software design document V3 hospital management system

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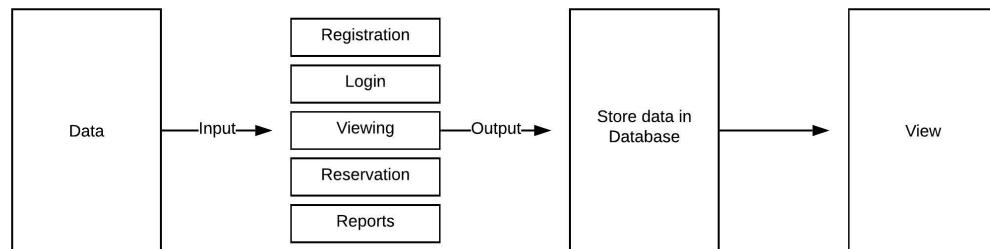
Contents

1 Introduction

1.1 overview

this software will be made for AUST hospital,the system will be used by the hospital members according to their roles(doctors,admins, and receptionists)and also by users who will reserve an appointment with doctors. This software shall be made to help people see available doctors and their specialities and their working hours, to help patients reserve appointments with doctors easily without having to go to the hospital .The system will be managing the hospital prescriptions attendance and timings of doctors ,notifications and reservations[3].

1.2 scope

this software will be a web application for the AUST.hospital for AUST hospital The system is designed to help the hospital patients to see and reserve appointments in a fast and easy way without having to go to the hospital also it is going to help the workers in the hospital in saving data on databases and easily checking them instead of using papers to save each patients data then struggling to find these papers later on when the system will be ready the hospital IT team will test it .the system will be built in incremental model and agile model ..

1.3 purpose

The purpose of this document is to provide all the details of the system, also this document shall contain and explain all the functions of the system and what the system should do, also this document shall help the developing team and the client in understanding all the project and its functions.

1.4 intended audience

This system is intended to be used by an admin who shall have all the permissions of the system, also it shall be used by patients who shall want to

reserve an appointment on the system,also the doctors to see who has reserved an appointment with them and write a report for each patient and

2   project overview
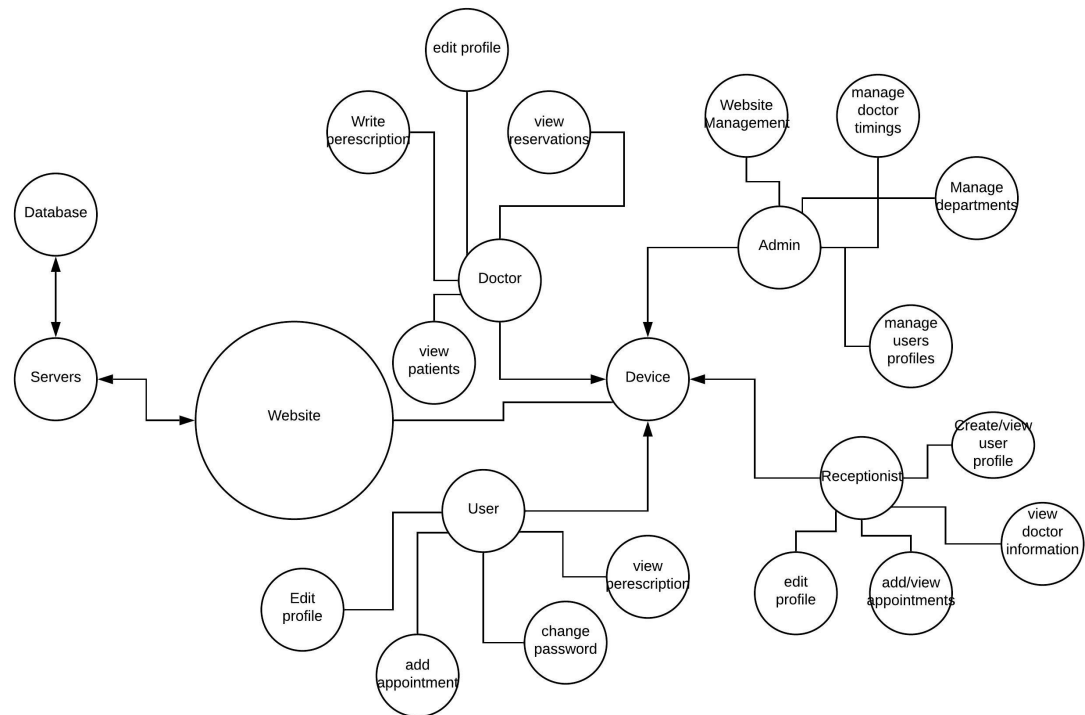
this system is made for AUST hospital and contains methods. the users consists of 3 types(doctor,patient ,admin) and each type has its permissions and privileges

