Kingdom of Saudi Arabia
Ministry of Higher Education
Majmaah University
College of science at Az-Zulfi
Department of computer science and information

Personal Health Record (PHR)

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ACKNOWLEDGEMENTS

In performing my project, I had to take the help and guideline of some

respected persons, who deserve my greatest gratitude.

The completion of this project gives me much Pleasure. I would like to show our gratitude to

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In the end I want to thank my family because they are the reason for my presence in this place.

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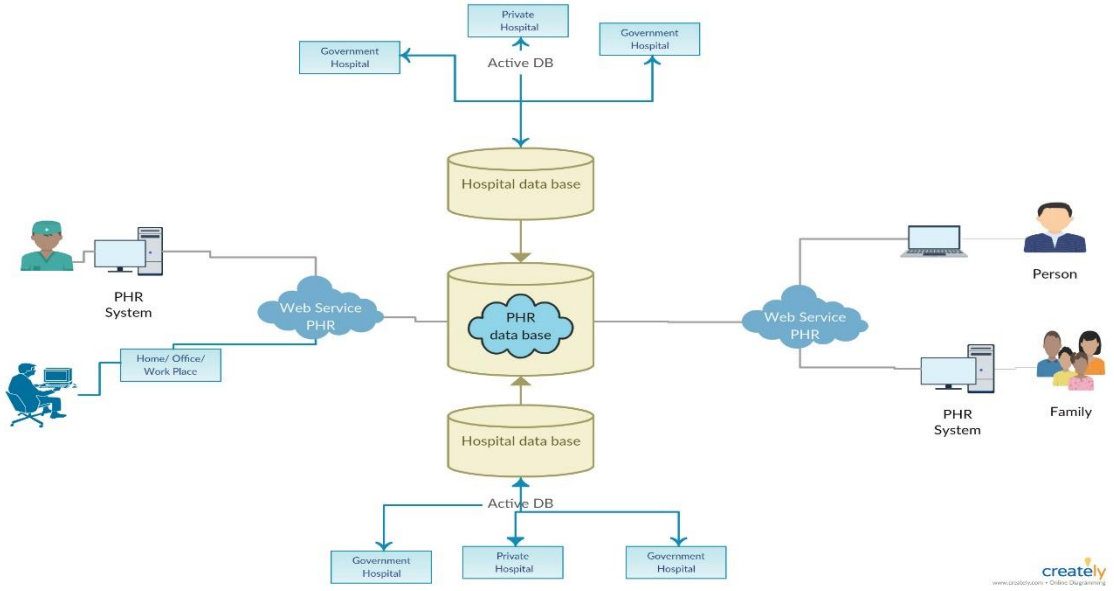
Chapter 1

1.1 INTRODUCTION:

A personal health record (PHR) is an electronic system through which people can access, manage and track and share past and current information about your health or the health of someone in your care. PHR tools enable an individual to play a more active role in their health. Sometimes this information can save you the money and inconvenience of repeating routine medical tests. Even when routine procedures do need to be repeated, your PHR can give medical care providers more insight into your personal health story. This stands in contrast to the more widely used electronic medical record, which is operated by institutions (such as hospitals) and contains data entered by clinicians or billing data to support insurance claims. The intention of a PHR is to provide a complete and accurate summary of an individual's medical history which is accessible online. The health data on a PHR might include patient-reported outcome data, lab results.



One of the prime advantages of PHR is that it provides a continuous relationship between patient and the physician whereby any encountered changes can be addressed in less amount of time. Another advantage of PHR is that it provides patients with credible health information and enables them to manage their own diseases in a customized way. PHR inculcates a sense of involvement and self-

monitoring which is an important aspect of modern day health management. PHR can also be used by proxies of patients i.e. their friends and relatives (only if authorized by patients) thus enabling them to manage the health of their loved ones.

PHR systems are also beneficial for doctors and clinicians. The patients may enter additional data in their PHR including their personal observations and details symptoms which are helpful for clinicians to make better decisions. The clinicians can also use PHR systems to share medical records in an efficient way. Moreover, the continuous electronic communication via PHR helps in saving time of clinician by reducing the number of telephonic conversation and face to face meetings.

1.2 Problem Statement

The localized data storage of patient's health data restricts the access of health records in case of emergency or travel by other authorized parties such as doctors or nurses. As the health record remains locally in hospitals, if the patient travels to another city in KSA and he needs a medical assistant, then the medical staff in that city knows nothing about his/ her medical history. That's why; this work comes to integrate the medical records into single personal health record that can be accessed globally by the authorized users only.

1.3 Research Goals:

This study aims to develop a personal health record in KSA that allowed authorized users to participate in health care services improvement. To achieve this aim, the following objectives should be met:

1. To develop a PHR system that accumulate and integrate all medical health records into one centralized database
2. To examine the challenges of moving patient's data into a PHR system
3. To evaluate and test the proposed system

1.4 Importance of the study:

The current healthcare industry has several different types of systems for managing patient and health data, ranging from traditional paper-and-pencil methods to electronic record keeping. However, few of these systems are interoperable, and all consider the records to be the property of the maintaining intuition rather than the patient. The PHR system solution will put health records back in the hands of the patient and allow for improved communication and flexibility between parties and health care providers.

1.5 Scope of the study:

This study will cover some local hospitals in Saudi Arabia and will be extended in the future to cover all governmental hospitals in the kingdom.

1.6 Questionnaire summary:

1. Were you familiar with the PHR concept before taking this survey?

		Response Percent	Response Total
1	Yes	37.50%	3
2	No	37.50%	3
3	I'm not sure	25.00%	2

Analysis							
	Mean:	1.88	Std. Deviation:	0.78	Satisfaction Rate:	43.75	
	Variance:	0.61	Std. Error:	0.28			

answered	8
skipped	0

2. Does your health provider or insurance company provide you with a PHR?

		Response Percent	Response Total
1	Yes	37.50%	3
2	No	12.50%	1
3	I'm not sure	50.00%	4

Analysis							
	Mean:	2.12	Std. Deviation:	0.93	Satisfaction Rate:	56.25	
	Variance:	0.86	Std. Error:	0.33			

answered	8
skipped	0

3. Is the system will be benefit for patients?

		Response Percent	Response Total
1	1. Strongly agree	37.50%	3
2	2. Agree	50.00%	4
3	3. Agree to some extend	0.00%	0
4	4. Don't agree	12.50%	1

3. Is the system will be benefit for patients?

							Response Percent	Response Total
Analysis	Mean:	1.88	Std. Deviation:	0.93	Satisfaction Rate:	29.17	answered	8
	Variance:	0.86	Std. Error:	0.33			skipped	0

4. Have you ever used one of the medical records sites ?

			Response Percent	Response Total
1	1. Yes		50.00%	4
2	2. No		50.00%	4

Analysis	Mean:	1.5	Std. Deviation:	0.5	Satisfaction Rate:	50	answered	8
	Variance:	0.25	Std. Error:	0.18			skipped	0

5. Do you think evaluation helps improve service quality?

			Response Percent	Response Total
1	1. Yes		62.50%	5
2	2. No		37.50%	3

Analysis	Mean:	1.38	Std. Deviation:	0.48	Satisfaction Rate:	37.5	answered	8
	Variance:	0.23	Std. Error:	0.17			skipped	0

1.7 Project scheduling:

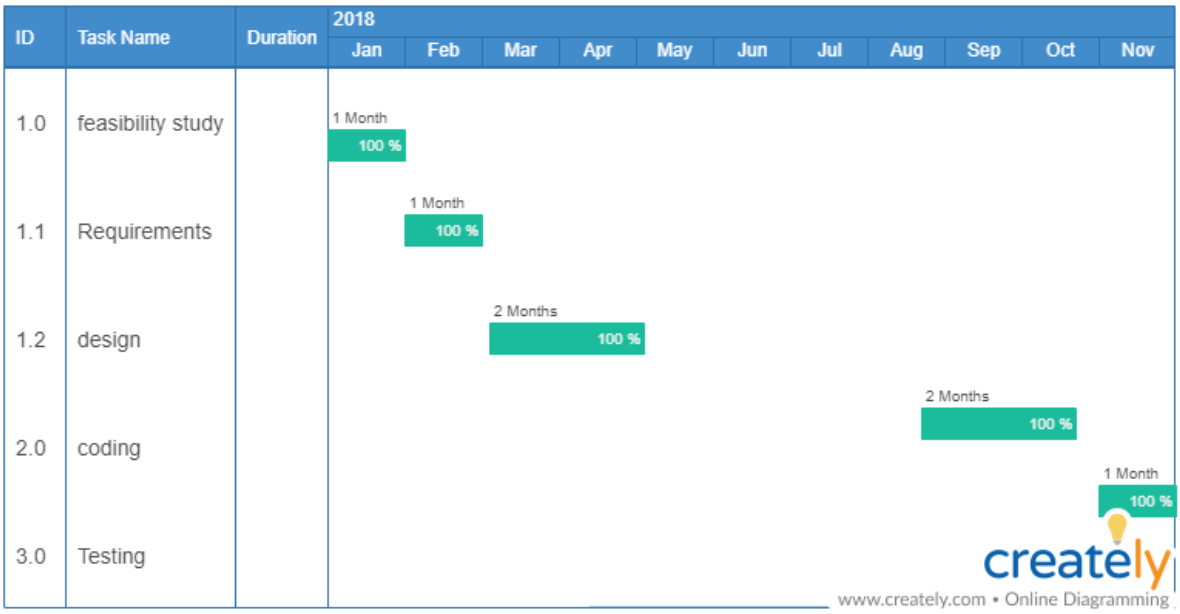


Fig.1.0 Gantt chart

Chapter 2

2.1 Literature reviews:

The American Health Information Management Association (AHIMA) is a national non-profit professional association, founded in 1928, dedicated to the effective management of personal health information needed to deliver quality healthcare to the public.

AHIMA's 71,000+ members are health information management professionals who specialize in managing and protecting your personal health information and medical records in hospitals, doctors' offices, and other healthcare settings.

Health information management professionals care for your health by caring for your health information. Their job is to make sure that all the medical information collected about you is complete, accurate, and protected, yet, readily available for your healthcare providers when it's needed.

AHIMA's vision and values have always been people-centered. After all, the goal of effective HIM is to provide quality healthcare to the public. As part of our mission to serve as a resource for the public, AHIMA is working to help individuals become better managers of their own personal health information by sponsoring a public service initiative that draws upon the unique expertise of AHIMA and its members.

Personal health information is a valuable resource to individuals, their families, and the doctors, nurses, and other healthcare professionals who provide treatment and care. HIM professionals are reaching out—at the community level—to share their knowledge of health information and medical records directly with the public in order to help them better understand and manage their personal health information and thus improve the quality of care they receive.

Chapter 3

3.1 Research methodology:

3.2 Agile methodology:

In software application development, Agile is a methodology that anticipates the need for flexibility and applies a level of pragmatism into the delivery of the finished product. Agile requires a cultural shift in many companies because it focuses on the clean delivery of individual pieces or parts of the software and not on the entire application.

Agile has replaced Waterfall as the development methodology of choice in most companies.

3.3 Twelve principles of the Agile Manifesto

In 2001, 17 software development professionals gathered to discuss concepts around the idea of lightweight software development and ended up creating the Agile Manifesto. The Manifesto outlines the core values of Agile, and although there has been debate about whether the Manifesto has outlived its usefulness, it continues at the core of the Agile movement.

Included in the Manifesto are concepts that were revolutionary at the time, including the emphasis on people and communication, rather than on processes and tools. Other key parts of the Manifesto include working directly with and satisfying customers, breaking all work down into small chunks, meeting daily to ensure work is on track and being open to changes even at the very end of the process.

3.4 Types of Agile methodologies

In any Agile environment, it is likely there are several Agile methodologies being used. One of the oldest of these is extreme programming, which is based on the idea that for successful development to happen quickly, testing must be done regularly. In many cases, the tests must be written even before the code.

Another Agile methodology that is widely used is Scrum. Scrum brings everyone on the team, including the business stakeholders, together to agree on features. Then, specific goals are set for a 30-day sprint, at which point the agreed-upon software is delivered.

Some Agile proponents emphasize Lean development, or Lean Programming, which strips software development down to the basics. Feature-driven, test-driven or behaviour-driven can also be used in an agile environment, depending on the needs of the organization.

3.5 Advantages of Agile:

Much has been compared over the years with Agile versus Waterfall approaches.
In the Waterfall era of software development, coders worked alone, with little to no input before handing the software to testers and then on to production.
Bugs complications and feature changes either weren't handled well, or were dealt with so late in the process that projects were seriously delayed or even scrapped.
The idea the behind Agile model, in which everyone -- including the business side -- stayed involved and informed in the development process, represented a profound change in both the culture and a company's ability to get better software to market more quickly.
Collaboration and communication became as important as technology, and because the Agile Manifesto is open to interpretation, Agile has been adapted and modified to fit organizations of all sizes and types. The Agile cultural shift also paved the way for the latest software development evolution, Davos.

3.6 Disadvantages of Agile:

Many would say the biggest disadvantage of Agile is the fact it has been modified -- some would say diluted -- by many organizations. This phenomenon is so widespread that the "Agile my way" practitioners are known as "Scrum buts," as in, "We do Scrum in our organization, but...".
Although Agile opens up the lines of communication among developers and the business side, it's been less successful bringing testing and operations into that mix -- an omission that may have helped the idea of Davos gain traction.
Another potential concern about Agile is its lack of emphasis on technology, which can make it a difficult sell the concept to upper managers who don't understand the role that culture plays in software development.

Chapter 4

System Requirements:

4.1 Functional Requirement :

• The system must maintain basic patient information and permissions on the central server.
• The system should allow patients to create new accounts.
• The system should allow users to store important information such as sensitivity and conditions On the central server.
• The system should allow approved emergency medical facilities access to important information Such as allergies and conditions as needed.
• The system must maintain medical records of patients in full.
• The system must provide a common API for health information systems to update and Read records.
• The system should allow authorized health providers to attach information to the system.
• The system should allow patients to view all records stored in the system.

4.2 Data requirements:

• Patient contact information.
• Emergency patient information.
• Medical records of patients.
• Medical records permissions for patients.
• Records of access to medical records of patients.

4.3 Rules of work and logic:

• Only the patient has the right to modify contact information and billing information.
• Accredited medical facilities may only attach medical records to the system.
• Medical records are appended only and are never modified.

