



## **Annexure I (For Project development)**

**1) Project Statement:**

HealthPlus is a **web application** designed to manage medical records of patients and automate the appointment booking process. The project aims to provide an **efficient system** for patients and doctors to **manage their medical records** and appointments, respectively. With HealthPlus, patients can book appointments with their preferred doctors and receive timely reminders for their upcoming appointments. Doctors can view and manage their schedules, along with patient records. The application is still in the **development stage**, and the team is working towards the development and deployment of a **robust and user-friendly application**.

**2) Approximate duration (in hours) to complete the project:**

6-8 weeks

**3) Proposed Project In charge:**

Luckshay (2010991610)

**4) Team Members along with roll no's:**

- Liza (2010991608)
- Luckshay (2010991610)
- Puneet Jain (2010991674)
- Reeya Bansal (2010991682)

**5) Check Points:**

- **Does the project statement result in a product? If yes, what type of product?**  
The healthcare project aims to develop a web-based platform for healthcare professionals to manage patient data, appointments, and medical records. The product is a software application that can be accessed through a web browser.
- **If it is a product, can a prototype be made, if not, what is it, which we can produce that our teachers can evaluate.**  
Yes, a prototype can be made to demonstrate the basic features and user interface.
- **Does the project statement use multiple concepts to achieve the outcome? (yes/no)**  
Yes, the project statement uses multiple concepts, including database management, front-end and back-end development, and security protocols.
- **Does it have enough for our team members to do sufficient amount of work? (yes / no)**  
Yes, the scope of the project is sufficient for the team members to have a significant amount of work to complete.

6) **Technical Nodes (add more rows in the table below, if required)**

Subject/ Area/ Topic	Technical Nodes
Front-End Development	React, HTML, CSS, JavaScript, Bootstrap
Back-End Development	Node.js, Express.js, MongoDB, REST APIs
Project Development Environment	Visual Studio Code (VS Code)
Version Control	Git, GitHub
API Testing	Postman
Deployment	Render, CI/CD using GitHub Actions
Database Management	MongoDB Atlas, Mongoose
Authentication and Authorization	JSON Web Tokens (JWT)

7) **Prerequisites (in terms of knowledge, concepts and material) for doing the Project:**

- Knowledge of **ReactJS** and **NodeJS** web frameworks.
- Familiarity with HTML, CSS, and JavaScript.
- Understanding of **API design** and implementation.
- Experience with **Git** for version control.
- Familiarity with **MongoDB** database management system.
- Knowledge of **UI/UX design** principles and tools.
- Understanding of software development methodologies such as **Agile** or Scrum.
- Familiarity with third-party libraries and frameworks, such as **ExpressJS**.

8) **Material that may be required to make the project and where it might be available:**

To develop the HealthPlus project, we may need access to the following materials:

- **Online learning resources** such as tutorials and documentation from platforms like GeeksforGeeks, YouTube, and GitHub.
- **Open-source software tools** such as Node.js, React, Git, and Postman for API testing and version control, which can be downloaded from their official websites.
- An **integrated development environment** (IDE) like Visual Studio Code (VSCode) for coding and development.

These resources can be easily accessed online and are typically available for free or at a minimal cost. Additionally, we may need access to relevant **healthcare data and APIs**, which can be obtained through **collaboration** with **healthcare providers** or **publicly available data sources**.

9) **What could the total cost of the project?**

The total cost of the HealthPlus project is expected to be **minimal** as we have access to discounts on software and services through our student email IDs. Additionally, most of the required **software and tools** are **open source and freely available**.

10) **Resources available to us:**

As a team, we have access to various resources that can aid us in the development of our project. These include **technical resources**, as well as **learning resources** such as online platforms. We also have access to **documentation** for React and Node. Finally, as students, we have access to discounts on certain tools and software, which can help keep the cost of the project to a minimum.

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**PROJECT SYNOPSIS REPORT**

ON

**HEALTHPLUS**

SUBMITTED TO

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

FOR

**INTEGRATED PROJECTS (CS203)**

CHITKARA  
UNIVERSITY

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**Semester:** 6<sup>th</sup>

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## ***Problem Statement***

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Healthcare management is a critical aspect of any society. With the advent of technology, there is an increasing need for efficient and effective management of patient data, blood donation camps, hospitals, and independent doctors. However, there is still a lack of a comprehensive and user-friendly platform that can manage all these aspects of healthcare management in one place.

To address this problem, we propose the development of HealthPlus, an integrated platform that can efficiently manage patient data, blood donation camps, hospitals, and independent doctors. The platform will help users to access their medical history, book appointments, track blood donations, and access information about hospitals and independent doctors.

