MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR

(A Govt. Aided UGC Autonomous & NAAC Accredited Institute Affiliated to RGPV, Bhopal)

Final Year Internship Report

on

COVID-19 MANAGEMENT & INFRASTRUCTURE

At TechCiti Software

Submitted By:

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0901CS181052

Faculty Mentor:

Dr. Ranjeet Singh, Assistant professor

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE
GWALIOR - 474005 (MP) est. 1957

MAY-JUNE 2022

MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR

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COVID-19 MANAGEMENT & INFRASTRUCTURE

A final year internship report submitted in partial fulfilment of the requirement for the degree

of

BACHELOR OF TECHNOLOGY

in

COMPUTER SCIENCE AND ENGINEERING

Submitted by:

KARISHMA RAGHUWANSHI

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Internship Faculty Mentor:

Dr. Ranjeet Singh, Assistant professor

Submitted to:

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GWALIOR - 474005 (MP) est. 1957

Internship Certificate Received from
TechCiti Private Limited, Bengaluru

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Ref.No.TSCPL/2022-2023/HRD/INT3688
Date: 24th May, 2022

TO WHOMSOEVER IT MAY CONCERN

We would like to inform you that Ms. **Karishma Raghuwanshi** has successfully completed her internship with our company, she has been working on the project tittle: **"Online Novel Reading System"** from 01-01-2022 to 30-04-2022 as "Software Developer-Intern".

We have found her to be a self –starter who is motivated, duty-bound and hardworking. She has worked sincerely on her assignments and her performance is at par excellence.

We wish her all the best for her future endeavors.

Sincerely,

Manager
Human Resources Department
TechCiti Software Consulting Private Limited

MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR

(A Govt. Aided UGC Autonomous & NAAC Accredited Institute Affiliated to RGPV, Bhopal)

CERTIFICATE

This is certified that **KARISHMA RAGHUWANSHI** (0901CS181051) has submitted the Internship report titled **COVID-19 MANAGEMENT & INFRASTRUCTURE** for the work she has done under the mentorship of **Dr. Ranjeet Kumar Singh**, in partial fulfilment of the requirement for the award of degree of Bachelor of Technology in Computer Science and Engineering from Madhav Institute of Technology and Science, Gwalior.

Dr. Ranjeet Kumar Singh
Faculty Mentor
Assistant Professor
Computer Science and Engineering

27/05/22

Dr. Manish Dixit
Professor and Head,
Computer Science
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Dr. Manish Dixit
Professor & HOD
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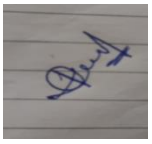
MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR
(A Govt. Aided UGC Autonomous & NAAC Accredited Institute Affiliated to RGPV, Bhopal)

DECLARATION

I hereby declare that the work being presented in this Internship report, for the partial fulfilment of requirement for the award of the degree of Bachelor of Technology in CSE at Madhav Institute of Technology & Science, Gwalior is an authenticated and original record of my work under the mentorship of **Dr. Ranjeet Singh, Assistant professor**, Department of CSE.

I declare that I have not submitted the matter embodied in this report for the award of any degree or diploma anywhere else.



Karishma Raghuwanshi
0901CS181052
IV Year,
Computer Science
and Engineering

MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR

(A Govt. Aided UGC Autonomous & NAAC Accredited Institute Affiliated to RGPV, Bhopal)

ACKNOWLEDGEMENT

The full semester internship has proved to be pivotal to my career. I am thankful to my institute, **Madhav Institute of Technology and Science** to allow me to continue my disciplinary/interdisciplinary internship as a curriculum requirement, under the provisions of the Flexible Curriculum Scheme (based on the AICTE Model Curriculum 2018), approved by the Academic Council of the institute. I extend my gratitude to the Director of the institute, **Dr. R. K. Pandit** and Dean Academics, **Dr. Manjaree Pandit** for this.

I would sincerely like to thank my department, **Department of Computer Science and Engineering, for allowing** me to explore this internship. I humbly thank **Dr. Manish Dixit**, Professor and Head, Department of Computer Science and Engineering, for his continued support during the course of this engagement, which eased the process and formalities involved.

I am sincerely thankful to my faculty mentors. I am grateful to the guidance of Dr. **Ranjeet Singh, Assistant professor**, Department of Computer Science and Engineering, for his continued support and close mentoring throughout the internship. I am also very thankful to the faculty and staff of the department.

Karishma Raghuwanshi
0901CS181052
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ABSTRACT

Covid-19 Management & Infrastructure provides the benefits of hospital availability, bed availability, and the other essential medication stuffs. This project is designed to help those needy people who is suffering from the vast spreading disease COVID-19.

The project “Covid-19 Infrastructure & Management” is based on the database, object oriented and networking techniques. As there are many areas where we keep the records in database for which we are using MY SQL software which is one of the best and the easiest software to keep our information. This project uses JAVA as the front-end software which is an Object-Oriented Programming and has connectivity with MY SQL.

Covid-19 Management & Infrastructure is custom built to meet the specific requirement of the mid and large size hospitals and beds across the globe. All the required modules and features have been particularly built to just fit in to your requirement. This package has been widely accepted by the clients in India and overseas. It covers all the required modules right from Patient Registration, Medicine Details, Doctors, Wards, Store, Patient, Admin, Appointment, Bill Payment, Record Modification, Discharge Details etc.