4.4 System Design:

4.5 Use Case Model:

4.5.1 Actors and Their Goals:

Actor	Goal
Patient	• Manage your personal account • Manage data on the system • Manage personal records information
Medical Staff	• Display medical information for the patient • Add medical information to the patient • Upload medical records to the patient
Follow up the medical condition of friends	• Display medical information for the patient

4.5.2 Use case diagram:

4.5.2.1 Medical Staff Use case

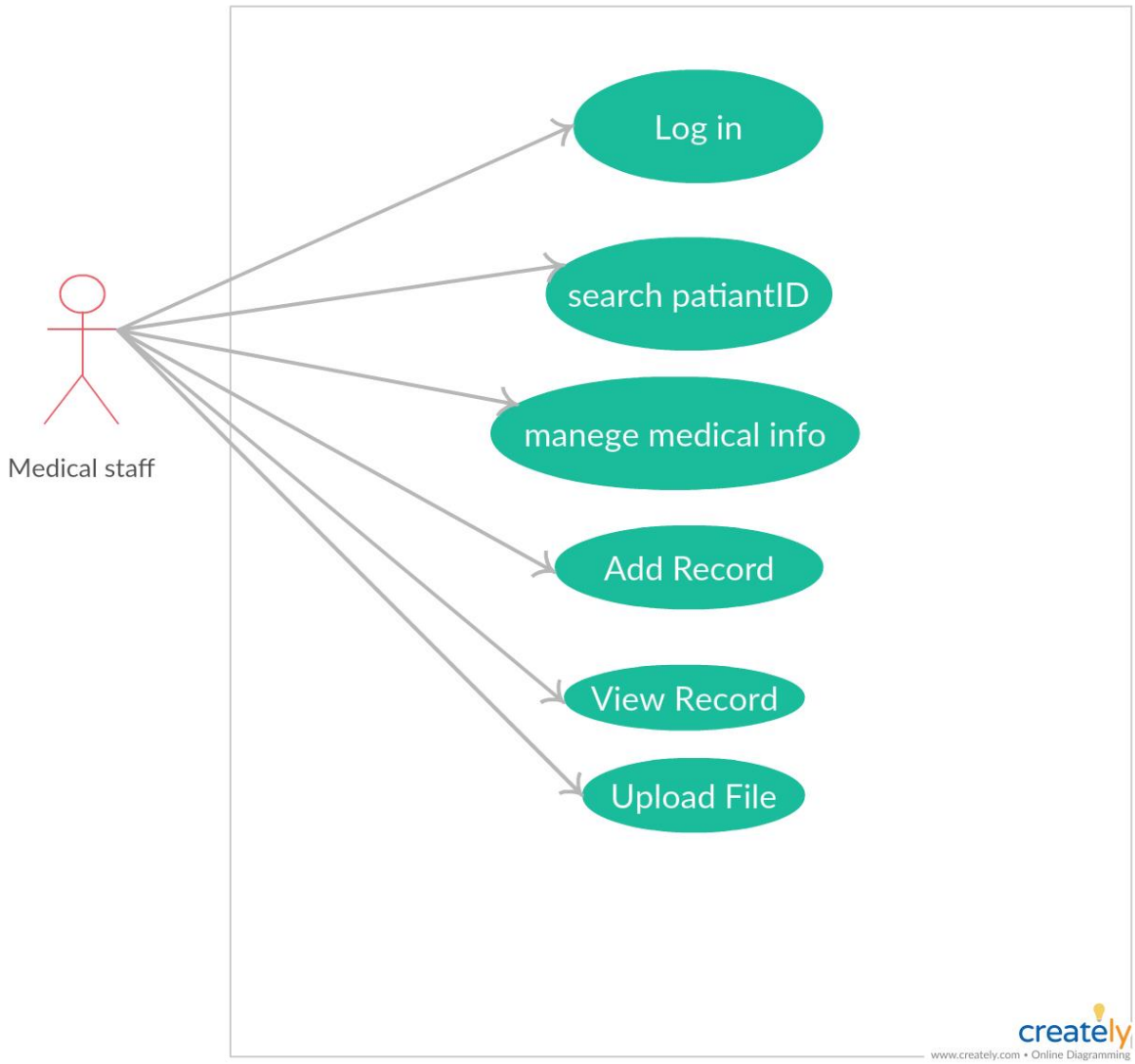


Fig.2.0 Medical Staff (Use-case diagram)

4.5.2.2 Patient Use case

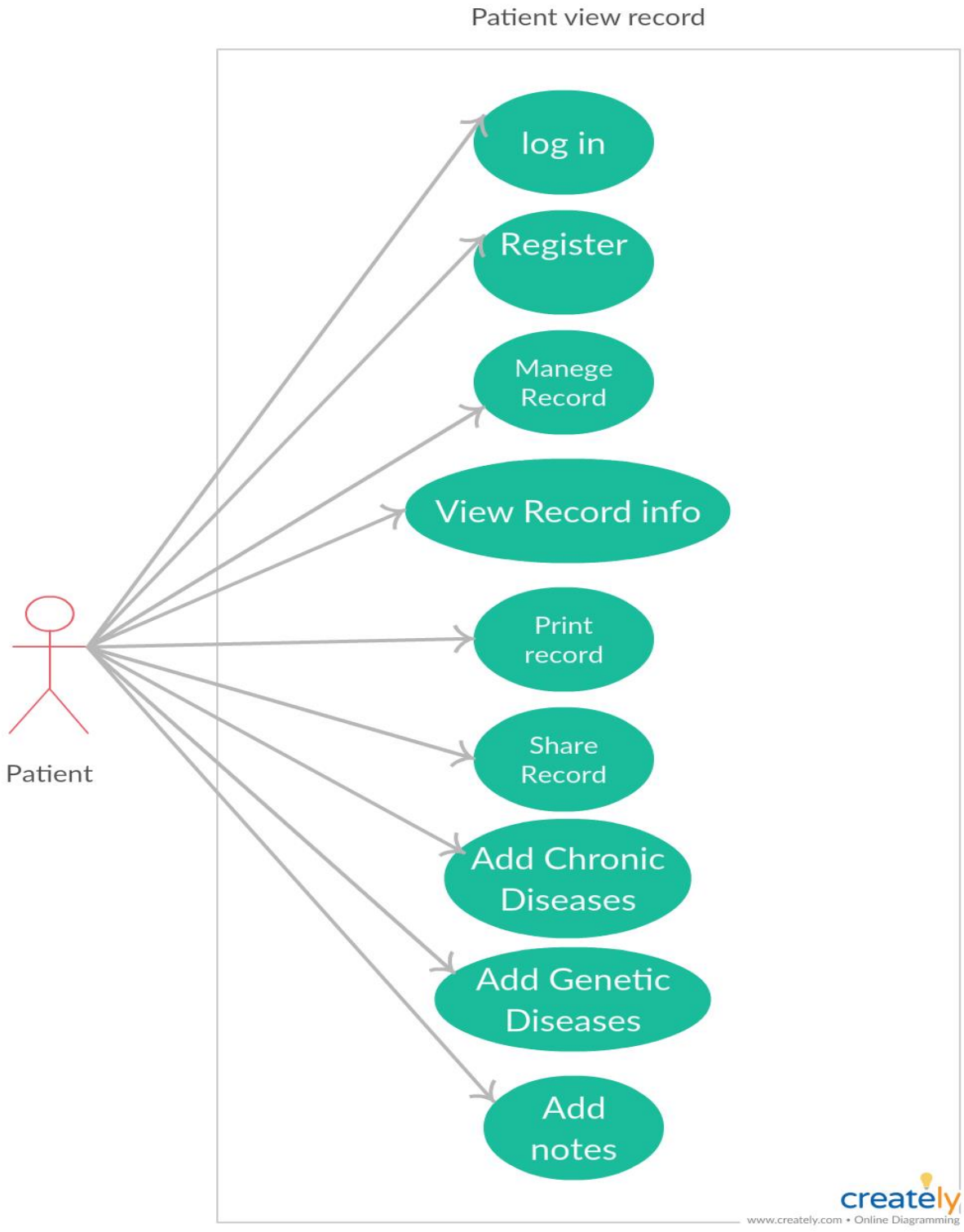


Fig.2.1 Patient (Use-case diagram)

4.5.2.3 system environment Use case

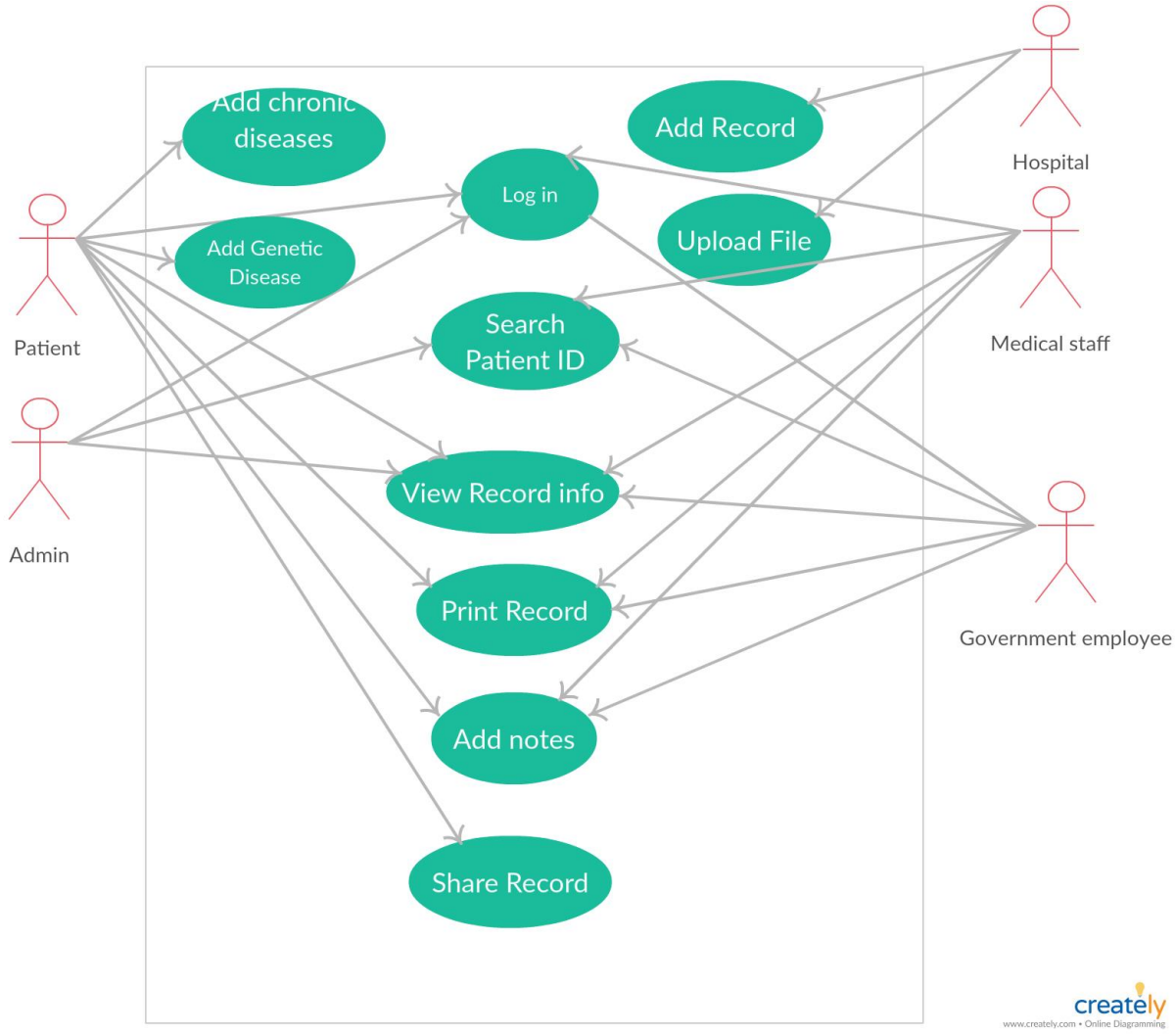


Fig.2.3 system environment (Use-case diagram)

4.6 Use case description:

4.6.1 Update Emergency Info:

<table>
<tr><td>USE CASE #</td><td></td></tr>
<tr><td>USE CASE Name</td><td>Update Record Info</td></tr>
<tr><td>ACTOR</td><td>Medical Staff</td></tr>
<tr><td>Goal</td><td>To update the patient’s emergency information for view and use by medical
Establishments, doctors, emergency workers.
To view the patent’s emergency medical information from the system in the
Event of an emergency.</td></tr>
<tr><td>Overview and scope</td><td>Shows the process that the doctor undertakes in order to update his or her
Emergency information on the central server. This information is what emergency workers and medical workers and facilities use in the event of an
urgent situation, when the patient is injured or able to speak for him or Herself.</td></tr>
<tr><td>Preconditions</td><td>Patient has created an account for use with the Personal Health Record System and has logged into the associated web service. Patient has obtained
information in another medium about his or her emergency information, including drug prescriptions, allergies, family history, contact persons, and pre-existing conditions.</td></tr>
<tr><td>MAIN SUCCESSFUL SCENARIO</td><td>
<table>
<tr><td>Actor Action</td><td>System Action</td></tr>
<tr><td>1- Medical facility employee clicks “Update
Record Info” option on
PHR page.</td><td>2- System displays record medical Types to view or update.</td></tr>
<tr><td>3- Medical facility employee chooses a record
type by clicking on the
Appropriately labelled button.</td><td>4- System displays any current emergency records on the screen for That record type.</td></tr>
<tr><td>5- Medical facility employee chooses option to
update listing for that type of record medical</td><td>6- System displays form entry page for Subscriber to enter information.</td></tr>
</table>
</td></tr>
</table>

	7- Medical facility employee enters appropriate information for the selected Record type.	
	8- Medical facility employee clicks “Save” to Finalize the record.	9- System adds the record that has just been finalized Medical facility employee to the existing list of records for that record.
		10- System displays updated record Listing for the selected record type.
	11- Medical facility employee reviews updated listing to check that Information is correct.	
	Medical facility employee disconnects from System.	
Other non-functional requirements	The confirmation page for the updated record will be shown to the patient Immediately after the “Save” button is clicked. The record listing should Propagate to all involved servers within 24 hours of a record being updated.	

<table>
<tr><td>USE CASE #</td><td></td></tr>
<tr><td>USE CASE Name</td><td>View Record Info</td></tr>
<tr><td>ACTOR</td><td>Medical facility & Patient</td></tr>
<tr><td>Goal</td><td>To view the patent emergency medical information from the system.</td></tr>
<tr><td>Overview and scope</td><td>Shows the process of viewing a patient’s emergency medical information for
use by emergency workers when the patient is unconsciousness or similarly
Impaired. This information may be used by the facility to contact the
emergency contacts listed by the patient for urgent decision making or
Information.</td></tr>
<tr><td>Preconditions</td><td>• Patient has created an account for use with the Personal Health Record
System and updated his or her emergency contact information via the
Update Emergency Info on Server use case
• medical facility employee is associated with an Emergency
Medical Facility with permissions to access Medical Records</td></tr>
<tr><td>MAIN SUCCESSFUL SCENARIO</td><td>
<table>
<tr><td>Actor Action</td><td>System Action</td></tr>
<tr><td>1- Employee logs in with username, password, facility ID</td><td>2- Verifies the username and password
and access permissions</td></tr>
<tr><td></td><td>3- Display patient search window</td></tr>
<tr><td>4- Employee enters patient’s
ID in search screen</td><td>5- Searches for patients by ID number and
displays list of possible matches</td></tr>
<tr><td>6- Employee selects a patient</td><td>7- System displays patient summary
information</td></tr>
<tr><td>8- Employee selects record type for viewing</td><td>9- System logs access and displays
records</td></tr>
<tr><td>10- Employee requests to close
Window.</td><td>11- System Closes</td></tr>
</table>
</td></tr>
</table>