- Admin :
    1. controls the other types of users by adding ,editing and deleting them.In which he has access to their information,and new options for inserting them.
    2. add and view departments on system
    3. create profiles for new users .
    4. authorizes and view the messages sent from patients for consulting about anything .

     5. change password

- patient
  1. ability to reserve an appointment for specific doctor.
  2. ability to view all reservations he made and his bill.
  3. manage his profile and edit it by changing his information
  4. change password

- doctor
  1. see pending appointments and information about the patients who reserved with him.
  2. write reports about and for patients .
  3. approve appointments
  4. change password

Receptionist

1. add new patient to system and reserve an appointment for specific doctor at the hospital.

2. ability to view all reservations he made and his bill.

3. manage his profile and edit it by changing his information

4. view doctors and their timings

5. change password

2.1 project scope

in order to create this project we talked to our client and asked him for what he desired the system to have,which were to create a system to help the hospital upgrade from using papers into using databases and to let patients view and reserve Doctor appointments online .also The modules of the hospital management System is user friendly and easy to access.

- Patient Records: Outpatient include patient registration. And each patient is given an ID number. It also includes Doctor Advisor details, Diagnosis details, treatment details and prescription details by generating a Report for each patient.

- Billing Records: bills for inpatient is generated. It also includes details of patients. And price of reserved doctor. Depending on the report generated.

- Staff records: In this module, Staff Records are sorted as Doctors,and their Duty Details are maintained

2.2   goals and objectives

the goals and objectives of the system are to make a system which makes the process of searching for doctors and make an appointment with the doctor desired ,also to help the hospital in upgrading from using papers to using databases for faster and easier service.

- Design a system for better patient care.

- Reduce hospital operating costs.

- Provide MIS (Management Information System) report on demand to management for better decision making

- Better co-ordination among the different departments.

2.3   project timeline [4]

task name	finish date
SRS v1	19/3/2019
SRS V2	25/5/2020
SRS V3	2 /6/2020
SRS V4	10 /6/2020
SDD V1	12/5/2020
SDD V2	31/5/2020
SDD V3	10/6/2020

3   context viewpoint

this system is a hospital system which is supposed to help the hospital workers and the patients to see the doctors available in the hospital and reserve an appointment with them. usecase diagram in figure 1 and context diagram figure 2.
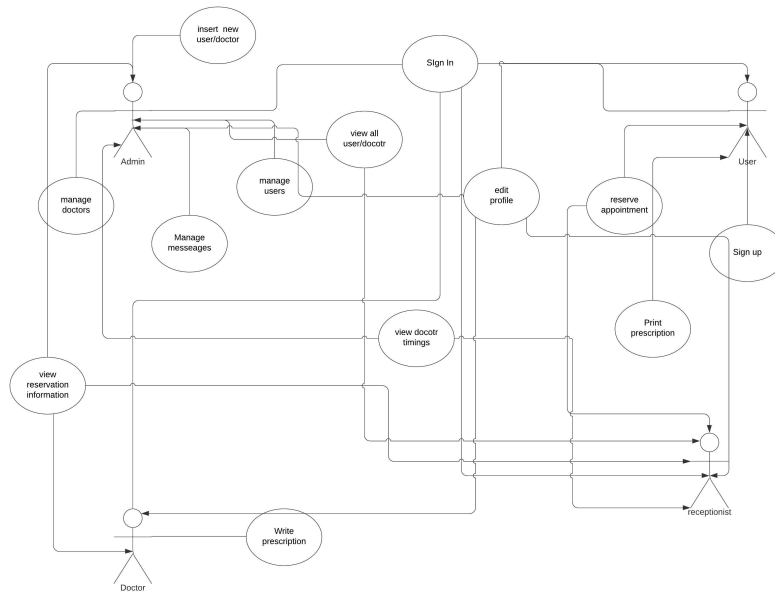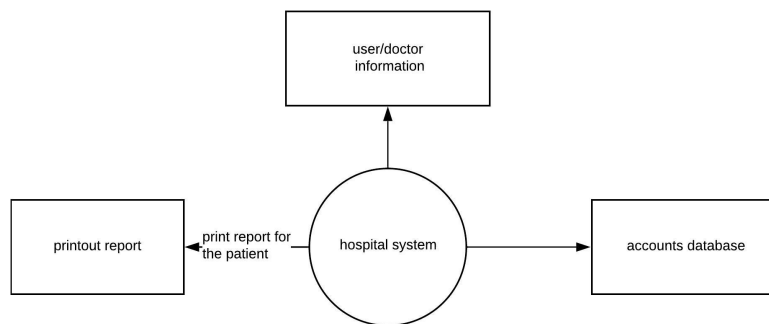
Figure 1: usecase diagram [5]

