



**INDIAN INSTITUTE OF INFORMATION  
TECHNOLOGY, NAGPUR**

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**TITLE:**

**COVID HEALTHCARE APP**

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15th June 2020

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# INDEX

TOPIC	ROLL NO. [WORK CONTRIBUTION]
1. Motivation of Selected Topic	BT18CSE015
2. Design of the Project:	BT18CSE001
3. Flow Chart	BT18CSE025
4. Database	BT18CSE015
5.Outcome of the Project	BT18CSE001
6. References	BT18CSE025

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# 1.Motivation of Selected Topic :

## 1.1 Motivation

As the air of uncertainty hangs across the length and breadth of the whole globe. The virtuous profession of doctors is heralding hope working diligently day in and day out. Though lacking an amicable work environment, they are bound to their duties and work relentlessly. They have to face their patients and their relatives. Besides agonizing moments and harrowing experiences, they are continuing to do what is salubrious to public health.

We doff off our hats to their altruistic dealing with the people in these unprecedented times. Nothing can deter them from doing their duties. We have even heard and read of a few losing even their precious lives for the sake of duty. So the app is developed to show our gratitude to the noble profession by making their day to day work easy. The COVID Healthcare App is specially designed for doctors to show our tacit support to them.

## 1.2 Domain

Healthcare has become one of India's largest sectors, both in terms of revenue and employment. Healthcare comprises hospitals, medical devices, clinical trials, outsourcing, telemedicine, medical tourism, health insurance, and medical equipment. In spite of being one of the most important sectors, only 1.15% of the total budget is allocated to this domain. Health is a fundamental human right and a global social goal. It is pertinent for the realization of basic human needs and for a better quality of life. The very essential

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components of primary health care are food supply, proper nutrition, safe water, and basic sanitation and treatment of health problems, therefore the government of India has initiated several health schemes and policies. Hence we can say that the health sector is an ever-emerging sector employing lakhs of youth and providing timely health services to the public at the time of crisis.

### **1.3 Objective:**

- 1.The app tests the symptoms of COVID 19 positive cases.
2. It shows the three categories of samples to be tested in a day.
  - Fresh Samples.
  - ILR Samples.
  - Retest Samples.
3. The app generates a report of the patient.
4. It checks if the person is:-
  - Staff on COVID duty.
  - Health Worker
  - Contact with positive case
  - Pregnant Woman

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## 2. Design

### 2.1 Title

- The title of the application is 'COVID Healthcare App'.
- Denoting that the application is aimed especially for COVID Healthcare workers, to help streamline and organize their diagnostic work.

### 2.2 Application logo






- The logo of the application is a beating heart pulse in a heart, portraying how the health-care workers keep the heart pulse alive of people around the world.

### 2.3 Design and Description

- Application Front-End Design includes LOGIN Page, Samples in ILR Pop-up, Re-test(14days) Pop-up, Main Page, Report Page and Daily Symptoms check Page.

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## COVID HEALTH CARE APP

Username:

Password:

**LOGIN PAGE**

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Samples in ILR

C-101	<input type="checkbox"/>
C-102	<input type="checkbox"/>
C-103	<input type="checkbox"/>
C-104	<input type="checkbox"/>

OK!

## SAMPLES IN ILR POP-UP

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Re-test (14 days)

C-18 ☐

C-44 ☐

C-53 ☐

C-69 ☐

OK!

**RE-TEST(14 DAYS) SAMPLES POP-UP**



LOG-OUT

ILR ▼

RE-TEST ▼

Date: 15 June 2020

Fresh Samples

→ Search ID.

SNo.	ID No.	Name	Age	Gender	Collection Time	Recieving Time
1.	C-872	Abdul	35	M	3:00pm	3:50pm
2.	C-873	Sriya R Roy	26	F	3:07pm	3:55pm
3.	C-874	Suri G Hasan	65	M	3:20pm	4:09pm
4.	C-875	Haji Khan	38	M	3:28pm	4:11pm
5.	C-876	Susan Paul	42	F	3:37pm	4:15pm
6.	C-877	Rakesh Y	22	M	3:40pm	4:17pm

next ►

CHECK-UP

Reports

## MAIN PAGE

## DEPARTMENT OF MICROBIOLOGY

### Interim Test Report

 Search ID

SPECIMEN DETAILS	
Date & Time of Sample Collection	25 May 2020
Date & Time of receipt of specimen at VRDL	25 May 2020
Condition of specimen received	Maintained under Cold Conditions

