CS 353 - DATABASE SYSTEMS

PROJECT PROPOSAL

Group 28

Hospital Database Management System

HealthyMe

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1. Introduction

This report is about our project proposal of a Hospital Database Management System. ***Our Project name is*** **“HealthyMe”** and this project proposal explains the basic functionalities and extent of our project. The aim of this project specifying basic function, the limitations and restrictions, how will be the “HealthMe” database system, which tools will be used to implement it.

Firstly, the report will start with Project Description, this section will explain the scope of HealthyMe. In addition, we will explain why we need a database for this project and what the implementation will look like.

After Project Description, reports explain what are our requirements, how we define them, functional and non-functional requirements explained. It is important to explain them very clearly and analyze the user. Functional requirements are the result of analyzing the user, the permission and capabilities of the system explained. In non-functional requirements, performance, reliability of system clarified. Limitation of project and which tools and frameworks will be used to design HealthyMe database system.

Lastly, after the Project Description and requirements section the most important part, even the heart of the project, is explained which is the ER diagram. To design a good database system, it is important to have a strong and clear ER diagram.

2. Project Description

Hospital Database Management system (HealthMe) is a web-based application for managing systems of hospitals and aims to create easier access for patients and hospital employees. System stores information about patients, doctors, laboratorians, departments, tests, symptoms, diseases etc. In HealthyMe patients can book appointments for doctors and they can see their test results from the app. Patients can see their bill and can pay bills via online.

The aim of our project is to create easy access for both sides. In this lock down period sometimes people feel lazy and health is not a topic that we can postpone. Using this web-based app they can easily arrange their meetings. The system will constantly be updated to protect user information securely and correctly.

2.1. Purpose of a Database for Hospital Management System

A hospital contains a set of entities such as patients, doctors, laboratorians, departments, tests, symptoms and diseases and these entities have relations among them. The data of tests should be stored as results in order to make the tests visible and understandable by the doctor. Since a hospital may have a huge amount of patients, doctors and tests, this information will be hard to manage and store. They should be stored in a database system to avoid unreliability and mistakes of storing information.

3. Requirements

3.1. Functional Requirements

There are 4 main end-users in the HealthyMe app. Patients, doctors, laboratorians and nurses. Each type of user should authenticate themselves with a given box. There are 2 boxes for users, one of them for employees and another one for patients. System will detect employees' positions using their ID.

3.1.1. Patients

- This type of user has limited access in the database system.
- In the hospital the id will be given to patients and patients will use this id when he wants to learn about his/her process.
- When patients enter system their login info will be saved and when his/her test result announced user will get notification
- User can arrange appointment with doctor
- User can check his/her appointment later to be sure

3.1.2. Doctors

- This type of user has more access in database system
- Doctors can see their appointment
- They have ID and they will use these IDs when need to enter to system
- Doctors can see patients symptoms
- Doctors can see laboratory results immediately

3.1.3. Laboratorian

- Laboratorian has less access than doctors

- Doctors send patients to laboratorian
- They take tests and upload results to system
- They have special IDs to enter system

3.1.4. Nurses

- Nurses have more access than laboratories
- They can see symptoms of patients
- They can track health of patients
- They also have special ID designed for them

3.1.5. System Requirements

- Patients can not see other patients' results.
- When lab results of patients announced patients should see this immediately
- After appointment finished system should mark it as a done

3.2. Non-Functional Requirements

3.2.1. Authentication & Security

- Employees can change their passcode but they can not change their login id if they want they should contact with database administrator.
- Passwords will be encrypted using salting method and hash function.

3.2.2. User-Friendliness

- HealthyMe website is very user friendly. Because front end implementation is done using Bootstrap 4 it will be a responsible website.

3.2.3. Quick Response time

- For users happiness speed is important. More quick response, more happiness. Big amount of data should be optimized if we want quick response time. Queries should not be time consuming.

3.2.4. Reliability

Because this is health related app server shouldnt be collapse. To save data if any problem occurs daily backup processes occur automatically.

3.2.5. Capacity

HealthyMe aim is to reach a big population that is why it will store huge amounts of data. Patients test results will be encrypted to protect their privacy.