Figure 2: context diagram

4 System Architecture Design

4.1 logical viewpoint

system is divided into four main models which are (admin ,doctor ,patient and Receptionist) with their features. look at figure 3
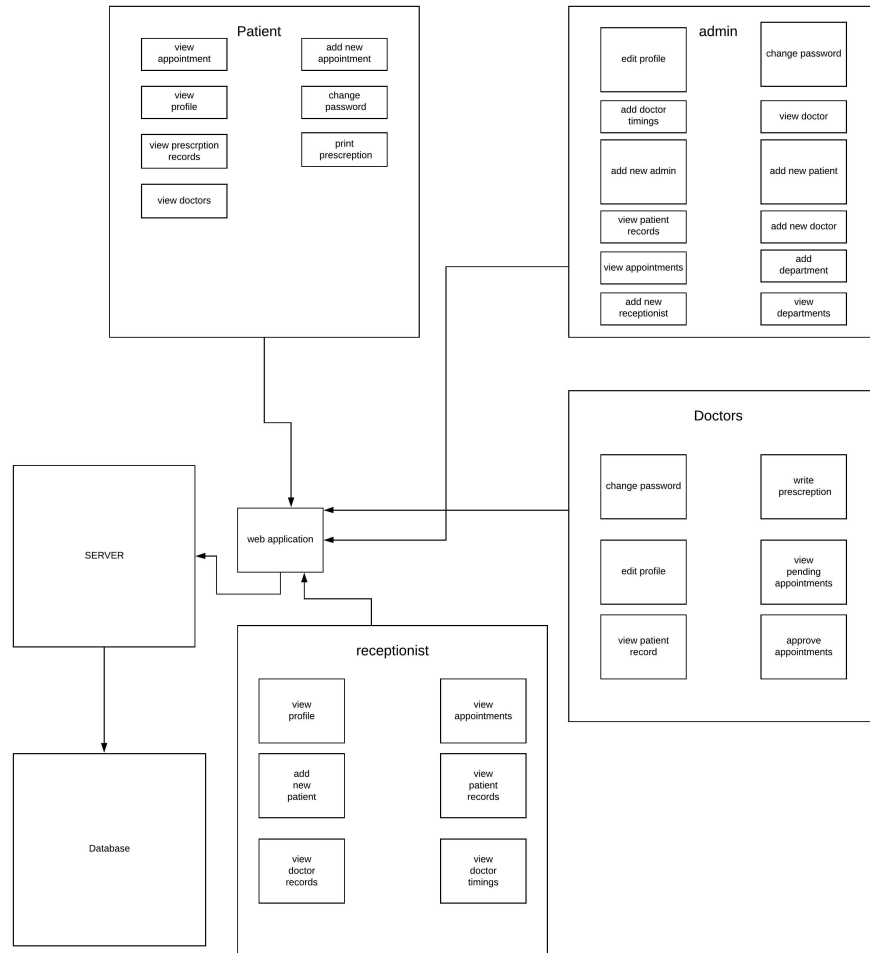

Figure 3: logical viewpoint

- admin model : as mentioned in figure 3 the important functionalities that the admin can do in which the admin has the full control on the system such as permissions control,edit whole users on the system, and he can add new users also he can view what the other users can view.

