APPENDIX 1

ADVANCED MEDICAL DATABASE

A PROJECT REPORT

Submitted by

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in partial fulfillment for the award of the degree

of

BACHELOR OF TECHNOLOGY

IN

COMPUTER SCIENCE AND BUSINESS SYSTEMS

CHENNAI INSTITUTE OF TECHNOLOGY

ANNA UNIVERSITY : CHENNAI 600 025

DECEMBER 2022

APPENDIX 2

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BONAFIDE CERTIFICATE

Certified that this project report **"ADVANCED MEDICAL DATABASE"** is the bonafide work of **"JEFFREY FRANKLIN SAMUEL, AATIQ HUSSAIN, VIDHYA LAKSHMI D"** who carried out the project work under my supervision.

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ABSTRACT

Electronic health care data are increasingly being generated and linked across multiple systems, including electronic health records (EHRs), patient registries, and claims databases. In general, every system assigns its own identifier to each patient whose data it maintains. This makes it difficult to track patients across multiple systems and identify duplicate patients when different systems are linked. Efforts to address this challenge are complicated by the need to protect patient privacy and security. Patients with odd or rather absurd symptoms come to the hospitals, doctors in all their power do all they can to identify the disease or cause for the illness which doesn't always have a good ending. In a world such as today many new illnesses arise every day and new treatments are needed to solve these issues. Sometimes doctors don't find the best solution to a problem and administer the best possible medication, which doesn't always work. According to WHO there are approximately 2.6 million deaths yearly due to wrong treatments, medications prescriptions etc.

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CHAPTER - 1

1.0 INTRODUCTION

1.1 Problem Identified

Electronic health care data are increasingly being generated and linked across multiple systems, including electronic health records (EHRs), patient registries, and claims databases. In general, every system assigns its own identifier to each patient whose data it maintains. This makes it difficult to track patients across multiple systems and identify duplicate patients when different systems are linked. Efforts to address this challenge are complicated by the need to protect patient privacy and security. Patients with odd or rather absurd symptoms come to the hospitals, doctors in all their power do all they can to identify the disease or cause for the illness which doesn't always have a good ending. In a world such as today many new illnesses arise every day and new treatments are needed to solve these issues. Sometimes doctors don't find the best solution to a problem and administer the best possible medication, which doesn't always work. According to WHO there are approximately 2.6 million deaths yearly due to wrong treatments, medications prescriptions etc.

1.2 Proposed Solution

We've identified 1.3lack deaths in India due to road accidents. Most accidents end up on the door steps of families either far or nearby as a pot of bad news, but there are a few instances where neither body is identified nor the families come forward to claim the bodies. Let's be considerate to the fact that not all deaths on the roads leave them in one piece ,so it is difficult to identify a person by their appearance, sure if fingerprints are recovered the forensic department can identify the person, in case all of these were not available we could rely on the medical database as it would have the patient biological details including DNA, DNA samples can be run to compare and identify the person.

In other cases patients with odd or rather absurd symptoms come to the hospitals, doctors in all their power do all they can to identify the disease or cause for the

illness which doesn’t always have a good ending. In a world such as today many new illnesses arise every day and new treatments are needed to solve these issues. Sometimes doctors don’t find the best solution to a problem and administer the best possible medication,which doesn’t always work. According to WHO there are approximately 2.6 million deaths yearly due to wrong treatments ,medications prescriptions etc. Thus our medical data base would hold the information of each patient with similar symptoms and the treatments that were tried on them ,it would also be informative saying whether the treatment that was performed on earlier patients was fruitful or not and other alternative treatments the patient has gone through ,accounting for multiple patients with the same illness and which treatment proved most effective allowing the doctors in a critical moment or confused state identify the best possible solution to treat the patient or eliminate treatment ideas that are obvious that wouldn’t work.

1.2.1 360° degree value

- Our ideas make research in the field of medicine easier and faster thus acquiring the attention of doctors.
- Patients would feel safer with this system implemented as it would respect their privacy and also provide backbone to the health industry which directly and indirectly helps them.
- Investors gain an upper hand as it concerns all people and welfare thus making it important for all kinds of people .
- Government is benefited as it ensures a betterment of society and welfare creating a positive impact.
- To the people it is a better use of the tax money as it will be partly used to maintain these data bases or will be leashed to a private organization that will be monitored due to sensitive information.