4.7 Activity diagrams:

4.7.1 Update medical record Info:

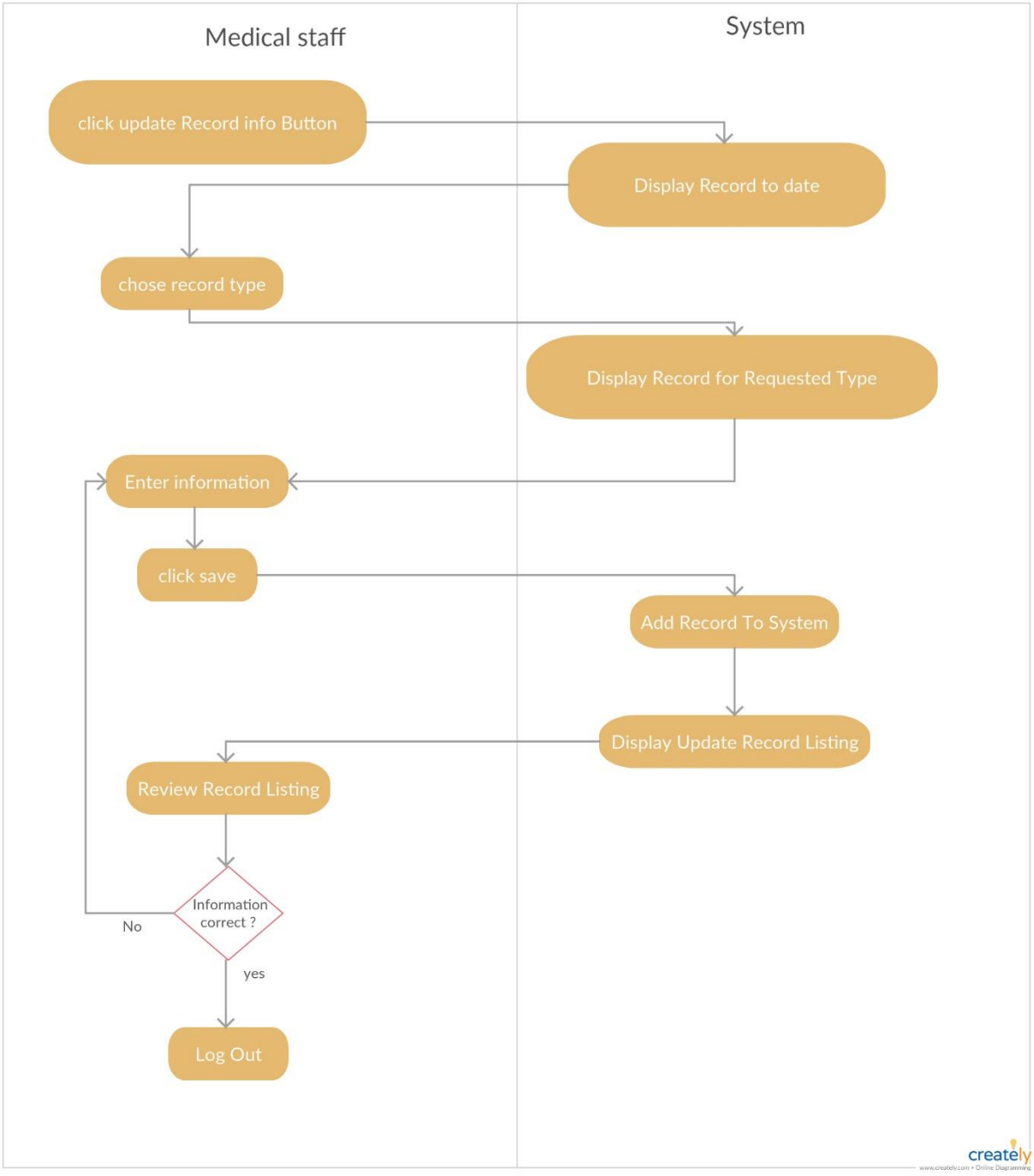


Fig. 3.0 Update medical record (Activity diagram)

4.7.2 View medical record Info (Medical staff):

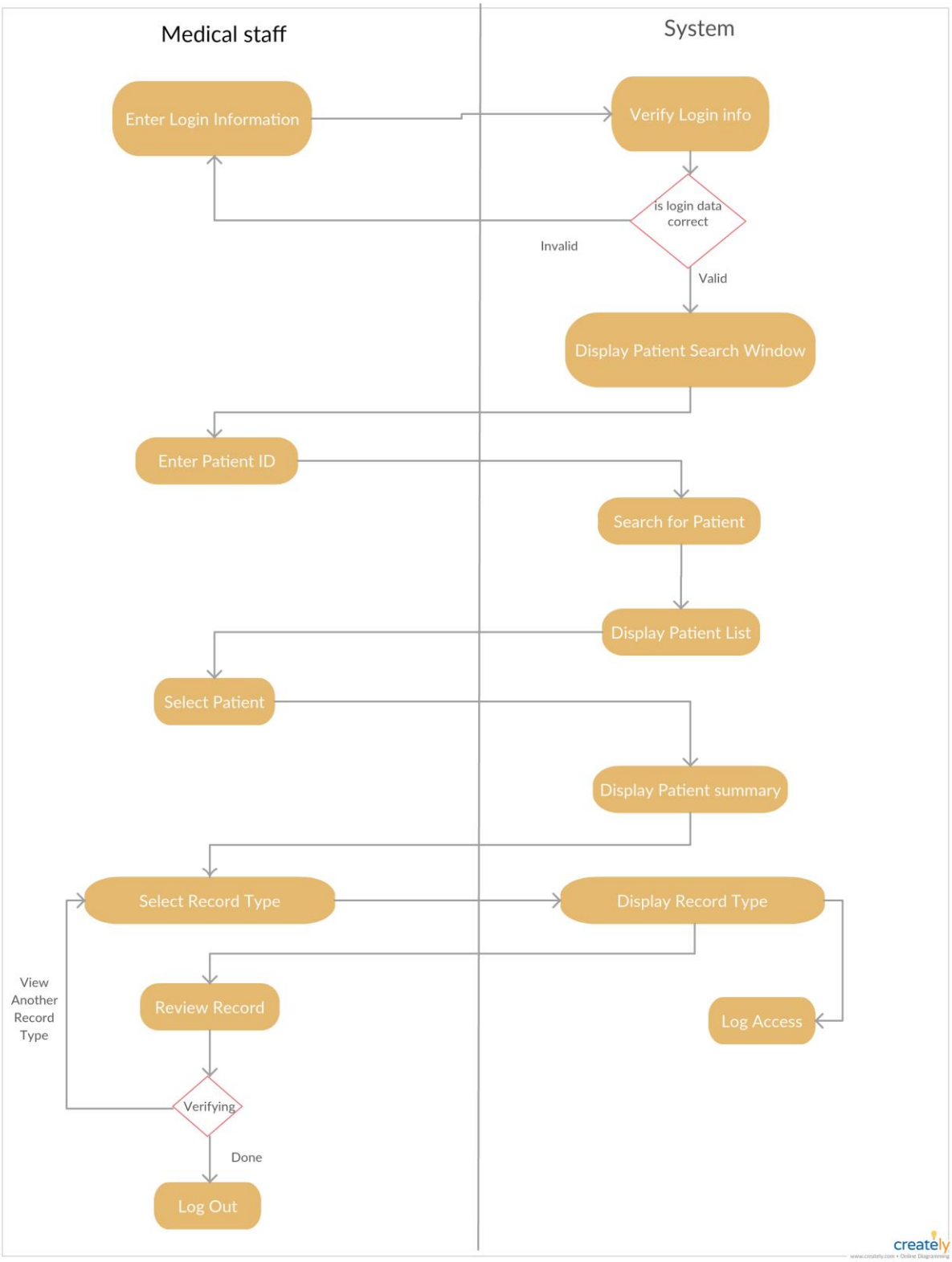


Fig. 3.1 View medical record Medical Staff(Activity diagram)

4.7.3 View medical record Info(Patient)

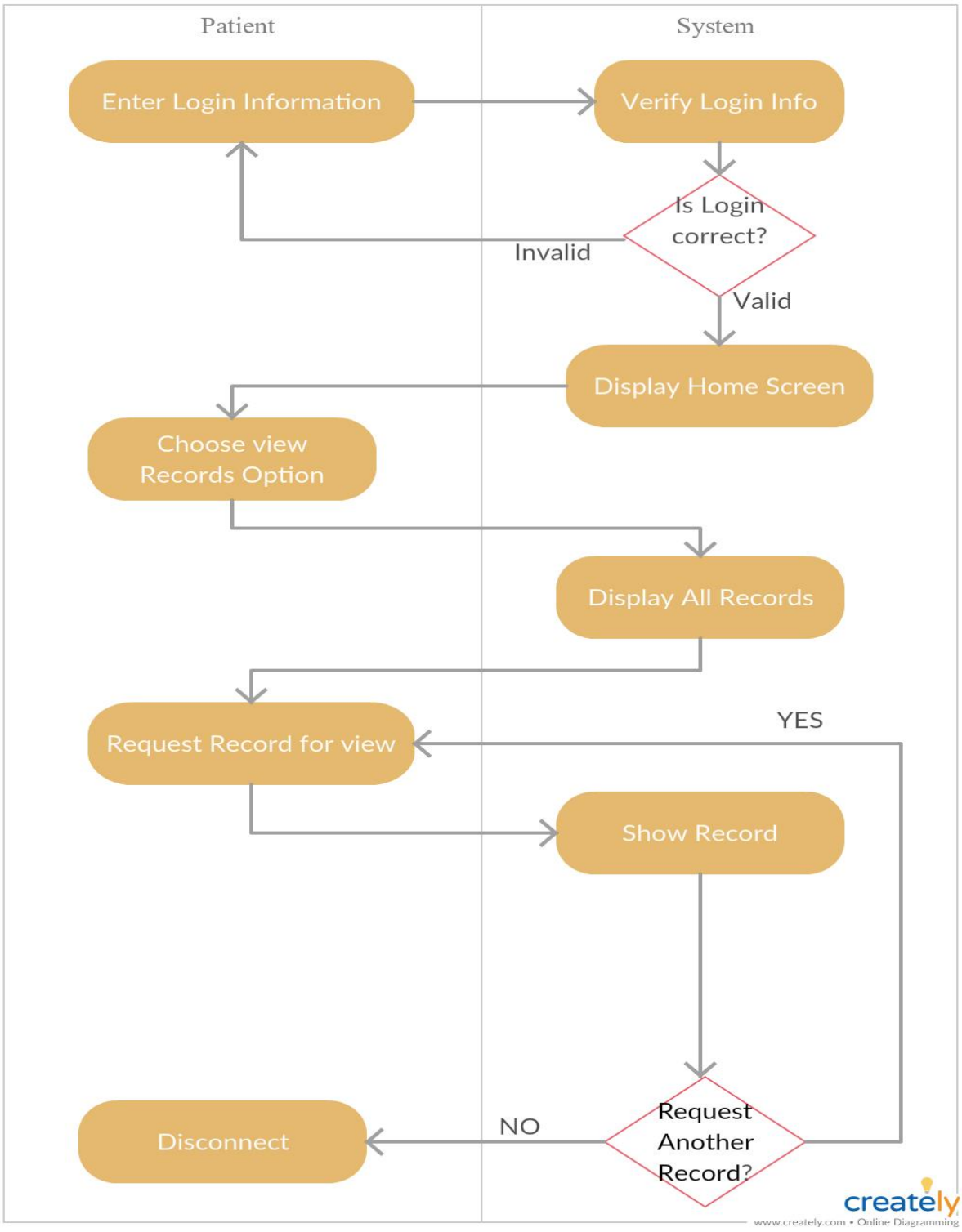


Fig. 3.1 View medical record Patient (Activity diagram)

4.8 System Sequence Diagrams:

4.8.1 Update medical record Info:

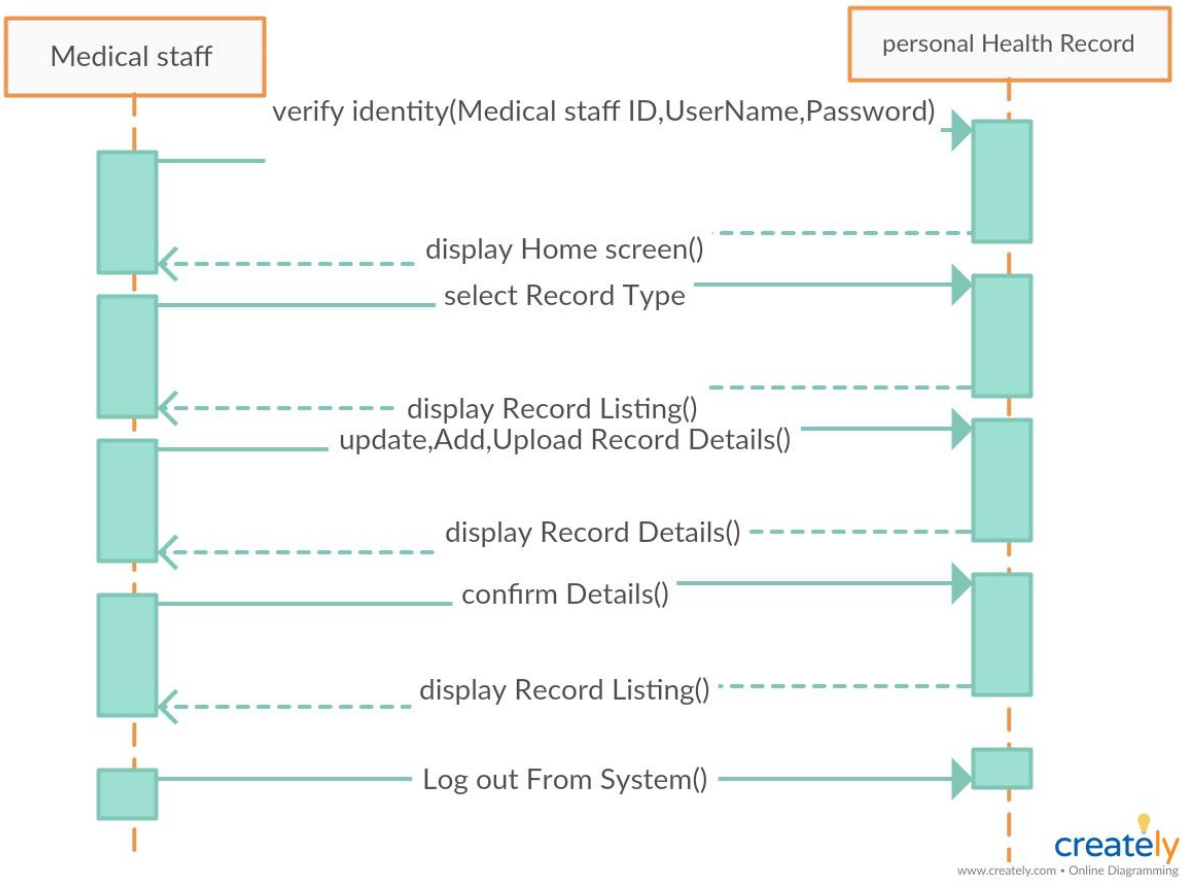


Fig. 4.0 Sequence diagram Medical Staff (Update medical record)

4.8.2 View medical record Info(Medical Staff):

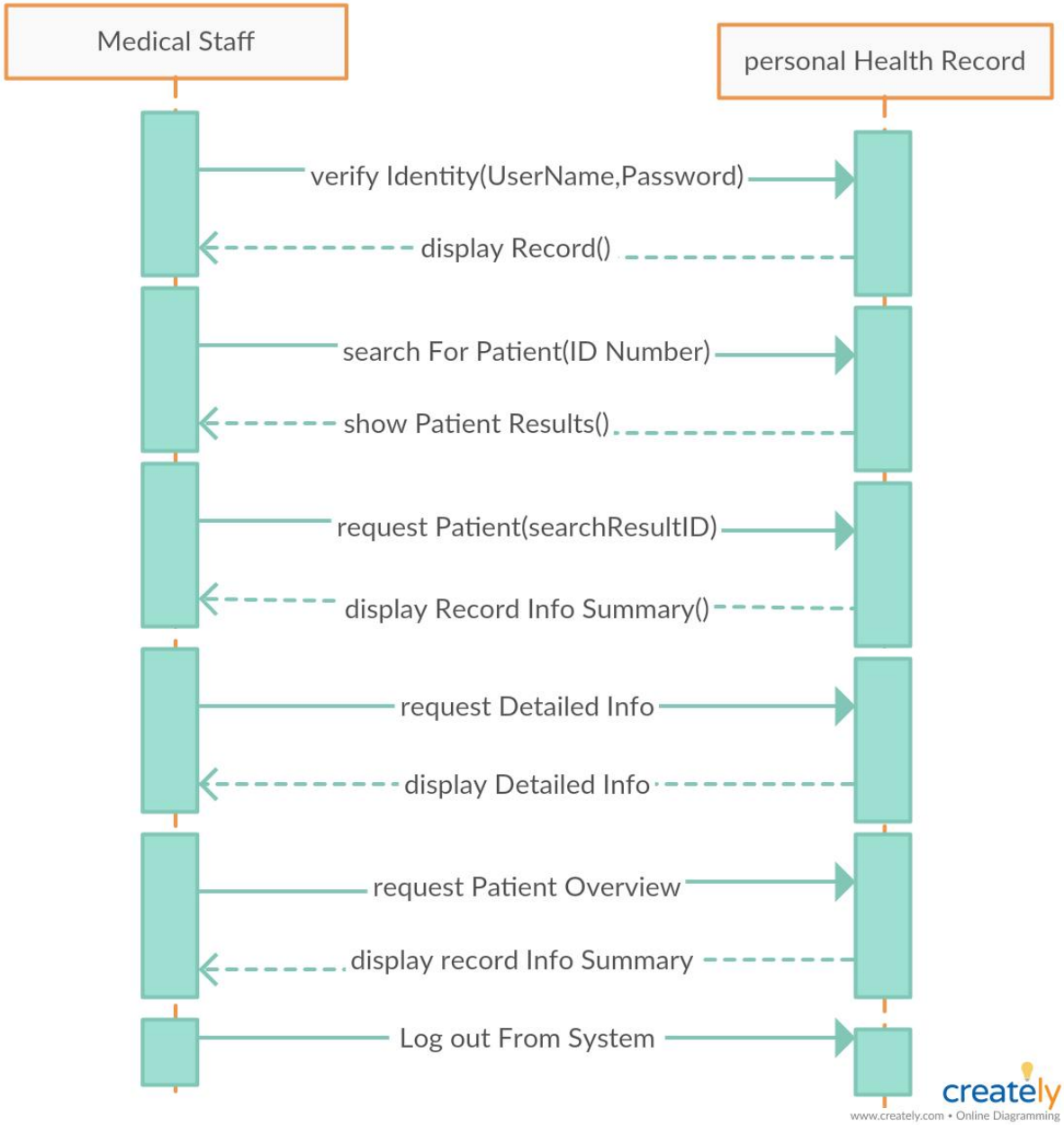


Fig. 4.1 Sequence diagram Medical Staff (view medical record)