- patient model : patients can only control their accounts to edit or delete them ,they can view reservations notifications after reserving an appointment for a specific doctor.also they can choose doctors according their specialities, view prescriptions and print it.

- doctor model : doctors have a limited access for the system and limited features that they can change his account's password, write prescription for each patient, edit his own profile, view pending appointments and approve it and view patient records who reserved an appointment.

- Receptionist model : Receptionist can view his own profile and edit it, view all appointments of each user, add new patient to the system in case the user don't have an account, view patient records on system and also view doctor records and timings.

4.2   singleton design pattern

singleton design pattern is used to access a single instance of a class .it is used to make single user connected to single connection to the database [1].

4.3   Interaction viewpoint
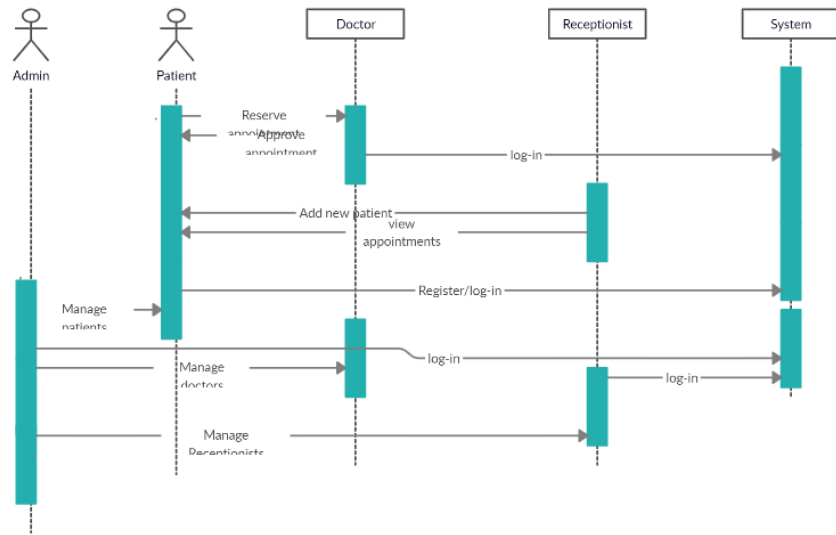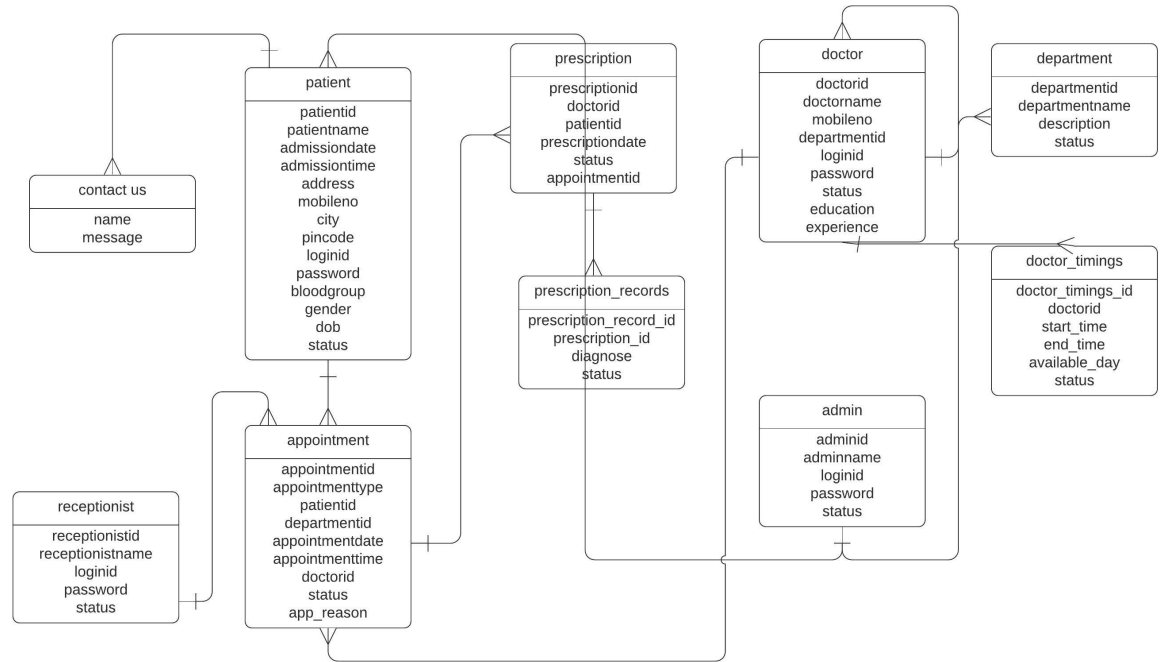

Figure 4: sequence diagram

5 Data Design

Figure 5: database

5.1   Data Description

Table Name	Descreption
patient	this table contains all information about each user its attribute are : 1)pateintid 2)patient name 3)admissiondate 4)addmissiontime 5)address 6)mobile number 7)city 8)pin code 9)login id 10)password 11)blood group 12)gender 13)dob 14) status

Table Name	Descreption
Doctor	this table contains all information about each doctor and its attributes are : 1)doctor id 2) doctor name 3) mobile no 4)department id 5)login id 6)password 7)status 8)education 9)experience 9)experience