सार:

कोविड -**19** प्रबंधन और बुनियादी ढांचा अस्पताल की उपलब्धता, बिस्तर की उपलब्धता और अन्य आवश्यक दवा सामग्री का लाभ प्रदान करता है। यह परियोजना उन जरूरतमंद लोगों की मदद करने के लिए बनाई गई है जो व्यापक रूप से फैलने वाली बीमारी **COVID-19** से पीड़ित हैं।

प्रोजेक्ट "कोविड -**19** इंफ्रास्ट्रक्चर एंड मैनेजमेंट" डेटाबेस, ऑब्जेक्ट ओरिएंटेड और नेटवर्किंग तकनीकों पर आधारित है। चूंकि ऐसे कई क्षेत्र हैं जहां हम डेटाबेस में रिकॉर्ड रखते हैं जिसके लिए हम **MY SQL** सॉफ़्टवेयर का उपयोग कर रहे हैं जो हमारी जानकारी रखने के लिए सबसे अच्छे और सबसे आसान सॉफ़्टवेयर में से एक है।

कोविड -19 प्रबंधन और बुनियादी ढांचा दुनिया भर में मध्यम और बड़े आकार के अस्पतालों और बिस्तरों की विशिष्ट आवश्यकता को पूरा करने के लिए बनाया गया है। सभी आवश्यक मॉड्यूल और सुविधाओं को विशेष रूप से आपकी आवश्यकता के अनुरूप बनाने के लिए बनाया गया है। इस पैकेज को भारत और विदेशों में ग्राहकों द्वारा व्यापक रूप से स्वीकार किया गया है। इसमें रोगी पंजीकरण, दवा विवरण, डॉक्टर, वार्ड, स्टोर, रोगी, व्यवस्थापक, नियुक्ति, बिल भुगतान, रिकॉर्ड संशोधन, निर्वहन विवरण आदि से सभी आवश्यक मॉड्यूल शामिल हैं।

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ABBREVIATIONS

Abbreviation	Description
ALS	Advanced Life Support
CCC	Covid 19 Care Center
CHC	Community Health Center
CHO	Community Health Officer
CMHO	Chief Medical Health Officer
DCH	Dedicated COVID-19 Hospital
DH	District Hospital
ECG	Electrocardiogram
HCW	Health Care Worker
ICU	Intensive Care Unit
IMA	Indian Medical Association
MO	Medical Officer

Chapter 1

INTERNSHIP OVERVIEW

1.1 INTRODUCTION

The novel coronavirus disease, named COVID-19 on 11 February 2020, is caused by SARS-CoV-2. Coronavirus has been declared a Public Health Emergency of International concern, while the number of confirmed cases worldwide reported daily, detailed data on the outcomes of people who test positive for Covid-19. The main objective of this project is to check the availability of hospitals & numbers of beds by checking data in database & provide the service to the needy as soon as possible to ensure early identification of cases among all the people who live nearby. It also ensures the availability of Doctors, Staffs, and all medication stuff. The purpose of the project is to provide clear and actionable guidance for safe operations through the prevention, early detection and control of Covid-19 in our country. Healthcare and social care settings require intensive testing when there is documented community transmission.

1.2 ABOUT THE ORGANISATION

TechCiti Software is a globally recognized provider of Low Code Automation. Platform for Digital Transformation. This Internship is a Product Testing Internship by ***TECHCITI Bengaluru,*** using Testing Skills such as Python Fundamentals, Data Structures, Unix and shell Scripting, Windows and PowerShell operations. This Training is followed by a project in which we have to implement our knowledge about data handling and web development.

CHAPTER 2

PROJECT OVERVIEW

2.1 OBJECTIVE:

The novel coronavirus disease, named COVID-19 on 11 February 2020, is caused by SARS-CoV-2 virus. Coronavirus has been declared a Public Health Emergency of International Concern, while the number of confirmed cases worldwide reported daily, detailed data on the outcomes of people who test positive for Covid-19. The main objective of this project is to check the availability of hospitals & numbers of beds by checking data in database & provide the service to the needy as soon as possible. To ensure early identification of cases among all the people who live nearby. It also ensures the availability of Doctors, Staffs, and all medication stuff. The purpose of the project is to provide clear and actionable guidance for safe operations through the prevention, early detection and control of Covid-19 in our country. Healthcare and social care settings require intensive testing when there is documented community transmission.

2.2 PROJECT DESCRIPTION

We designed a database consisting of information about the Covid-19 Management and Infrastructure. Database should have the necessary information about the Health Centres, Respective Quarantine Centres, Cities, Doctors, Patients, and their symptoms, Research Labs and Vaccines.

