**MediBooki Healthcare and Pneumonia Detection System**

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Abstract

We discuss medical booking system and its social benefits to fulfill patients’ needs by connecting them to the appropriate doctor and we discuss the technical requirements for booking doctors in the easiest way. the presentation is not totally completed, but it aims to give an idea of the system-level issues to be considered for real applications. The technology in this area is rapidly developing, and without doubt we will evidence emergence of these applications in the coming years in the market.

1. Introduction
   1. Overview

Our project is a medical information system for hospital which helps patients in their medical needs such as booking doctors and providing pneumonia prediction service for doctors.

* 1. Objectives

Project’s objective is building a powerful system which provides services to patients to fulfill their requirements digitally such as booking doctors and buying medical supplies online using medical insurance; and provides services to admins such as managing users digitally without using hard copy papers by building ease-use dashboard.

* 1. Purpose
* managing patients and their related information.
* Improving patients care by helping them in booking doctors easily and digitally.
* helping radiology doctors in detecting pneumonia using service.
* Helping doctors in managing their appointments.
* Helping admins in accessing users’ information.
* Improving efficiency via taken care of processes automatically.
* Increasing data security & retrieve-ability.
* Accounting, laboratory, and pharmacy management.
* Buying medical supplies from pharmacy page online using electronic payment system allowing them to use medical insurance.
* Serving patients from multiple regions using multitenancy (Software as a Service).
  1. Scope

Mention the scope or range of the project. Scope means the work involved to finish the project. For example planning, designing, coding, testing and documentation.

* 1. General constraints

Mention things that hindered (prevented) your project from being finished on time. This could be due to time constraint, the scope was not clear, collecting raw data for simulation was not easy to access.

1. Project “Planning and analysis”
2. 1. Project planning

In this section we will know everything about the project and study its aspects to understand it very well to start building the system.

2. 1. 1. Feasibility Study

A feasibility study is conducted to find out whether the proposed system is possible, affordable, and acceptable for organization. The financial, political, social and time constraints must be considered during this study.

* Possible: to build it with the given technology and resources
* Affordable: given the time and cost constraints of the organization
* Acceptable: for use by the eventual users of the system.
  + - 1. Technical Feasibility

The primary technical requirement includes the availability of a good version of operating system installed in the network. To develop programs, any good Integrated Development Environment is needed, which can be easily acquired after deciding. Reliability, access, power and data security are also available.

* Hardware Requirements:

➔ Computer Systems: 3 (Available)

➔ Processor: Core i3 Processor (minimum)

➔ RAM: Minimum 8 GB. (1 GB extra RAM is required to use Android emulator and Vs code)

➔ Disk Space: Using an SSD would be a wise decision, but 256GB SSD can be a good choice.

➔ Works on graphic card 4GB to 8GB

* Software Requirements:

1. Web apps can be developed using a number of different alternative languages and IDEs.

➔ Back-End

1. Xampp local host and Vs code “IDE”
2. Php V 7.4 “language”

➔ Front-End

1. HTML, CSS “tools”
2. Local host and Vs code “IDE”
3. Angular “frame work”
4. Android or IOS apps can be developed using a number of different alternative languages and IDEs.

➔Java Development Kit (JDK) and Android studio “IDE”

➔Git.

➔Dart “language”

➔ Flutter “frame work”

AI feature:

➔Anaconda environment

* + - 1. Economic Feasibility

Whether the MediBooki is cost effective or not? The benefits in the form of reduced cost?

MediBooki is economically Feasible. As the hardware cost on the project is low. Similarly. it’s cost is also under the budget. Moreover, some of the technical requirements are already available and some can be obtained by using a reasonable amount and effort.

* + - 1. Operational Feasibility

MediBooki is operationally feasible. it provides the necessary information to the user as how to enter the information, how to register, selecting the interests, giving permissions to the apps. Some prior knowledge is required for the management to go through the various operations. But for the user basic knowledge of computers is enough

* + 1. Gantt Chart

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* 1. Analysis and Limitation of existing system
* At the beginning of our study of the project, we found that the current manual medical system is difficult for the patient these days, so we decided to try to make it easier for patients and doctors as well by making an electronic system that would be an intermediary between them and also between them and the hospital. **We found the following:**
* There are many medical systems, but we did not find one of them that contains all the needs of the three categories patients, doctors and the hospital.
* The patient has to go to the hospital to book his doctor, and he finds it difficult because he sits and waits for a lot of time.
* The patient is forced to go to the hospital to book his doctor, and he finds it difficult because he sits and waits for a lot of time and also book the work of x-rays and medical tests and also receive them.
* We also found that the proportion of patients with pneumonia affects about 15% of children under the age of five around the world, according to the World Health Organization. <https://www.who.int/ar/news-room/fact-sheets/detail/pneumonia>.
* Under the spread of the Corona virus, the patient, if he suspects that he has the disease, tends to make Lung x-ray, where pneumonia appears.
* We found that these days, the state is working to reduce the circulation of currencies and dealing with them and towards electronic payment.
* We also found it difficult to organize between doctor's and patients' appointments.
* We also found that the doctor does not see the patient’s medical history, so the doctor is forced to ask each patient about his medical history and his details, but the medical history is not recorded in order to be preserved if the same patient goes again in follow-up.
* We also found administrative and accounting problems in hospitals.
* We also found that there is a difficulty in dispensing medicines to patients and that they do not reach those who deserve them.
  1. Need for the new system