Table Name	Descreption
appointment	this table contains all information about each appointment made by user reservations and its attributes are : 1)appointment ID 2)appointment type 3)patient id 4)department id 6)appointment date 7)appointment time 8)doctor id 9)status 10)appointment reason

Table Name	Descreption
prescription	this table contains the prescription written by each doctor for his patients and its attributes are : 1)prescription id 2)doctor id 3)patient id 4) prescription date 5)status 6) appointment id

Table Name	Descreption
admin	this table contains the admins and its attributes are : 1)admin id 2) admin name 3)login id 4) password 5)status

Table Name	Descreption
prescription records	this table contains the prescription records and its attributes are : 1)prescription record id 2) prescription id 3) diagnose 4) status

Table Name	Descreption
doctor timings	this table contains the doctor timings in which he will be available at the hospital and its attributes are : 1)doctor timings id 2) doctor id 3)start time 4) end time 5)available day 6) status

Table Name	Descreption
department	this table contains the departments information and its attributes are : 1)department id 2) department name 3)description 4) status

Table Name	Descreption
contact us	this table contains the message from user and its attributes are : 1)name 2) message

Table Name	Descreption
receptionist	this table contains the receptionist and its attributes are : 1)receptionist id 2) receptionist name 3) login id 4)password 5)status