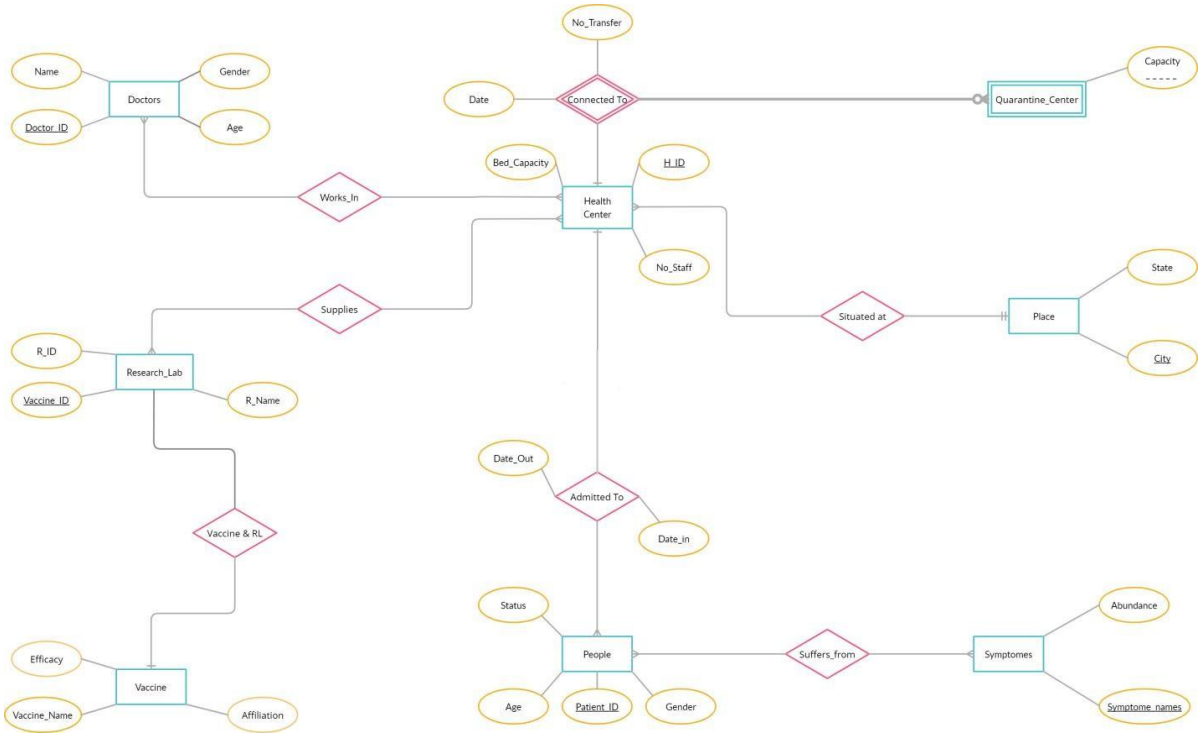
2.3 KEY POINTS & ASSUMPTIONS

- Patients admitted to Hospitals can have only 2 status – Recovered and Deceased.
- Research Labs can work on several vaccines at a time but one vaccine should only be associated with one particular research lab producing amany-to-one relationship.
- Every Health Centre has their own Quarantine Centres. Therefore, Quarantine Centres are weak entity sets and are dependent to the associated Health Centre.

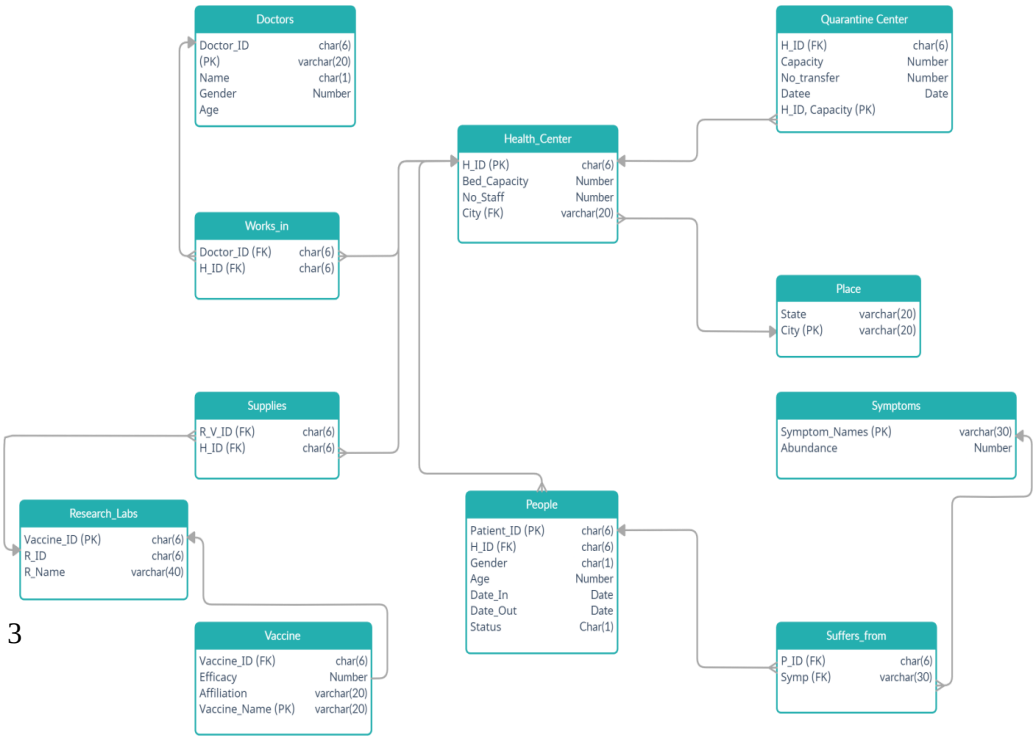
CHAPTER 3

STRUCTURAL REPRESENTATION

3.1: ER DIAGRAM



3.2 RELATIONAL SCHEMA



3.3: FUNCTIONAL DEPENDENCIES AND FUNCTIONAL KEYS

1.Doctors

Doctor_ID => Doctor_ID, Name, Age, Gender

Hence, $(Doctor\_ID)^+$ = R and Doctor_ID is a Primary Key.

