

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, 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), Japan (70/1,000), while others have an unsatisfying result like India has 4/1,000, and Bangladesh has 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 their illness. Our Purpose is to build a platform with clustering algorithms which will jointly help to provide the quickest solution to find blood or plasma donor. 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 proposed system the aim is to provide a direct call routing technique using Asterisk hardware. A blood bank database is created by collection of details from various sources like Blood banks, NSS, NGO's, hospitals and through web interface. The data collected will be maintained in 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 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 out. 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, user can quickly

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

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

A 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 fights the infection. In this project 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 COVID 19 crisis the requirement for plasma increased drastically as there were 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 about 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.