Simple Hospital Management System

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Submitted in partial fulfillment of the requirements of the degree of
Bachelor of Science in
Computer Science and Engineering

Department of Computer Science and Engineering
Bangladesh University of Business and Technology

November 2022

Declaration

We do hereby declare that the project works presented here entitled, "Simple Hospital Management System" are the results of our own works. We further declare that the project has been compiled and written by us and no part of this project has been submitted elsewhere for the requirements of any degree, award or diploma or any other purposes except for this project. The materials that are obtained from other sources are duly acknowledged in this project.

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Approval

I do hereby declare that the project works presented here entitled as Simple Hospital Management System are the outcomes of the original works carried out by Anayat Hossain, Md. Shahariar Nabi , Tomal Isidore Gomes, Hasan Al Banna, Md. Jubaer Ahmed and Ahmed Sahajuddin under my supervision. I further declare that no part of this project has been submitted elsewhere for the requirements of any degree, award or diploma or any other purposes except for this project. I further certify that the dissertation meets the requirements and standard for the degree of Computer Science and Engineering.

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Dedication

We would like to dedicate this project to our loving parents . . .

Acknowledgement

We are deeply thankful to Bangladesh University of Business and Technology (BUBT) for providing us such a wonderful environment to peruse our project. We would like to express our sincere gratitude to T. M. Amir - Ul - Haque Bhuiyan, Assistant Professor, CSE, BUBT. We have completed our project with his help. We found the project area, topic, and problem with his suggestions. He guided us with our study, and supplied us many articles and academic resources in this area. He is patient and responsible. When we had questions and needed his help, he would always find time to meet and discuss with us no matter how busy he was. We also want to give thanks to our CSE department. Our department provide us logistic supports to complete our project with smoothly. We would also like to acknowledge our team members for supporting each other and be grateful to our university for providing this opportunity for us.

Abstract

We humans have been using handwritten mechanisms for keeping record about anything and everything. In medical care it is very important to keep record of every detail of a patient. We have developed a data-entry software for storing information about patients in a simple yet effective manner. The data is stored in binary form to be able to hold a high amount of data since hospitals have to keep records of hundreds of patients.

Our Hospital Management System aims to store and manage every patient's data. It records and retains the patient's past visit details including their name, disease, age, contact number, etc. The software be mainly used to fully computerized hospital front desk management system that is quick, user-friendly and cost-effective.

Contents

1 Introduction

1.1 Introduction

In today's day of modernization, we as humans have steered away from using handwritten mechanisms for keeping record about anything and everything. Since medical care is of vital importance in our lives, we have developed a data-entry software for storing information about patients in a simple yet effective manner. The data is stored in binary form to be able to hold a high amount of data since hospitals have to keep records of hundreds of patients.

Simple Hospital Management System (SHMS) aids in the registration of complete patient data. It records and retains the patient's past visit details including their name, disease, age, contact number, etc. It reduces the requirement for these details to be obtained at each software visit. The software mainly aims to be a fully computerized hospital front desk management system that is quick, user-friendly and cost-effective to reduce manual registration of patients to minimize the possibility of errors in the patient record.

1.2 Problem Statement:

Medical care is one of the most crucial services in the current world. Therefore it requires a lot of careful attention from the hospital authorities to provide a safe mechanism to ensure proper maintenance of patients' data.

1.3 Problem Background:

Our healthcare workers already have more than a lot to do. Taking care of unlimited patients is no easy job. An additional task of managing their data makes their work even more difficult. Manually taking care of hundreds of patients' information is a tedious task for the healthcare workers. Reducing such a barrier in their work flow and improving productivity is of dire need.

1.4 Project Objective:

Following are the objectives of the proposed software:

- Reducing the workload of data-entry operators in hospitals
- Saving time and increasing productivity
- Maintaining confidentiality of patient data
- Storing a vast amount of patient data

1.5 Motivation

For a data-entry operator or receptionist, keeping track of every patient's details using manual methods is time-consuming and ineffective. There could arise situations where there may be too many patients to handle and multiple data-entry operators need to be working to enter their information details, whereas the entire burden could be managed by using a simple automated form of technology.