2.Health_Centres

H_ID => H_ID, Bed_Capacity,

No_Staff, City Hence, $(H\_ID)^+$ =
R and H_ID is a Primary Key .City
is a foreign key referencing to place

3.Quarantine_Centres

H_ID, Capacity => H_ID, Capacity, Date,

No_Transfer (H_ID, Capacity)$^+$ = R and (H_ID,
Capacity) is a Primary Key.H_ID also referencing
to the Health_Centre.

4.Research_Labs

Vaccine_ID => Vaccine_ID, R_ID, R_Name

Hence, $(Vaccine\_ID)^+$ = R and Vaccine_ID is a Primary Key.

5.Vaccine

Vaccine_ID => Vaccine_ID, Efficacy,

Vaccine_Name, AffiliationHence, $(Vaccine\_ID)^+$ =
R and Vaccine_ID is a Primary Key.
Vaccine_ID also referencing to Research_Labs.

6.People

Patient_ID => Patient_ID, H_ID, Gender, Age, Date_in, Date_out,

StatusHence, $(Patient\_ID)^+$ = R and Patient_ID is a Primary Key.
H_ID is referencing to the Health_Centre, hence a foreign key.

7.Symptoms

Symptom_Names => Symptom_Names, Abundance

Hence, $(Symptom\_Names)^+$ = R and Symptom_Names is a Primary Key.

8.Works_In

It shows the many-to-many relationship between Doctors and

Health_Centres.Doctor_ID references to the Doctors.

H_ID references to the Health_Centres.

Hence, (Doctor_ID, H_ID)$^+$ = R and (Doctor_ID, H_ID) is a Primary Key.

9.Suffers_From

It shows the many-to-many relationship between People and Symptoms.Patient_ID references to the People.

Symp references to the Symptoms.

Hence, (Patient_ID, Symp)$^+$ = R and (Patient_ID, Symp) is a Primary Key.

10. Supplies

It shows the many-to-one relationship between Research_Labs andHealth_Centres.

R_V_IDreferencestothe Research_Labs.H_ID

references to the Health_centre

Hence, (R_V_ID, H_ID)$^+$ = R and (R_V_ID, H_ID) is a Primary Key.

11.Place

City => City, Place

Hence, (City)$^+$ = R and City is a Primary Key.

3.4 NORMALISATION

Doctor:

Primary Key: Doctor_ID

All attributes have atomic domain; hence the table is in 1NF.

All attributes depend on the Doctor_ID, hence the table is in 2NF.

All attributes depend directly on the Doctor_ID, hence the table is in 3NF. All determinant (Doctor_ID) is Candidate key, hence the table is inBCNF.

Research Labs:

Primary Key: Vaccine_ID

All attributes have atomic domain, hence the table is in 1NF.

All attributes depend on the Vaccine_ID, hence the table is in 2NF.

All attributes depend directly on the Vaccine_ID, hence the table is in 3NF. All determinant (Vaccine_ID) is Candidate key, hence the table is in BCNF.

Vaccine:

Primary Key: Vaccine_ID

All attributes have atomic domain, hence the table is in 1NF.

All attributes depend on the Vaccine_ID, hence the table is in 2NF.

All attributes depend directly on the Vaccine_ID and Vaccine Name, hence the table is in 3NF.

All determinants (Vaccine_ID, Vaccine Name) are Candidate keys, hence the table is in BCNF.

Place:

Primary Key: City

All attributes have atomic domain, hence the table is in 1NF.

All attributes depend on the City, hence the table is in 2NF.

All attributes depend directly on the City, hence the table is in 3NF. All determinant (City) is Candidate key, hence the table is in BCNF.

Symptoms:

Primary Key: Symptom_names

All attributes have atomic domain, hence the table is in 1NF.

All attributes depend on the Symptom_names, hence the table is in 2NF.

All attributes depend directly on the Symptom_names, hence the table is in 3NF.

All determinant (Symptom_names) are Candidate keys, hence the table is in BCNF.

Health Centre:

Primary Key: H_ID

All attributes have atomic domain, hence the table is in 1NF. All attributes depend on the H_ID, hence the table is in 2NF.

All attributes depend directly on the H_ID, hence the table is in 3NF. All determinant (H_ID) is Candidate keys, hence the table is in BCNF.

Quarantine_Centre:

Primary Key: (H_ID, Capacity)

All attributes have atomic domain, hence the table is in 1NF.

All attributes depend on the (H_ID, Capacity),hence the table is in 2NF. All attributes depend directly on the (H_ID, Capacity),hence the table is in 3NF.

All determinants (H_ID, Capacity) are Candidate keys, hence the table is in BCNF.

People:

Primary Key: Patients_ID

All attributes have atomic domain, hence the table is in 1NF.

All attributes depend on the Patients_ID, hence the table is in 2NF.

All attributes depend directly on the Patients_ID, hence the table is in 3NF. All determinant (Patients_ID) is Candidate key, hence the table is in BCNF.

Suffers_From:

Primary Key: (P_ID, Symp)

All attributes have atomic domain, hence the table is in 1NF.

All attributes depend on the (P_ID and Symp), hence the table is in 2NF. All attributes depend directly on the (P_ID and Symp), hence the table is in3NF.
All determinants (P_ID, Symp) are Candidate keys, hence the table is in BCNF.

Supplies:

Primary Key: (R_V_ID, H_ID)

All attributes have atomic domain, hence the table is in 1NF.

