HOSPITAL BED MANAGEMENT SYSTEM

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This report is submitted in partial fulfillment of the requirements for the
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2015

DECLARATION

I hereby declare that this project report entitled

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is written by me and is my own effort and that no part has been plagiarized without citations.

STUDENT : _____ Date: _____
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SUPERVISOR : _____ Date: _____
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DEDICATION

To my parents, Mr Md.Azam Bin Abdullah and Mrs Zaipah Binti Muda thank you for your sacrifice and love.

To my supervisor, Mdm Safiza Suhana Binti Kamal Baharin thanks you for your sacrifice, time and knowledge. May your knowledge are blessed.

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ABSTRACT

The medical field is a field that is most challenging because it can save thousands of lives. But in the use of technology in this field is much bit and most of the work was done manually. The comparison between overseas medical fields is already comfortable and quiet good in term of service and electronic system. Back to our country, Malaysia which also have a medical services using electronic way but the existing system not complete yet. Example, the searching and calculate of bed availability in requested ward still done manually by making a phone call from one ward to another. So this may cause a miscommunication among nurse when there have different patient for the same bed. Therefore, this document is purposes to apply some functionality to the existing system to make the medical field become more efficient. The system that has been developed which is Hospital Bed Management System (HBMS) is to change the manual system to the web based system. By using this kind of system, the user can customize the patient in effective way. This system also can make the patient information can be retrieve in a short time. Besides, this system is not complicated to understand and easy to use.

ABSTRAK

Bidang perubatan adalah satu bidang yang paling mencabar kerana bidang ini boleh menyelamatkan beribu-ribu nyawa. Tetapi penggunaan teknologi dalam bidang ini adalah sedikit dan kebanyakan tugas harian dilakukan secara manual. Berbeza dengan bidang perubatan di luar negara yang mana kemajuan teknologi dan sistemnya telah jauh kehadapan. Walaupun Malaysia juga telah mengguna perkhidmatan perubatan yang menggunakan elektronik tetapi sistem yang sedia ada masih memerlukan pembaharuan Contoh, pencarian dan mengira ketersediaan katil di wad diminta masih dilakukan secara manual dengan membuat panggilan telefon dari satu wad ke wad yang lain. Jadi ini boleh menyebabkan berlakunya masalah salah faham di kalangan jururawat apabila terdapat lebih dari seorang pesakit untuk katil yang sama. Oleh itu, dokumen ini adalah bertujuan untuk menambahbaik beberapa fungsi untuk sistem yang sedia ada sebagai langkah menjadikan sistem perubatan sedia ada menjadi lebih cekap. Sistem yang telah dibangunkan melalui tesis ini dikenali sebagai Hospital Sistem Pengurusan Bed (HBMS) adalah untuk mengubah sistem manual kepada sistem berasaskan web. Dengan menggunakan sistem ini, pengguna boleh memberi perkhidmatan kepada pesakit dengan lebih sistematik. Sistem ini juga boleh mencari maklumat pesakit dalam masa yang singkat. Selain itu, sistem ini tidak rumit untuk difahami dan mudah untuk digunakan.

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CHAPTER 1

INTRODUCTION

1.1 Project Background

In the world of hospital management it has been the normal routine when they have to meet the patient for their process to get treatment in hospital. The patient will meet the hospital staff, nurse to make registration before go to the next process to get the treatment, appointment, checkup or pharmacies. As we know, all of the process is handling by using the existing system that has been developed for daily uses. But for in certain situation, the staffs of hospital are still handle certain process manually. Especially for bed registration in ward for patient that need to stay and get treatment here for certain time. Up until now, in certain hospital have been face the same problem due to search empty bed to place their patients.Every time when their patient register at this hospital, the doctor or nurse on duty need to call other nurse at different ward to ask about the emptiness of bed for the new patient. It also hard for patient to wait for treatment.Nurse also face problem when they need to call one by one about this problem

because they does not know about the changes of bed in each ward according to the each class.This method is outdated and time-consuming, and may be improved by applying technology and designing a new system that friendly to everyone.

From this situation, I will take this reference to build the Hospital Bed Management System that can help the nurse to make the process of bed registration run smoothly due to the increasing numbers of bed and ward in the hospital. Hospital Bed Management System is built to make the registration and searching process between the nurse and patient run smoothly without any problem. To do this project, research is needed to be done to get the information that related to this project. This project can be developed smoothly if I know the flow of the system and collect enough information through interview, through this review, I can add more function which is suitable for this system and all these functions can reduce the workload of the user.