1.2.2 Innovation

- Access to relevant data.
- A database common to the whole of Indian medical history.
- Maintain a reliable source for patient medical history and research data.
- Quick access to important or crucial data in urgent situations.
- A good clean database for reliable data, eliminating duplicates ,fake records and discredited information, which helps researchers work faster and more efficiently to gain faster results and results based on real world data without errors.
- Data uploaded will be accounted for by the doctor and the hospital through which it was done.

CHAPTER - 2

2.0 MAIN THEME OF THE PROJECT WORK

2.1 OBJECTIVES

- The Hospital management system software is user-friendly software.
- The main objective of the system is to collect most of the information about Hospitality and Medical Services. The system is very simple in design and to implement.
- To maintain a steady database across multiple regions .
- To establish relationships between patient data ,patient history, and different medical conditions.
- Make available all related data at hand .
- To speed up research processes.
- To organize large amounts of data for reference, and to maintain old data.
- EXTRAS 1.1.1. Helps identification of the deceased, when no family comes to claim the body. 1.1.2. Identification of suspects based on biological evidence found at the crime scene. 1.1.3. To recover lost patient data. 1.1.4. To keep track of methods of treatments,and identify new methods of treatments that haven't been done before , make sure appropriate credit is given.

2.2 CHALLENGES

- Collecting reports, design structuring of databases.
- High cost of software development, deployment and improvement.
- Difficulty in migrating from manual processes, because both staff and patients are used to the manual processes and so are unable to speedily cope with the new system.
- Lack of IT friendly medical personnel is also presenting several challenges.

● Huge influx of patients visiting government hospitals makes the process of migrating to automated processes highly difficult. They do not have the patience to wait for registration and data entry and often fail to understand the functioning of automated processes.
● Lack of digital access in rural hospitals.
● Lack of internet in rural areas.
● Lack of organized data to start with.

2.3 TECH STACK

➢ Front end - HTML, CSS, JS
➢ Back end - Django, Node JS, MongoDB, React Native
➢ Design Tool - Figma

CHAPTER - 3

3.0 CONCLUSION

How is our solution different/ unique from other solutions in the market?

● Most of the current solutions to these problems are either short term or based on individual hospitals .
● These databases are implemented in other countries but they do not involve complex relationships that could connect various patient data which could indirectly help with research and more effective treatment.
● Databases for medical uses are not maintained in India, not on a country wide scale and our database has features that makes it like no other connecting various patients like they are family but based on their disease and disorders and also other medical classifications Eg.blood group, rh+ and rh-,.

CHAPTER - 4

THE DATABASE:

The database was designed using MYSQL software, on a local host.

The database was implemented in the computer's memory and not in a isolated server, the database was built on a free version of mysql using queries which were supported, the sql database was purely built for showcasing the idea and potential of our idea and is not designed to its full potential, the website contains the most basic need currently, more sophisticated DB will be designed once we get our hands on proper medical data, reports and data formats etc.

DESIGN OF THE DATABASE:

The database contains of four basic tables

>REGISTER

>PATIENT

>HISTORY

>REPORT

Each table contains its unique columns which are required to store large amounts of data.

These are basic columns and are subjected to change i.e improvement.

Sample query to create a database :-

```
CREATE DATABASE [databse_name];
```

Sample query to create a table:-

```
CREATE TABLE [TABLE_NAME](
        column_name1 data_type[size] primary key,
        column_name2 data_type[size],
        column_name3 data_type[size],
        column_name4 data_type[size]
);
```

Each table has its own set of columns that define it.These columns are either unique to the table or common among a few.

>register

>id

>name

>bloodgroup

>patient

>id

>image

>identification

>patient_status

>history

>id

>disease

>allergies

>report

>disease

>treatmentmethod

>effect

>date

The purpose of this database is not just to store data but to dynamically retrieve it

sample query to store data:-

INSERT INTO TABLE VALUES (VALUE1,VALUE2,....);

To retrieve data we uses

sample query to retrieve data:-

SELECT *(OR)COLUMN_NAME FROM TABLE_NAME;

to get dynamic data we need to use relations to get the values, that is
For example, let us get the reports of patients that are still alive.