6 Human Interface Design

6.1 User Interface [2]
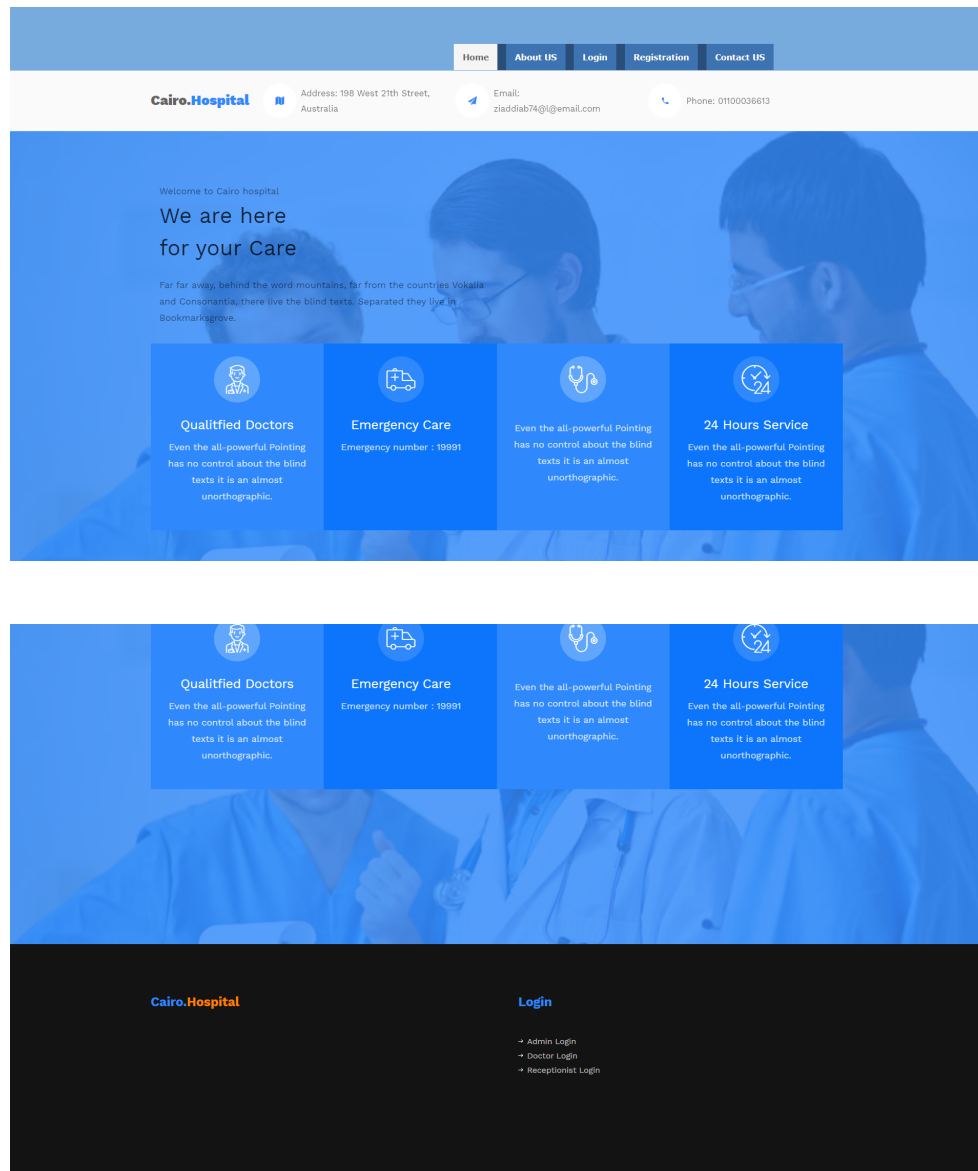
Figure 6: Home
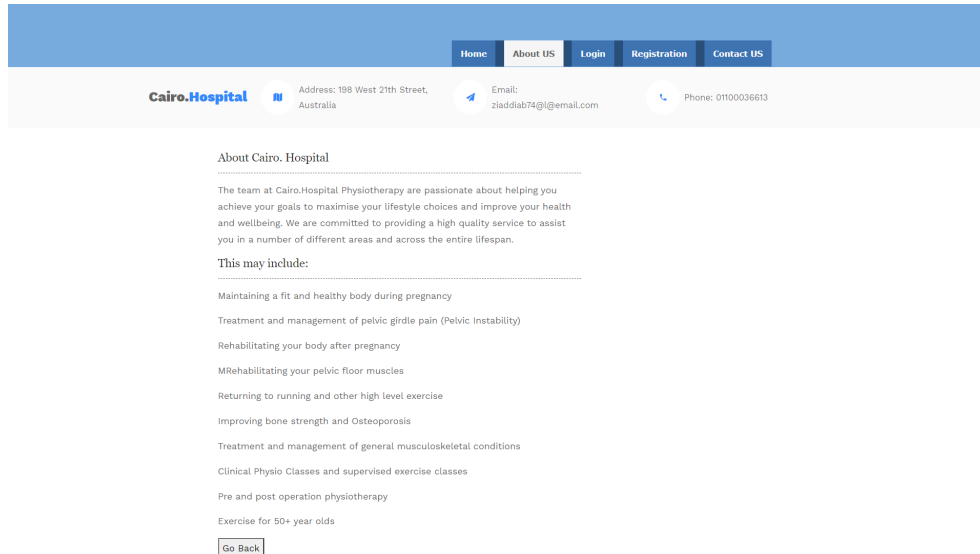
Figure 7: about us

