Project Proposal: Closest Blood Bank

[AI Saturday Lagos Cohort- Team Machel]

Introduction

Blood banking is the process that takes place in the laboratory to make sure that donated blood, or blood products, are safe before they are used in blood transfusions and other medical procedures. Blood banking includes typing the blood for transfusion and testing for infectious diseases.

The blood bank plays an **important role in patient care**. Transfusion-related errors have serious health consequences for patients and may lead to death. Proper identification of the patient and blood products is critical in avoiding such transfusion-related complications.

For the purpose of coordination and regulation of blood transfusion services in Lagos State, the Lagos State Blood Transfusion Committee (LSBTC) was established with Law No. 10 in 2004 and was given the mandate to accredit and regulate both public and private blood banks, to ensure the safety of blood.

Nigeria as a member nation of WHO has made little progress with voluntary donor recruitment. Only about 5% of donor bloods used in Nigeria come from voluntary donors; family replacements and paid donors are still the major sources of donor blood procurement. The goal of blood banking is to provide adequate and safe blood to recipients at no risk to donors.

This shows the relevance of blood banks in an environment. Therefore, with the help of this project work, it will be easier for both donor and patients to locate the closest blood bank closer to them.

Problem Description

Our study shows several people die due to blood-related complications or emergencies. Health care professionals stated that emergency patients are more susceptible to challenges arising from the availability of matching blood to infuse, and it is a common event for hospitals to run out of blood in their banks. They further stated that this problem has intensified in recent times, as the number of willing donors declined after the event that occurred at the Lekki Tollgate on the 20th of October, 2020.

This project was conceived to identify the present gap in blood sample delivery by health care facilities and to create a process blood samples can be delivered seamlessly and efficiently to facilities that are in need of it. This service can be deployed into APIs which can be accessed for emergency services around the nation.

Proposed Method

This project is proposed to take an end-to-end workflow. First, we intend to scrape blood bank facilities data from the Health Facility Monitoring and Accreditation Agency (HEFAMAA) website (https://hefamaa.lagosstate.gov.ng/blood-banks/). After which the data will be cleaned and preprocessed for analysis.

APIs will then be developed and used to deploy the project. We are currently considering Streamlit (More on streamlit can be accessed on https://docs.streamlit.io/).

Project Dimensioning

For effectiveness in this project, the tasks will be assigned to team members taking into consideration of their strength. The table below gives a summary of the grouping for each phase of the project.

Project Phases	Description of Work	Sub-Team Grouping
Phase One	Data Sourcing sub team	Ms. Gloria, Ms. Martha, Mr. Temitayo
Phase Two	Data Cleaning and Prep sub team	Ms. Gloria, Mr. Akolade, Mr. Temitayo
Phase Three	Model sub team	Mr. Temitayo, Mr. Akolade, Mr Demi, Ms. Martha
Phase Four	Model Deployment sub team (Front End and Backend skills required)	Mr. Demi, Ms. Martha, Mr. Temitayo, Mr. Akolade

Conclusion

Globally, the blood bank plays an important role in patient care. Therefore, this project intends to do its quota in creating a system that will lead to a reduction in transfusion-related complications or death

This can in turn be presented to Government Agencies and Stakeholders and Private investors on the shoulders of which we will drive the major project for the nation.

References

- https://www.hopkinsmedicine.org/health/treatment-tests-and-therapies/blood-banking
- https://hefamaa.lagosstate.gov.ng/blood-banks/
- https://www.sciencedirect.com/topics/nursing-and-health-professions/blood-bank