Some research has been done by doing interview, observation, and research from internet and discussion with project supervisor to get the information that can help to build this system more effective and efficiency. All the research will be compare and combine for the reference to this system. Besides, from analysis that have been done, the existing system provided in the hospital does not related to the bed and ward modules. Because of that, in this system I will combine the needed modules together to make an interrelated among existing modules. There are four modules which are login modules, ward modules, nurse modules, staff modules, bed modules and bed patient modules.

The user for this system is the staffs, which are nurse and senior nurse. Senior nurse is a person that will handle nurse on his or her ward only. Then, the nurse is a person who is helping the management to do the registration of patient and assign to the available bed in ward needed.

1.1 Problem Statement

Two perspective of problem which is a hospital with an existing system and a hospital without existing system have to be clarifies so a hospital system which is free of all these problems and has extra features can be developed to help the staff to do their daily routine. The problem statements in the hospital management are:-

i. Nurse face difficulty in searching and calculate the total bed available in the different types of ward.
ii. Miscommunication among nurse when there have different patient for the same bed.
iii. Patient dissatisfaction on wasting time when wait for the treatment.

1.2 Project Objective

HBMS emphasize on developing a functional management system for the database record storage and it is bringing many benefits to the user. The benefits of the HBMS are as below:

1. To develop a real-time web based application for bed management system that find the availability of bed for patient according to ward chosen.
2. To provide bed availability searching tools to ensure the process of transfer patient to the bed availability that have bed search run clearly.
3. To enhance the manual system used to generate a report regarding bed management for hospital admin staff to meet the performance requirement.

1.2.1 Project Scope

HBMS is suitable used by big hospital because the hospital separate into many ward. There are 2 categories in the Hospital Bed Management System which are users and modules.

1.2.2 Scope Of User

HBMS is used by the senior nurse and nurse. Senior nurse is a person that will handle nurse on his or her ward only. Then, the nurse is a person who is helping the management to do the registration of patient and assign to the available bed in ward needed.

1.2.3 Scope Of Modules

This project is focus on maintenance staff data, registration, manages ward and bed management. The bed is not fixes because it is depends on the emptiness and availability of the ward in certain time.

For Login Modules, the purpose is to authenticate the identity of the user so that only authorized user is allowed to access the system. After the user success login to that system, they only can view and handle on their own field of work.

For Registration Modules, this module will manage the new patients that check in in this hospital. After the finish the patient complete their registration, they

will placed to the bed in ward according to the treatment that will give by the doctor. Then, the information will be saved into the database.

For Staff Modules, the senior nurses only have a power to handle staff that same ward with him or her. Then, nurse only can view their personal information and update certain information if necessary.

For Ward and Bed Modules, these modules will manage the total of bed availability of the ward. Besides, the total of bed free, bed occupied and bed damage will calculate automatically because of the trigger was a use in developing it which is includes three tables to do it.

For Patient Modules, this module will manage the patient registration. The searching is uses to find the patient information according to the patient name, patient ID, patient address and others.

1.3 Project significance

Since the system is developed specially for Hospital, this system will provide solution for them and thus sustain the business process of the hospital. This system will largely use by the nurse and give the opportunity for the nurse to manage their patient efficiently. Because of the existing modules have been interrelated with this ward and bed modules, it can make the process run smoothly and reduce manual process uses in manage patient.

1.4 Expected output

The proposed system is very easy to operate and used at any time. This system will be the main advantages for hospital management in the proposed system. The proposed system can be easily receive any information about the ward and bed availability during the registration and assign bed process. Besides, the bed and ward also can be manage efficiently according to the calculation that has been make through this system to know the status of certain bed certain time. The staffs which are nurse and senior nurse also can track the patient easily according to the patient and bed information.

Moreover, it makes tem easily to handle all the data systematically and efficiently. And last but not least, this system is expected can be fully developed and 100% working and also meet the entire objective requirement.

1.5 Conclusion

Hospital Bed Management System is developing to help the hospital to manage bed by providing real time web based information to nurse and ward staff. It will begin when patient make a registration until the patient check out from the ward. This system will have some module that must have to develop which are to manage patient information, manage bed and ward.