All attributes depend on the (R_V_ID, H_ID),hence the table is in 2NF.

All attributes depend directly on the (R_V_ID, H_ID),hence the table is in 3NF. All determinants (R_V_ID, H_ID) are Candidate keys, hence the table is in BCNF.

Works_in:

Primary Key: (D_ID, H_ID)

All attributes have atomic domain, hence the table is in 1NF.

All attributes depend on the D_ID and H_ID, hence the table is in 2NF. All attributes depend directly on the D_ID and H_ID, hence the table is in3NF.
All determinants (D_ID, H_ID) are Candidate keys, hence the tables is in BCNF.

CHAPTER 4

FINAL ANALYSIS AND DESIGN

4.1 Results

4.1.1 TABLE CREATION

Doctors:

```
Create table Doctors (Doctor_ID char(6) primary  key,

Name varchar(20),Gender char(1), Age number

);
```

Research Labs:

```
Create table       Research_labs (R_ID
char(6), Vaccine_ID  char(6)  primary
key, R_Name varchar(40)
);
```

Vaccine:

```
 Create   table   Vaccine   (Vaccine_ID   char(6)
referencesResearch_labs(Vaccine_ID),
Efficacy
number(4,2),
Vaccine_Name
varchar(20),
Affiliation
varchar(20)
);
```

Place:

```
Create table Place (City varchar(20) primary  key,
 state varchar(20)
);
```

Symptoms:

```
Create table Symptoms (Symptome_names varchar(30) primary Key, abundance
 number(4,2)
);
```

Health_Centre:

```
Create table Health_Centre (H_ID char(6) primary key,
Bed_Capacity number,
No_Staff number,
City varchar(20) references  Place(City)
);
```

People:

```
Create table People (Patient_ID char(6) primary key,
Gender char(1),
Age number,
H_ID  char(6)  references  Health_centre
(H_ID),Date_in date, Date_out  date,
Status char(1)
);
```

Suffers_From:

```
Create table Suffers_from (
 P_ID char(6)references People (Patient_ID),
 Symp varchar(30) references Symptoms(Symptome_names)
);
```

Supplies:

```
Create table supplies  (
 R_V_ID Char(6) references Research_Labs(Vaccine_ID),H_ID char(6) references
 Health_Centre(H_ID)
  );
```

Works_in:

```
Create table works_in (
 D_ID Char(6) references Doctors(Doctor_ID),
 H_ID char(6) references Health_Centre(H_ID)
 );
```

Quarantine_Centre:

```
Create-table
Quarantine_centre(
Capacity number,
Datee       date,
No_of_transfe
r number,
H_ID char(6) references Health_Centre(H_ID),
Primary key(H_ID,capacity)
);
```

4.2 TABLE DESCRIPTION

1.Research_Labs

RESEARCH_LABS

Columns | Data | Model | Constraints | Grants | Statistics | Triggers | Flashback | Dependencies | Details | Partitions | Indexes | SQL

Actions...

	COLUMN_NAME	DATA_TYPE	NULLABLE	DATA_DEFAULT	COLUMN_ID	COMMENTS
1	R_ID	CHAR(6 BYTE)	Yes	(null)	1	(null)
2	VACCINE_ID	CHAR(6 BYTE)	No	(null)	2	(null)
3	R_NAME	VARCHAR2(40 BYTE)	Yes	(null)	3	(null)

2.Vaccine

VACCINE

Columns | Data | Model | Constraints | Grants | Statistics | Triggers | Flashback | Dependencies | Details | Partitions | Indexes | SQL

Actions...

	COLUMN_NAME	DATA_TYPE	NULLABLE	DATA_DEFAULT	COLUMN_ID	COMMENTS
1	VACCINE_ID	CHAR(6 BYTE)	Yes	(null)	1	(null)
2	EFFICIACY	NUMBER(4,2)	Yes	(null)	2	(null)
3	VACCINE_NAME	VARCHAR2(20 BYTE)	Yes	(null)	3	(null)
4	AFFILIATION	VARCHAR2(20 BYTE)	Yes	(null)	4	(null)

3. Place

PLACE

Columns | Data | Model | Constraints | Grants | Statistics | Triggers | Flashback | Dependencies | Details | Partitions | Indexes | SQL

Actions...

	COLUMN_NAME	DATA_TYPE	NULLABLE	DATA_DEFAULT	COLUMN_ID	COMMENTS
1	CITY	VARCHAR2(20 BYTE)	No	(null)	1	(null)
2	STATE	VARCHAR2(20 BYTE)	Yes	(null)	2	(null)

4.Symptoms

SYMPTOMS

Columns | Data | Model | Constraints | Grants | Statistics | Triggers | Flashback | Dependencies | Details | Partitions | Indexes | SQL

Actions...

	COLUMN_NAME	DATA_TYPE	NULLABLE	DATA_DEFAULT	COLUMN_ID	COMMENTS
1	SYMPTOME_NAMES	VARCHAR2(30 BYTE)	No	(null)	1	(null)
2	ABUNDANCE	NUMBER(4,2)	Yes	(null)	2	(null)

5. Health_Centre

HEALTH_CENTRE

Columns | Data | Model | Constraints | Grants | Statistics | Triggers | Flashback | Dependencies | Details | Partitions | Indexes | SQL

Actions...