Figure 8: login panel

Figure 9: registration

Figure 10: contact us

Figure 11: add appointment page

Figure 12: view and edit profile page

Figure 13: change password

Figure 14: prescription

Figure 15: print prescription
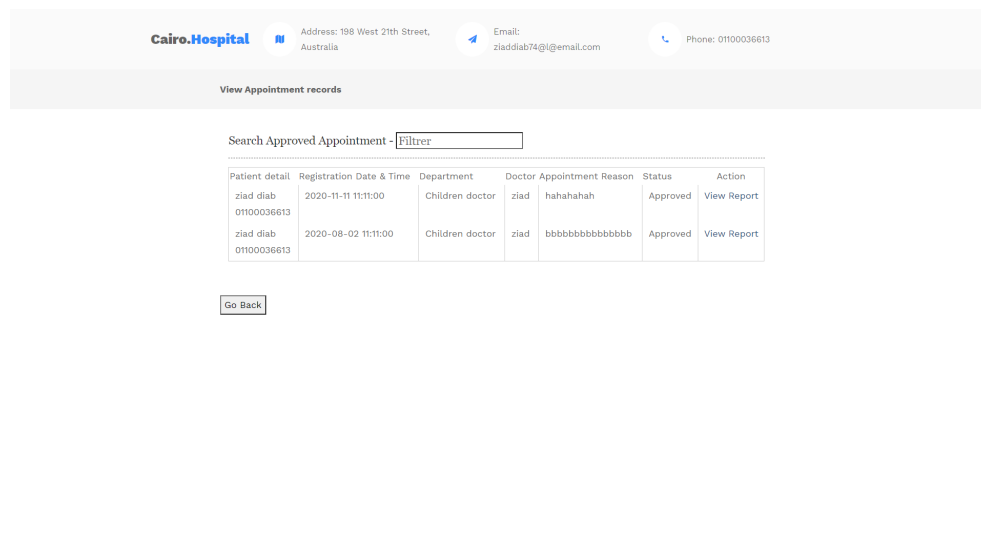
Figure 16: view approved appointments

Figure 17: view approved appointments

Figure 18: view approved appointments

Figure 19: view Departments
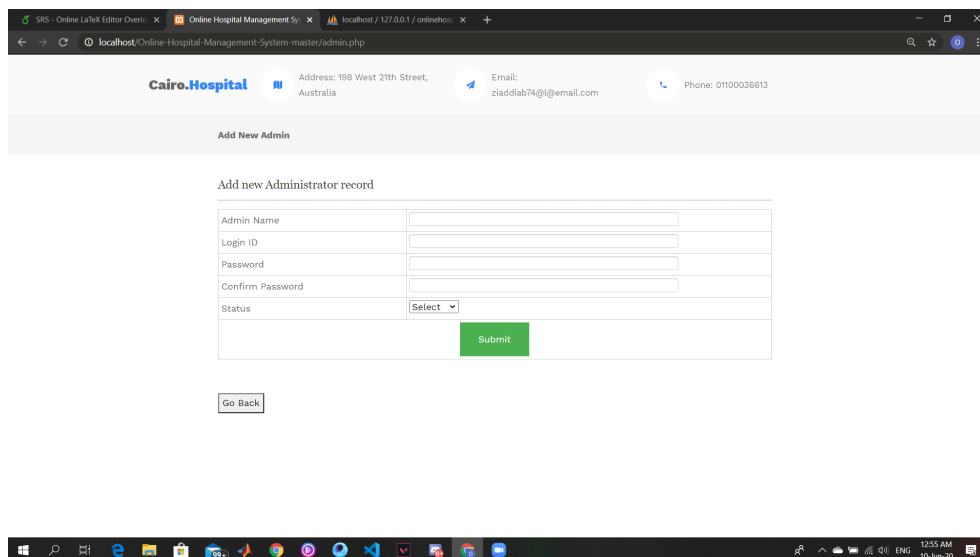
Figure 20: add new admin
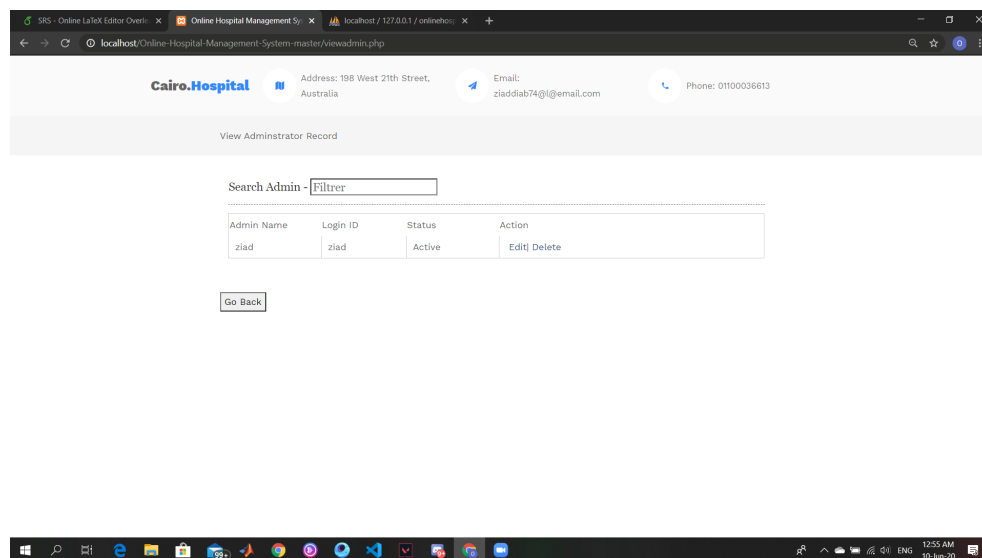
Figure 21: view admins in system