The main purpose of developing this system is to manage all process systematic and efficiently due to the increasing numbers of bed and ward in the hospital. This system also to improve current system (i.e. phone-based) to arrange the bed to be more efficient and indirectly helping hospitals meet performance target.

The aim of this system is to reduce the complexities of service management, to model the business flow, analyze the flow and to develop a system that can help the nurse in process registration bed efficiently.

In order for the system to solve the problem, a methodologies approach must be well established, and necessary information must be obtained. The next chapter will describe the methodology used and the information gathered from all available resources.

CHAPTER II

PROJECT METHODOLOGY AND PLANNING

2.1 Introduction

Project methodology is a process where results is planned and at the same time to achieve goals. There are many methodology used to develop software product. Each of this methodology has different kind of implementation to help organization to manage their project on time.

2.2 Project Methodology

Methods used during developing system are very important to estimate the time of the system to be delivered. Methodology that have been applied is the waterfall model

because by using waterfall model, if there are problems that arise in any stages, the developer can refer back to the previous stages and make the correction on parts which causes the problems to arise. The Waterfall Model has six phases which include planning, analysis, development, implementation and maintenance. Each of the stage is a starting stage of the next stage. Therefore, developer decided to use Waterfall Model based on Database Development Life Cycle (DBLC) as methodology to develop this system.

The first phase of the model is the initial planning of the project. This is known as the concept of determining the project requirement, business function and system's scope. All possible requirements or opportunities of the system to be developed are captured in this phase and documented in a requirement specification document. Then, the objectives and goals that need to be achieved are set up. The proposal must be done and submit to the supervisor or authorities to get approval to process the next step which is the schedule and milestone, including time plan and scope.

Process analysis is a next phase.In this phase, the developer will collect the requirement and information that related to the system and project. This process including the observation, searching information and another method to obtain the information.

The third phase is design development. System architecture, interface, hardware and software are a part of this phase. The developer must clear with the component and test its.If necessary, the developer will make any changes to the design.

The last phase is implimentation and testing. Implimentation of the system is including two part which are source code of database and interface. The process of implimentation need to maintain in term of color, button, font from the beginning. Testing must be done in order to know whether the system work follow the requirement needed or not. Besides, this phase also can know the system need to change or proceed.

2.3 Project Schedule and Milestones

The project schedule is crucial in monitoring the progress of project development and to ensure all milestones is achieved on time. Refer APPENDIX A for project schedule while APPENDIX B for Milestone.

2.4 Conclusion

As a conclusion, this chapter is discussing about the project methodology that is using to define the planning of the project. A good planning will often lead to a good ending of a project. Thus, the planning was presented in this chapter. Some more, a schedule is created in this chapter in order to have a good time management so that system can be done in time. A milestone allows project management to much more accurately determine whether or not the project is on schedule. Lastly, the software testing aspect will be discussed in the next chapter.

CHAPTER III

ANALYSIS

3.1 Introduction

In this chapter, it will explain about step that will be taken to make sure the system that will develop is more efficient and more systematic. Thus, current system need to be analyzed to determine existing problem faced. So, problems will manage easily and can be improve based on the analysis of the system that we need.

Some requirement will be illustrated by using Data Flow Diagram (DFD). It will focus on function of the system that will be generated the system completely such as records the data, transform and transmit the data successfully. Another requirement also can be analysis such as; software and hardware that have been choose to develop the system.

Analysis of this system will be divided into two stages which are the analysis of existing system and new systems to be developed. This analysis can be described using Context Diagram. Analysis phase is the process to identify the needs or the system either in terms of users, organizations or standards set.

3.2 Problem analysis

In problem analysis, we find out that there is some activities are done manually especially when they want to search available bed for patient. It makes the flow of the job of nurse and doctor become slow and inefficient. Problems arise such as registration, shortage of manpower and unorganized information.

Nurse is helps the patient to do registration through a card and the card is stored in a large cupboard by using file system. The file system is unorganized and nurse hard to find the patient information. The information written by hand is unreadable and nurse may interpret the information wrongly. The patient needs to wait to be search and check in to the request ward and this waste the time.