4.8.3 View medical record Info (Patient):

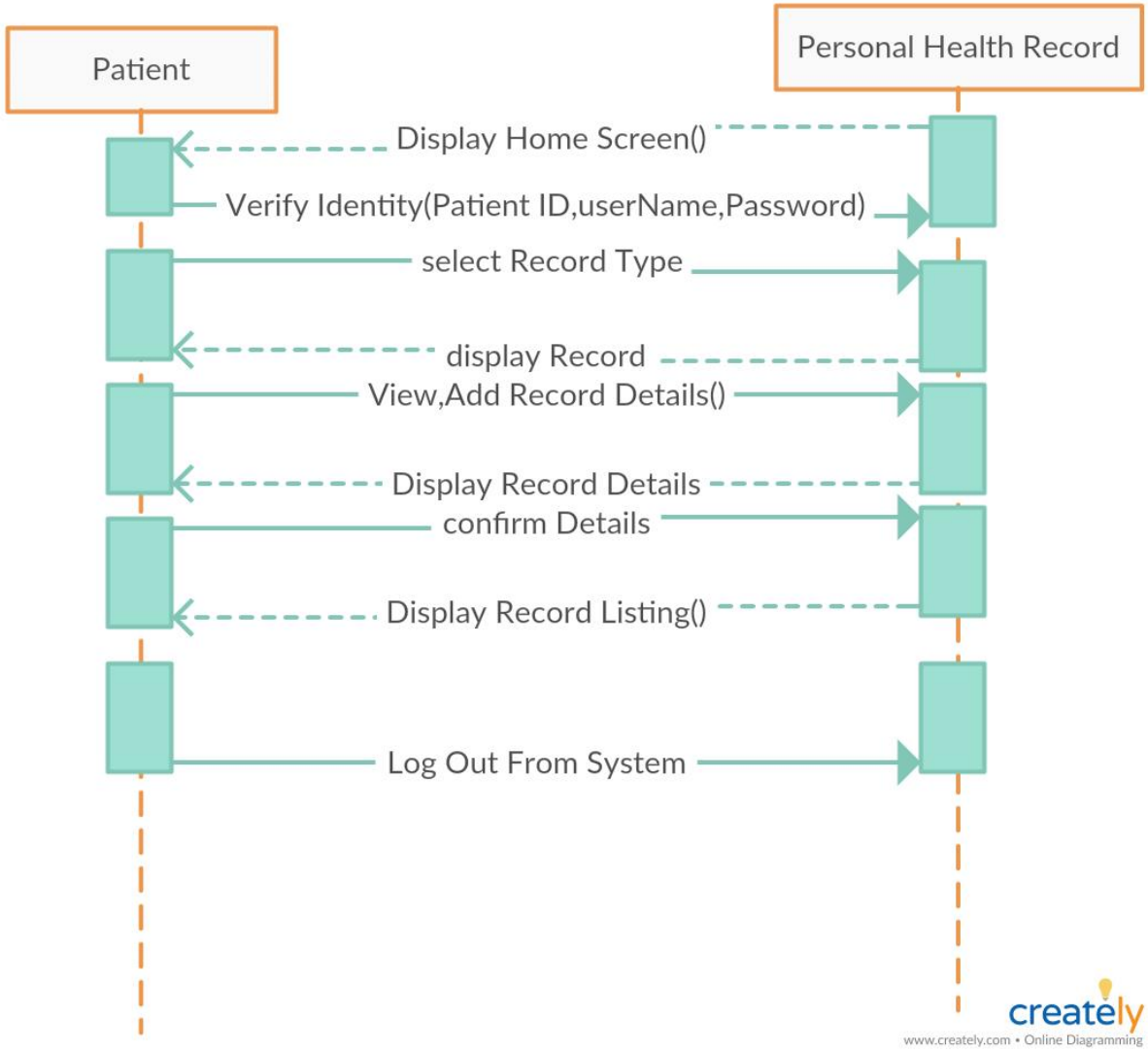


Fig. 4.2 Sequence diagram Patient (view medical record)

4.9 Sequence Diagrams:

4.9.1 Update medical record Info:

The “Update medical record Info” use case sequence diagram depicts the underpinnings of the system’s relationship with the medical Staff. The medical Staff first logins into the system and has his/her identity verified by the information tied to his/her account. Once verified, the system displays a list of services to the patient, who then chooses to modify the emergency records associated with the account

The system pulls up all pre-existing emergency records for all the different record types, allowing the medical Staff to drill down and select the exact record type they wish to update.

Once selected, the system displays all the records stored for that record type, with the option to add a new one. Once the medical Staff has updated a particular record, the system will display a confirmation page to the medical facility employee in order to ensure that any information entered.

4.9.2 View Medical Record Info(medical Staff):

In the View Medical Record Info detailed system use case we can see the process the system uses to access and display these records.

the system asks for a list of patients matching a first and last name and ID number from a generic patient account object.

Once the user selects the appropriate user the system gets that particular patient object from the system.

This object is then asked for all of its Medical Record.

4.9.3 View Medical Record Info(patient):

In the View Medical Record Info detailed system use case we can see the process the system.

The system shows the patient's medical records, and the patient makes notes or the like.

4.10 Design Class Diagram:

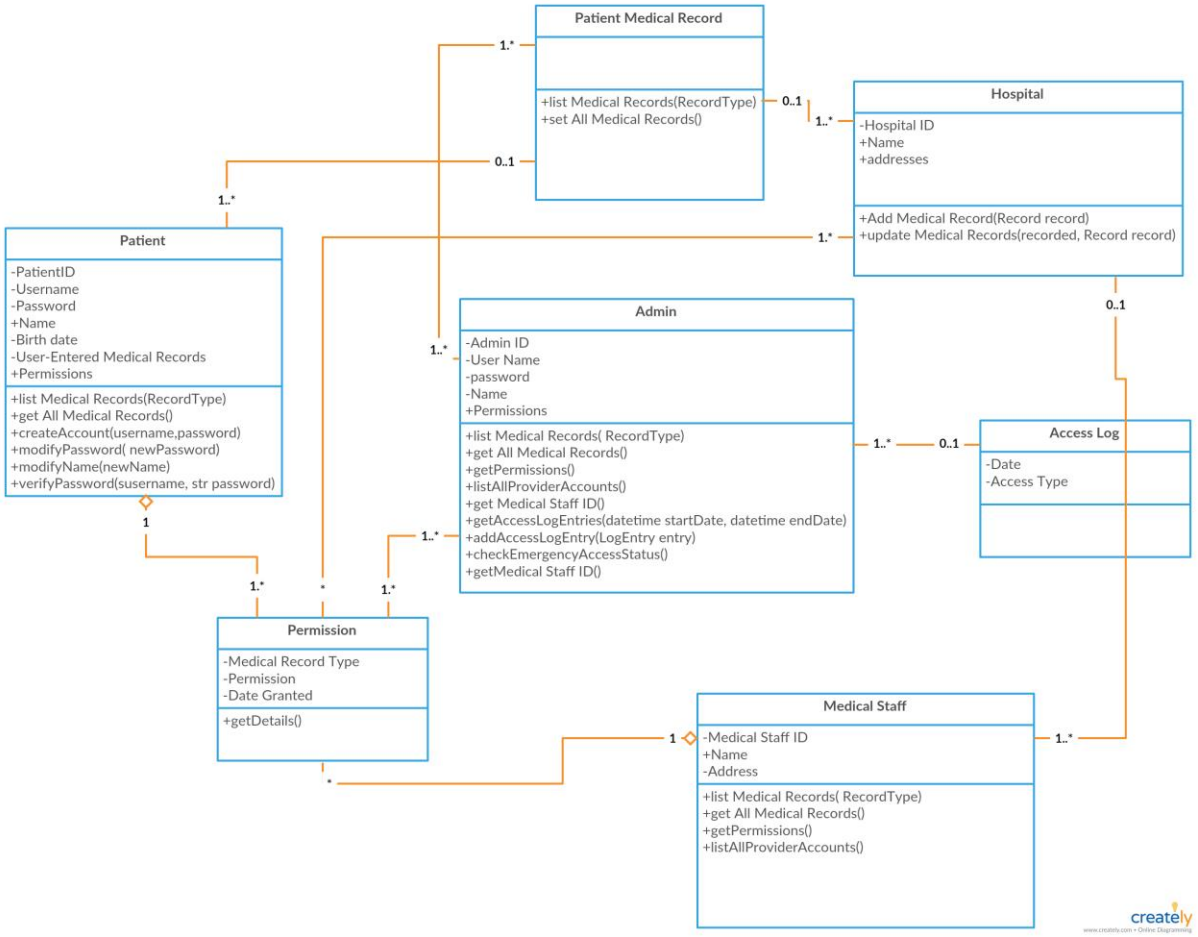


Fig. 5.0 Class diagram

4.10.1 Design Class Diagram:

The design class diagram, while seemingly complex at first sight class diagram. All of the same classes are there, and thus, the same logic and cardinality between the classes is applied. However, reference attributes and operations were added to many of the classes for the purpose of making the diagram more abstraction friendly when it comes time to actually construct the system.

4.11 Physical Design:

4.11.1 ER-DIAGRAM FOR PHR SYSTEM:

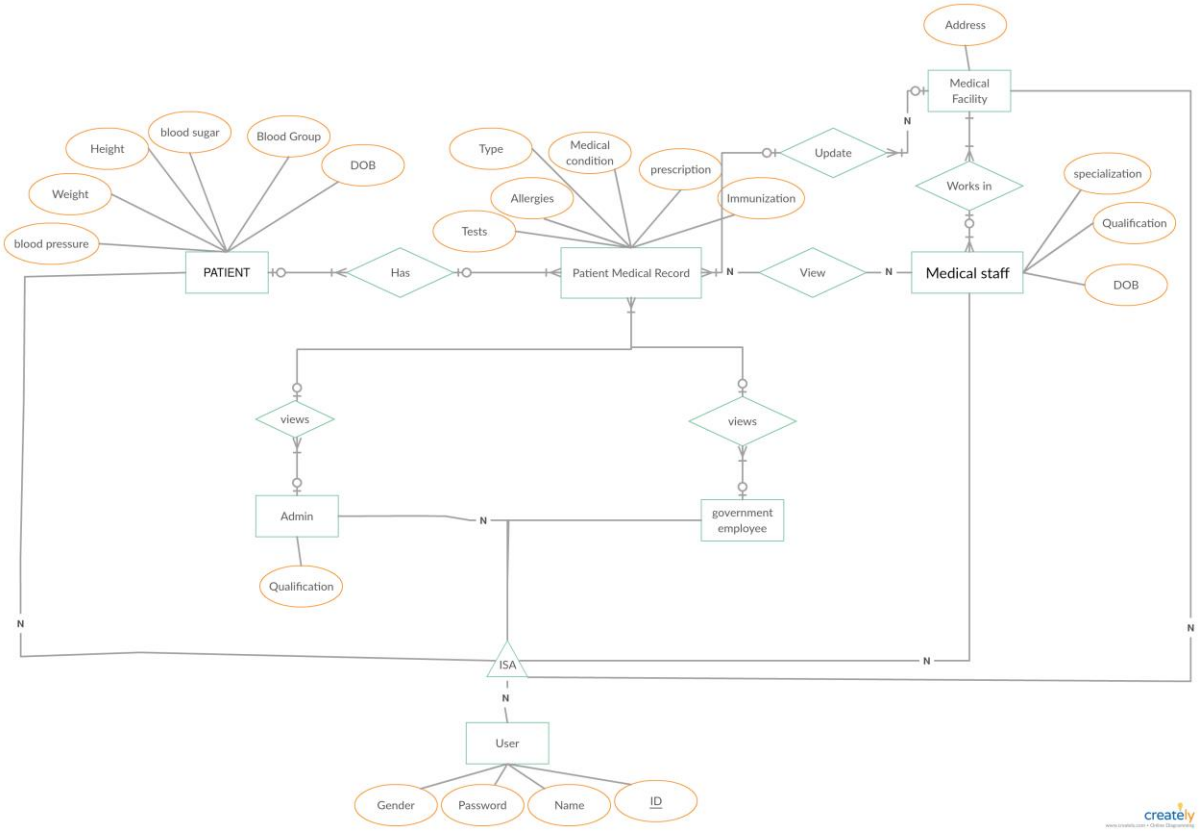


Fig. 6.0 ER diagram

Interaction representation for PHR System has several entities such as PHR, Patient, Registration, Hospital, Tests, Identities, Reports and Treatment. Each entity has several attributes with the relationship in a flow manner. Hospital or Institution contains the In-patient medical module which contains the Patient ID, Patient name and membership date on which the treatment process has been started. They process various tests for several diseases and surgical problems and provide the prescription and drugs which need to be console.

Patient or user details are been registered in PHR it contains information such as Name, Date of birth, Age, Gender, Address, Contact number, Email address and Blood group. PHR also stores several Identities such as Height, Weight, personal identification and other problems.

