

# Project Plan - Webdoc Hospital Management System

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## INTRODUCTION

### PURPOSE

This software development plan will define the development activities for the WebDoc Hospital Management System. It outlines the overview and scope of the project, the tools and technologies used in the implementation of the project, and the project deliverables.

## OVERVIEW

WebDoc Hospital Management System is a web and mobile application to be used for the management and running processes of a hospital or any other healthcare institution. His app will be supported on the windows and Mac operating systems, as well as a mobile version for android and ios operating systems.

The end customers of the application are the management and staff of the hospital.

## PROJECT SCOPE/FEATURES

The project maintains two levels of users:-

- i) Administrator-level doctor
- ii) User-level data entry operator

The main facilities available in this project are:-

- a) Create, view, update and delete patient records (including personal information, medical data, and previous medical treatments) based on admin permissions.
- b) Pharmacy inventory/database
- c) Employee accounts when signing in (eg. doctor, pharmacy, accounts, etc)
- d) Functionality changes based on the type of user account
- e) Communication platform for hospital employees (circulars, memos, etc)
- f) Payroll management
- g) Consulting doctor interface. Should be able to take notes while consulting, and include pictures of patients' complaints (eg. a wound shown during consultation), videos, and recordings.
- h) Automatic transfer of patient files from attending nurse, to consulting doctors, to labs and pharmacy.
- i) Automatic invoice generation is sent to patient emails at the end of the appointment when the doctor signs the patient out.

## BACKGROUND

A hospital is an institution that provides healthcare services. Hospitals provide services such as:-

- a) Consultation by doctors on diseases
- b) Diagnosis for diseases
- c) Providing treatment facilities
- d) Facilities for patient admission
- e) Immunization, etc.

Some operational tasks carried out in the hospital include:-

- a) Recording patient information and medical records

- b) Generating bills
- c) Recording information related to the diagnosis given to patients
- d) Keeping an inventory of the drugs available at the pharmacy, etc

These are the various tasks that need to be completed in the hospital by the operational staff and doctors. These are all done on paper.

## DEFINITION OF PROBLEMS

The system being used works well enough, but there are some major drawbacks;

- 1) Lack of immediate retrieval.
- 2) Average storage safety. Data stored in paper files are subject to various means of destruction including spills, tears, and insects. Also, the confidentiality of such information depends on the ability of the data admin to keep the document hidden and out of sight.
- 3) Lack of prompt updating
- 4) The error-prone manual calculation and other issues.

## PROJECT SOLUTION

This hospital management system (HMS) provides digital, online storage, updations, and retrieval functionality. The system provides an avenue for little to no paper use, which in turn leads to a more eco-friendly and efficient way of managing hospital data.

It also provides management and accounting tools that would be useful to the admin department of the hospital.

## FEASIBILITY STUDY

The feasibility study is a test of the system proposal according to its workability, impact on the stakeholder, ability to meet needs, and effective use of resources. It focuses on answering the questions:

- a) What are the user's demonstrable needs and how does the project meet them?
- b) What resources are available for the given project?
- c) What are the likely impacts of the project on the proposed user?
- d) Is it worth it to solve the specified user problem?

## TECHNICAL FEASIBILITY

A study of resource availability that may affect the ability to achieve the project. This evaluation determines whether the technology needed for the proposed project is available or not.

- Can the work for the project be done with current equipment and existing software technology?
- Can the system be upgraded if developed?
- If new technology is needed then what can be developed?

This is concerned with specifying equipment and software that will successfully satisfy the user requirement. The technical needs of the system may include front-end and back-end selection.

### **Front-end And Back-end Selection**

An important issue for the development of this project is the selection of a suitable front-end and back-end technology to be used. An extensive study was conducted to determine the most suitable platform that suits the needs of the project.

#### **The Front-end:**

- It must have a graphical user interface that assists employees that are not from an IT background.
- Scalability and extensibility.
- Flexibility
- Robustness
- Easy to debug and maintain
- Have little or no vulnerabilities

According to the above features, React.js was the chosen framework for the front end.