	COLUMN_NAME	DATA_TYPE	NULLABLE	DATA_DEFAULT	COLUMN_ID	COMMENTS
1	H_ID	CHAR(6 BYTE)	No	(null)	1	(null)
2	BED_CAPACITY	NUMBER	Yes	(null)	2	(null)
3	NO_STAFF	NUMBER	Yes	(null)	3	(null)
4	CITY	VARCHAR2(20 BYTE)	Yes	(null)	4	(null)

6.People

PEOPLE

Columns | Data | Model | Constraints | Grants | Statistics | Triggers | Flashback | Dependencies | Details | Partitions | Indexes | SQL

Actions...

	COLUMN_NAME	DATA_TYPE	NULLABLE	DATA_DEFAULT	COLUMN_ID	COMMENTS
1	PATIENT_ID	CHAR(6 BYTE)	No	(null)	1	(null)
2	GENDER	CHAR(1 BYTE)	Yes	(null)	2	(null)
3	AGE	NUMBER	Yes	(null)	3	(null)
4	H_ID	CHAR(6 BYTE)	Yes	(null)	4	(null)
5	DATE_IN	DATE	Yes	(null)	5	(null)
6	DATE_OUT	DATE	Yes	(null)	6	(null)
7	STATUS	CHAR(1 BYTE)	Yes	(null)	7	(null)

7.Suffers_From

SUFFERS_FROM

Columns | Data | Model | Constraints | Grants | Statistics | Triggers | Flashback | Dependencies | Details | Partitions | Indexes | SQL

Actions...

	COLUMN_NAME	DATA_TYPE	NULLABLE	DATA_DEFAULT	COLUMN_ID	COMMENTS
1	P_ID	CHAR(6 BYTE)	Yes	(null)	1	(null)
2	SYMP	VARCHAR2(30 BYTE)	Yes	(null)	2	(null)

8.Supplies

SUPPLIES

Columns | Data | Model | Constraints | Grants | Statistics | Triggers | Flashback | Dependencies | Details | Partitions | Indexes | SQL

Actions...

	COLUMN_NAME	DATA_TYPE	NULLABLE	DATA_DEFAULT	COLUMN_ID	COMMENTS
1	R_V_ID	CHAR(6 BYTE)	Yes	(null)	1	(null)
2	H_ID	CHAR(6 BYTE)	Yes	(null)	2	(null)

9.Works_In

WORKS_IN

Columns | Data | Model | Constraints | Grants | Statistics | Triggers | Flashback | Dependencies | Details | Partitions | Indexes | SQL

Actions...

	COLUMN_NAME	DATA_TYPE	NULLABLE	DATA_DEFAULT	COLUMN_ID	COMMENTS
1	D_ID	CHAR(6 BYTE)	Yes	(null)	1	(null)
2	H_ID	CHAR(6 BYTE)	Yes	(null)	2	(null)

10.Quarantine_Centre

QUARINTINE_CENTRE

Columns | Data | Model | Constraints | Grants | Statistics | Triggers | Flashback | Dependencies | Details | Partitions | Indexes | SQL

Actions...

	COLUMN_NAME	DATA_TYPE	NULLABLE	DATA_DEFAULT	COLUMN_ID	COMMENTS
1	CAPACITY	NUMBER	No	(null)	1	(null)
2	DATEE	DATE	Yes	(null)	2	(null)
3	NO_OF_TRANSFER	NUMBER	Yes	(null)	3	(null)
4	H_ID	CHAR(6 BYTE)	No	(null)	4	(null)

4.3 VALUES INSERTION

DOCTORS INSERTION

```
INSERT INTO Doctors VALUES('ANS001','ANSHUL BAGHEL','M',55);

INSERT INTO Doctors VALUES('SAP002','SAI PREETHAM','M',28);

INSERT INTO Doctors VALUES('CSR003','CHINNI REVANTH','M',39);

INSERT INTO Doctors VALUES('AYS004','AYUSH SINGHAL','M',35);

INSERT INTO Doctors VALUES('IAJ005','ISHAN JOSHI','M',25);
```

Place table insertion

```
INSERT INTO Place VALUES('WARANGAL','TELANGANA');
INSERT INTO Place VALUES('INDORE','MADHYA
PRADESH');INSERT INTO Place
VALUES('KHURJA','DELHI');
INSERT INTO Place VALUES('SRINAGAR','J AND K');

INSERT INTO Place VALUES('KOCHI','KERLA');
```

Health Centre Insertion

```
INSERT INTO Health_Centre VALUES('SRH101',500,250,'INDORE');

INSERT INTO Health_Centre VALUES('SEV111',100,50,'INDORE');

INSERT INTO Health_Centre VALUES('SWP104',2500,800,'PUNE');

INSERT INTO Health_Centre  VALUES('VTH124',500,75,'PUNE');

INSERT INTO Health_Centre  VALUES('SGF134',200,80,'PUNE');
```

People insertion

```
INSERT INTO People VALUES('MP1101','M',19,'SRH101','01-04-2020','21-04-2020','D');
INSERT INTO People VALUES('MP1102','F',65,'SRH101','08-04-2020','01-05-2020','N');
INSERT INTO People VALUES('MP1103','M',33,'SRH101','11-04-2020','21-04-2020','N');
```