THE QUERY:

```
select * from reg join patient
        where patient.id=reg.id
        and patient.patient_status="active";
select * from report join patient
        where patient.id=report.id
        and patient.patient_status="active";
```

As we can see the above query has retrieved the patient data based on the fact that They are still living and it also gives the documentation on the treatments and the patient status. This would be really helpful for doctors to identify specific patients based on their specified need and look for different and better methods of medication in bizarre circumstances!

Note:

(this database uses slack data as we do not have legitimate data ,the columns and tables are at its basic level of detail and are subjected to change,this is just a showcase of how and where the db is useful)

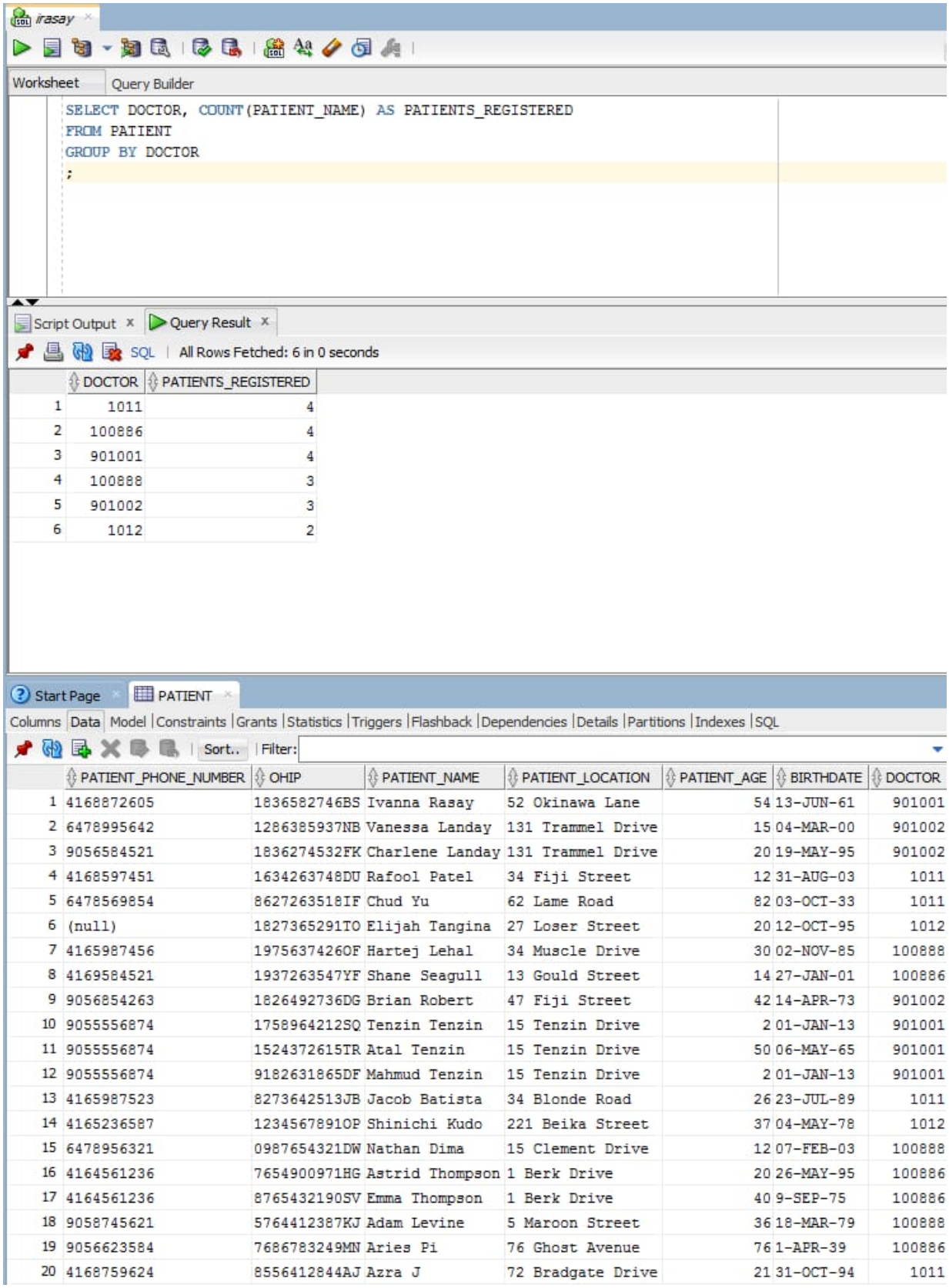
The database is currently unable to get image or text file inputs as the version does not support certain code.