#### **The Back-end:**

- Should have multiple user support
- Efficient data handling
- Provide inherent features for security
- Efficient data retrieval and maintenance
- Operating system compatible
- Easy to install
- Easy to connect to the front end.

Based on the above features, MongoDB was chosen for the backend, using Express and Node.js as well.

Altogether, the MERN stack was chosen to be used for the full-stack application.

## **ECONOMIC FEASIBILITY**

Economic justification includes a broad range of concerns that includes a cost-benefit analysis. In this, the cost and the benefits associated with the project are weighed, and if it suits the basic purpose of the organization.

It seeks to estimate:-

- The cost of hardware and software for the class of application being considered
- The benefits in the form of reduced costs.

This feasibility checks whether the system can be developed with the available funds. The Hospital Management System does not require an enormous amount of money to be developed. This can be done economically if planned judiciously, so it is economically feasible. The cost of the project depends upon the number of man-hours required.

## OPERATIONAL FEASIBILITY

This is mainly related to the human organizations' aspects. The points to be considered are:

- a) What changes will be brought with the system?
- b) What organizational structures are disturbed?
- c) What new skills will be required? Do the existing staff members have these skills? If not, can they be trained in due course of time?

The system is operationally feasible as it is very easy for the end users to operate it. It only needs basic information about the Windows or macOS platform.

## CONSTRAINTS

The constraints of the project include:

- 1) The user interface is written only in English.
- 2) Login and password are used for the identification of the user and there is no facility for guests.

## PROJECT REQUIREMENTS

### **Hardware Requirements:**

Processor:- Pentium II, Pentium III, Pentium IV, or higher

RAM :- 64 MB or higher

Disk Space:- 200 MB or higher

### **Software Requirements:**

Windows 7 or higher, Linux, or macOS

## TOOLS AND TECHNOLOGIES

- a) Version control - Git
- b) Code editor - VS Code
- c) Package manager - NPM

## USER CHARACTERISTICS

Every proposed user should:-

- 1) Be comfortable working with a computer
- 2) Have basic working fluency in English.

## DATA TABLES

### **1. Login table:-**

FIELD NAME	DATA TYPE	DESCRIPTION
username	Text	
password	Text	
hint_question	Text	
hint_answer	Text	
user_type	Text	

### **2. Patient details table:-**

FIELD NAME	DATA TYPE	DESCRIPTION
patient_no	Text	
patient_reg_date	Date/Time	
patient_name	Text	
address	Text	
state	Text	
mobile_no	Number	
marital_status	Text	
gender	Text	
next_of_kin_name	Text	
next_of_kin_no	Number	
age	Number	

admission_status	Boolean	Indoor or outdoor patient
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### 3. Patient diagnosis table:-

FIELD NAME	DATA TYPE	DESCRIPTION
diagnosis_no	Text	
patient_no	Text	
diagnosis_date	Date/Time	
provisional_diagnosis	Text	
remark	Text	
lab_tests	Text	
reconsultation_date	Date/Time	
final_diagnosis	Text	
prescription	Text	

### 4. Lab test table:-

FIELD NAME	DATA TYPE	DESCRIPTION
patient_name	Text	
patient_no	Text	
diagnosis_no	Text	
lab_no	Number	
lab_name	Text	
test_name	Text	
test_price	Number	
test_result	Text	

### 5. Patient prescription table:-

FIELD NAME	DATA TYPE	DESCRIPTION
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diagnosis_no	Text	
medicine_no	Number	
medicine_name	Text	
precaution	Text	
no_of_doses	Number	

**6. Patient fees table:-**

FIELD NAME	DATA TYPE	DESCRIPTION
receipt_no	Text	
patient_no	Text	
reciept_date	Date/Time	
reciept_name	Text	SELF/Cheque
lab_test_fees	Number	
f_total_fees	Number	Total fees in figures
w_total_fees	Text	Total fees in words