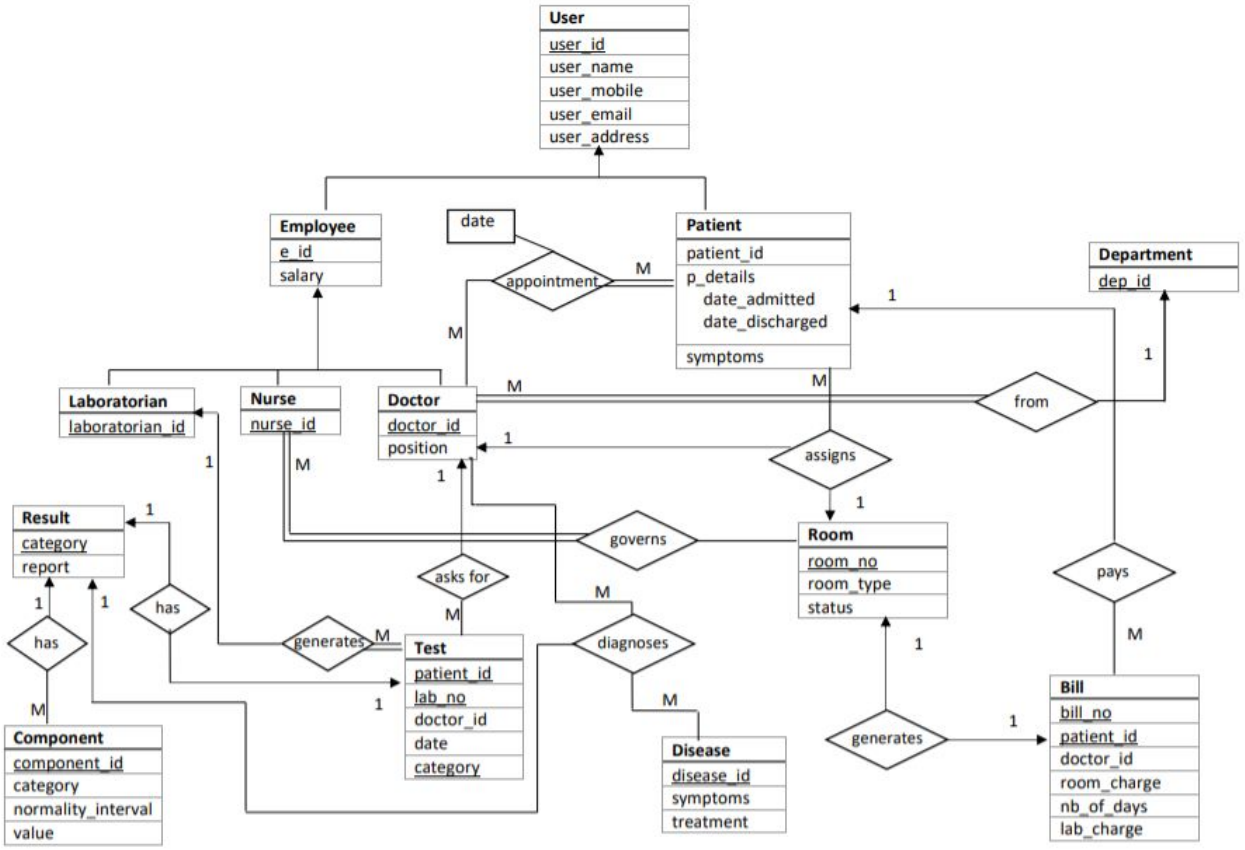
3.3. Pseudo Requirements (Constraints)

- MySQL will-be used for the database.
- For front end HTML,CSS, Bootstrap 4 and JavaScript used.
- For back end php will be used.
- Web page will host in github

4. Limitations

- System will not let other doctors can see another doctor’s patience result
- Doctors can belong to only one department
- Doctors and other employees can not see patients bill
- Patients can only assign to one room
- Every test results special for one patients

5. ER Diagram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user_id
user_name
user_mobile
user_email
user_address
Employee
e_id
salary
date
appointment
M
Patient
patient_id
p_details
date_admitted
date_discharged
symptoms
Department
dep_id
1
M
Laboratorian
laboratorian_id
Nurse
nurse_id
Doctor
doctor_id
position
from
assigns
1
M
Result
category
report
has
has
generates
asks for
governs
Room
room_no
room_type
status
pays
Test
patient_id
lab_no
doctor_id
date
category
diagnoses
Component
component_id
category
normality_interval
value
Disease
disease_id
symptoms
treatment
generates
Bill
bill_no
patient_id
doctor_id
room_charge
nb_of_days
lab_charge

6. Conclusion

HealthyMe is a web-based database management system which allows hospitals to store and manage elements of the hospital. System is designed to be used by the employees of the hospital and the patients. Both of these users have different authorizations to perform actions according to their roles and HealthyMe will store the action results.

In this report, we described the aim of the database management system, provided ER diagram of the system, explained the importance, functional, non-functional, pseudo requirements and limitations.

For the front-end of the project, we will use html, css, javascript and bootstrap 4 and for the back-end we will use php. If we manage to present the project on a web server, we will show the project on github server. Otherwise, we will use a local server on our own computers. We will use mysql in order to design the database. We try to optimize our sql queries when we learn it in our lecture.

7. Website

HealthyMe has a beautiful website. We will be glad if you visit the website :)

https://mastanabdulkhaligli.github.io/HelathMe.github.io/