Research_Lab Insertion

```
INSERT INTO Research_labs VALUES('PUNE01','COV301','The National Chemical Laboratory (NCL)');
INSERT INTO Research_labs VALUES('PUNE01','COV302','The National Chemical Laboratory (NCL)');
INSERT INTO Research_labs VALUES('PUNE01','COV303','The National Chemical Laboratory (NCL)');
INSERT INTO Research_labs VALUES('BNGL01','COV304','Bangalore Testing Laboratories');
INSERT INTO Research_labs VALUES('BNGL01','COV305','Bangalore Testing
```

VACCCINE INSERTION

```
INSERT INTO Vaccine VALUES('COV301',95.2,'Covaxin','UNIVERSITY OFOXFORD');
INSERT INTO Vaccine VALUES('COV302',99.8,'remdesivir','BIOBATNEWYORK');
INSERT INTO Vaccine VALUES('COV303',90.5,'regen-cov','NEUTRALIZE ANTIBODY');
INSERT INTO Vaccine VALUES('COV304',98.9,'Coronavac','SERUM INSTITUTE');
INSERT INTO Vaccine VALUES('COV305',93.7,'covisheld','RUSSIAN BIOTECHLTD');
```

SYMPTOMS INSERTION

```
INSERT INTO Symptoms VALUES('FEVER',97.45); INSERT
INTO Symptoms VALUES('DIARRHOEA',90.79);
INSERT INTO Symptoms VALUES('DIFFICULTY BREATHING',96.14); INSERT INTO
Symptoms VALUES('HEADACHE',98.74);
INSERT INTO Symptoms VALUES('DRY COUGH',95.33); INSERT
INTO Symptoms VALUES('LOSS OF TASTE',98.75); INSERT INTO
Symptoms VALUES('SORE THROAT',93.67);
```

Suffers_from INSERTION

INSERT INTO Suffers_from VALUES('MP1101','SORE THROAT');

INSERT INTO Suffers_from VALUES('MP1103','SORE THROAT');

INSERT INTO Suffers_from VALUES('MH1302','SORE THROAT');

INSERT INTO Suffers_from VALUES('MH1501','SORE THROAT');

INSERT INTO Suffers_from VALUES('JK1601','SORE THROAT');

SUPPLIES INSERTION

INSERT INTO supplies VALUES('COV301','JAK106');

INSERT INTO supplies VALUES('COV302','JAK106');

INSERT INTO supplies VALUES('COV303','JAK106');

INSERT INTO supplies VALUES('COV301','KHU111');

INSERT INTO supplies VALUES('COV302','KHU111');

WORKS_in INSERTION

NSERT INTO works_in VALUES('SAP002','NIT110');

INSERT INTO works_in VALUES('SAP002','WAR120');

INSERT INTO works_in VALUES('PRN014','NIT110');

INSERT INTO works_in VALUES('PRN014','WAR120');

INSERT INTO works_in VALUES('PRS020','NIT110');

QUARANTINE_centre INSERTION

INSERT INTO Quarantine_Centre VALUES (20,'30-04-2020',18,'SEV111'); INSERT INTO Quarantine_Centre VALUES (250,'25-04-2020',120,'SWP104'); INSERT INTO Quarantine_Centre VALUES (200,'10-05-2020',100,'SWP104'); INSERT INTO Quarantine_Centre VALUES (350,'08-04-2020',180,'SWP104'); INSERT INTO Quarantine_Centre VALUES (55,'11-04-2020',20,'VTH124');

4.4 Queries

1. select*from Vaccine

```
select * from Vaccine
```

Query Result

SQL | All Rows Fetched: 5 in 0.023 seconds

	VACCINE_ID	EFFICACY	VACCINE_NAME	AFFILIATION
1	COV301	95.2	Covaxin	UNIVERSITY OF OXFORD
2	COV302	99.8	remdesivir	BIOBAT NEWYORK
3	COV303	90.5	regen-cov	NEUTRALIZE ANTIBODY
4	COV304	98.9	Coronavac	SERUM INSTITUTE
5	COV305	93.7	covisheld	RUSSIAN BIOTECH LTD

2. select*from Research_Labs

```
select * from Research_labs
```

Query Result

SQL | All Rows Fetched: 5 in 0.012 seconds

	R_ID	VACCINE_ID	R_NAME
1	PUNE01	COV301	The National Chemical Laboratory (NCL)
2	PUNE01	COV302	The National Chemical Laboratory (NCL)
3	PUNE01	COV303	The National Chemical Laboratory (NCL)
4	BNGL01	COV304	Bangalore Testing Laboratories
5	BNGL01	COV305	Bangalore Testing Laboratories

3. select_from*Place

```
select * from Place
```

Query Result

SQL | All Rows Fetched: 7 in 0.01 seconds

	CITY	STATE
1	WARANGAL	TELANGANA
2	INDORE	MADHYA PRADESH
3	KHURJA	DELHI
4	SRINAGAR	J AND K
5	KOCHI	KERLA
6	GAUHATI	ASSAM
7	PUNE	MAHARASTRA

4.select_from*Symptoms

```
select * from Symptoms
```

Query Result | SQL | All Rows Fetched: 7 in 0.025 seconds

	SYMPTOME_NAMES	ABUNDANCE
1	FEVER	97.45
2	DIARRHOEA	90.79
3	DIFFICULTY BREATHING	96.14
4	HEADACHE	98.74
5	DRY COUGH	95.33
6	LOSS OF TASTE	98.75
7	SORE THROAT	93.67

5. What is the Death-Toll?

Select count(*) as death_toll from people where status = ‘D’;

SQL Worksheet | History

Worksheet | Query Builder

```
Select count(*)as death_toll from people where status = 'D';
```