SNo.	Sample ID	Patient Name	Specimen Type	Date of testing
1.	C-224	Maurya K Rai	NPS	25 May 2020

#### Result:

2019-aCoV : Negative  
Influenza virus : Under process

[back](#)

**REPORT PAGE**

Date : 15th June 2020

back

## Daily Symptoms check

Patient ID:



Update

1. Oxygen saturation :

Enter value

2. Blood Pressure :

Enter value

3. GRBS (if Diabetic) :

Enter value

4. New Symptoms :

Enter value

	YES	NO
- STAFF ON COVID DUTY	<input type="checkbox"/>	<input type="checkbox"/>
- HEALTH WORKER	<input type="checkbox"/>	<input type="checkbox"/>
- CONTACT WITH POSITIVE CASE	<input type="checkbox"/>	<input type="checkbox"/>
- PREGNANT WOMAN	<input type="checkbox"/>	<input type="checkbox"/>

## DAILY SYMPTOMS CHECK PAGE

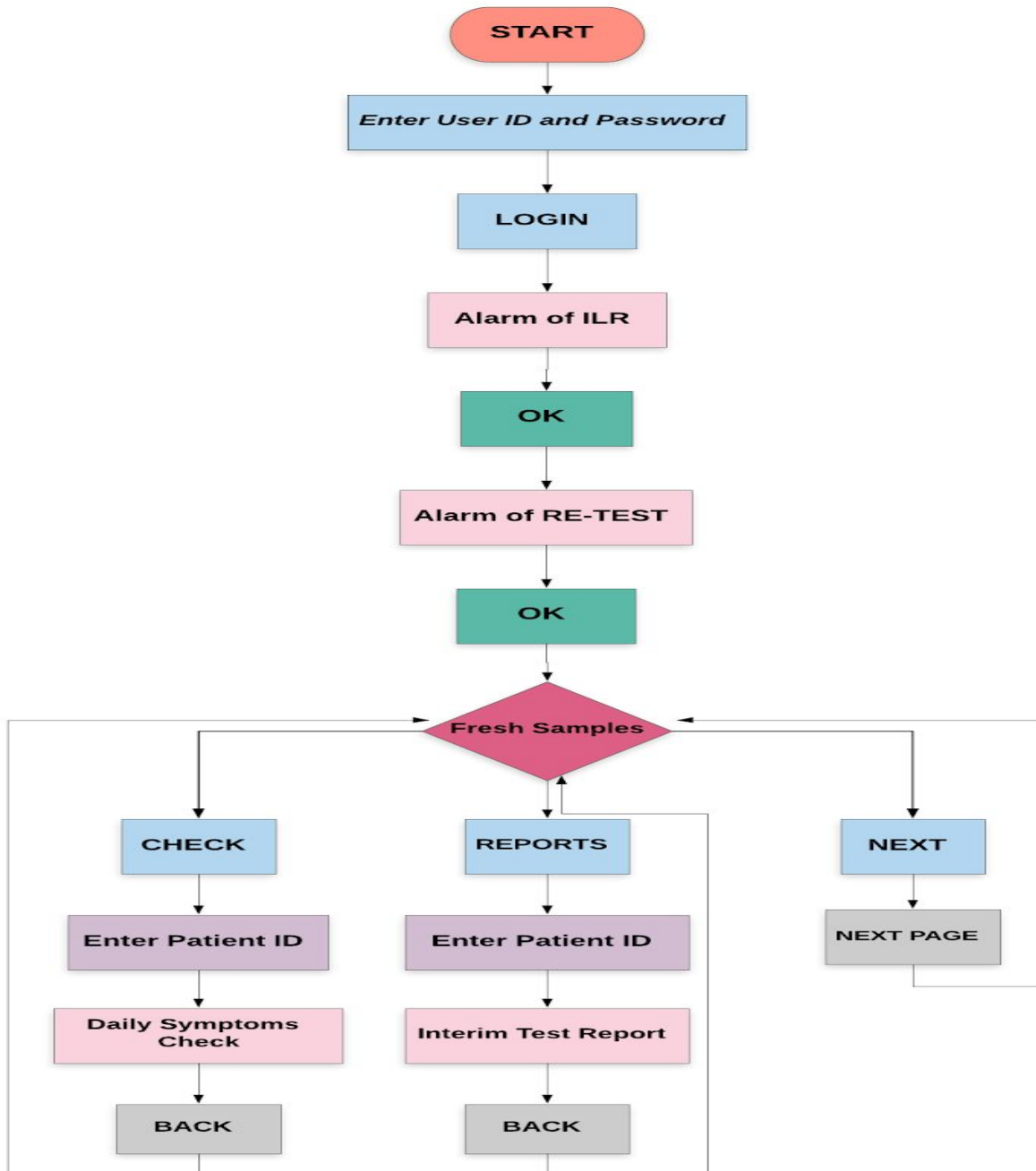
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## **Description :**