With evidence fully support why you have to migrate from the old system. What are the weaknesses of the old system that let you think it is a good idea to develop a new system?

* 1. Analysis of the new system

In this section we capture and collect all requirements of stakeholders and end-users identified in section.

2. 4. 1. User requirements

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* + 1. System Requirements

Fsdfsdfsdfsdfasf

* + 1. Domain Requirements

Davsdvavsvsavas

* + 1. Functional Requirements

They describe what the system/software must do; functionality or services (a function is a useful capability provided by one or more components of a system). Therefore, they specify an action that a system must be able to perform.

* + 1. Non- Functional Requirements

It specifies system/software properties (such as reliability and safety), and constraints on the services or functions offered by the system (such as timing constraints, response-time), or constraints on the development process.

* Usability & Humanity.
* The product shall be easy to use on the first attempt by a member of the public without training.
* **Intuitiveness:** the interface is easy to learn and navigate; buttons, headings, and help/error messages are simple to understand
* Performance.
* **Response Time:** The system provides a fast acknowledgment.
* **User-Interface:** The user interface acknowledges fast as we are using single page application.
* Maintainability & Support.
* Expected changes, and the time allowed to make them.
* **Back-Up:** The system offers efficiency for data backup.
* **Errors:** The system must be support error handling and will track every mistake as well as keep a log of it.
* Security.
* **Logon ID: -** Any user who uses the system shall have a Logon ID and Password (Authentication).
* **Modification: -** Any modification (inert, delete, update) for the Database shall be synchronized and only by the role that user has in the ward (Authorization).
* Availability.
* The system shall be available all the time.
* Software Quality.
* Good quality of the framework= produces robust, bug free software which contains all necessary requirements Customer satisfaction.
* Reusability.
* Is part of the code going to be used elsewhere= produces simple and independent code modules that can be reused.
  1. Advantages of the new system
* **Validation**: usage of validation and regex when logging into the system and registering for the first time.
* **Verification:** Email verification will be sent to patient when registered.
* **Roles & Permissions:** Each user has his own permission so based on user permission he can does any modification on specified tables in the database (insert, delete, update, etc.).
* **Response Time:** The system provides a fast acknowledgment.
* **User-Interface:** The user interface acknowledges fast as we are using single page application.
* **Back-Up:** The system offers efficiency for data backup.
* **System Tracking:** The system will track every mistake as well as keep a log of it.
* **Availability:** The system is available all the time.
* **Support Multilingual:** The system supports two languages (Arabic and English).
* **Support Multitenancy:** Instead of forcing you to change how you write your code, the system by default bootstraps tenancy automatically, in the background. Database connections are switched, caches are separated, file systems are prefixed.
  1. Risk and Risk Managements

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1. Software Design

4. 1. Design of database (ERD or Class) Diagram

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* 1. Use case diagram

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* 1. sequence diagram

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* 1. activity diagram

vyfvyvytvvbvyubuy

1. Implementation


5. 1. Software architecture

Here you have to mention about both the software in the client and server side. You have also to show the communication between the client and server diagrammatically. Briefly mention the technology used for client/server communication. Also try to explain the objectrelational mappings which facilitate data transfer between client and server.

* 1. Pseudocode, Flowchart or workflow

Mention the communication steps between the client and server.

1. Testing
2. 1. Unit Testing

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* 1. Integrated testing

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* 1. Additional Testing

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1. Results and Discussion
2. 1. Results

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4. 1. 1. Expected result

Mention what your project supposed to do. What is the theoretical result?. All what you have to mention here as if the project will work 100%

* + 1. Actual results

This is the actual result what you have achieved from the project.

1. Conclusion

Divide your conclusion into 2 paragraphs. First paragraph should include summary of your report including your achievement Second paragraph your recommendation how to enhance the project if you are given the right resources.

1. Future work

Appendix

If your report has long codes, calculations, pictures, maps, graphs, illustrations, photographs, survey questionnaires, personal reflections, interviews, and other additional information put this as appendix. The purpose is the body of your report should remain clean