Query Result | SQL | All Rows Fetched: 1 in 0.004 seconds

	DEATH_TOLL
1	6

6. How many Doctors above age 35 is serving?

Select count(*) from Doctors where age > 35;

SQL Worksheet | History

Worksheet | Query Builder

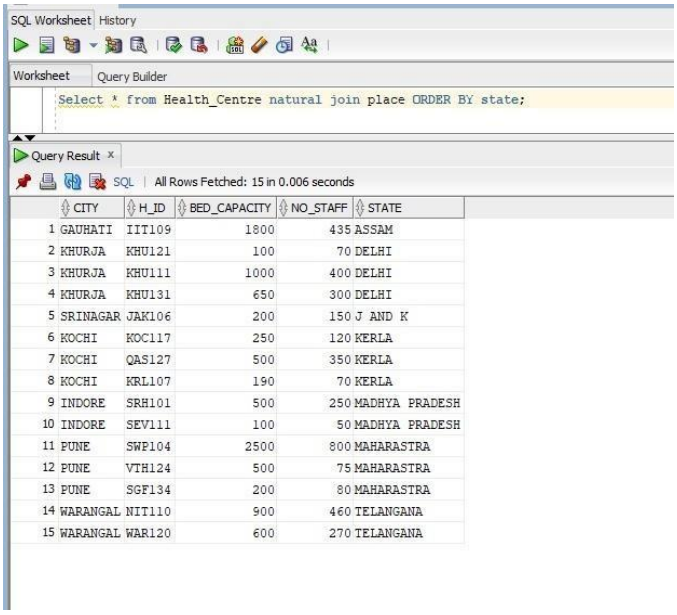
```
Select count(*) from Doctors where age > 35;
```

Query Result | SQL | All Rows Fetched: 1 in 0.009 seconds

	COUNT(*)
1	17

7. Show the details of Health Centres each state has.

Select * from Health_Centre natural join place order by state;



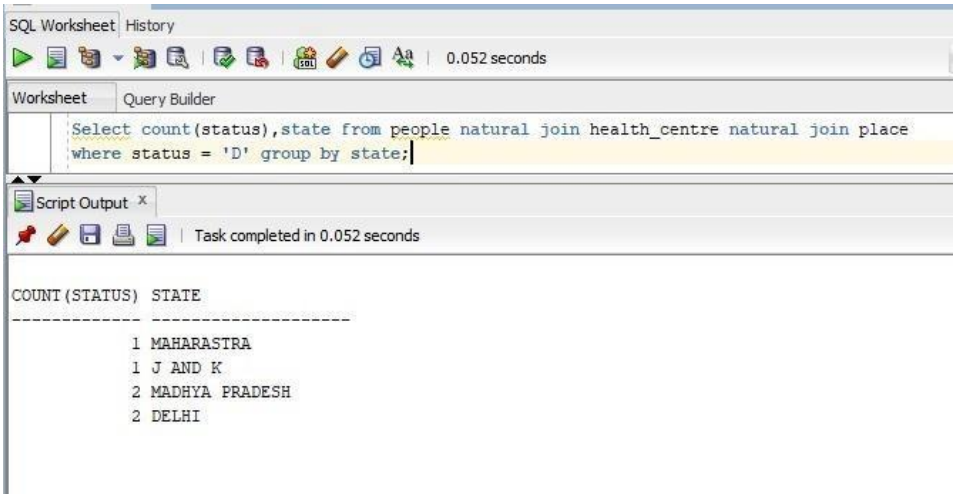
```
Select * from Health_Centre natural join place ORDER BY state;
```

Query Result — All Rows Fetched: 15 in 0.006 seconds

	CITY	H_ID	BED_CAPACITY	NO_STAFF	STATE
1	GAUHATI	IIT109	1800	435	ASSAM
2	KHURJA	KHU121	100	70	DELHI
3	KHURJA	KHU111	1000	400	DELHI
4	KHURJA	KHU131	650	300	DELHI
5	SRINAGAR	JAK106	200	150	J AND K
6	KOCHI	KOC117	250	120	KERLA
7	KOCHI	QAS127	500	350	KERLA
8	KOCHI	KRL107	190	70	KERLA
9	INDORE	SRH101	500	250	MADHYA PRADESH
10	INDORE	SEV111	100	50	MADHYA PRADESH
11	PUNE	SWP104	2500	800	MAHARASTRA
12	PUNE	VTH124	500	75	MAHARASTRA
13	PUNE	SGF134	200	80	MAHARASTRA
14	WARANGAL	NIT110	900	460	TELANGANA
15	WARANGAL	WAR120	600	270	TELANGANA

8.How many people has died in each state

Select count(status), state from people natural join health_centre natural place where status = ‘D’ group by state;



```
Select count(status),state from people natural join health_centre natural join place
where status = 'D' group by state;
```

Script Output — Task completed in 0.052 seconds

```
COUNT(STATUS) STATE
------------- --------------------
            1 MAHARASTRA
            1 J AND K
            2 MADHYA PRADESH
            2 DELHI
```

Conclusion

This project was to build an efficient database on Covid-19 management infrastructure and optimizing redundancy in the data to avoid anomalies and to understand how to utilize it in order to get necessary questions answered.

From working on this project as a team, we have gained a through and practical understanding of how DBMS works and how to build and optimize an efficient one through maintaining the functional dependency preservation