- The application's front page displays the health-workers login page, after entering their respective username and password they can login by clicking on "LOGIN".
- Each Healthcare worker is given a unique username and password combination to LOGIN.
- After logging in, a pop-up is displayed showing the Samples in ILR(ICE-LINED REFRIGERATOR), after clicking on "OK!" Another pop-up is displayed showing Re-Test(14days) after clicking on "OK!", the Main page is displayed.
- On the main page, Fresh samples are displayed with the date on the left-upper corner and two drop-down ILR and RE-TEST menu on the right displayed.
- To view more samples click "next" or search for the sample ID in the "Search ID" bar.

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- Click on “Reports” to view the Reports page or click on “CHECK-UP” to view the Daily Symptoms check page.
  - If the healthcare-worker clicks on “Reports”, Interim Test Reports of the patient are displayed after searching for the patient ID in the “Search ID ” bar or clicking on “back” to go back to the main page.
  - If the healthcare-worker clicks on “CHECK-UP” the Daily Symptoms check page is displayed to note down and update the daily symptoms of each patient.
  - First search for the Patient ID in the “Patient ID” search bar, and then enter the patient symptoms and fill in the additional information as either YES or NO
  - Click on “back” to back to the main page.
  - To logout, move to the Main Page and click on “LOG-OUT”.

