DEVELOPING A PLASMA DONOR APPLICATION

PROJECT TITLE : Plasma Donor Application
DOMAIN : Cloud Application Development
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EXISTING SYSTEM:

- People have to find them physically by visiting hospitals' register books and reaching out to recovered donors' homes and sometimes they will be not available at their places and will be going to work. In this type of scenario, diseased persons' health gets worsened. This is expensive and will not work as effectively in emergencies.

DISADVANTAGES:

- Tedious work.
- Expensive.
- Requires more manpower.
- Time Consuming.
- **In this kind of emergency, a plasma donor website will help the diseased person.**

1. **INSTANT PLASMA DONOR RECIPIENT CONNECTOR WEB APPLICATION**

WHAT IS A PLASMA DONATION?

- In a plasma-only donation, the liquid portion of the donor's blood is separated from the cells. Blood is drawn from one arm and sent through a high-tech machine that collects the plasma.
- The donor's red blood cells and platelets are then returned to the donor along with some saline. The process is safe and only takes a few minutes longer than donating whole blood.
- Donated plasma is frozen within 24 hours of being donated to preserve its valuable clotting factors. It can be stored for up to one year and thawed for transfusion to a patient when needed.
- Red Cross donations are often used directly for hospital patient transfusions, rather than pharmaceutical uses.

METHODOLOGY:

FRONT - END:

1. Hyper Text Markup Language,JavaServer Pages (HTML 5), (JSP)
2. Cascading Style Sheets (CSS)
3. JavaScript (JS)
4. React (JS Framework)

BACK - END:

- Programming Language: JAVA
- Server-side Script: Java Server Pages
- Application Server: Tomcat 9.0

DATABASE(DB):

- Database Management System: MySQL 6.0
- Database Connectivity: JDBC.

ADVANTAGES:

- Immediate solutions.
- Saves time and energy.
- Saves money.
- Ease of finding.

APPLICATIONS:

- This could be used in Hospitals, Labs, and Health Clinics.
- Used especially during health emergencies, war, and natural disasters.

2. DEVELOPING A PLASMA DONOR APPLICATION USING FUNCTION-AS-A-SERVICE IN AWS

METHODOLOGY:

- An efficient way of finding plasma donors for the infected people is implemented using the plasma donor website hosted on the AWS platform. To ensure the smooth functioning of the website operations. This application hosted the website on the AWS platform to ensure the processes are running successfully AWS lambda function is used to deploy the application AWS EC2 service is used.

FRONT - END:

1. HyperText Markup Language (HTML 5)
2. Cascading Style Sheets (CSS)
3. Bootstrap 4 (CSS Framework)
4. JavaScript (JS)
5. React (JS Framework)

BACK - END:

- Programming Language: PYTHON
- APIs And Web Applications: Django Framework
- Hosted Platform: AWS (Amazon Web Services)

DATABASE(DB):

- Database: Google Cloud, IBM Cloud,
- Code Hosting Platform: GitHub

ADVANTAGES:

- App already filters the Active Members.
- Here a User can be a giver as well as a borrower
- Using an elastic load balancer helps to handle multiple requests at the same time which will maintain the uptime of the website with negligible downtime

DISADVANTAGES:

- Lack of Experts
- Price Variations
- General Issues

APPLICATION:

- This system can be used by any User who wants to donate or find a donor for Plasma
- The main advantage of this website is the recipient does not need to go anywhere for finding a plasma donor.

3. PLASMA DONOR APP

WORKING ON THE PROJECT:

- This system is used if anyone needs a Plasma Donor and also the patient who needs it. This system comprises Admin and User where both can request a Plasma. In this system there is something called an active user, which means the user is an Active member of the App and has recovered from Covid 19, only such people are recommended here for Plasma Donation.
- Both parties can Accept or Reject the request. The user has to Upload a Covid Negative report to be able to Donate Plasma.

TECHNOLOGIES USED:

- Android
- Kotlin
- Firebase
- Figma

FEATURES:

- Users can add Donors.
- Users can Add Patients.
- Users can search specifically for Donors.
- Users can search specifically for Patients.
- Users can add Edit Profile.
- Users can see nearby donors/patients on the Radar.
- FAQs section to get all details regarding Plasma.

