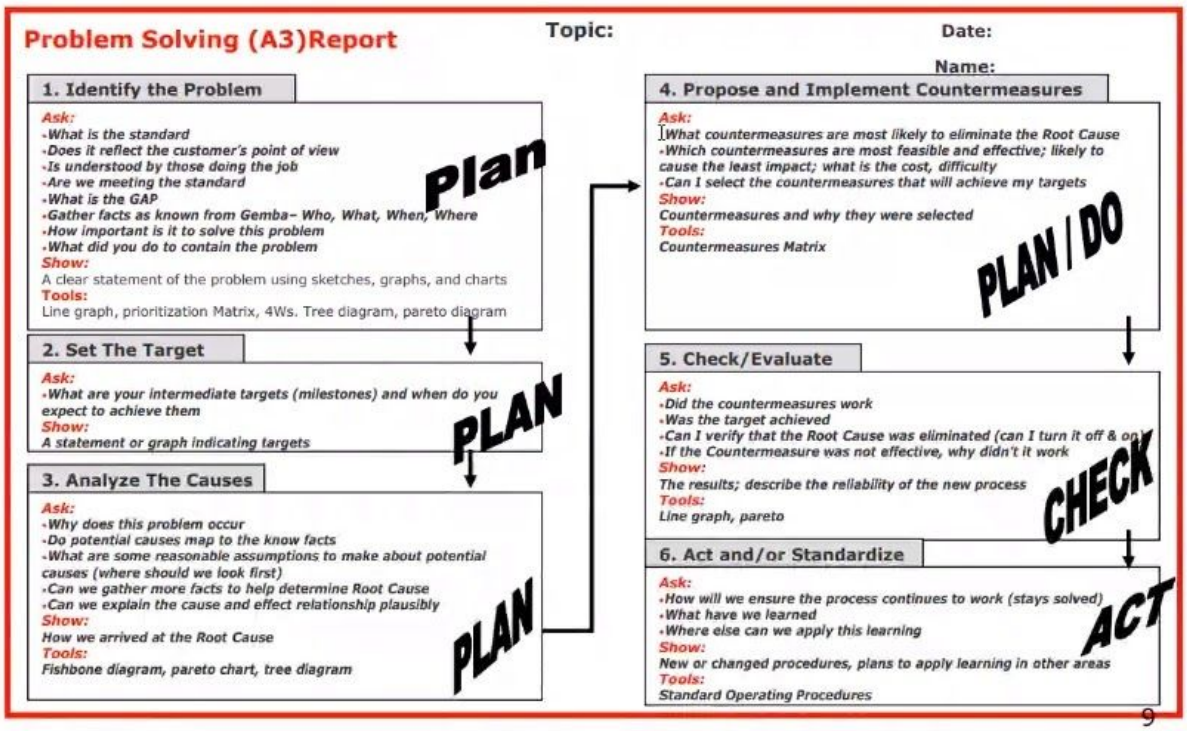
5. Check/Evaluate

By standardizing the tracking effort under a simple API would allow the island to maintain a near real time monitoring tool updated through simple requests. This would increase modularity and adaptability across multiple hospital systems to enable proper accountability on the number of recovered and reported cases.

Currently we rely on individual reports per case to a government agency which then consolidate the information to a nationwide dashboard. We lack transparency and efficiency by allowing the hospitals to directly submit the information to maintain the most informed status as possible. One of the issues we must consider would be the misuse of the API and possible control systems to revert to previous saved states.

6. Act and/or Standardize

Since we would be building an API, we can ensure the process will continue to work as long as the app is properly hosted online, and the data is correctly entered and formatted at the input phase. An online scalable database system will be implemented to store all the data which can be later extended to be used in other pandemic/health issues. There are aspects that we already know when it comes to designing a project like this, but we also recognize that there are parts we don't know when it comes to designing. Keeping a Domain Driven Design mentality as the project is being developed will allow us to expand on the project with little cost. It will also result in a project that will be as close as can be to the proposed model.



Criterias

completeness	Only few sections are addressed. ***0 points***	Some sections are missing. ***1 points***	Most sections are addressed thoroughly. ***2 points***	All sections are addressed thoroughly. Where knowledge/facts are unavailable evaluation criteria and questions are formulated. ***3 points***
root cause analyzed	Potential causes are mostly missing and/or root cause analysis is missing for most causes. ***0 points***	Most potential causes are unclear. And/or most root causes need more "whys". ***1 points***	Some potential causes are unclear. And/or the search for root causes is present but lacks a few steps. ***2 points***	The potential causes are understandably presented. "5 whys" is applied in a plausible way. ***3 points***
invent and assess possible countermeasures	Most obvious key countermeasures are missing and/or assessment of impact on root causes is mostly missing. ***0 points***	Most invented countermeasures are similar and/or the impact of most countermeasures on relevant root causes seems implausible. ***1 points***	Some invented countermeasures are similar and/or the impact of some countermeasures on relevant root causes seems implausible. ***2 points***	Diverse countermeasures are invented and their impact on all relevant root causes is plausibly assessed. ***3 points***