PLASMA DONOR APPLICATION

Top 3 ideas - Problem statements

1. Nearest Blood & Plasma Donor Finding: A Machine Learning Approach:

The necessity of blood has become a significant concern in the present context all over the world. Due to a shortage of blood, people couldn't save themselves or their friends and family members. A bag of blood can save a precious life. Statistics show that a tremendous amount of blood is needed yearly because of major operations, road accidents, and blood disorders, including Anaemia, Haemophilia, and acute viral infections like Dengue, etc. Approximately 85 million people require single or multiple blood transfusions for treatment. Voluntary blood donors per 1,000 population of some countries are quite promising, such as Switzerland (113/1,000), and Japan (70/1,000), while others have unsatisfying results like India having 4/1,000, and Bangladesh having 5/1000. Recently a life-threatening virus, COVID-19, spreading throughout the globe, which is more vulnerable for older people and those with pre-existing medical conditions. For them, plasma is needed to recover from their illness. Our Purpose is to build a platform with clustering algorithms that will jointly help to provide the quickest solution to find blood or plasma donors. The closest blood or plasma donors of the same group in a particular area can be explored within less time and more efficiently.

2. Lifesaver E-Blood Donation App Using Cloud:

E-health provides a new method for using health resources. In the proposed system the aim is to provide a direct call routing technique using Asterisk hardware. A blood bank database is created by a collection of details from various sources like Blood banks, NSS, NGOs, and hospitals and through a web interface. The data collected will be maintained on a central server. This central server will be associated with a Toll-free number that can be used to connect to it. An algorithm will be defined based on the various parameters that need to be accounted for before blood transfer is done. The willingness of the donor and the closeness of the donor to the place from where the call is coming are also accounted for in defining this algorithm. Based on the algorithm the most eligible donor is found. From the server, the call from the required person is routed to the eligible donor's number. All information about the donors and blood bank is stored on the cloud. As per blood requirement, the user can

quickly get a notification from the blood bank within a radius of 5-10km. If the requested blood group is available in the blood bank, then it will send a positive reply message to the users. If the requested stock is not available in the blood bank, then the blood bank sends a notification to all donors. If anyone can donate, then he will reply to the blood bank. This is how the proposed system will work.

3. Developing a plasma donor application using Function-as-a-service in AWS:

Plasma is a liquid portion of the blood, over 55% of human blood is plasma. Plasma is used to treat various infectious diseases and it is one of the oldest methods known as plasma therapy. Plasma therapy is a process where blood is donated by recovered patients to establish antibodies that fight the infection. In this project, the plasma donor application is being developed by using AWS services. The services used are AWS Lambda, API gateway, DynamoDB, AWS Elastic Compute Cloud with the help of these AWS services, it eliminates the need of configuring the servers and reduces the infrastructural costs associated with it, and helps to achieve serverless computing. For instance, during the COVID-19 crisis the requirement for plasma increased drastically as there was no vaccination found to treat the infected patients, with plasma therapy the recovery rates were high but the donor count was very low and, in such situations, it was very important to get the information about the plasma donors. Saving the donor information and notifying the current donors would be a helping hand as it can save time and help the users to track down the necessary information about the donors.