Chapter 5

5.1 System design:

5.2 Web interfaces:

5.2.1 Home Page (PHR):

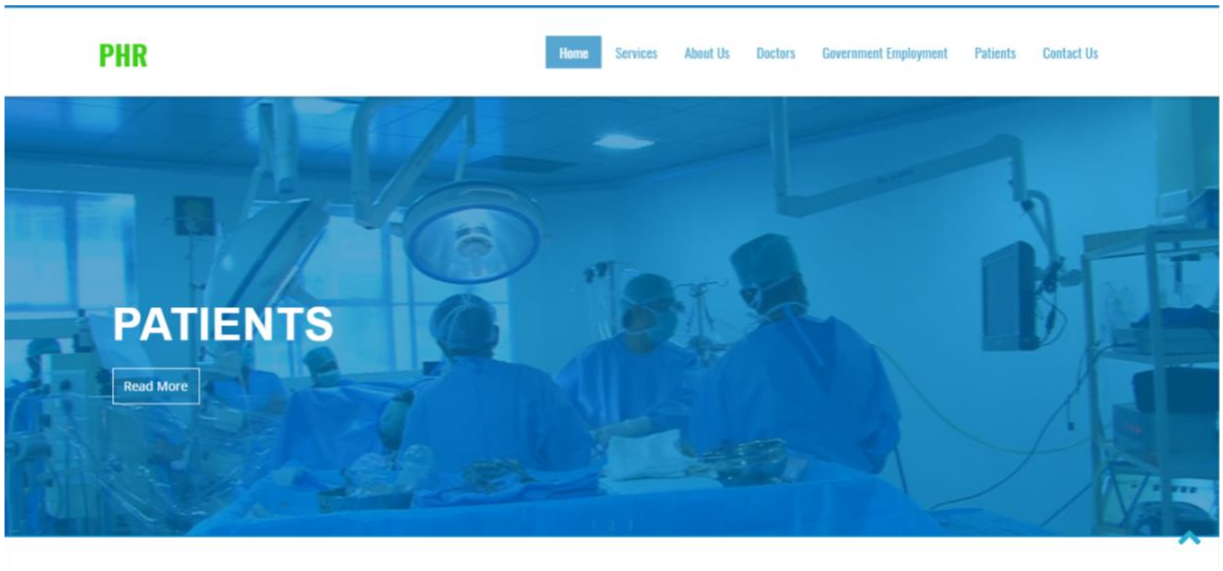


Fig. 7.0 Home page

The main interface of the site which allows you to move between the pages of the website

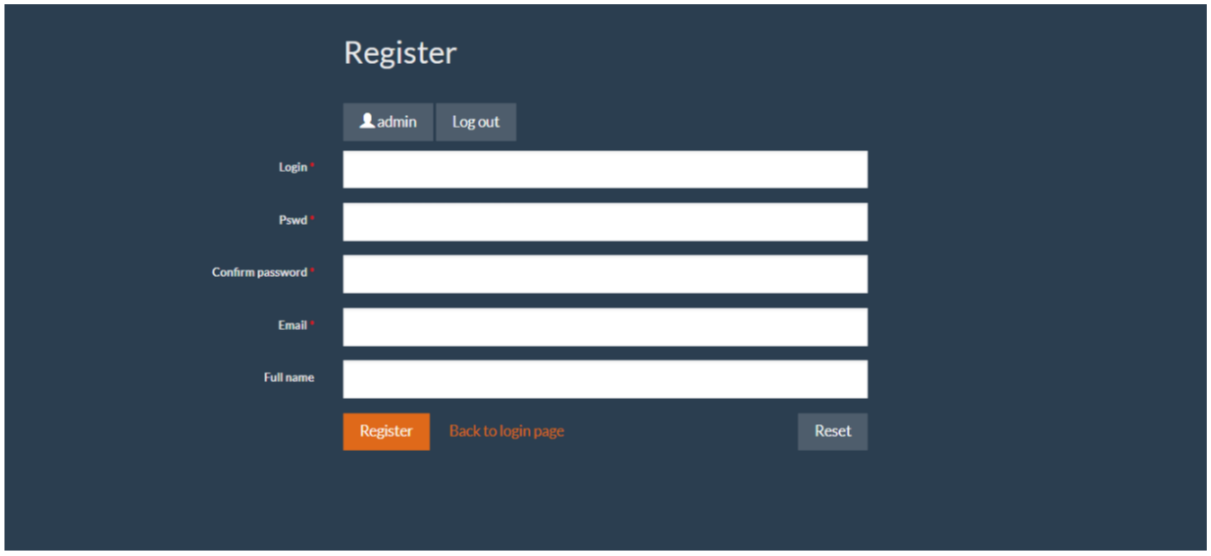
- sign in page
- who we are
- what services we provide
- contact page

5.2.2 Register Page:

Sign up page: is page for registration in the web application to have full

access to the functionality available in the web.

(Username, password, confirm password, Email, Full Name)



5.2.3 Login Page:

Sign in page: is the process by which an individual gains access to the system by identifying and authenticating.

(Username, Password)

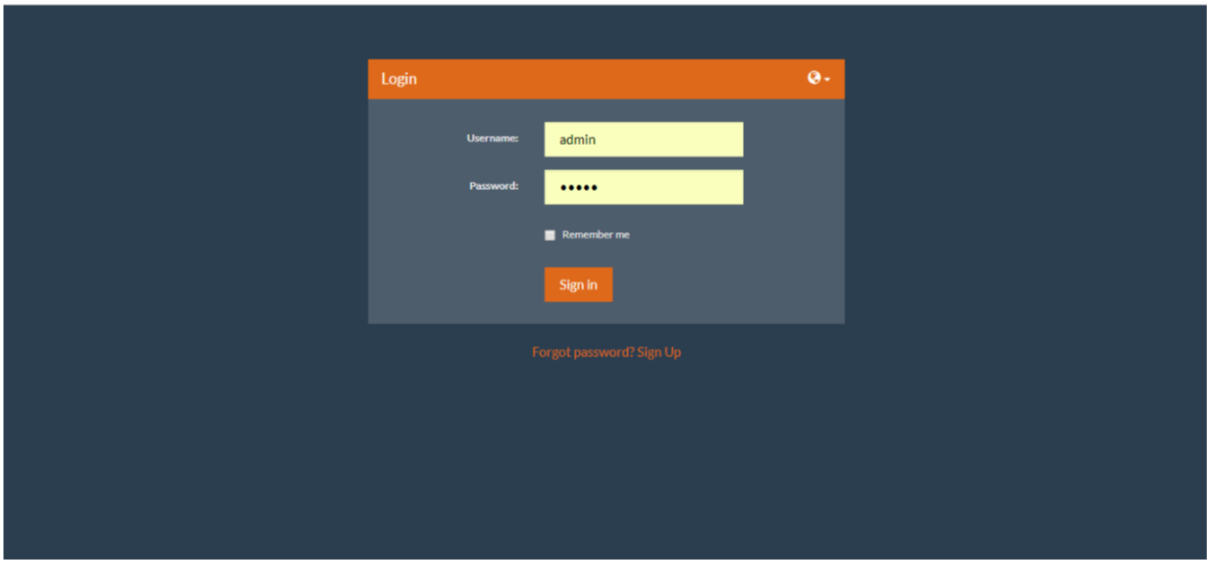
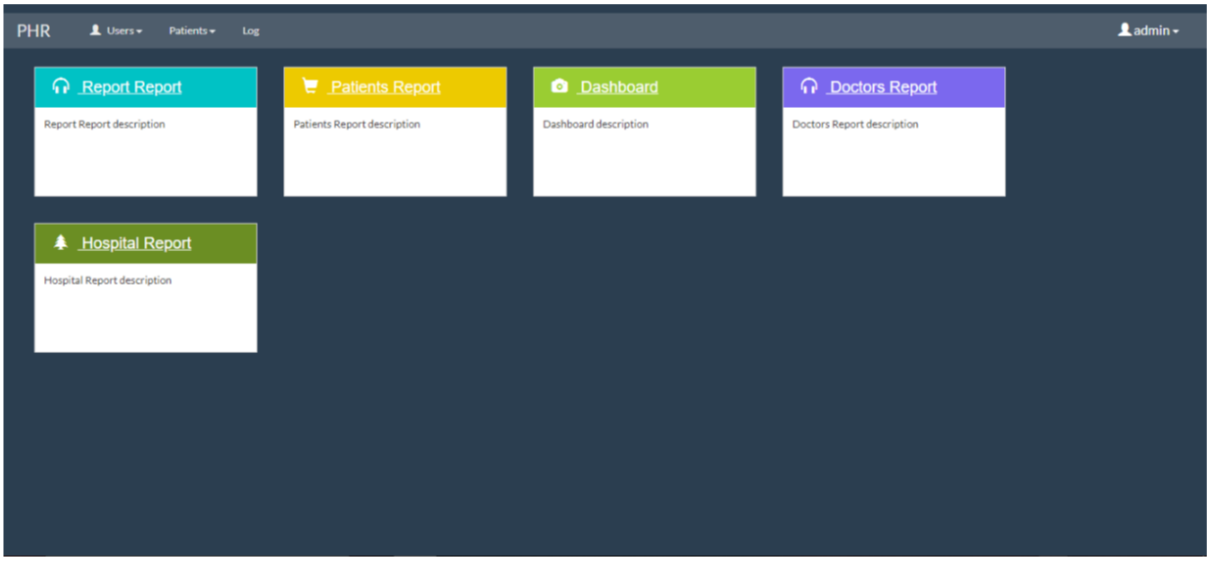


Fig. 7.1 Login Page

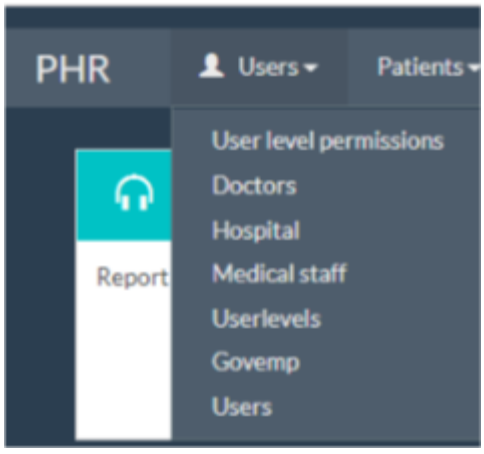
5.2.4 Admin area page:

The home page of the adman, which enables him to move between the pages of the site and search for a patient or search for a report or search for a doctor etc.



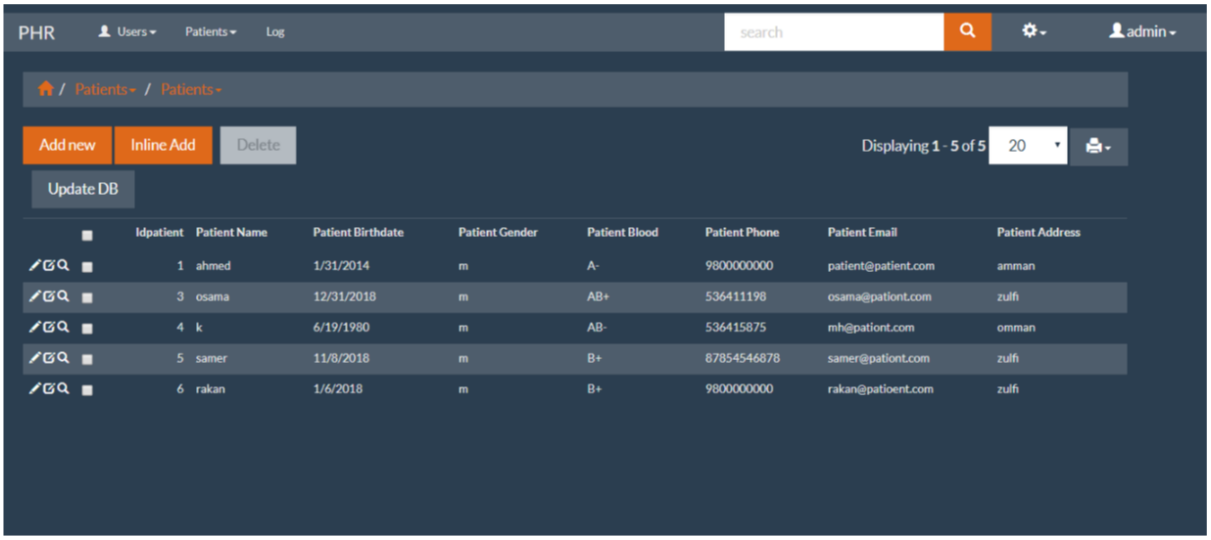
5.2.5 Users menu:

The user's checklist for browsing his data.



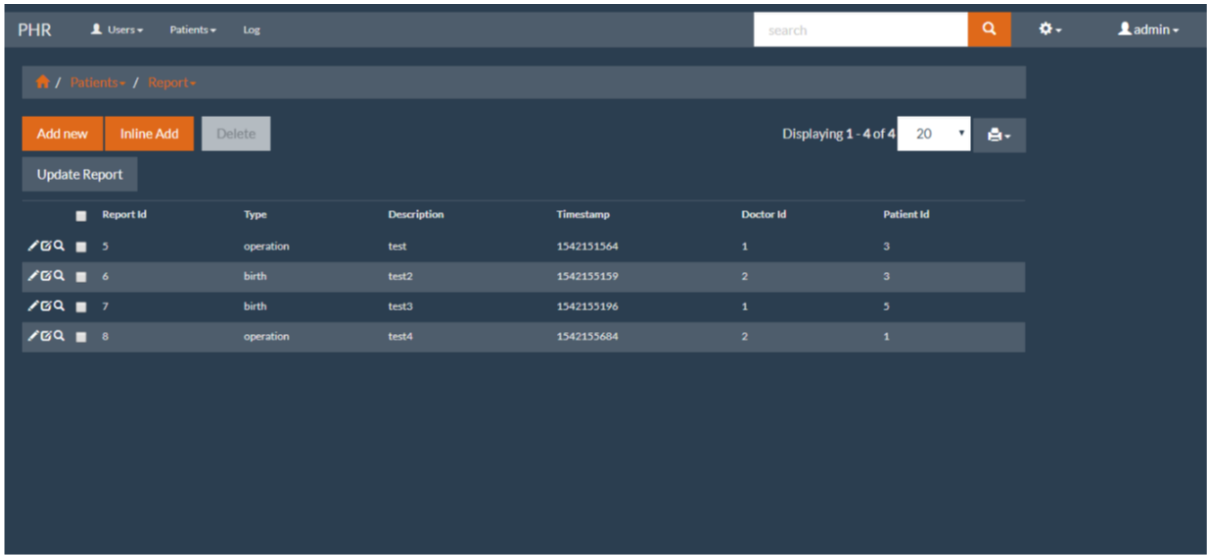
5.2.6 List of patients:

List of patients and some data about them such as e-mail, mobile number, blood type, address and date of birth and can modify the patient's data.



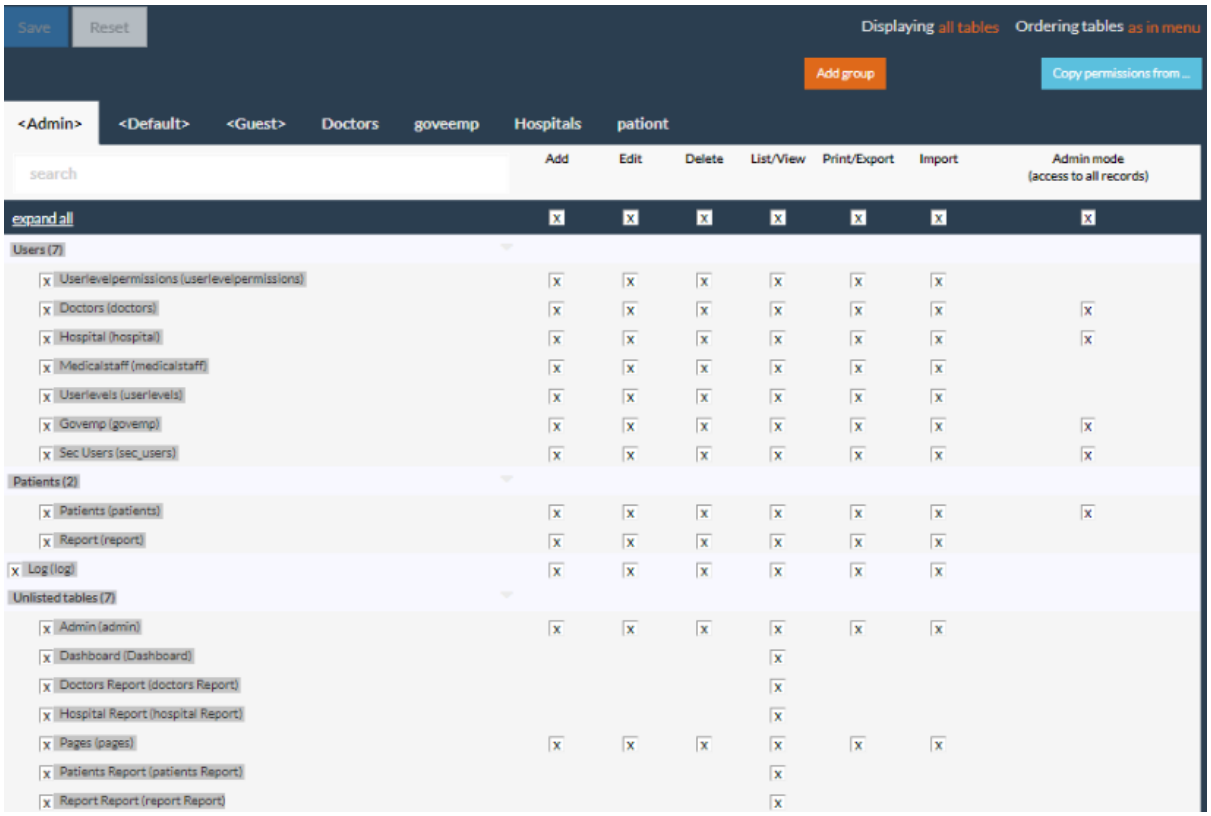
5.2.7 List of Report:

List of Report and same data about patients such as patient ID and doctor ID and the description of patient and what's the type of patient.