### 3. Flowchart

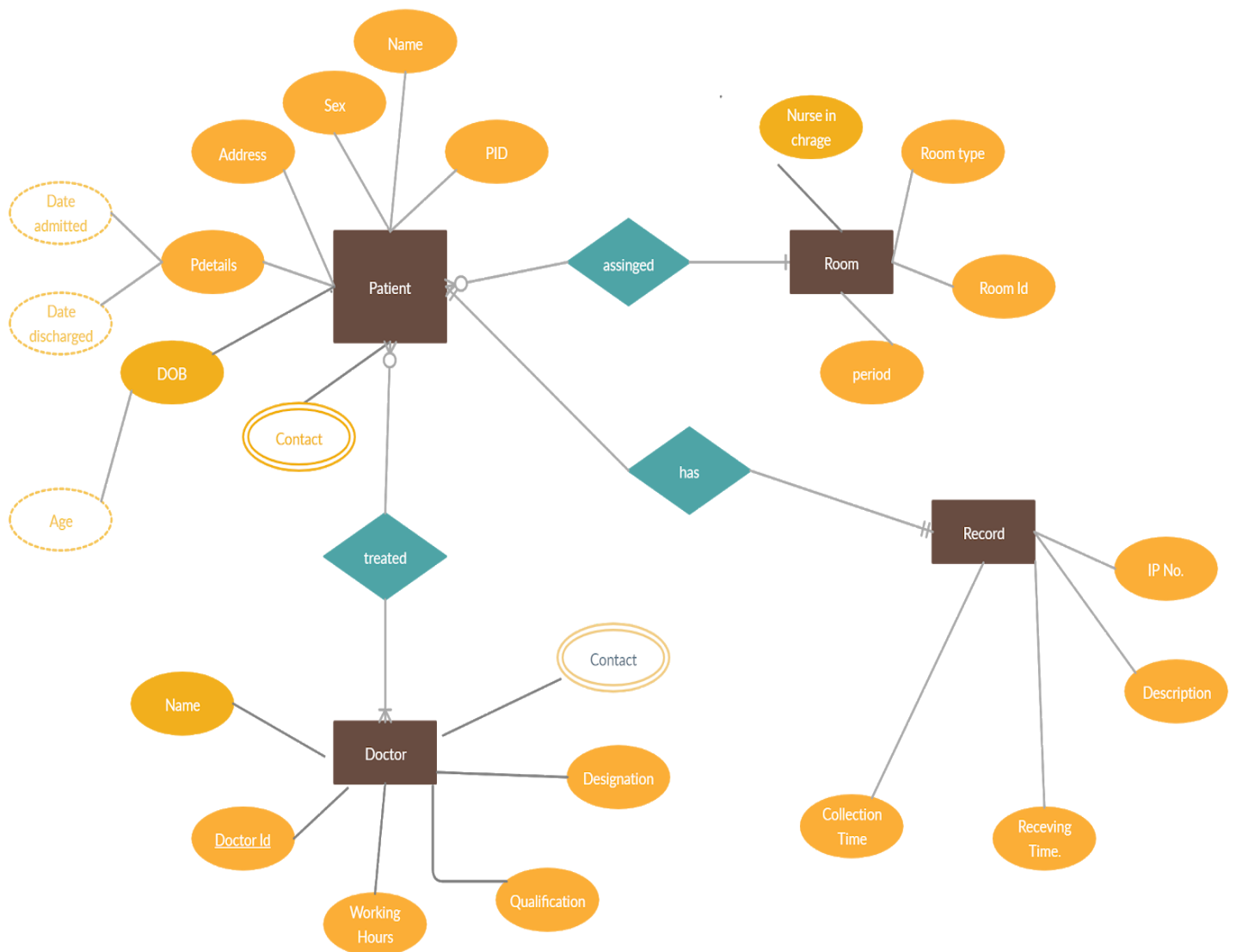


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## 4. Database

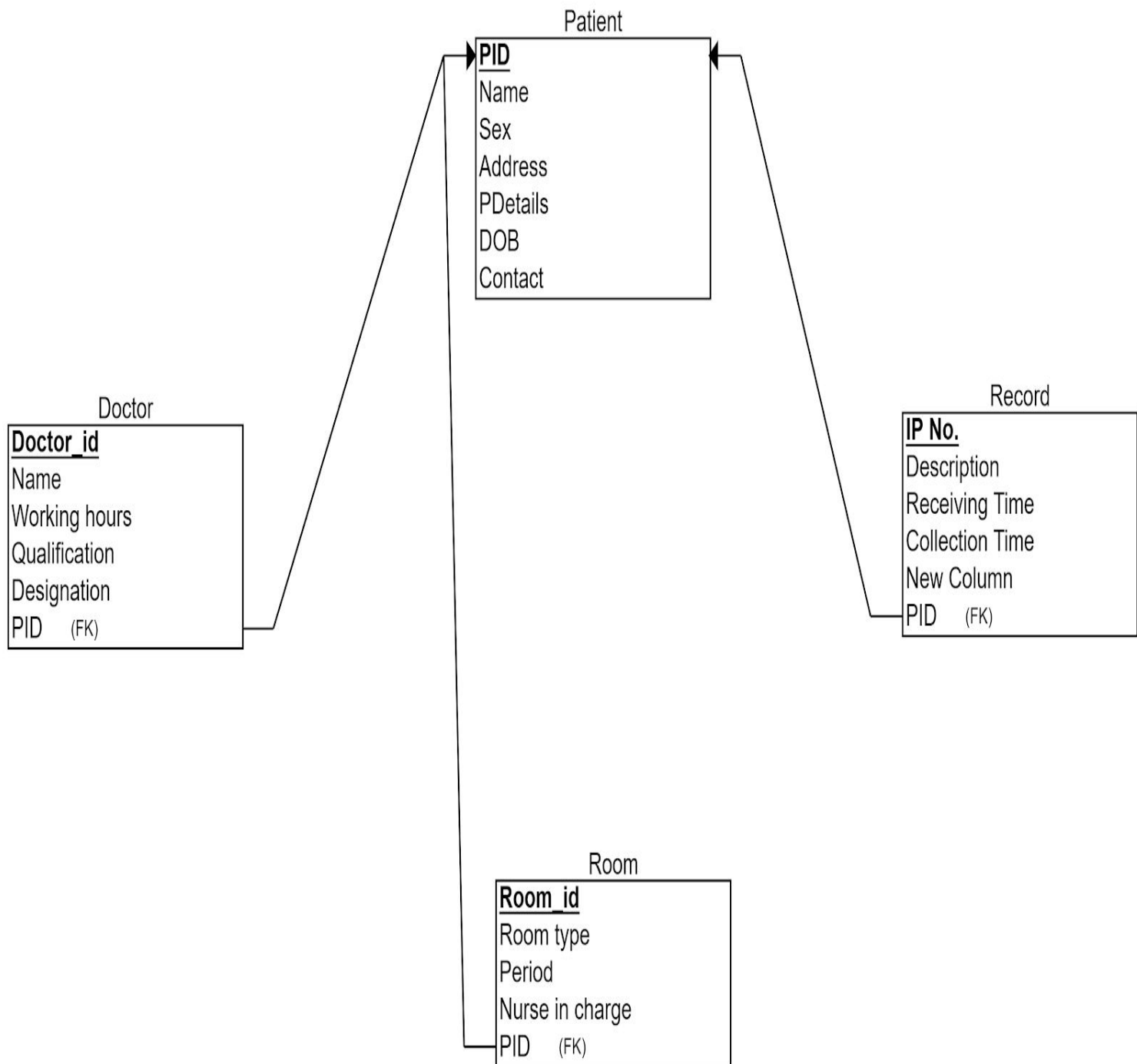
### 4.1 ER Diagram

E-R Diagram for Hospital Management System



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## 4.2 Tables in Relational Database





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### 4.3 Explanation

- An entity-relationship diagram (ERD) shows the relationships of entity sets stored in a database. An entity set is a collection of similar entities. These entities can have attributes that define its properties.
- By defining the entities, their attributes, and showing the relationships between them, an ER diagram illustrates the logical structure of databases.
- Entity sets are denoted by the () shape, attributes are denoted by () shape, and Relationship sets are denoted by () shape.
- The different kind of attributes used in our ER Diagram are:
  - 1)Key Attributes: These uniquely identify an entity in an entity set. PID, Doctor\_id, Room\_id, and Ipno are the Key Attributes.
  - 2)Composite Attributes: They are a combination of several attributes. Address is a Composite Attribute.
  - 3)Multivalued Attributes: These attributes can have multiple values. Contact Numbers is a Multivalued Attribute which is represented by double ellipses in the ER Diagram.

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- 4)Derived Attributes: These are attributes that are derived from other attributes. Age, Date of admission, and date of discharge are Derived attributes that are represented by dashed ellipses in the ER Diagram.
- The degree of a relationship set is defined as the number of entity sets participating in a relationship that is equal to 2.
  - The cardinality ratios are as follows:
    - 1)Every patient has a single medical record and a specific medical record can belong to only a particular patient(One and only One).
    - 2)Every patient is treated by one or more doctors(One or many) and every doctor treats zero or more patients(Zero or many).