1.6 Project Contribution

The overall contribution of the proposed software includes:

- Adding details about one or more patients
- Viewing the entire record about the patients
- Searching up a patient using only one of his/her details
- Editing patient information
- Deleting one or more detail about any patient
- Storing the data in binary form to hold a large amount of data

1.7 Project Report Organization

An overview of the steps of the project report is organized as follows:

Chapter 2 presents the literature review on the Simple Hospital Management System.

Chapter 3 contains the analysis of the requirements, feasibility and methodology of our proposed software in detail

Chapter 4 provides a brief discussion of the implementation, tests, and evaluations to estimate our software.

Lastly, Chapter 5 is a review of our project work, including conclusions as well as discussions about the objectives for future work.

1.8 Summary

This chapter comprises of a broad overview of what problems we are specifically targeting to solve, what the purpose of our project is, along with the motivation for the output of the software. This section also represents the overall steps on which we carried out our entire project.

2 Literature Review

2.1 Introduction

Now at this age of modern technology, everyone from every sector is trying to get their work done with the help of technology supply-chain management, robotics, vehicle registration, national identity card management and more with the help of different programming languages. The project Simple Hospital Management System is also one of such projects. It makes work in hospitals easier and faster for both patients and the hospital management authority. Hospitals are very modern nowadays because of the features used in this type of management programs.

2.2 Related work

Dr Steve hospital which is located in Miami, Florida, has a capacity of holding 1000 patients per day. Having that many patients and giving them proper medical experience use a software management system. There features of this software include:

- Administration: To get basic information about the hospital and help to get information about patients.
- Store: With this method we can get the number of medicines available at the hospital.
- Billing: The bill is granted once the patient is discharged by the doctors.

The challenge: The challenge was the fact that there were many patients coming outside from the city. In that case it was more likely necessary to have an online platform or website which would help them to take appointment in advance.

The solution: To resolve such a challenge, a website has to be made which will help patients to book their appointments before their flight or arrival.

2.3 Problem Analysis

By researching deeper in the project, there was a problem which came out of it. To ensure a protected use of software, a method of using or implying password is important. This feature is currently unavailable in it.

2.4 Summary

The software is built for making the work environment easier and faster at any hospital. Modern technologies were used to build it and it works well having no error. A problem was found which can be resolved by taking more time on building or including a function which will give it protection.

3 Proposed Model

3.1 Introduction

This chapter represents the proposed model and illustrates the feasibility analysis, requirement analysis as well as methodology where we will discuss how we developed the project which is a simple hospital management system that is used to make the hospital management easier and efficient. Additionally, this chapter represents the procedure of how we developed the project with the programming language C with the compatible hardware. We will also highlight technical economical aspects of it.

3.2 Feasibility Analysis

Feasibility analysis is the method of concluding the fallibility of a system. This study is essential to open new concepts that could effectively improve a project's scope. So, it's best to make these decisions in advance. Now, in this part, whether the system is feasible for development or not will be discussed. This study also includes the availability of resource codes, evaluation of cost, how this system can benefit an organization and how the system can be maintained after developed. There are two types of feasibility to measure this analysis that is technical and economical.

Technical Feasibility: In technical feasibility, whether we have the technical knowledge to manage the completion of the project has been discussed. Mainly, how hardware and software meet our proposed system has been evaluated in this part. To complete this project, we will use the programming language C and Codeblocks as the IDE to develop the project. For hardware, the configuration has to be minimum RAM 1 GB, hard disk space 2 GB + caches at least 100 MB . So, it can be said using this software and hardware, the proposed system can be developed efficiently.

Economic Feasibility: In economic feasibility, the cost of developing our system has been analyzed. Also, we define whether the system is capable of producing financial gains for an organization. The cost of completing our project is almost

zero because we don't need any additional purchases for hardware and software. In this project C has been used as the programming language which is free to use. So, we do not need any financial support to develop this project. For hardware, the configuration has to be minimum RAM 1 GB, hard disk space 2 GB + caches at least 100 MB. Now for the benefit, this system will help the hospital management to collect and analyse the financial aspects of the hospital as this project will help to store the financial documents of patients. Also this project is very low at cost to build and maintain. So, overall this project is very efficient for the hospital authority to maintain economically.