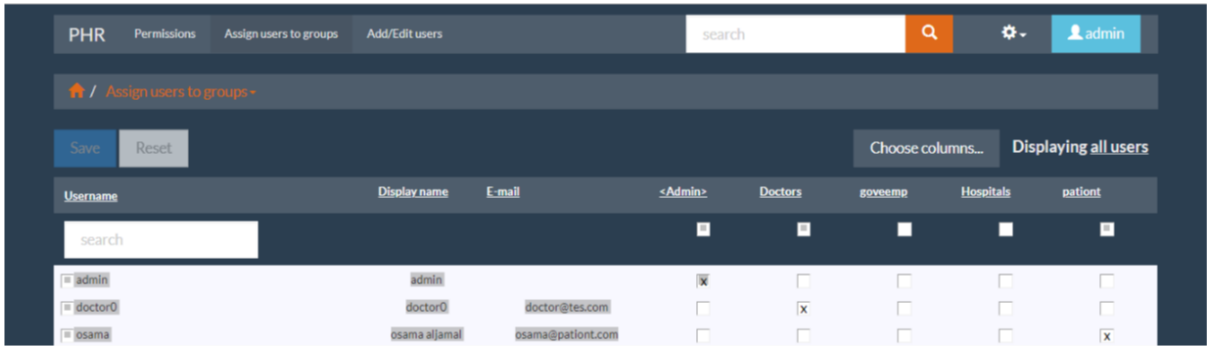
5.2.8 Permissions:

The Permissions page is the page that allows the Admin to give the registrants permission to add, delete, modify, view or print.



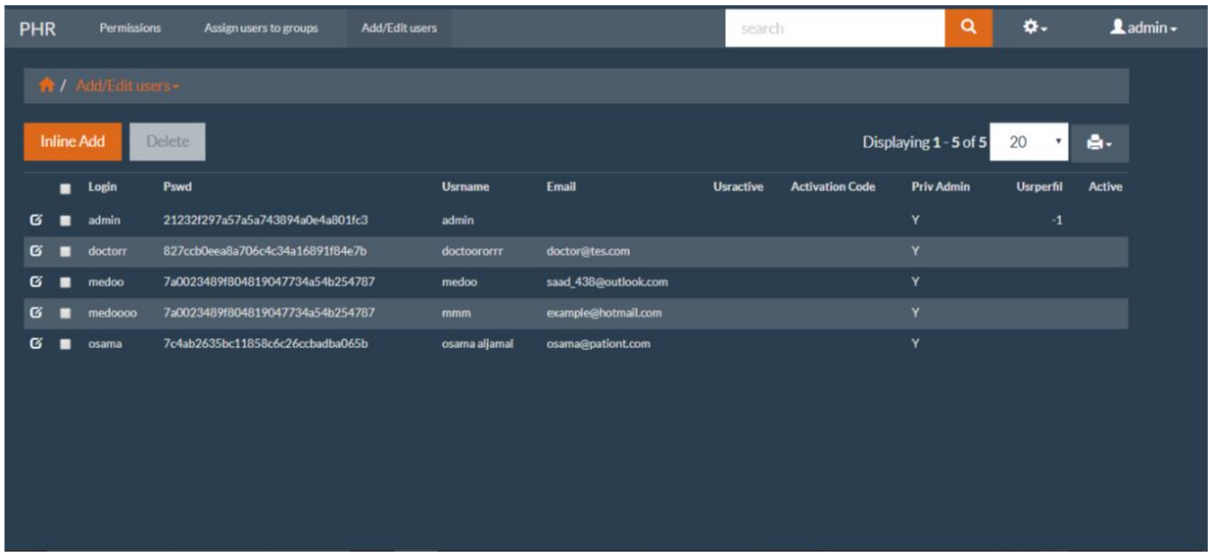
5.2.8.1 Assign users to groups:

Distribution of registrants on the system according to the type of registrar if he is a patient, doctor, hospital or Govt employee.



5.2.8.2 Add/Edit User:

Enables Admin to modify users, delete user or add user.



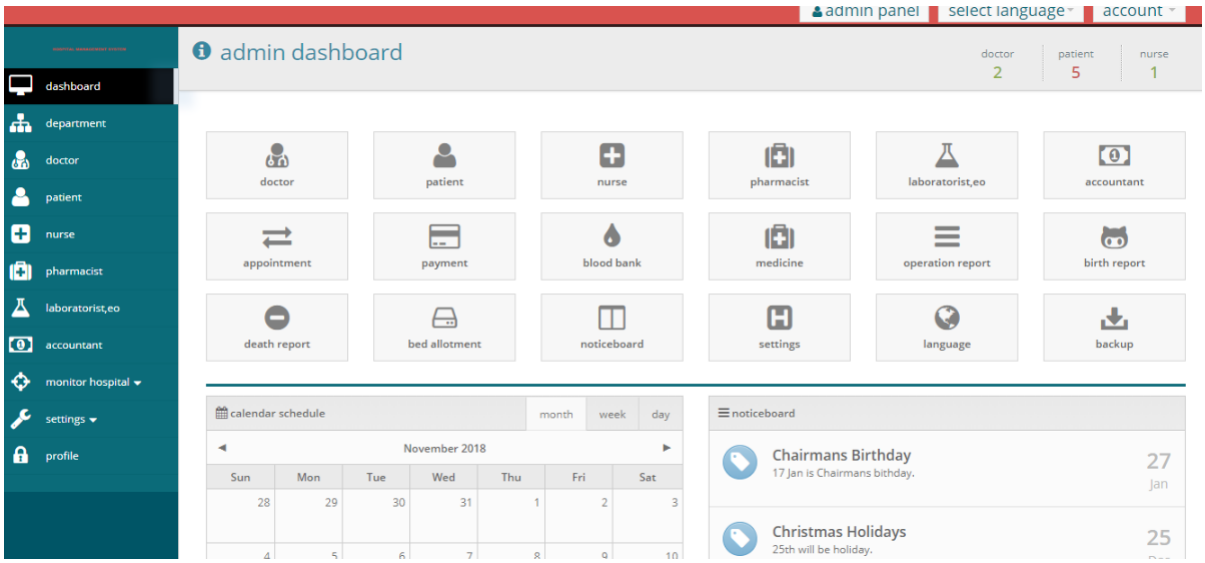
5.2.9 Patient:

5.2.10 Login Page (HMS):

This page to login and chooses type.

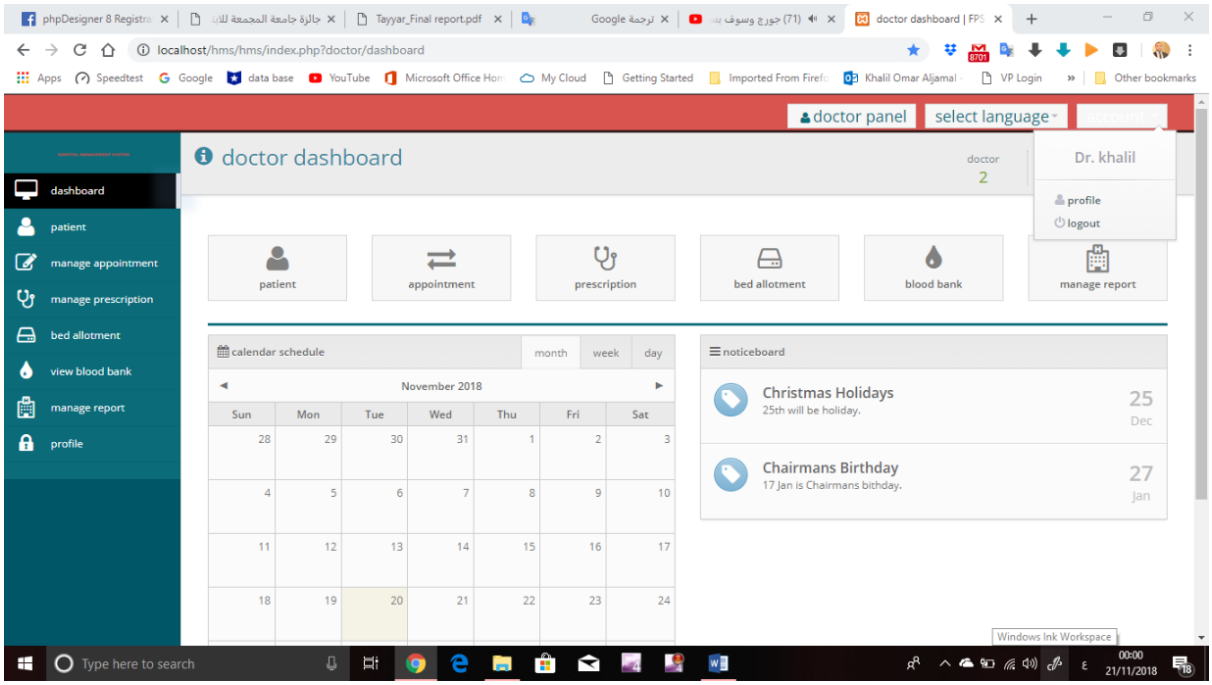
5.2.11 Admin dashboard Page:

Dashboard page Which goes to other sections of the site



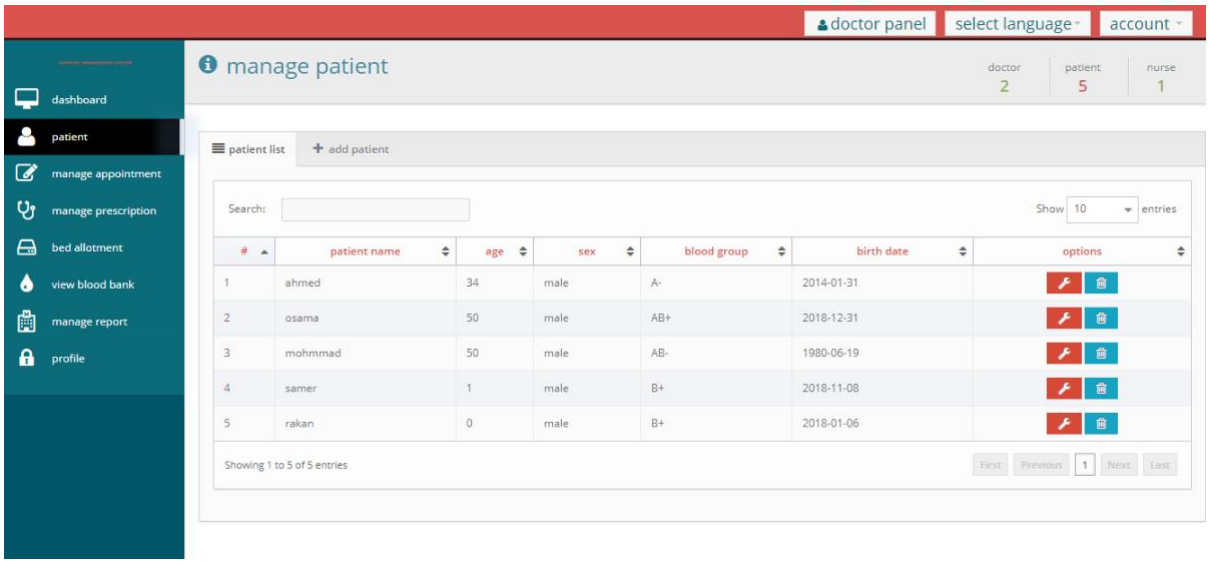
5.2.12 Doctor dashboard Page:

Dashboard page Which goes to other sections of the site



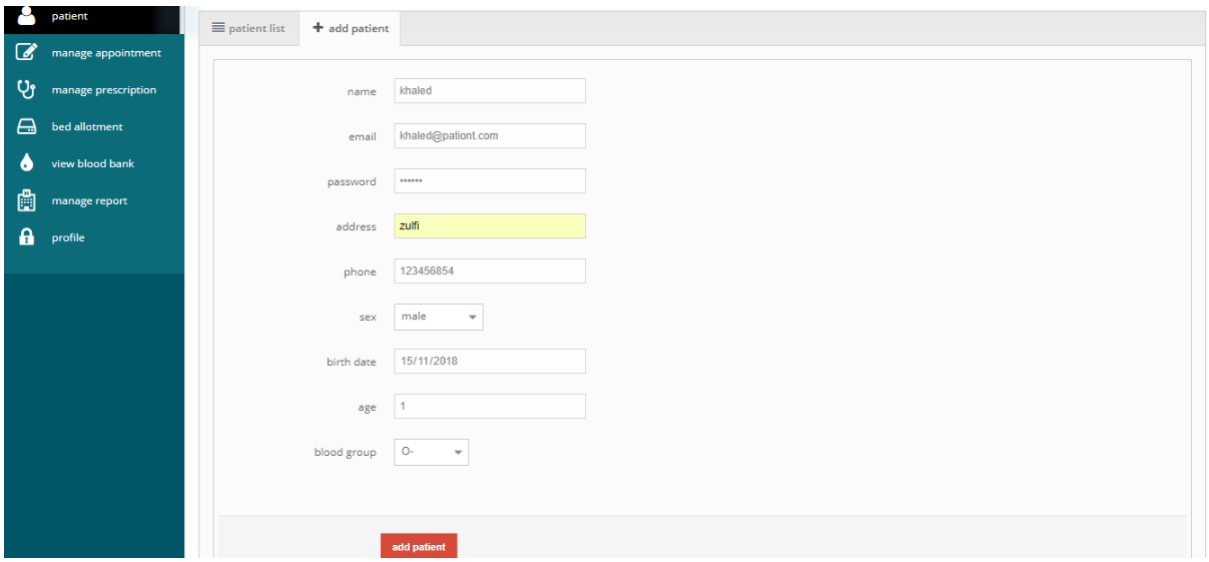
5.2.13 Patient List page:

This page for display the patient lists



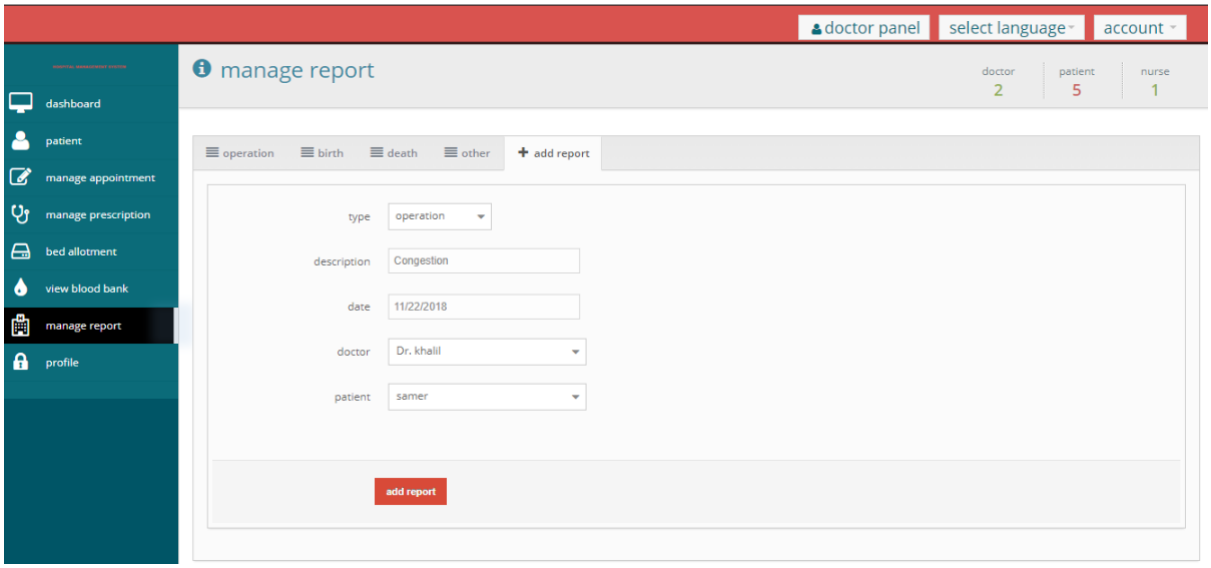
5.2.14 Add new patient page:

This page for doctor can be Add new patient.