    - 3)An individual patient is accommodated in a single room(One and only one ) and every room may have zero or more patients(Zero or many).
  - A Relational database model, a table is a collection of data elements organized in terms of rows and columns. A table is also considered as a convenient representation of relations.
  - Tables of a Relational Database can be drawn using the Entity-Relationship Diagrams.

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## 5. Outcome of the Project

### 5.1 Use

- The Project serves as a great use for the frontline health workers in fighting against COVID-19 making their diagnostic testing and database management more accurate and effortless.
- It helps maintain a record of patient history and track positive patient symptoms.
- It provides a safe medium for healthcare workers to access data related to COVID-19 patients.

### 5.2 Benefits

- It streamlines diagnostic testing work which is the most crucial part of controlling COVID-19.
- It helps in making work easy for that part of the society which is helping the rest to lead a peaceful and safe risking their own lives.
- It makes their work quicker and efficient as the app helps in organizing the workload.

### 5.3 Conclusion

As the cases worldwide are increasing rapidly the workload in the health care sector is also increasing proportionately hence if this application is made available to the healthcare workers, it will enable them to make diagnostic testing and database management more accurate and effortless making a positive impact on the society and economy

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## 6. References

1. <https://bestpractice.bmj.com/topics/en-us/3000168/references>
2. <https://apps.who.int/iris/rest/bitstreams/1272454/retrieve>
3. <https://www.easa.europa.eu/covid-19-references>
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5. <https://www.ilae.org/patient-care/covid-19-and-epilepsy/for-clinicians/useful-covid-19-references>
6. <https://covidreference.com/>
7. <https://reference.medscape.com/slideshow/2019-novel-coronavirus-6012559>