REQUIREMENTS:

- Android Version 5.0 and Above
- Min SDK 21

ADVANTAGES:

- Donating plasma helps save and improve the lives of thousands of people around the world
- Plasma donation helps patients who need plasma-derived biotherapies to improve or save their lives

DISADVANTAGES:

- Wrong inputs will affect the project outputs.
- Internet Connection is mandatory.

APPLICATION:

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- The recipient can easily find the donor all over the world without crossing his doorstep via mobile Phone or laptop
- Users can see nearby donors/patients on the Radar.
- FAQs section to get all details regarding Plasma.

4. FINDING THE NEAREST PLASMA DONORS USING DIJKSTRA ALGORITHM

ABSTRACT:

- Coronavirus is one of the biggest epidemics in the history of the world.
- Plasma therapy has proven to be very effective for Coronavirus.
- The main purpose of this task is to create a kinship with these two groups who require Plasma and who are ready to donate.
- This website ought to ascertain the shortest way between Plasma seekers and Plasma donors by applying the Dijkstra Algorithm.
- Anybody can communicate the most expected plasma donor of any association in an appropriate area immediately.
- By achieving this plan, the harassment of the sufferer can be reduced and so various lives can be rescued.

METHODOLOGY:

- Dijkstra algorithm remains a unique solution for that optimal pathfinding to a specific single root. Both addressed and undirected graph with non-negative weight values is estimated during the algorithm.
- Those graphs' requirements are compared to obtain the optimal outcome. It orders a review of all unvisited nodes and updates the optimal outcome.
- If we think of a country or a town as a graph, for the sufferer in shortage of plasma, the plasma seeker will be the only source and the inspired donors of the town will be the connections.
- Presently we must find the lengths among each of the interested contributors of the victim and the minimum distance will be fixed and given as an output.
- The principal goal is to get the possible plasma donors from an appropriate area. Each user can seek their preference.

ALGORITHM USED:

- This application is estimated at the smallest distance among the plasma seekers and donors practicing the Dijkstra algorithm. Although this website has to customize the standard algorithm to achieve this mission.
- It performs the method easier and is more durable.
- This website has used a single cause all pairs Dijkstra algorithm to determine the minimum length from the plasma seeker.

ADVANTAGES:

- Due to lessening the difficulties of people, this plan will assist them to get the most related plasma donor of an appropriate area.
- It performs the method easier and is more durable.
- Finding a proper plasma donor in the nearest area can expect less time to consume and will improve the survival rate of the sick victim.

DISADVANTAGES:

- It does an obscured exploration that consumes a lot of time while processing.
- It is unable to handle negative edges.
- As it heads to the acyclic graph, so can't achieve the accurate shortest path.
- Also, there is a need to maintain tracking of vertices, that have been visited.

APPLICATION:

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- This website has achieved the primary Dijkstra algorithm to explore the nearest possible donors. Users can see nearby donors/patients on the Radar.
- This website would relish improving this paper by adding the opportunity to find out most neighboring hospitals within the shortest possible time for proper treatment

REFERENCES:

1. https://docs.google.com/document/d/1E72zs-oCD-4sl5dLUzG5Bx-Xg_y51hHb/edit?usp=drivesdk&ouid=111778099132367871471&rtpof=true&sd=true
2. https://drive.google.com/file/d/1E7bBD6ZjwExSU_PDXFqm0J1FISK42e-L/view?usp=drivesdk
3. https://github.com/DSC-JSS-NOIDA/Plasma-Donor-App#features
4. https://www.analyticssteps.com/blogs/dijkstras-algorithm-shortest-path-algorithm

LEARNING OUTCOMES:

- How does cloud computing work?
- Hands-on Experience in JavaScript.
- Knowledge of Real-time concepts in Python
- Server-Side Scripting knowledge.
- Cloud services.
- Issues of security and risk assessment.
- How secured and non-secured cloud systems work?
- Use of HTML and CSS on UI Designs.
- Data Base Connections.
- Knowledge of My SQL.
- Data Parsing Front-End to Back-End.
- Need of Eclipse-IDE to Develop a web application.
- Working Procedure.
- Testing Techniques.
- Error Correction mechanisms.
- How do run and deploy the applications?
- Introduction to basic technologies used for.
- How the project works.
- Input and Output modules.
- How test the project based on user inputs and observe the output?
- Practical exposure to
- Hardware and software tools.
- Solution providing for real-time problems.
- Working with team/ individual.
- Work on Creative ideas.