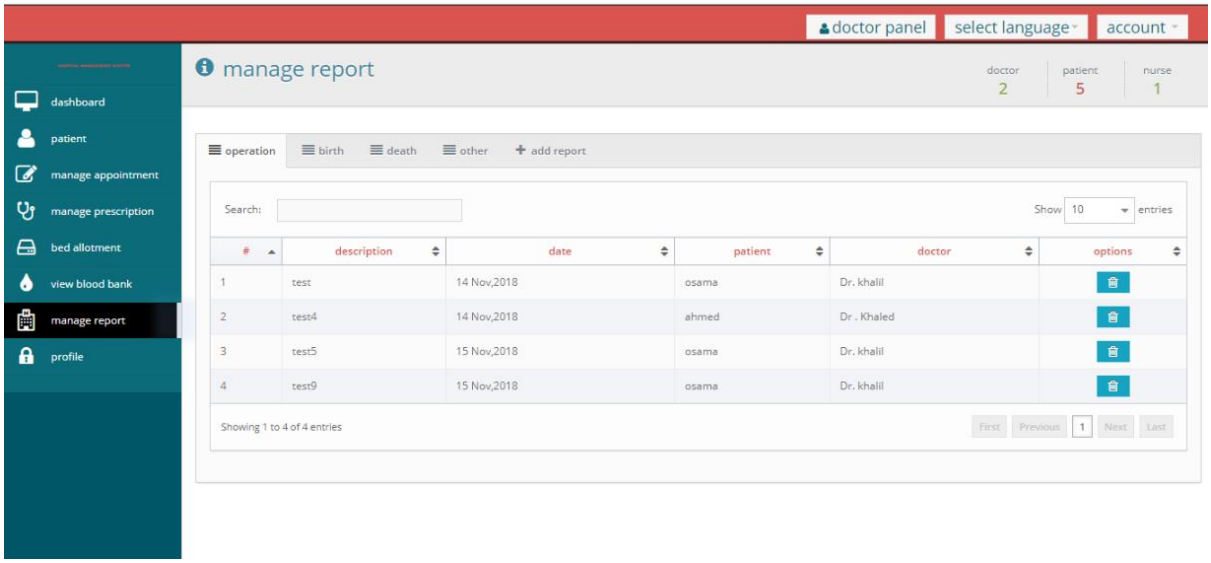
5.2.15 Add new report for patient:

This page enables the doctor to add a patient report



5.2.16 View patient reports:

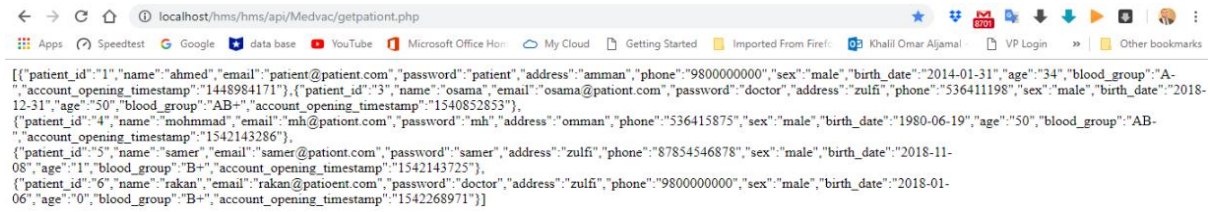
To show all patients' reports at the hospital or to search for a particular patient.



5.2.17 API Data transmission style:

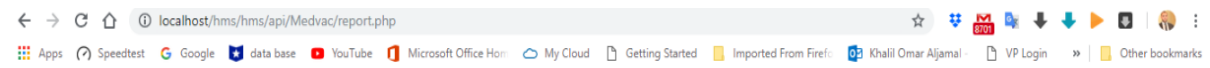
5.2.17.1 Patient information:

So the information is transferred from the hospital server to a Phr server in the form of array



[{"patient_id":"1","name":"ahmed","email":"patient@patient.com","password":"patient","address":"amman","phone":"9800000000","sex":"male","birth_date":"2014-01-31","age":"34","blood_group":"A-","account_opening_timestamp":"1448984171"},{"patient_id":"3","name":"osama","email":"osama@pationt.com","password":"doctor","address":"zulfi","phone":"536411198","sex":"male","birth_date":"2018-12-31","age":"50","blood_group":"AB+","account_opening_timestamp":"1540852853"},
{"patient_id":"4","name":"mohmmad","email":"mh@pationt.com","password":"mh","address":"omman","phone":"536415875","sex":"male","birth_date":"1980-06-19","age":"50","blood_group":"AB-","account_opening_timestamp":"1542143286"},
{"patient_id":"5","name":"samer","email":"samer@pationt.com","password":"samer","address":"zulfi","phone":"87854546878","sex":"male","birth_date":"2018-11-08","age":"1","blood_group":"B+","account_opening_timestamp":"1542143725"},
{"patient_id":"6","name":"rakan","email":"rakan@patioent.com","password":"doctor","address":"zulfi","phone":"9800000000","sex":"male","birth_date":"2018-01-06","age":"0","blood_group":"B+","account_opening_timestamp":"1542268971"}]

5.2.17.2 Report information:



[{"report_id":"6","type":"birth","description":"test2","timestamp":"1542155159","doctorname":"Dr . Khaled","name":"osama","patient_id":"3","doctor_id":"2"},
{"report_id":"5","type":"operation","description":"test","timestamp":"1542151564","doctorname":"Dr. khalil","name":"osama","patient_id":"3","doctor_id":"1"},
{"report_id":"7","type":"birth","description":"test3","timestamp":"1542155196","doctorname":"Dr. khalil","name":"samer","patient_id":"5","doctor_id":"1"},
{"report_id":"8","type":"operation","description":"test4","timestamp":"1542155684","doctorname":"Dr . Khaled","name":"ahmed","patient_id":"1","doctor_id":"2"},
{"report_id":"9","type":"operation","description":"test5","timestamp":"1542266976","doctorname":"Dr. khalil","name":"osama","patient_id":"3","doctor_id":"1"},
{"report_id":"10","type":"operation","description":"test9","timestamp":"1542268821","doctorname":"Dr. khalil","name":"osama","patient_id":"3","doctor_id":"1"},
{"report_id":"11","type":"operation","description":"Congestion","timestamp":"1542748812","doctorname":"Dr. khalil","name":"ahmed","patient_id":"1","doctor_id":"1"}]

5.3 Database Tables:

Collection of information that is organized so that it can be easily

accessed, managed and updated.

Data is organized into rows, columns and tables, and it is indexed to make

it easier to find relevant information in our project Personal Health Record

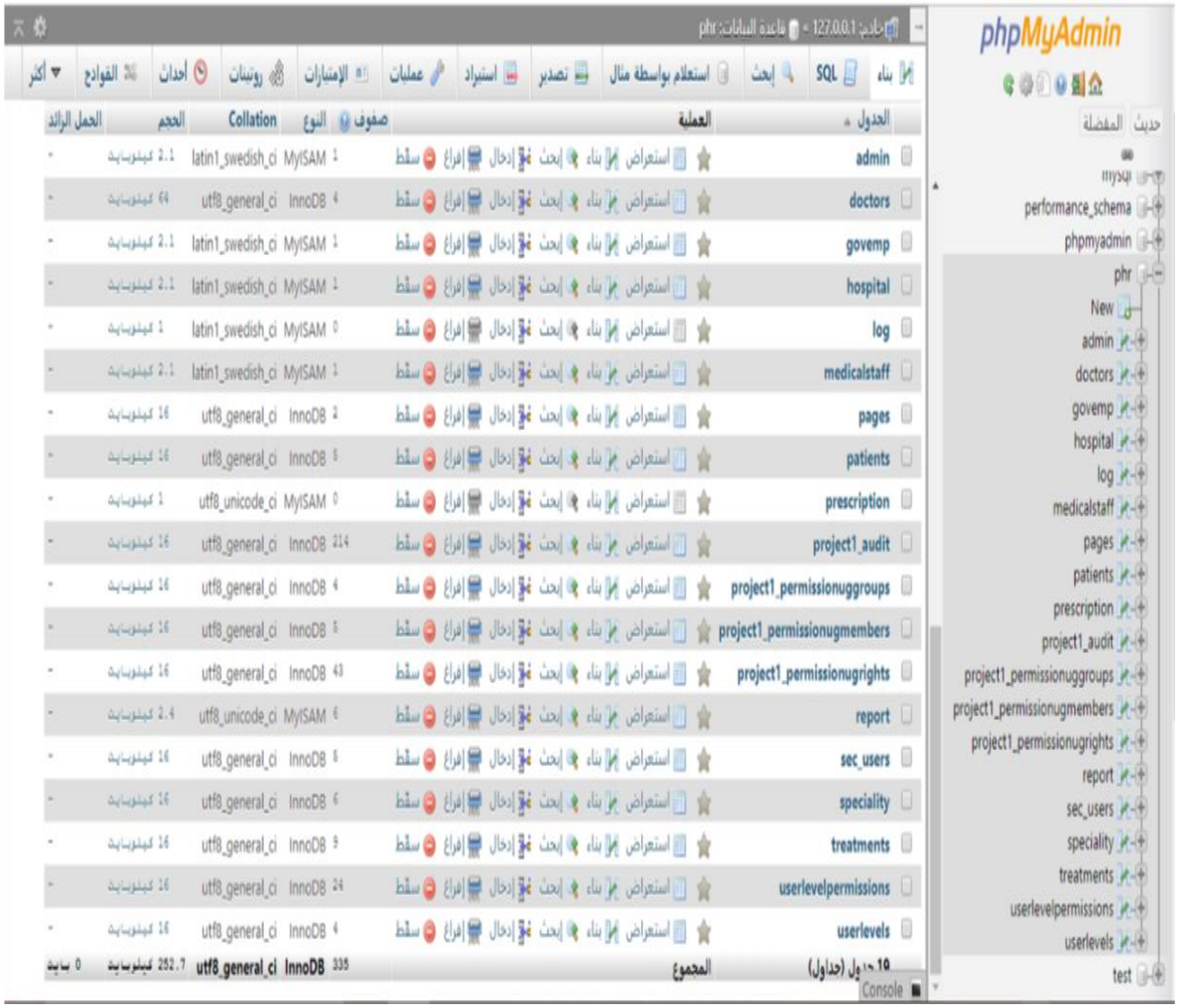
we have 20 Tables in PHR database and we have 26 Tables in the example of hospital data base

We are going to pass the impotent table and explain it and what the

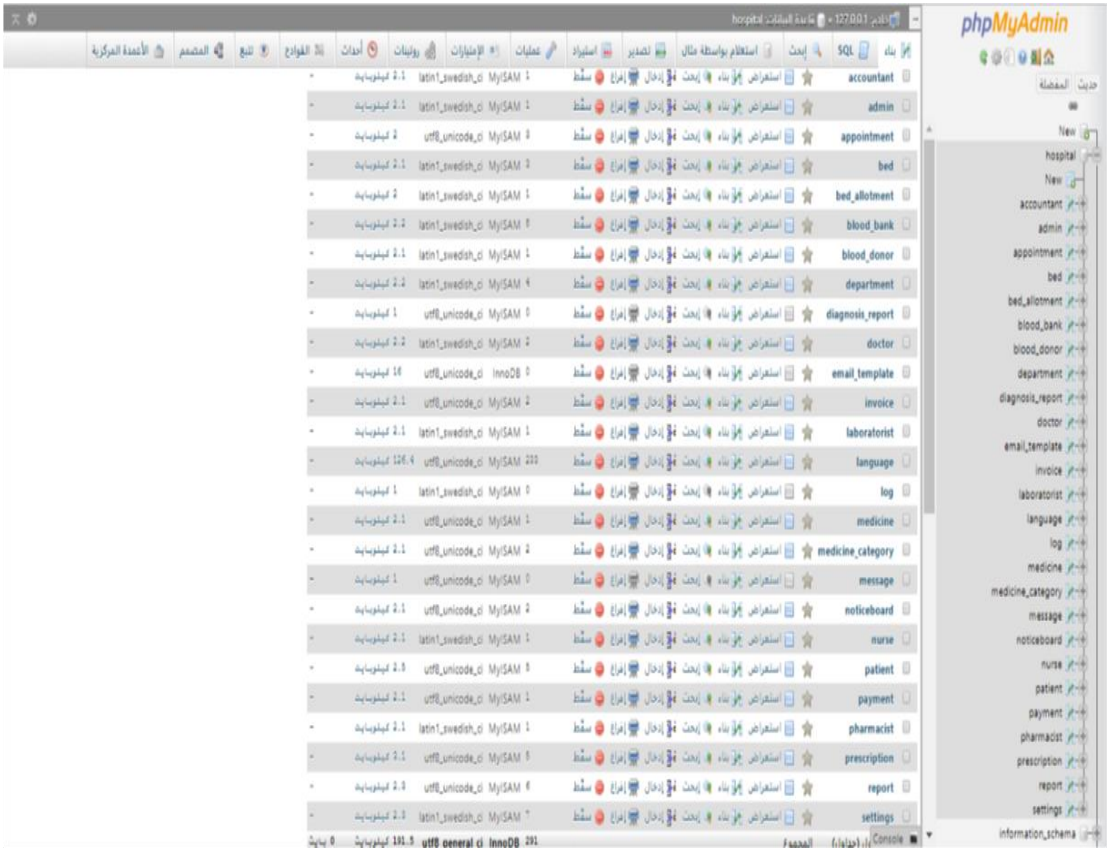
purpose from it.

This is the capture for the whole database tables.

PHR data base:



HMS database:



5.3.1 User Table:

As it is clear from its name for the preservation of user data for the site of PHR at all levels, whether it is admin or other ranks.

This table consists of thirteen columns.