image input data type:

```
IMG VARBINARY(MAX);
```

inserting the data:

```
INSERT INTO TABLE VALUES (SELECT * FROM
OPENROWSET(BULK N"//PATH_TO_THE_FILE//", AS T1);
```



```
SELECT DOCTOR, COUNT(PATIENT_NAME) AS PATIENTS_REGISTERED
FROM PATIENT
GROUP BY DOCTOR
;
```

Script Output | Query Result | SQL | All Rows Fetched: 6 in 0 seconds

	DOCTOR	PATIENTS_REGISTERED
1	1011	4
2	100886	4
3	901001	4
4	100888	3
5	901002	3
6	1012	2

Start Page | PATIENT | Columns | Data | Model | Constraints | Grants | Statistics | Triggers | Flashback | Dependencies | Details | Partitions | Indexes | SQL | Sort.. | Filter:

	PATIENT_PHONE_NUMBER	OHIP	PATIENT_NAME	PATIENT_LOCATION	PATIENT_AGE	BIRTHDATE	DOCTOR
1	4168872605	1836582746BS	Ivanna Rasay	52 Okinawa Lane	54	13-JUN-61	901001
2	6478995642	1286385937NB	Vanessa Landay	131 Trammel Drive	15	04-MAR-00	901002
3	9056584521	1836274532FK	Charlene Landay	131 Trammel Drive	20	19-MAY-95	901002
4	4168597451	1634263748DU	Rafool Patel	34 Fiji Street	12	31-AUG-03	1011
5	6478569854	8627263518IF	Chud Yu	62 Lame Road	82	03-OCT-33	1011
6	(null)	1827365291TO	Elijah Tangina	27 Loser Street	20	12-OCT-95	1012
7	4165987456	19756374260F	Hartej Lehal	34 Muscle Drive	30	02-NOV-85	100888
8	4169584521	1937263547YF	Shane Seagull	13 Gould Street	14	27-JAN-01	100886
9	9056854263	1826492736DG	Brian Robert	47 Fiji Street	42	14-APR-73	901002
10	9055556874	1758964212SQ	Tenzin Tenzin	15 Tenzin Drive	2	01-JAN-13	901001
11	9055556874	1524372615TR	Atal Tenzin	15 Tenzin Drive	50	06-MAY-65	901001
12	9055556874	9182631865DF	Mahmud Tenzin	15 Tenzin Drive	2	01-JAN-13	901001
13	4165987523	8273642513JB	Jacob Batista	34 Blonde Road	26	23-JUL-89	1011
14	4165236587	12345678910P	Shinichi Kudo	221 Beika Street	37	04-MAY-78	1012
15	6478956321	0987654321DW	Nathan Dima	15 Clement Drive	12	07-FEB-03	100888
16	4164561236	7654900971HG	Astrid Thompson	1 Berk Drive	20	26-MAY-95	100886
17	4164561236	8765432190SV	Emma Thompson	1 Berk Drive	40	9-SEP-75	100886
18	9058745621	5764412387KJ	Adam Levine	5 Maroon Street	36	18-MAR-79	100888
19	9056623584	7686783249MN	Aries Pi	76 Ghost Avenue	76	1-APR-39	100886
20	4168759624	8556412844AJ	Azra J	72 Bradgate Drive	21	31-OCT-94	1011

Fig 4.1

APPLICATIONS USED:

>MYSQL

>MYSQL_SERVER

>POP_SQL

>MYSQL_SHELL etc.