HealthPlus aims to bridge the gap between patients, hospitals, and independent doctors, providing an integrated solution for healthcare management.



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## *Title of the Project*

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### **"HealthPlus: A Comprehensive Healthcare Management System"**

HealthPlus is a **web-based** healthcare management system that aims to **improve** the overall **healthcare experience** for patients, healthcare providers, and blood banks.

It **features** a patient database, blood donation camp management, hospital management, and independent doctor **management** modules.

The system allows

1. **Patients** to **manage** their medical history, book appointments, and donate blood.
2. **Healthcare providers** can **access** patient medical records, manage appointments, and maintain hospital and doctor information.
3. **Blood banks** can **organize** blood donation camps and track blood units collected.

HealthPlus is a one-stop-shop for all healthcare management needs.



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## *Objective and Key Learnings*

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### **Objectives:**

1. To **develop** a web-based **health management system** that can store patient data, blood donation camp data, hospital data, and independent doctor data.
2. To **provide** patients with a **user-friendly interface** to manage their medical history, appointments, and blood donation history.
3. To **facilitate** hospitals and independent doctors in **managing** their patient data and appointments.
4. To **track and manage** blood donation camps and blood units collected.

### **Key Learnings:**

1. **Understanding** the **MERN** (MongoDB, Express.js, React, Node.js) stack for web development.
2. **Creating** RESTful **APIs** using Node.js and Express.js.
3. **Developing** a **React-based** user interface for web applications.
4. **Integrating** **MongoDB** database with the web application.
5. **Implementing** **CRUD** (Create, Read, Update, Delete) operations for database management.
6. **Deploying** a web application on a **cloud platform** like Render

## *Acknowledgments*

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## *Options available to Execute the Project*

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There are several options available to execute this project:

1. **Local Execution:** The project can be executed on a local machine by installing all the necessary software and dependencies, such as Node.js, MongoDB, and React. This option is suitable for individual developers or small teams.
2. **Cloud-based Execution:** The project can be executed on a cloud-based platform such as AWS or Google Cloud. This option provides scalability and reliability, but requires expertise in cloud services.
3. **Platform as a Service (PaaS):** The project can be executed on a PaaS platform such as Heroku or Render. This option provides an easy and quick deployment process, but may have limitations on customization and scalability.
4. **Containerization:** The project can be containerized using Docker and executed on any platform that supports Docker. This option provides portability and consistency, but requires knowledge of containerization and orchestration tools.

For this project, we used **GitHub** as our code repository using **Git** as version control, and **Render** for deployment.

Render is a PaaS that offers a variety of features including automatic SSL, horizontal scaling, and built-in continuous deployment through its GitHub integration. By utilizing Render's CI/CD feature, we were able to deploy both the front-end and back-end components of the HealthPlus project seamlessly. It also offers easy scaling options for handling traffic spikes and provides an intuitive user interface for monitoring and managing the application.

Git allowed us to easily collaborate on the project with version control and branching features. Render allowed easy deployment of full-stack applications by pulling code from GitHub and automatically building and deploying the application on their servers.

## *Advantages/ Disadvantages*

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### Advantages:

- Improved patient care and management with centralized data management.
- Better access to medical history and faster diagnosis.
- Efficient blood donation camp management and better organization.
- Improved communication between patients, doctors, and hospitals.
- Platform-independent and easy-to-use web application.
- Use of modern web technologies like React and Node.js.

### Disadvantages:

- Dependence on internet connectivity for access to the web application.
- Security concerns regarding patient data confidentiality.
- High initial setup and development costs.
- Need for continuous maintenance and updates to ensure smooth functioning.
- Possibility of errors in data entry or data loss if proper backup procedures are not followed.

**Note:** The advantages and disadvantages discussed above are some of the key specifications of the HealthPlus project. It is important to note that there may be additional advantages and disadvantages that could be considered when evaluating the project.

As the name suggests, the HealthPlus project aims to provide an easy-to-use platform for users to manage their healthcare needs. With features such as appointment scheduling, prescription management, and access to medical records, the project is designed to simplify healthcare management and make it more accessible to everyone. By using modern web technologies such as React and Node, the project offers a responsive and scalable solution that can be accessed from any device with an internet connection. The platform has been developed with ease of use and accessibility in mind, ensuring that even users with minimal technical knowledge can navigate the system with ease. With the HealthPlus project, users can take control of their healthcare needs and manage them more efficiently.