#	الاسم	النوع	Collation	الخواص	خالي	إفتراضي	التعليقات	إضافي	العملية
1	login	varchar(32)	utf8_general_ci		لا	لا شيء			تغيير سقط أكثر
2	pswd	varchar(32)	utf8_general_ci		نعم	NULL			تغيير سقط أكثر
3	usrname	varchar(64)	utf8_general_ci		نعم	NULL			تغيير سقط أكثر
4	email	varchar(64)	utf8_general_ci		نعم	NULL			تغيير سقط أكثر
5	usractive	varchar(1)	utf8_general_ci		نعم	NULL			تغيير سقط أكثر
6	activation_code	varchar(32)	utf8_general_ci		نعم	NULL			تغيير سقط أكثر
7	priv_admin	varchar(1)	utf8_general_ci		نعم	Y			تغيير سقط أكثر
8	usrperfil	int(11)			نعم	NULL			تغيير سقط أكثر
9	active	int(11)			نعم	NULL			تغيير سقط أكثر
10	reset_token	varchar(50)	utf8_general_ci		نعم	NULL			تغيير سقط أكثر
11	reset_date	datetime			نعم	NULL			تغيير سقط أكثر
12	reset_token1	varchar(50)	utf8_general_ci		نعم	NULL			تغيير سقط أكثر
13	reset_date1	datetime			نعم	NULL			تغيير سقط أكثر

5.3.2 Hospital Tables:

The hospital schedule records and saves hospital data recorded in the system

#	الاسم	النوع	Collation	الخواص	خالي	إفتراضي	التعليقات	إضافي	العملية
1	hospital_id	int(11)			لا	لا شيء		AUTO_INCREMENT	تغيير سقط أكثر
2	name	longtext	utf8_unicode_ci		لا	لا شيء			تغيير سقط أكثر
3	email	longtext	utf8_unicode_ci		لا	لا شيء			تغيير سقط أكثر
4	password	longtext	utf8_unicode_ci		لا	لا شيء			تغيير سقط أكثر
5	address	longtext	utf8_unicode_ci		لا	لا شيء			تغيير سقط أكثر
6	phone	longtext	utf8_unicode_ci		لا	لا شيء			تغيير سقط أكثر
7	department_id	int(11)			لا	لا شيء			تغيير سقط أكثر
8	profile	longtext	utf8_unicode_ci		لا	لا شيء			تغيير سقط أكثر
9	userlevel_id	int(11)			لا	لا شيء			تغيير سقط أكثر

userlevel_id	profile	department_id	phone	address	password	email	name	hospital_id
3	edwe	1		dsfds	12345	h@h.com	fff	1

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5.3.3 Patient Table:

This table saves all hospitalized patients with some information about the patient

#	الاسم	النوع	Collation	الخواص	خالي	إفتراضي	التعليقات	إضافي	العملية
1	idpatient	int(11)			لا	لا شيء		AUTO_INCREMENT	تغيير سقط أكثر
2	patient_name	varchar(150)	utf8_general_ci		لا	لا شيء			تغيير سقط أكثر
3	patient_birthdate	date			نعم	NULL			تغيير سقط أكثر
4	patient_gender	varchar(1)	utf8_general_ci		نعم	NULL			تغيير سقط أكثر
5	patient_blood	varchar(3)	utf8_general_ci		نعم	NULL			تغيير سقط أكثر
6	patient_phone	varchar(20)	utf8_general_ci		نعم	NULL			تغيير سقط أكثر
7	patient_email	varchar(100)	utf8_general_ci		نعم	NULL			تغيير سقط أكثر
8	patient_address	varchar(250)	utf8_general_ci		نعم	NULL			تغيير سقط أكثر

idpatient	patient_name	patient_birthdate	patient_gender	patient_blood	patient_phone	patient_email	patient_address
1	ahmed	2014-01-31	m	-A	9800000000	patient@patient.com	amman
3	osama	2018-12-31	m	+AB	536411198	osama@pationt.com	zulfi
4	k	1980-06-19	m	-AB	536415875	mh@pationt.com	omman
5	samer	2018-11-08	m	+B	87854546878	samer@pationt.com	zulfi
6	rakan	2018-01-06	m	+B	9800000000	rakan@paticent.com	zulfi

5.3.4 Report Table:

This table saves all patient reports with some data about the patient

#	الاسم	النوع	Collation	الخواص	خالي	إفتراضي	التعليقات	إضافي	العملية
1	report_id	int(11)			لا	لا شيء		AUTO_INCREMENT	تغيير سقط أكثر
2	type	longtext	utf8_unicode_ci		لا	لا شيء	operation,birth,death		تغيير سقط أكثر
3	description	longtext	utf8_unicode_ci		لا	لا شيء			تغيير سقط أكثر
4	timestamp	int(11)			لا	لا شيء			تغيير سقط أكثر
5	doctor_id	int(11)			لا	لا شيء			تغيير سقط أكثر
6	patient_id	int(11)			لا	لا شيء			تغيير سقط أكثر
7	docname	varchar(100)	utf8_unicode_ci		نعم	NULL			تغيير سقط أكثر
8	pname	varchar(100)	utf8_unicode_ci		نعم	NULL			تغيير سقط أكثر

pname	docname	patient_id	doctor_id	timestamp	description	type (operation,birth,death)	report_id
samer	Dr. khalil	5	1	1542155196	test3	birth	7
osama	Dr . Khaled	3	2	1542155159	test2	birth	6
osama	Dr. khalil	3	1	1542151564	test	operation	5
ahmed	Dr . Khaled	1	2	1542155684	test4	operation	8
osama	Dr. khalil	3	1	1542266976	test5	operation	9
osama	Dr. khalil	3	1	1542268821	test9	operation	10

5.3.5 Admin Table:

#	الاسم	النوع	Collation	الخواص	خالي	إفتراضي	التعليقات	إضافي	العملة
1	admin_id	int(11)			لا	لا شيء		AUTO_INCREMENT	تغيير سقط أكثر
2	name	longtext	utf8_unicode_ci		لا	لا شيء			تغيير سقط أكثر
3	email	longtext	utf8_unicode_ci		لا	لا شيء			تغيير سقط أكثر
4	password	longtext	utf8_unicode_ci		لا	لا شيء			تغيير سقط أكثر
5	address	longtext	utf8_unicode_ci		لا	لا شيء			تغيير سقط أكثر
6	phone	longtext	utf8_unicode_ci		لا	لا شيء			تغيير سقط أكثر
7	userlevel_id	int(11)			لا	لا شيء			تغيير سقط أكثر

admin_id	name	email	password	address	phone	userlevel_id
1	Administrator	admin@admin.com	admin	Admin Address	9800000000	3

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5.3.6 Doctor Table:

#	الاسم	النوع	Collation	الخواص	خالي	إفتراضي	التعليقات	إضافي	العملة
1	iddoctor	int(11)			لا	لا شيء		AUTO_INCREMENT	تغيير سقط أكثر
2	namedoctor	varchar(60)	utf8_general_ci		نعم	NULL			تغيير سقط أكثر
3	day1	varchar(10)	utf8_general_ci		نعم	NULL			تغيير سقط أكثر
4	day2	varchar(10)	utf8_general_ci		نعم	NULL			تغيير سقط أكثر
5	day3	varchar(10)	utf8_general_ci		نعم	NULL			تغيير سقط أكثر
6	day4	varchar(10)	utf8_general_ci		نعم	NULL			تغيير سقط أكثر
7	day5	varchar(10)	utf8_general_ci		نعم	NULL			تغيير سقط أكثر
8	speciality_idspeciality	int(11)			لا	لا شيء			تغيير سقط أكثر
9	node_order	int(11)			نعم	NULL			تغيير سقط أكثر
10	treatments_idtreatments	int(11)			نعم	NULL			تغيير سقط أكثر
11	login	varchar(32)	utf8_general_ci		نعم	NULL			تغيير سقط أكثر

iddoctor	namedoctor	day1	day2	day3	day4	day5	speciality_idspeciality	node_order	treatments_idtreatments	login
1	Megan	Monday	Tuesday	Wednesday	Thursday	Friday	3	100	1	NULL
2	Mary	Monday	Tuesday	Wednesday	Thursday	Friday	2	101	1	NULL
3	Joane	Monday	Tuesday	Wednesday	Thursday	Friday	5	102	1	NULL
4	Paul	Monday	Tuesday	Wednesday	Thursday	Friday	1	103	2	NULL

5.3.7 Govt employ Table:

#	الاسم	النوع	Collation	الخواص	خالي	إفتراضي	التعليقات	إضافي	العملية
1	emp_id	int(11)			لا	لا شيء		AUTO_INCREMENT	تغيير سقط أكثر
2	name	longtext	utf8_unicode_ci		لا	لا شيء			تغيير سقط أكثر
3	email	longtext	utf8_unicode_ci		لا	لا شيء			تغيير سقط أكثر
4	password	longtext	utf8_unicode_ci		لا	لا شيء			تغيير سقط أكثر
5	address	longtext	utf8_unicode_ci		لا	لا شيء			تغيير سقط أكثر
6	phone	longtext	utf8_unicode_ci		لا	لا شيء			تغيير سقط أكثر
7	userlevel_id	int(11)			لا	لا شيء			تغيير سقط أكثر

+ خيارات

emp_id	name	email	password	address	phone	userlevel_id
1	govemp	govemp@mail.com	govemp	govemp	4444444444	3

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5.3.8 Medical staff Table:

#	الاسم	النوع	Collation	الخواص	خالي	إفتراضي	التعليقات	إضافي	العملية
1	staff_id	int(11)			لا	لا شيء		AUTO_INCREMENT	تغيير سقط أكثر
2	name	longtext	utf8_unicode_ci		لا	لا شيء			تغيير سقط أكثر
3	email	longtext	utf8_unicode_ci		لا	لا شيء			تغيير سقط أكثر
4	password	longtext	utf8_unicode_ci		لا	لا شيء			تغيير سقط أكثر
5	address	longtext	utf8_unicode_ci		لا	لا شيء			تغيير سقط أكثر
6	phone	longtext	utf8_unicode_ci		لا	لا شيء			تغيير سقط أكثر
7	userlevel_id	int(11)			لا	لا شيء			تغيير سقط أكثر

staff_id	name	email	password	address	phone	userlevel_id
1	adnan	adnan@staff.com	adnan	dmmam	536452545	2

تعديل نسخ حذف

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5.4 Coding source:

5.4.1 Read JSON file :

This code calls your information from the server's code is for fetching information from the second server

```
$json = file_get_contents('http://localhost/hms/hms/api/Medvac/getpationt.php');


//Decode JSON

$data = json_decode($json,true);

foreach ($data as $patient) {

//echo($patient['blood_group']);

   $patient_id = $patient['patient_id'];

   $name = $patient['name'];

   $email = $patient['email'];

   //$password = $user['password'];

   $address = $patient['address'];

   $phone = $patient['phone'];

   $sex = $patient['sex'];

   $birth_date = $patient['birth_date'];

         $birth_date=date($birth_date);

   //$age = $patient['age'];

   $blood_group = $patient['blood_group'];

   //$account_opening_timestamp = $user['account_opening_timestamp'];

    preparing statement for insert query

  $st = mysqli_prepare($conn, 'INSERT INTO patients(idpatient,
patient_name,patient_birthdate,patient_gender, patient_blood, patient_phone, patient_email,
patient_address) VALUES(?,?,?,?,?,?,?,?)');


   bind variables to insert query params

   mysqli_stmt_bind_param($st, 'ssssssss', $patient_id, $name,$birth_date,  $sex, $blood_group,
$phone,$email,$address);
```

5.4.2 Read JSON file report:

This code calls your information from the servers code is for fetching information from the second server

```
$json = file_get_contents('http://localhost/hms/hms/api/Medvac/report.php');

$data = json_decode($json,true);

foreach ($data as $report) {

        //echo($patient['blood_group']);

   $name = $report['name'];

   $report_id = $report['report_id'];

   $type = $report['type'];

   //$password = $user['password'];

   $description = $report['description'];

   $timestamp = $report['timestamp'];

   $doctorname = $report['doctorname'];

 $patient_id = $report['patient_id'];

$doctor_id = $report['doctor_id'];

   $st = mysqli_prepare($conn, 'INSERT INTO report(report_id, type, description, timestamp, doctor_id, patient_id,docname,pname) VALUES(?,?,?,?,?,?,?,?)');

   mysqli_stmt_bind_param($st, 'ssssssss', $report_id, $type,$description, $timestamp,$doctor_id,$patient_id, $doctorname, $name);
```

5.4.3 API codes:

5.4.3.1 Report API code:

```
<?php
        error_reporting(0);
ini_set('display_errors', 0);
$objConnect = mysql_connect("localhost","root","");
        $objDB = mysql_select_db("hospital");
$patient_id=$_REQUEST['patientid'];
        $strSQL = "SELECT `report_id`, `type`, `description`, `timestamp`,doctor.name as doctorname,patient.name,patient.patient_id,doctor.doctor_id FROM report join patient on patient.patient_id=report.patient_id join doctor on doctor.doctor_id=report.doctor_id";
if($patient_id!=null){
        $strSQL = "SELECT `report_id`, `type`, `description`, `timestamp`,doctor.name,patient.name,patient.patient_id,doctor.doctor_id FROM report join patient on patient.patient_id=report.patient_id join doctor on doctor.doctor_id=report.doctor_id
 WHERE patient_id=$patient_id";
}
        $objQuery = mysql_query($strSQL);
        $intNumField = mysql_num_fields($objQuery);
        $resultArray = array();
        while($obResult = mysql_fetch_array($objQuery))
        {
                $arrCol = array();
                for($i=0;$i<$intNumField;$i++)
                {
                        $arrCol[mysql_field_name($objQuery,$i)] = $obResult[$i];
                }
                array_push($resultArray,$arrCol);
        }
        mysql_close($objConnect);
        echo json_encode($resultArray);
```

5.4.3.2 get Patient API code:

```
<?php
	error_reporting(0);
ini_set('display_errors', 0);
$objConnect = mysql_connect("localhost","root","");
	$objDB = mysql_select_db("hospital");
$patient_id=$_REQUEST['patientid'];
	$strSQL = "SELECT * FROM patient   ";
if($patient_id!=null){
	$strSQL = "SELECT * FROM patient WHERE patient_id=$patient_id";
}
	$objQuery = mysql_query($strSQL);
	$intNumField = mysql_num_fields($objQuery);
	$resultArray = array();
	while($obResult = mysql_fetch_array($objQuery))
	{
		$arrCol = array();
		for($i=0;$i<$intNumField;$i++)
		{
			$arrCol[mysql_field_name($objQuery,$i)] = $obResult[$i];
		}
		array_push($resultArray,$arrCol);
	}
	mysql_close($objConnect);
	echo json_encode($resultArray);
?>
```

Chapter 6

6.1 Results and discussion and Conclusions:

6.1.1 Results:

The result is that the Web site is able to collect, coordinate and display all patient data in the registered hospital systems for those who are entitled to see it. This facilitates the patient and the doctors to know the patient's health status

6.1.2 Discussion:

During two semesters we have regular meeting with my supervisor Dr.Yousef Qawqzeh , through that meeting we discuss the developments that took place and the amendments about graduation project which is Personal Health record.

We are going to take a brief review about what discussed and learned from the graduation project through the two semesters:

Project one:

✓ discussed similar ideas from sites and applications.

✓ discussed Feasibility study and statistical.

✓ We discussed the location service requirements and the data transfer method.

✓ discussed Use UML to analyse the system.

✓ discussed the design the system.

Project two:

✓ discussed the tools and platform we are going to work on during creating the web app.

✓ Discussed why chose these tools and platform.

✓ Discussed to set a plan to distribute the work across the whole semester.

✓ Discussed the template design and its functionality.

✓ Discussed adjusting on the template design.

✓ Discussed the database issues.

✓ Discussed programming the system and then test it.

6.1.3 Conclusions:

The proposed system is a website called “Personal Health record”,

the project is based on covering the gap between the patient or doctor and reports

Help the patient and medical staff know patient reports and patient information

This project starts by reviewing the literature on similar ideas from sites

and studying feasibility study and statistical.

this has been done by use Unified Modelling Language (UML), in order to

analyze the system requirement. The system has been implemented by Php tools

After having the project done we have learned to perform a complete

literature Review perform a complete structural analysis, and perform the

design of all structural elements (UML).

The future work of this project is to encrypt the patient data and development of the website interfaces and increase the number of information about the patient.

6.2 References:

- Dr. Yousef Qawqzeh as supervisor
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- http://www.myphr.com/tools/about_us.aspx
- http://www.ahima.org/?__utma=56204215.2002326212.1520101001.1524357408.1524377062.5&__utmb=56204215.1.10.1524377062&__utmc=56204215&__utmx=-&__utmz=56204215.1524353190.3.2.utmcsr=google|utmccn=(organic)|utmcmd=organic|utmctr=(not%20provided)&__utmv=-&__utmk=96380440
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