Searching ward take more time because the nurse need to make phone call from one ward to another to make a confirmation before they give a pass to the patient. While, the shortage of manpower makes the nurse has to do many jobs at one time such as registration, medication and others. Because of the existing system not integrate with the searching bed function, this problem make difficulty to the nurse to get the number of bed available to assist their patients. Meanwhile, the manual searching ward and bed that have been done by this hospital is relay ineffective and the existing system does not have the search ward function integrate to the other function. From this, some initiative will be take and focus to improve this problem.

3.3 The proposed improvements/solutions

Some solution will be taking so that the problems that get from analysis can be improved to build an efficient system. All the analysis will be compared to find the best solution and will be implementing in the system to be build. For this system, the problem in searching patient will be solve because this system will provided it in order

to manage the number of patient that have been increases every years. Besides, problem in searching bed availability also can be solved because the Hospital Bed Management System can help nurse to retrieve bed availability in a few times.

3.4 Requirement analysis of the to-be system

Requirement analysis is used to analysis the software and hardware that are used to develop the system. It is also analysis what are the processed and functions of the system that it will develop.

3.4.1 Functional Requirement (Process Model)

In Hospital Bed Management System, there are functions that will show the flow of the process from patient registration until they check out from this hospital. The using of function search will retrieve patient data faster and this will reduce nurse time. For ward and bed function, it will help nurse to enhance bed availability in a few time. Besides, this system also can transmit data easily.

3.4.1.1 DATA FLOW DIAGRAM (DFD)

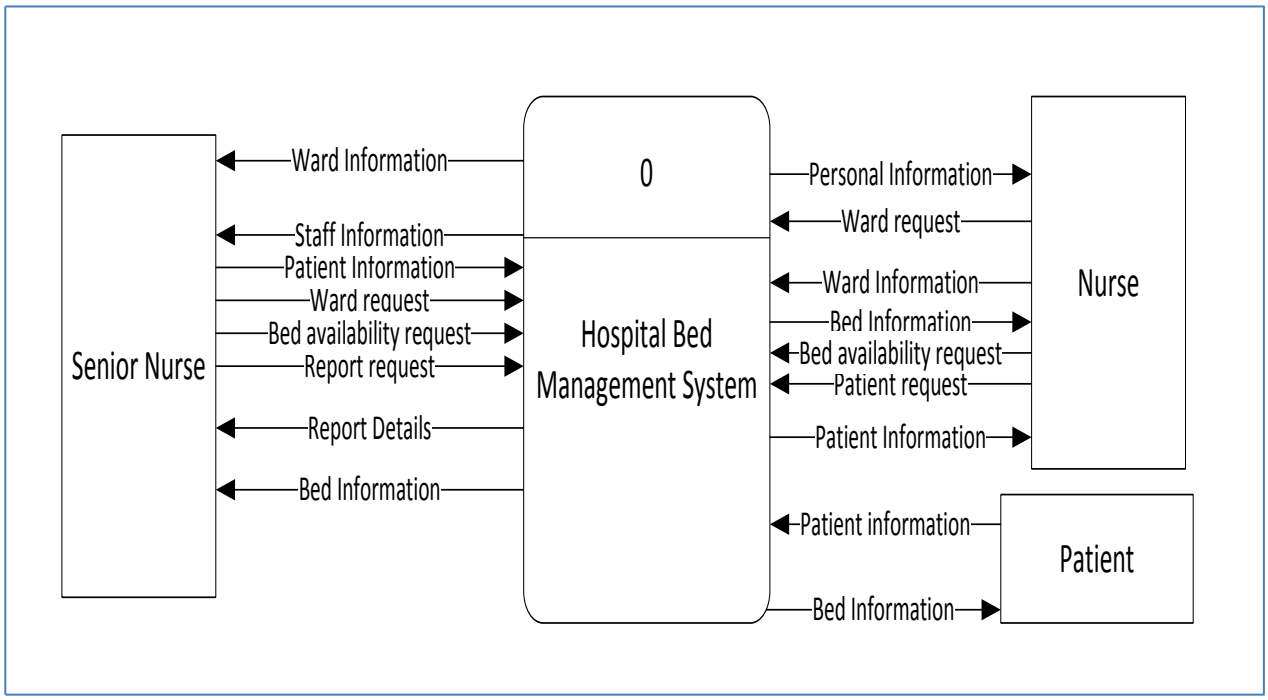

Figure 3.1: Context Diagram

Figure 3.1 above showed flow of the system based from the user requirement. The user involve in this web based application are nurse and senior nurse.