

# **LifeSaver: Blood Donation Management System Web App using MERN Stack**

## **A PROJECT REPORT**

*Submitted by,*

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*Under the guidance of,*

**Dr. Smitha Patil**

*in partial fulfillment for the award of the degree of*

**BACHELOR OF TECHNOLOGY**

**IN**

**COMPUTER ENGINEERING**

**At**



**PRESIDENCY UNIVERSITY**

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# PRESIDENCY UNIVERSITY


## SCHOOL OF COMPUTER SCIENCE AND ENGINEERING

### CERTIFICATE


This is to certify that the Project report of “**LifeSaver: Blood Donation Management System Web App using MERN Stack**” being submitted by “**ABDUL HANNAN**”, “**MOHAMMED ZAID**” and “**MOHAMMED ZAID ABDULLAH**” bearing roll number’s “20201COM0022”, “20201COM0009” and “20201COM0042” in partial fulfilment of requirement for the award of degree of Bachelor of Technology in Computer Engineering is a bonafide work carried out under my supervision.




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### DECLARATION

We hereby declare that the work, which is being presented in the project report entitled **LifeSaver: Blood Donation Management System Web App using MERN Stack** in partial fulfilment for the award of Degree of **Bachelor of Technology in Computer Engineering**, is a record of our own investigations carried under the guidance of **Dr. Smitha Patil, Assistant Professor, School of Computer Science and Engineering, Presidency University, Bengaluru.**

We have not submitted the matter presented in this report anywhere for the award of any other Degree

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## ABSTRACT

The goal of this project was to develop a web application that uses the MERN stack to optimize resource management and blood bank operations. The program offers a user-friendly interface, sophisticated inventory tracking, dynamic data visualization, and strong security features by smoothly integrating MongoDB, Express.js, React.js, and Node.js. Employees can efficiently interact with the system thanks to tools for data entry, search, and visualization that are easy to use. MongoDB allows for accurate inventory tracking and retrieval by storing detailed blood type data, including amounts, expiration dates, and donor details. Real-time data updates and interactive dashboards powered by Express.js give decision-makers critical information on blood inventory levels, enabling preventative actions and well-informed allocation plans. Node.js uses role-based permissions and user authentication to guarantee safe access and data integrity.

This application has a variety of advantages. Reduced human error and increased efficiency are the results of simplified processes and user-friendly interfaces. Real-time dashboards improve visibility and promote well-informed decision-making by providing clear and understandable information regarding blood inventory levels. In order to maximize blood distribution and reduce shortages, data-driven resource allocation is further supported by dynamic visualizations and reports. In addition, the MERN stack's modular architecture makes it easier to make changes and improvements in the future, which guarantees the application's longevity and scalability.

All things considered, this project shows how well the MERN stack works to create reliable and approachable solutions for challenging healthcare situations like blood bank management. The application has the potential to significantly improve operational efficiency and transform resource use, which will ultimately lead to a more effective and long-lasting blood banking system.