Flowchart:

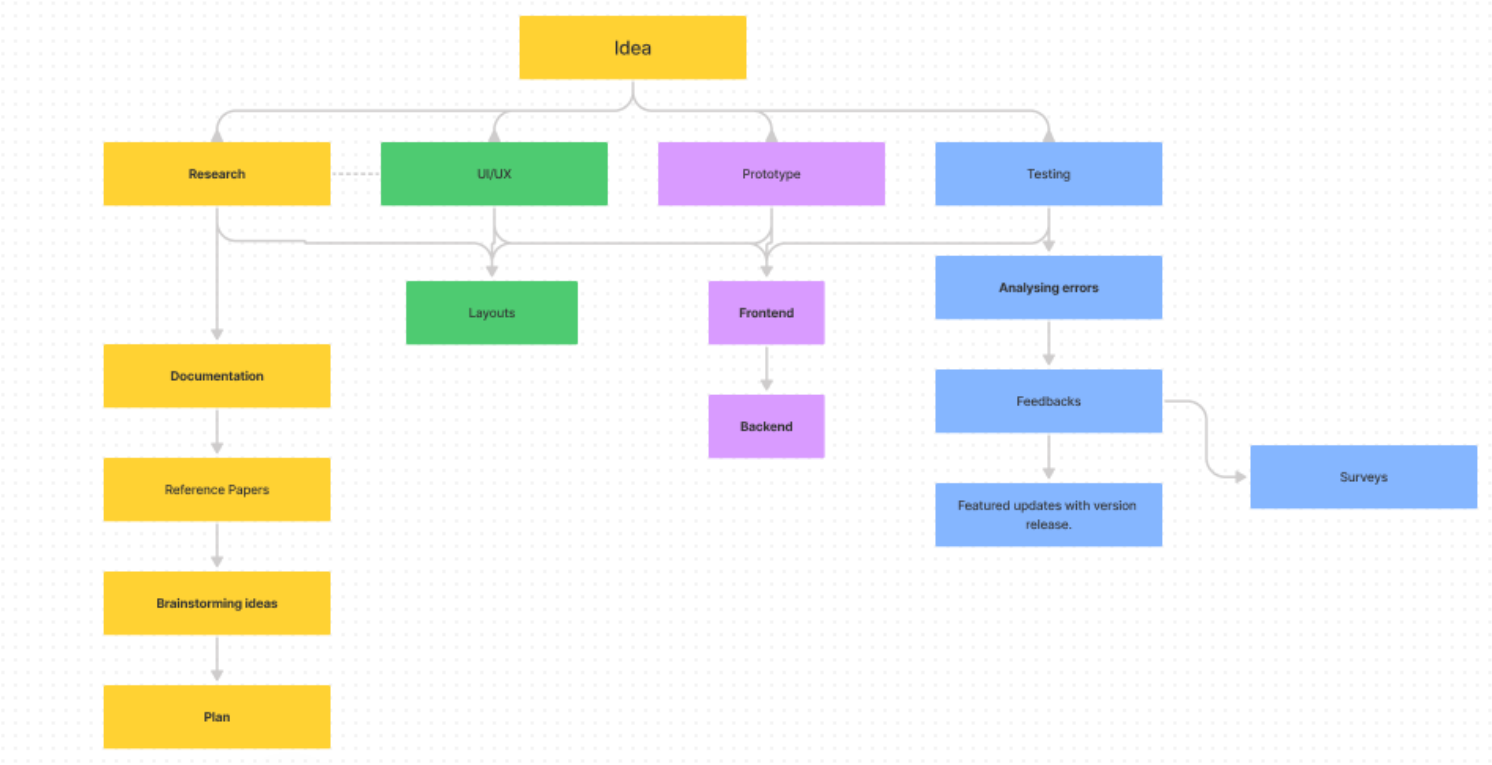


Fig 4.2

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REFERENCES

1. https://www.ncbi.nlm.nih.gov/books/NBK208618/

Key Points: Registries can take advantage of patient identity management solutions to link data from health information systems, regardless of whether a common patient identifier is present. Such linked data provide opportunities for quality improvement, research, and accreditation.

2. https://www.researchgate.net/publication/342171051_Hospital_Management_System_using_Web_Technology

Key Points: Since the Hospital Management System is essential for maintaining detail about the Doctor, Patient, Hospital staff etc,. It's understood that on the introduction of the Hospital Management Project into play, the work at the hospitals would be seamless and efficient. Transferring the patient data would take only seconds compared to the traditional way of sending the file manually. Usually boring and mundane accounts work will also be automated and simplified.

3. International Journal of Advanced Research in Computer and Communication Engineering Vol 5, Issue 4, April 2016

4. IOSR Journal of Dental and Medical Sciences (IOSR-JDMS) Vol 16, Issue 2 Ver III (Feb 2017)

5. Hospital Management System (A project by Assist.Lec.Sura Abed Sarab)