7 Requirements Matrix
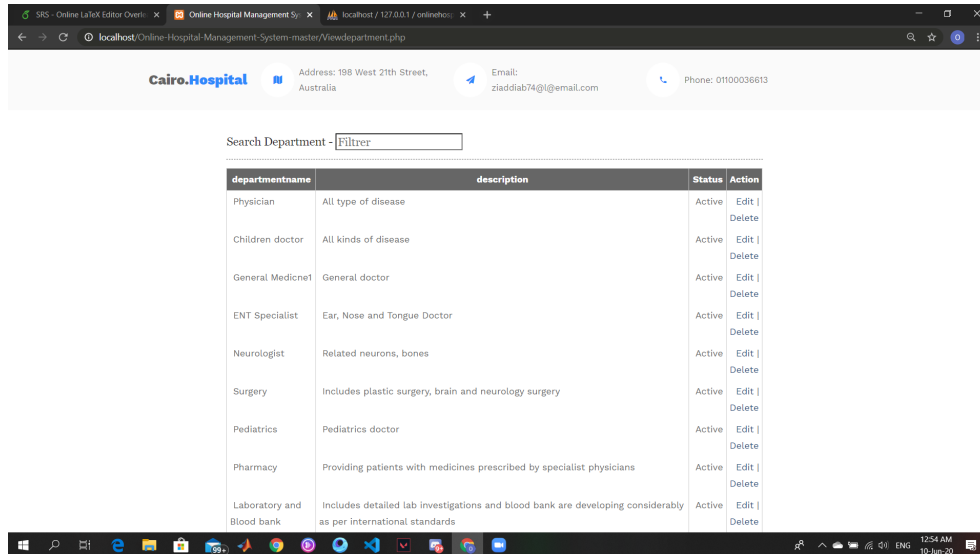
req code	req name	testing code	testing descreption	result	status
req1	login to the web application	1	enter invalid username and password	error message	complet
		2	enter valid username and invalid password	error message	complete
		3	valid username and password	access the application	complete
req2	sign up to the web application, add users , update users	1	enter an already taken username	error message	complete
		2	phone number is a negative number	error message	complete
		3	phone number less than 11 numbers	error message	complete
		4	entering correct data	account creation successful	complete

req code	req name	testing code	testing descreption	result	status
req3	list users,list reservations tables	1	low data in database	no database to display message	complete
		2	data exist in database	show tables	complete
req4	delete user, delete doctor	1	press delete button of chosen user	display success message	complete
req5	insert user, update user	1	enter empty fields	error message	complete
req6	cancel reservation	1	press delete button	display successful message	complete

req code	req name	testing code	testing descreption	result	status
req7	reserve appointment	1	press book	confirmation messasge	complete
req8	forget password form	1	enter invalid email	error message	complete
		2	enter vaild email	success message and send password in email	complete
req9	print bill	1	press print button	success message	complete
req10	edit profile	1	enter valid email	confirmation	complete
		2	enter invalid email	error message	complete
		3	phone number is a negative number	error message	complete
		4	phone number is less than 11 numbers	error message	complete
		5	entering correct data	profile edited successfully	complete

8 References

References

[1] (2007).design patterns and refactoring.

[2] (2016). saudi german hospital cairo - welcome to sgh - cairo.pp.1-6.

[3] (2020). miu computer science graduation projects – computer science graduation projects.

[4] (2020)c.reate latex tables online – tablesgenerator.com.

[5] (2020).log in.