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# Healthcare Management System

# Course Number- 1536 and Course Title- Web Development

# Semester- 4th Semester

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**Healthcare Management System**

# Introduction

The "Healthcare Management System" project aims to computerise the front office management to provide software that is user-friendly, quick, and economical. Information on patients and doctors are registered, stored, and retrievable as needed from the system with the ability to alter the information in a meaningful way. System input consists of data particular to each patient and their diagnosis, whereas system output is the visual presentation of these facts on the screen. Access to the Healthcare Management System requires a username and password. It may be accessed by a front desk agent or an administrator. In addition to automatically saving each patient's and the staff's data, the system may also assign each patient a special identification number. You may find out the condition of each room using the search tool. A doctor's availability and patient data may be searched for using the ID.

It is accessible to admins and front desk staff. Only they can expand the database. The data retrieval process is easy. It has an attractive user interface. Information is securely secured for personal use.

**Purpose of choosing project**

Many healthcare places still use manual processes for maintaining and managing critical information. Several paper forms and data repositories are currently part of the architecture for hospital management. Information is routinely given that is incomplete or does not meet managerial requirements. A rigorous auditing system is required since forms regularly get lost while being transmitted between departments to ensure that no important information is lost. The hospital has several copies of the same data, which might lead to conflicts between the data from various data sources, hence we are motivated towards solving these problems in the form of our project.

# Design and Data Flow

Pages:

* Home Page
* About US/ Services
* Login/ Forgot password
* Registration
* After Doctors Login:

1. Add/View/Update Patient Details
2. Add Prescription
3. View Appointments

* After Patient Login:

1. Book Appointment
2. View Past Prescriptions
3. Payment

* Admin Module:

1. Hospital Staff Management
2. Lab Test Management
3. Patient Data Management
4. Drugs Data Management

* Contact Us
* Settings   
   1. Change Password   
   2. Profile update  
  **ER Diagram:** A computer screen shot of a computer

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**DFD: Level 0:**A diagram of a health care management system

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**Technology Description**

* Java: It is a popular computer language for backend development. We chose Java because there are a lot of advantages to Java.
  + Compile Once, Run everywhere. Java can run on every system that has installed JVM.
  + Java is Object-Oriented and supports polymorphism, encapsulation and inheritance, which is good for maintainability, compatibility and scalability.
  + Java is Strongly typed. That can check code during coding to reduce errors during running.
  + Java has a mature ecosystem and lots of mature frameworks. We can find Java frameworks and get support in Java communities.
* Spring Boot: It is a popular Java framework in the IT industry, which supports modularization and makes development very convenient and efficient. Reducing a lot of development time and increasing productivity.
* ReactJs: It is one of the most popular front-end JavaScript libraries for building web applications, which is simple, SEO-friendly, efficient and easy to learn.
* Bootstrap: It is a popular front-end library that offers multiple component libraries that provides ready-made components and style that can be customized and combined. (Refer: https://www.linkedin.com/advice/0/what-benefits-challenges-using-bootstrap-responsive)
* MySQL: It is one of the relative databases, an open-source relational database management system (RDBMS) with high availability, monitoring, scalability, etc. (refer: https://www.mysql.com/products/enterprise/). We can feel free to back up and encrypt, and it supports transaction management for maintaining data security and integrity. MySQL has two types of indexes, Clustered and non-clustered indexes, which can give business systems high performance for selections and operations. (Refer: https://www.ibm.com/docs/en/ias?topic=indexes-clustered-non-clustered)
* GitHub: It is an open-source, free code management platform for personal and enterprises. We use GitHub for coding to ensure seamless collaboration and integration of our projects. (Refer: <https://everhour.com/blog/what-is-github>)

# Market Survey

In today’s competitive job market many of the technologies and programming languages are in demand. Here, this project proposal represents the findings that we have made on the most sought-after jobs in this tech world. In addition, this plays an integral part when we are also on lookout for jobs. With this recent survey that we have done it will help us to stay on the correct path and eventually will help us in landing a job in our field. The methodology that we have adopted is we researched on multiple job platforms like Indeed, LinkedIn for the position of a web developer. As we know, web development is a vast field, and it opens the doors to many opportunities and interests. However, based on the team research we have shortlisted the top-ten most in demand technologies listed in the organizations.

These are as follows:

1. Java (Spring Framework, Spring MVC)
2. Python
3. JavaScript (REACT, VUE, NODE frameworks)
4. SQL (Structured Query Language)
5. Cloud Technology (AWS, Salesforce)
6. MongoDB (NOSQL Database)
7. Rest API
8. Azure Kubernetes
9. Docker
10. Jenkins

We strongly believe that are some emerging trends in our IT sector such as ethical hacking, the concept of cybersecurity where we are taught the techniques on how the password is encrypted or decrypted and some core concepts about how mathematics play a key role in computers like we practice logic gates, set theory and probability as well. In addition, data scientist is also in high demand in the job market as well.

The motive of this research is to think outside the box and explore various options in the IT sector. Based on our findings these types of emerging technologies create a perfect blend with our career goals. To get a better job, we proposed to work on Java and its other frameworks as well to increase our chances of getting employed.

Hence, we all believe that in this rapid changing of this tech world we should all stay updated will all the emerging future technologies as its going to make an impact on ourselves, the way we think on it as well. Secondly, we believe that our projects will be inclined to our career goals and will meet the industry standards.

We strongly recommend that learning, communication, networking with different people always plays a vital role in securing a dream job. Hence, this is our first steppingstone to succeed in life. Perhaps, the most important is to keep ourselves updated with all the latest tech in the market, one reason being that we start to think on a broader perspective rather being restricted with limited knowledge. It also makes us think of creative ideas and start to build the product as well.

# Conclusion

In closing, the "Healthcare Management System" project is an ambitious effort targeted at revolutionizing the way healthcare institutions manage and maintain critical information. By computerizing front office administration, this initiative aims to address various issues associated with manual operations, such as incomplete or inadequate data, data duplication, and the danger of information loss during transmission between departments.

The suggested system will provide a user-friendly, efficient, and cost-effective solution for healthcare organizations. It will enable the secure and meaningful registration, storage, retrieval, and modification of patient and doctor information. The project's key goals include increasing data accuracy, reducing administrative processes, and improving overall healthcare service delivery.

This design ensures that each user has easy access to the system's key features and functionalities. Furthermore, the technology stack, which includes Java, Spring Boot, ReactJs, Bootstrap, MySQL, and GitHub, was carefully chosen to take use of the benefits of these technologies in terms of compatibility, scalability, maintainability, and development efficiency.

We predict that the initial development phase of the project will take roughly 4 months. This schedule, however, is susceptible to alter due to unforeseen challenges and project complications. Throughout the development phase, regular updates and communication will be maintained to guarantee transparency and consistency with project goals.

In conclusion, we are dedicated in providing a high-quality solution that answers the unique issues that healthcare institutions encounter that will eventually help to enhance patient care and administrative efficiency.

# GitHub Link

Java project: <https://github.com/YourShawn/CapstoneJava>

React project: <https://github.com/YourShawn/CapstoneReact>

Documents: <https://github.com/YourShawn/CapstoneDocuments>