3.3 Requirement Analysis

Requirement analysis is significant and essential activity after elicitation. We analyze, refine, and scrutinize the gathered requirements to make consistent and unambiguous requirements. This activity reviews all requirements and may provide a graphical view of the entire system. After the completion of the analysis, it is expected that the understandability of the project may improve significantly. Here, we may also use the interaction with the customer to clarify points of confusion and to understand which requirements are more important than others.

3.4 Summary

In this section we tried to discuss about all the feasibility analysis like technical feasibility, economic feasibility and also requirement analysis. We discussed about the development of our project using a single programming language and minimum required hardware needed to run and develop the software. We have also discussed the technical and economical aspect of this project.

4 Implementation and Testing

4.1 Introduction

To be used efficiently, all computer software needs certain hardware components or other software resources to be present on a computer. These prerequisites are known as(computer)system requirements and are often used as a guideline as opposed to an absolute rule. Most software defines two sets of system requirements: minimum and recommended. With the increasing demand for higher processing power and resources in newer versions of software, system requirements tend to increase over time. Industry analysts suggest that this trend plays a bigger part in driving upgrades to exist computer systems than technological advancements.

4.2 Hardware Requirements

The most common set of requirements defined by any operating system or software application is the physical computer resources, also known as hardware. The hardware requirements list is often accompanied by a hardware compatibility list (HCL), especially in the case of operating systems. An HCL lists tested compatible, and sometimes incompatible hardware devices for a particular operating system or application. The following sub-sections discuss the various aspects of hardware requirements.

4.3 Hardware Requirements for the Present Project

- PROCESSOR: Intel dual Core i3
- RAM: 1 GB
- HARD DISK/SSD: 80 GB

4.4 Software Requirements

Software Requirements deal with defining software resource requirements and prerequisites that need to be installed on a computer to provide optimal functioning

of an application. These requirements or prerequisites are generally not included in the software installation package and need to be installed separately before the software is installed.

4.5 Software Requirements for the Present Project

- OPERATING SYSTEM: Windows 7/ XP/8/10 Home, Education, Pro/11 Home, Education, Pro
- FRONT END: C Language

4.6 Summary

Hospitals are known for their complex daily processes. The main benefits of implementing hospital management software are automation and optimization. By eliminating manual steps, the stress and workload of hospital employees decrease while productivity and coordination improve. These give a lasting competitive advantage to the hospital facilities and a more flexible allocation of human resources. In the medical field, it has long been established that hospitals which use manual management systems are more prone to data leaks and information thefts than digital ones. A full-fledged HMS keeps all information safe from unauthorized access right up to the last kilobit. The access-control system eliminates the probability of an error that raises the chances of access to vulnerable information by an unauthorized person, which has been the main reason for the widespread occurrence of HMS in recent years. To make a hospital management system software, we should clearly understand what processes we want to establish, what functions the system will support, and clearly define its users. All the determined requirements for the system are fixed in SRS (Software Requirements Specification) to achieve a common vision on the product with the vendor and lay down the optimal set of functions. Accurate estimation is also formed on an SRS basis. It can be drawn for us by a specialized company or a vendor that provides the software product on a turnkey basis.

5 Conclusion

5.1 Conclusion

In this project, we created a system where a hospital authority is able to view, store and collect a patient's information specifically. Here on this software a hospital is allowed to collect, store, edit information of patients like their name, age, phone number, disease name, serial number and also cabin number if a patient is admitted. It helps hospital to get information about every patient, helps doctors to know details about patients, helps patients to get easy access on their future appointment and also helps to check whether a cabin/room is available or not in the hospital. Our main motive behind developing this software is to ensure patients care and treatments by using various information of a patient and also help a hospital to treat a patient more effectively. It also reduces paperwork, makes a hospital's data secure and data-uses easier.

5.2 Limitation and Future Works

5.2.1 Limitation

There are a few limitations of this management system. Firstly, it is Quite costly for a hospital to maintain this system. Hospital also needs some qualified staff for proper maintenance. Secondly, it is also risky for hospitals because there is a chance of cyber attacks due to a lack of security features in the software. This can ruin all the data and information of a patient.

5.2.2 Future Works

Recently hospital management system has become of vital importance and it is appealing to many hospitals because of its uses in a variety of sectors for initializing data information and data analysis. However, there are deficient works accomplished by this system so far. This software is less challenging than paperwork and has the potential of being a very helpful tool for hospital reception desks.