



DATA SCIENCE TECHNIQUES FOR HANDLING EPIDEMIC AND PANDEMIC

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Abstract

My main objective was to find out new ways to deal with pandemics and epidemics using Data Science techniques. Data science helps us to find hidden insights or patterns from raw data which can be of major use in formation of big decisions. The techniques which I have developed can be used very efficiently for the precaution of the pandemics and epidemics.

Keywords:- *Data Science, Aarogya Setu App. What Kind of Information do we need?, How to collect this Information?, Output of this Information, Features of the App, Profit of the App*

INTRODUCTION

During a Pandemic or Epidemic, the main problem that the government faces is lack of information. To get this information, there is a clever technique called DATA SCIENCE. We all know that precaution is better than care, so we should always try to be precautious of a pandemic or epidemic rather than taking care afterwards. To take this precaution, we need to know the symptoms of a disease, the steps to take for avoiding the disease, the medication required, people who are affected or are in danger of the disease, etc. but what if this all was presented in a app in our Smartphone.....

THEORY

During the first wave of covid-19 pandemic in India, the Indian government released an app named "Aarogya Setu" which tracks the people for their travel history and contact with covid-19 contaminated people. This partially helped to solve the problem of the lack of information. But we need a more detailed collection of the information which should be updated frequently.

WHAT KIND OF INFORMATION DO WE NEED?

1. General Information:- Information about the person which is includes-name, height, weight, blood group, age, etc.
2. Contact details:- Contact details will be required for the contact between the government an the users.
3. Location:- The Location of the users will be required to track them for warning them.
4. Medical History:-Medical history of the person for better understanding of the disease patterns and hidden insights.



HOW TO COLLECT THIS INFORMATION?

This information can be collected by creating an application for the Smart phones. As everyone nowadays has it and have a frequent usage of this device, we can create the app for this so it will be easier to collect latest information as early as possible.

WHAT WILL BE THE OUTPUT OF THIS?

With this information we can create and bigger app which could solve many problems.

FEATURES OF THE APP:-

- Travel History Checking: - With the location setting on the user's phone on, we can track their travel history. This will be used to inform them if they have come in contact with a disease contaminated person or have visited a area where the contamination of that disease is more.
- Health Suggestions :- If the disease outbreaks on a large scale like a pandemic or epidemic, then normal cases of cough or cold are often looked upon suspiciously. If this list of diseases and their symptoms can be uploaded on Artificial Intelligence [A.I], the program can tell the possible list of diseases and guide the user about it .
- Doctors Information: - In case of an emergency, we can see the doctors available near us and their qualifications and speciality.
- Medication Reminder :-if there are some medications to take, the app will remind you about this
- Danger Level Intimation: - If a pandemic or Epidemic occurs then there are few regions that will have more danger than others. Via this application we can gather the data and show real time danger level.

RESULTS

- Decreased work for doctors in the pandemic or epidemic
- Awareness of the contamination in the people
- Ease in tracking possible future cases in the problem
- Early realization of diseases leading to better treatment options.
- End of the situation of "Lack of Information"
- No delay in medication among people

DISCUSSION

Due to the introduction of this app based on the principles of data science, the workload of doctors in the pandemic can decrease as the normal cases will go down and they can focus on the pandemic or epidemic cases. This introduction of this app can also lead to awareness among the people about the concentration gradient of the disease cases so they can avoid going to those regions. Due to the location feature, we can track the travel history of a patient and contact those that they have met. This will help in controlling the number of patients. The early realization that will come due to the medical assistant feature can lead to better treatment. As the app collects information, there will no longer be a "lack of information" case. Also the extra feature of medication reminder will help the people to not miss the medication and take their doses on time.



CONCLUSION

It can be concluded that this app will be a lot beneficial as it will be easier for data scientists to collect the information for tackling the pandemic. This app will even help people in their everyday life regarding their medication. This research can be further made more profitable if the researcher could consult a person with the field of programming and try to make a small scale copy of this idea to check its drawbacks.

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